Assessment of Water Sanitation *and* Hygiene services in Primary Healthcare Centres in Kaduna State

NIGERIA HEALTH WATCH
Informed commentary, intelligence and insights on the Nigerian health sector

Assessment of Water, Sanitation and Hygiene services in Primary Healthcare Centres in Kaduna State

Report of the Assessment of Water, Sanitation and Hygiene services in Primary Healthcare Centres in Kaduna State

Published February 2022

Cover Design, Layout and Infographics by Kaleo Comms, 2022

Acknowledgments

Nigeria Health Watch acknowledges the support of the Kaduna State Ministry of Health, the State Primary Healthcare Development Agency (SPHCDA) and the Kaduna State Rural Water Supply and Sanitation Agency (KADRUWASSA) for their time in towards the successful implementation of this assessment and validation for the study findings.

We also appreciate DRASA Health Trust for their time and technical expertise in designing the infection, prevention, and control (IPC) assessment tool for this study. In addition, we are grateful for the technical input of Dr. Kelly Elimian in developing this document.

We appreciate the World Health Organisation and the National Primary Healthcare Development Agency (NPHCDA) whose guidelines we used in designing assessment questionnaires.

Finally, we appreciate the communities and health facilities where this assessment was conducted for their kind cooperation.

List of Abbreviations

DRASA - DR. Ameyo Stella Adadevoh

HIV – Human

Immunodeficiency Virus

IPC – Infection Prevention and Control

LMIC - Low and Middle-Income Countries

NDHS - Nigeria National Demographic Survey

NPHCDA – National Primary Healthcare Development Agency

ODF - Open Defecation Free

PHC – Primary Healthcare Centre

PMS - Patent Medicine Sellers

RUWASSA - Rural Water Supply and Sanitation Agency

SDG – Sustainable Development Goal

UHC - Universal Health Coverage

UN – United Nations

UNICEF - United Nations Children's Fund

WASH – Water Sanitation and Hygiene

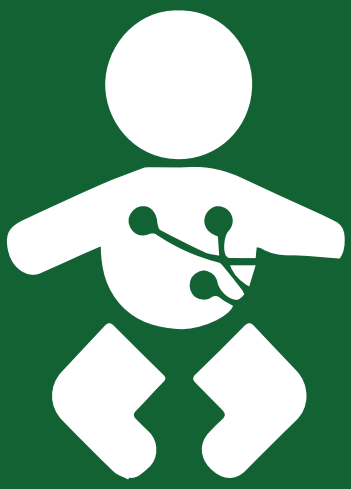
WHO – World Health Organization

Table of Contents

1.0 Executive Summary

MORE THAN

10 -15%



of maternal deaths are attributable to infections directly linked to unhygienic conditions during labor and birth as well as postnatal period

30%

» reduction in healthcare-associated infections due to effective IPC programs

The Sustainable Development Goal 6 (SDGs) places emphasis on ensuring the availability and sustainable management of Water Sanitation and Hygiene (WASH) for all. This calls for greater attention to the availability and readiness of WASH services beyond the household. Additionally, SDG 3 aims to 'ensure healthy lives and promote well-being' for all ages and includes reducing the burden of preventable and curable diseases from unsafe water, poor sanitation, and inadequate of hygiene. Health facilities, especially in rural areas, face a significant challenge of inadequate, equitable, and gender-sensitive WASH services. Women and children are the most affected by inadequate WASH services in health facilities. In developing countries such as Nigeria, an estimated 10–15% of maternal deaths are attributable to infections directly linked to unhygienic conditions during labor and birth as well as postnatal period (PMNCH, 2021). Moreover, implementation of Infection Prevention and Control (IPC), a critical component of protection from infectious diseases for both health workers and patients, is often suboptimal, particularly in primary healthcare centres (PHCs). Effective IPC programs lead to more than a 30% reduction in healthcare-associated infections (WHO, 2016).

In recognition of the importance of WASH services, the Kaduna State Government in July 2020 declared a state of emergency on the WASH sector with a view to attaining the SDGs 3 and 6. Kaduna State Government budgeted N2.8bn for WASH interventions in 2021 under its Rural Water Supply and Sanitation Agency (RUWASSA). The intervention aims to prioritize the availability of water, toilets, and other basic sanitation facilities to patients and health-workers at all primary healthcare centres across the State.

WATER

0%
» has pipe-borne water from the state government as their main water source

84%
» of PHCs use boreholes as their main water source.

50%
» of the facilities assessed rely on water from sources that are considerably far from the facility

8%
» have to pay to get water to the facilities.

33%
» of respondents say patients have to buy their own water

HEALTH FACILITY HYGIENE

45%
» indicated that they have the recommended four toilets per health facility

31%
» have only two toilets per facility

40%
» of facilities assessed had no water supply to the toilets

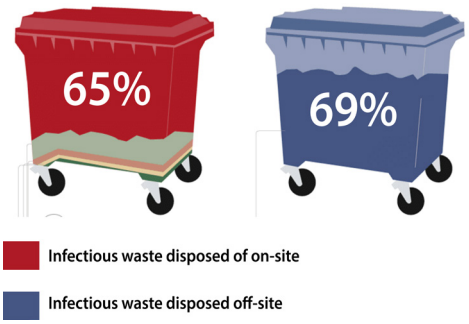
46%
» of the PHCs do not have a dedicated cleaner at the facility,

To this end, Nigeria Health Watch, in collaboration with the Kaduna State Government, conducted a cross-sectional assessment of primary healthcare centres in Kaduna State to assess the availability and functionality of WASH services and IPC. The assessment also proffers actionable recommendations to the State Government towards achieving SDG 6 and 3. The assessment utilized a mixed methodology involving both quantitative and qualitative components. A total of 39 PHCs were assessed across the three senatorial zones in Kaduna State. The PHCs were assessed across three core WASH areas: water, sanitation, and hygiene.

Results show that none of the PHCs assessed has pipe-borne water from the state government as their main water source, while 84% of PHCs use boreholes as their main water source. Half of the facilities assessed rely on water from sources that are considerably far from the facility. In comparison, out of 39 facilities, 3 representing 8% have to pay to get water to the facilities. In these three facilities, 33% of respondents say patients have to buy their own water.

Regarding health facility hygiene, 44.8% of the 39 PHCs indicated that they have the recommended four toilets per health facility while 31% have only two toilets per facility. In almost 40% of facilities assessed, there was no water supply to the toilets, a potential driver of infectious disease transmission in health facilities. Additionally, 46.1% of the PHCs do not have a dedicated cleaner at the facility, suggesting that routine cleaning is either non-existent or not adequate.

Regarding sanitation, most of the facilities confirmed the availability of standard operating procedures or protocols for waste management and disposal. However, almost



65% of assessed facilities indicated that their infectious wastes are disposed of on-site, while close to 69% dispose of their sharp wastes off-site. About 89% of facilities have floors and environments free from visible dirt and clear of solid and liquid waste.

For IPC status, 84% of PHCs have IPC protocols and majority (28) representing 73.7% of PHCs indicated that they have an IPC focal person. 11 representing 24% of facilities said they receive IPC training once in two months.

Findings from the qualitative component are in line with those from the quantitative component. Generally, three themes were identified following the thematic analysis of transcripts from 16 focus group discussions with both health professionals and community members, and another eight interviews with health facility managers. The identified themes were around community health-seeking pathways (perceived prevalence of common diseases and preferred line of care), the facilitators and barriers to the implementation of WASH services in PHCs, and perceived capacity and needs of the assessed PHCs. This assessment has provided context-specific evidence to help map out evidence-based recommendations to improve WASH services in PHCs in Kaduna State. The key recommendations focus on

(1) the need to improve the quality and availability of WASH services in PHCs through adequate investments by State and partner agencies;

(2) Strengthening standards and accountability mechanisms through the review of existing policies and guidelines

(3) improving the infrastructure and maintenance needed for WASH service delivery in PHCs by harnessing resources at

89%
of facilities have floors and environments free from visible dirt and clear of solid and liquid waste.

IPC STATUS

84%
of PHCs have IPC protocols

74%
of PHCs indicated that they have an IPC focal person

24%
of facilities said they receive IPC training once in two months.

46%
of the PHCs do not have a dedicated cleaner at the facility,

both state and local levels; and

(4) improving capacity of the health workforce to carry out WASH services.

To achieve a strong primary healthcare system and its attendant benefits, functional PHCs are imperative. This will largely depend on safe, quality, accessible and gender-friendly water, sanitation, and hygiene systems, and ultimately achieving SDGs 3 and 6.

Introduction

» *Over 80% of an individual's healthcare needs could be met at the primary healthcare level; however, WASH services are required for Primary Healthcare Centres (PHCs) to be able to provide these healthcare needs.*

Water, Sanitation and Hygiene (WASH) is a critical need for humans. However, millions of people across the world lack access to adequate and quality WASH services and facilities. The United Nations in 2010 declared access to water and sanitation as basic human rights (International Decade, 2015), echoing their importance to humans. Likewise, WASH services are a critical resource to the healthcare sector, which was declared a human right by the Alma Ata declaration of 1978 (WHO, 2021a). For healthcare, it is a fact the most critical step is access to quality primary healthcare services. According to the World Health Organisation (WHO, 2021b), over 80% of an individual's healthcare needs (WHO, 2021b) could be met at the primary healthcare level; however, WASH services are required for Primary Healthcare Centres (PHCs) to be able to provide these healthcare needs.

WASH services are required for many activities in a PHC ranging from conducting deliveries to keeping the health facilities clean and hygienic, maintaining toilet facilities, preventing accidents and injuries, to making portable water available for drinking and bathing. Moreover, uninterrupted access to safe, quality and equitable WASH services is fundamental to preventing and controlling infections in health care facilities and ensuring the delivery of quality healthcare services—a requirement for achieving universal health coverage. Thus, suboptimal access to water and sanitation services in healthcare facilities in Nigeria poses a threat to quality healthcare delivery, especially at the primary health care level where most of the population in rural communities' access health care services.

» *In developing countries, such as Nigeria, an estimated* **10–15%** *of maternal deaths are attributable to infections that can be directly linked to unhygienic conditions during labor and child delivery, as well as the postnatal period.*

Women and children tend to bear a greater burden of inadequate WASH services in health facilities. For example, in developing countries, such as Nigeria, an estimated 10–15% of maternal deaths are attributable to infections that can be directly linked to unhygienic conditions during labor and child delivery, as well as the postnatal period (PMNCH, 2021). Consumption of unsafe water can pose maternal health risks; likewise, a PHC with an unhygienic environment (e.g., stagnant water) can facilitate the breeding of mosquitoes, thereby posing high risks of malaria infection to pregnant women. For any health worker delivering a baby at a health facility, access to clean and safe water is also a necessity. The use of contaminated instruments or unclean hands during deliveries can spread infections to the mother and her newborn.

Infection Prevention and Control (IPC), a critical component of protection from infectious diseases for both health workers and patients, will not be optimal without access to proper WASH services. When these WASH services are poor or absent, patients and health workers are at risk of contracting hospital-borne infections (nosocomial infection), a recurrent challenge in the health sector. These infections not only delay the recovery of patients and increase the risk of complications, but they can also incapacitate equally vulnerable health workers. According to the WHO, effective IPC implementation contributes to over a 30% reduction in nosocomial infections (WHO, 2016).

Nigeria Health Watch in collaboration with the Kaduna State Service conducted this survey to assess the availability and functionality of WASH services and IPC processes in selected PHCs in Kaduna State. The aim of this survey is to provide an evidence-based overview of the state of WASH

services in PHCs in Kaduna State. Importantly, the survey proffers actionable recommendations to the Kaduna State Government towards achieving SDGs 3 and 6. This report presents the findings from the survey which include both qualitative and quantitative findings after a detailed literature review section. The report also includes the data collection method. The conclusion and recommendations for what can be done differently are also well indicated after the findings (Nigeria Health Watch, 2021).

According to United Nations Children Fund, WASH is the collective term for Water, Sanitation, and Hygiene because of the interdependent nature of the three core issues. Each is dependent on the presence of the other (UNICEF, 2021a; WHO, 2021c). Sustainable Development Goal (SDG) 6 aims to ensure the availability and sustainable management of WASH for all by 2030. This calls for greater attention to WASH services beyond the household. In addition, SDG 3 aims to ensure healthy lives, promote well-being for all ages, and include a specific target (3.9) on reducing the burden of disease from unsafe water, unsafe sanitation, and lack of hygiene. Overall, these SDGs are interrelated and mutually reinforcing.

» *According to the WHO, effective IPC implementation contributes to over a **30%** reduction in nosocomial infections (WHO, 2016).*

Literature Review

Globally, two and a half billion people lack access to basic sanitation, while over one billion people practice open defecation and 768 million lack access to improved sources of drinking water(WHO, 2021b). Among the 6 targets under SDG 6, targets 1 and 2 are focused on the achievement of universal and equitable access to safe and affordable drinking water for all as well as the provision of access to adequate and equitable sanitation and hygiene. Globally, the inability to practice best WASH practices has been associated with 6.6% of the global burden of disease, disability, and 2.4 million deaths annually (Nigure et al., 2014). Lack of access to WASH is a major contributing factor to various deadly infectious diseases, such as cholera and diarrhoea.

Diarrhoea is caused mainly by ingestion of pathogens in unsafe drinking water or contaminated foods, and repeated diarrhoea can lead to underweight or malnutrition (WHO, 2021; WHO 2011) . In 2013, WHO conducted a study to assess the burden of diarrhoeal diseases from inadequate WASH, as well as to re-assess the effectiveness of WASH interventions in low- and middle-income countries (Prüss-Ustün et al., 2017). The report suggests that the expansion in WASH service has benefited hundreds of millions and has significantly reduced diarrhoea in low and middle-income countries(Nigure et al., 2014).

About 19% of the world's population washes hands with soap after contact with excreta, a proportion estimated to range between 13% and 17% in LMIC regions, and from 43% to 49% in high-income regions; effective and consistent application of household water treatment

and safe storage can reduce diarrhoeal diseases by between 28% and 45%, depending on the type of water supply. It is estimated that hygiene and sanitation interventions implemented with 99% coverage would reduce the incidence of diarrhoea by 30%, which would, in turn, reduce the prevalence of Stunting among children (WHO, 2011; WHO, 2021e).

Data from the 2018 Nigeria Demographic Health Survey (NDHS) showed that even though progress has been made over the years, many Nigerians still live without basic drinking water, sanitation and hygiene facilities (Prüss-Ustün et al., 2017)[10]

The majority of the low income population (70%) (Sridhar M, et al., 2020) One of the best practices for quality healthcare outcomes at PHCs is frequent handwashing. Inability to adhere to WASH protocols and guidelines can contribute to increased morbidity and mortality in communities (RUWASSA, 2021). Health facilities especially in rural areas face the challenge of inadequate, equitable, and gender-sensitive WASH services. A 2019 joint WHO/UNICEF report showed that Nigeria is among the countries where more than 20% of health care facilities lacked water or sanitation services as of 2016 (WHO, 2021). WHO and the UNICEF in 2015 assessed WASH status in 66,101 healthcare facilities in 54 low-and-middle-income countries (LMIC), and found that 38% of the assessed facilities lacked access to water, 19% had no improved sanitation and 35% had no soap and water facilities (NPHCDA, 2015; UNICEF, 2021d).

Health facilities, especially in rural areas, face the challenge of inadequate, equitable, and gender-sensitive WASH services (Water Aid, 2018; WHO, 2021;

consistent application of household water treatment and safe storage can reduce diarrhoeal diseases by between **28% and 45%,** depending on the type of water supply

It is estimated that hygiene and sanitation interventions implemented with **99%** coverage would reduce the incidence of diarrhoea by **30%**

majority of the low income population

70%

seek health care services at the primary health care level

WASH status in **66,101** health care facilities in **54** low-and middle-income countries (LMICs)

38% **lacked access to water**

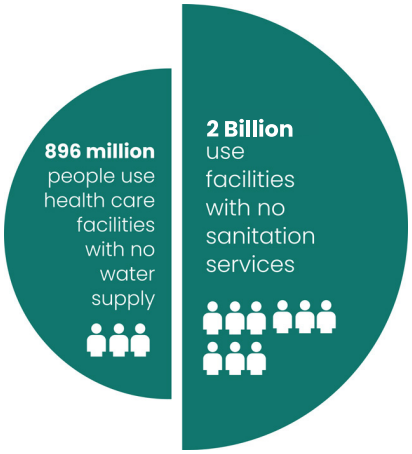
19% **had no improved sanitation**

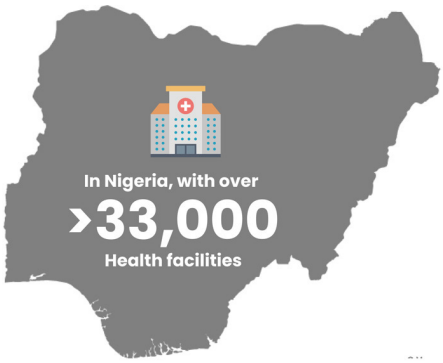
35% **had no soap and water facilities**

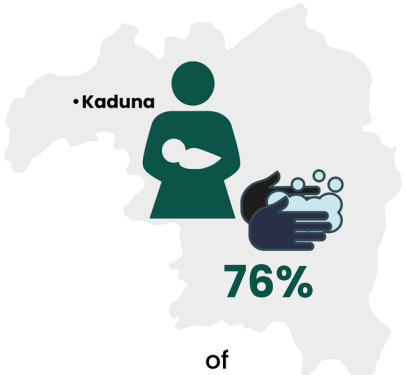
WHO, 2021). A 2019 joint WHO/UNICEF report showed that worldwide, 896 million people use health care facilities with no water supply and 1.5 billion use facilities with no sanitation services, with Nigeria among the countries where more than 20% of health care facilities had no water or sanitation services as at 2016 (UNICEF, 2020b).

Universal Health Coverage (UHC) hinges on the principle of availability, accessibility, acceptability, and affordability of quality healthcare services. Achieving sustainable WASH services is important to UHC and quality health outcomes, including infection prevention and control, which in turn contributes to SDG 3. However, it is pertinent to note that WASH and health services are intrinsically related, and even though progress has been made to improve UHC over the years, a considerable number of Nigeria's health facilities still lack basic drinking water, sanitation and hygiene facilities. WASH facilities are intended to improve the health of patients, staff, caregivers as well as community members (NPHCDA, 2015).

In Nigeria, with over 33,000 facilities, half of the healthcare facilities lack clean water, 88% are without basic sanitation and 57% lack handwashing facilities with soap (NPHCDA, 2015). In a hospital-based study, Ezegwui et al investigated patients' satisfaction with healthcare facilities in Nigeria and found that 71.7% of the study participants were not satisfied with the toilet facilities (WaterAid, 2018a). Another review suggests that improving WASH conditions decreases patient dissatisfaction in healthcare services, which may increase care-seeking behaviour and improve health outcomes (UNICEF, 2020c).







of mothers always washed their hands with soap after cleaning infants' perineum

In July 2020, the Kaduna State Government (KSG) declared a state of emergency on the WASH sector to enable the state to attain SDGs 3 and 6 as well as maximise UHC benefits (UNICEF, 2020b); and accordingly budgeted N2.8bn for WASH interventions in 2021 under its Rural Water Supply and Sanitation Agency (RUWASSA) (Bishara D, et al., 2020).

A survey carried out to determine the determinants of diarrheal disease among infants in Kaduna North Local Government Area found that about 76.3% of mothers always washed their hands with soap after cleaning infants' perineum (Cronk & Bartram, 2018). In another study done to assess the level of knowledge, behavior, and practices towards Water, Sanitation, and Hygiene in Kaduna state, Nigeria, with a view to ensuring sustainable WASH facilities intervention in the region, the major drinking water sources were surface waters (52.5%) and unprotected hand-dug wells (44.8%); only 46.2% treated their water supply and few (16.6%) used chlorination method. Furthermore, the study found that pit latrine toilets were the primary (76.5%) excreta disposal means, and open defecation practices were widespread (41.4%) across the area. However, the level of personal and environmental hygiene understanding was fairly good in the area, and 65.4% claimed to use water and soap for washing hands after defecation (Sridhar et al., 2017).

Kaduna State RUWASSA has been sinking boreholes, taking measures to combat open defecation and to improve the health and well-being of rural residents. One of the steps includes the construction of 268 gender Sensitive latrines in Rural Primary School (RUWASSA, 2021). A lot of support has been from UNICEF

MAJOR DRINKING WATER SOURCES AND TREATMENT

53%
Surface Water

45%
Hand-dug wells

46%
treated their water supply

17%
used chlorination method

Pit latrine toilets
77%

Open defecation
41%

Use of water and soap
65%

and this collaboration has led to Giwa and Kaura Local Government Areas being certified Open Defecation Free (ODF). The collaboration targeted additional three local governments in the second quarter of 2021. RUWASSA has so far provided water supply and sanitation facilities at 55 PHCs across the state (RUWASSA, 2021). The USAID has also supported the KSG to improve the health and hygiene of its populations (RUWASSA ,2021) .

In August 2020, an international non-governmental organisation, WaterAid, launched a Scaling-up Hygiene Project, targeting 5,000 households in Kaduna state. This was done to mitigate community transmission of COVID-19 and to address other waterborne diseases in the state. The project was implemented with the collaboration of Aid Foundation and Kaduna State RUWASSA to promote good hygiene practices in 14 vulnerable local government areas in the state (WaterAid, 2018c).

Although health facilities in rural areas are more disadvantaged in access to WASH services than their counterparts in urban areas, the challenge cuts across several economic settings. Good health and access to quality health care services cannot be realised without proper WASH services in health facilities. Access to safe water is important to health outcomes and healthcare delivery. According to the Technical Guide for WASH services in PHCs by the National Primary Health Care Development Agency, the adequacy and quality of WASH facilities are medical requirements essential for effective and efficient treatment in the PHCs. These WASH facilities are needed for cleaning of wards, linen, medical equipment, toilets, food preparation, cleaning of patients, delivery and other maternity services, hand

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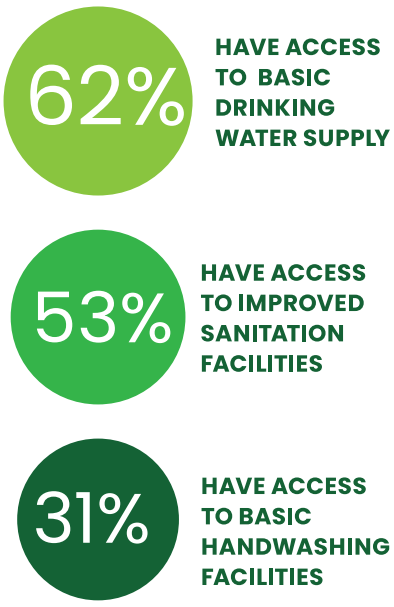
washing of personnel, patients and visitors, re-hydration, surgical processes, proper disposal of excreta, proper disposal of healthcare/medical waste and other solid and liquid wastes, as well as cleanliness of environment among others. The NPHCDA Minimum WASH standard for PHCs estimates that an average of 2,000 litres of water is needed daily to serve staff, in-patient and outpatients, and caregivers. In addition, about 13 latrines/ toilets (6 for males, 7 for females) are needed in every PHC to serve staff, caregivers, and patients. Yet many PHCs in Nigeria lack access to any of these facilities. Furthermore, WASH is critical to health workers' compliance with IPC requirements in health facilities. Lack of sanitation facilities also puts health workers at added risk of contracting infections from unwell patients.

When clean water, decent toilets and good hygiene services are available, the ripple effects cannot be underestimated. The unavailability of clean, safe water poses a threat to infectious disease transmission for healthcare workers and their patients. Water, toilets, and other basic sanitation facilities are the basic amenities that should be available at all standard PHCs

Patients and health workers should have access to these basic facilities whenever they present to any PHC. Findings from the 2018 NDHS show that even though progress may have been made over the years, a considerable number of Nigeria's population still live without basic drinking water, sanitation and hygiene facilities. Over half (62%) of Nigeria's population has access to basic drinking water services, just about half (i.e. 53%) have access to improved sanitation facilities, and less than half (31.4%) have access to basic handwashing facilities. Twenty-three per cent of the country's population engage in open defecation due to limited access to decent toilet facilities.

» *When clean water, decent toilets and good hygiene services are available, the ripple effects cannot be underestimated. The unavailability of clean, safe water poses a threat to infectious disease transmission for healthcare workers and their patients*



To this end, the Nigeria Health Watch, in collaboration with the Kaduna State Service, conducted this survey to assess the availability and functionality of WASH services and IPC processes in selected PHCs in Kaduna State. Importantly, the survey proffers actionable recommendations to the Kaduna State Government towards achieving SDGs 3 and 6.

Methodology

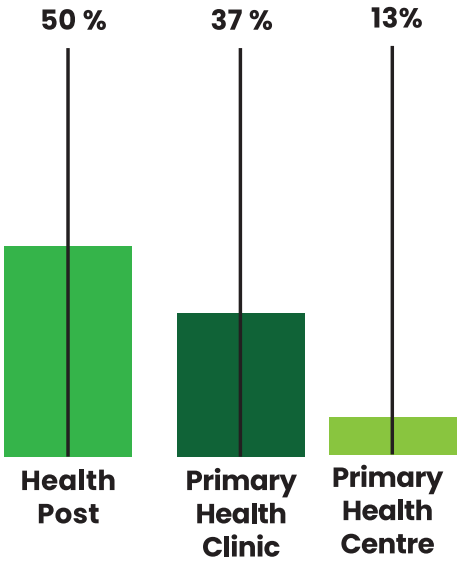
Type of Health Facility

Health Posts are either community centres or health environments with a very limited number of beds with limited curative and preventive care resources normally assisted by health workers or nurses (WHO, 2021). They cover a service delivery area like settlements, neighborhoods and/or village level with an estimated coverage population of 500 people.

Primary Health Clinics also cover a service delivery area of groups of settlements/neighborhoods, villages or communities with an estimated coverage population of about 2,000 to 5,000 people.

Primary Health Centres are the largest in terms of service delivery areas and population coverage. They cover a political ward with an estimated coverage population of about 10,000 to 20,000.

» Type of Health Facilities



Quantitative Research

In all the selected PHCs, a structured questionnaire was administered to the health facility in-charge or the highest-ranked staff. The questions were drawn from the Primary Healthcare Assessment Form of the United States Centre for Disease Control and Prevention; it aims to ascertain the level of conformity of the PHCs to the optimal standards of water, sanitation and hygiene, as encapsulated in the Technical Guide for Water, Sanitation and Hygiene (WASH) in PHC Centres in Nigeria. One of the critical areas assessed was IPC. The survey questions were jointly adapted by Nigeria Health Watch and Dr. Ameyo Stella Adadevoh (DRASA Health Trust, with insights from WHO guidelines on IPC.

Qualitative Research

The qualitative component of the assessment involved in-depth interviews and focus group discussions with key stakeholders from the communities where the selected PHCs are located and with health workers at the facilities. These stakeholders included community leaders, male youth leaders, female community members, facility managers and staff. The interview guide contained open-ended questions to facilitate in-depth exploration of issues such as common diseases in the community that prompt health-seeking and perceptions regarding WASH status in the selected health facilities.

Data Collection approach

Data enumerators with minimum basic research knowledge were recruited and trained on the research tools before deployment. The training involved one-on-one coaching, simulation, and pre-testing of the questionnaire and interview guides. The data enumerators were divided and assigned to each of the senatorial zones.

Results

The quantitative questionnaire was an Open Data Kit adapted from the Centers for Disease Control and Prevention to assess the water, sanitation, and hygiene services (WASH) in Primary Health Care (PHC) facilities. The tool was administered in 39 PHCs. Respondents were health facility in charge and in facilities where the in-charge was absent, the most senior ranked health worker in the facility responded to the questions. The results were analysed to determine the availability and functionality of gender-sensitive and people-friendly WASH services in the assessed PHCs in Kaduna State.

QUANTITATIVE ANALYSIS

According to NPCDHA, the goal of the PHC is not just to provide Healthcare, but also to ensure the promotion of personal and community hygiene, advising and training community on potable water and protection of water source, pest control services and training on safe excreta disposal, advice and training on safe refuse disposal. It is important that PHCs are well equipped and monitored as they are used by health workers in local settings to disseminate information about healthy living, Hygiene and sanitation to the people.

» Main Water Source

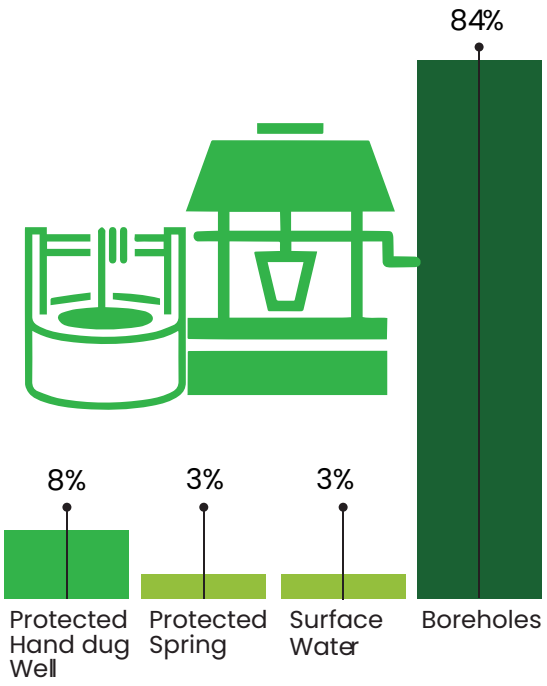
84% USE BOREHOLES

8% USE PROTECTED HAND DUG WELL

3% USE PROTECTED SPRING

3% USE SURFACE WATER

3% DO NIOT KNOW



AVAILABLE WITHIN MORE THAN 500M AWAY FROM THE FACILITY

AVAILABLE WITHIN 500M OF THE FACILITY

92%

HAVE WATER WITHIN FACILITY GROUND OR LESS THAN 500M OF THE FACILITY.

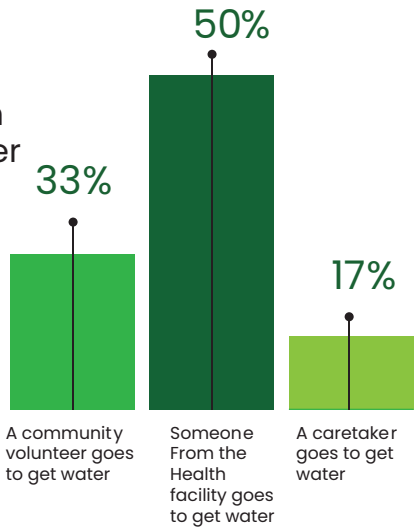
HAVE WATER WITHIN MORE THAN 500 M OF THE FACILITY GROUND .

HOW IS WATER BROUGHT ON SITE ?

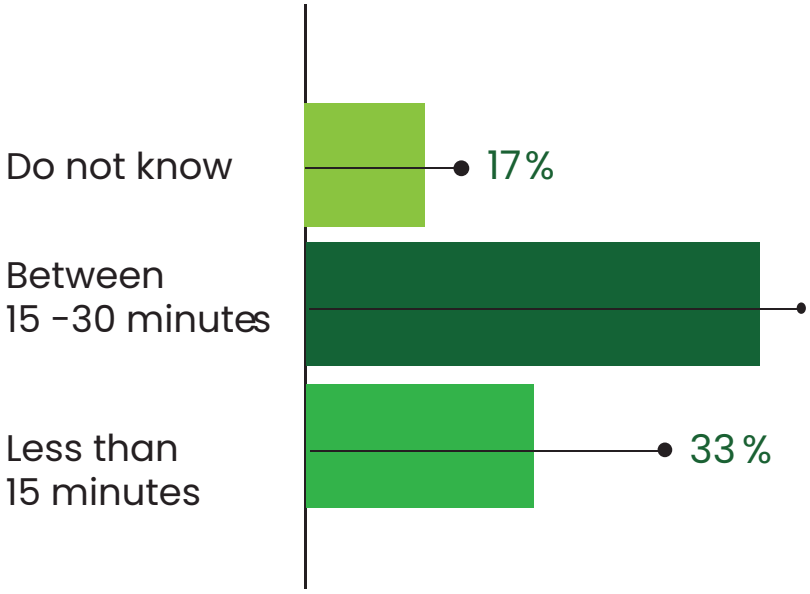
50% Someone from the health facility goes and get water

33% A community volunteer goes to get water

17% A community volunteer goes to get water



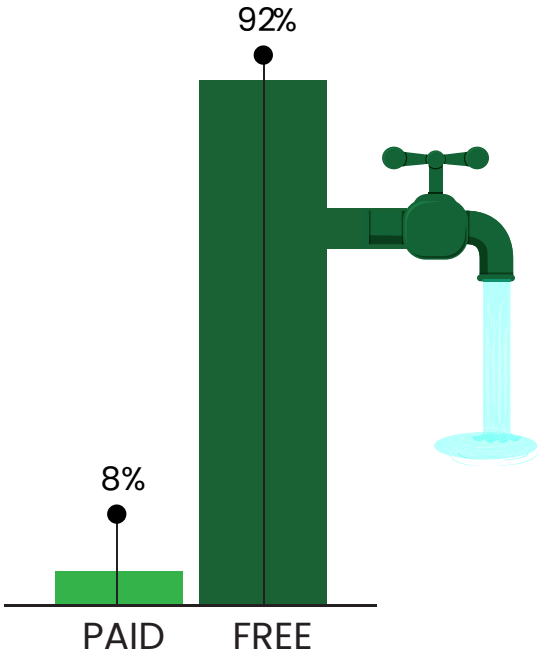
» HOW LONG DOES IT TAKE TO GET WATER ON SITE ?



» IS WATER FROM THE SOURCE PAID OR FREE ?

92% Get water from the main source

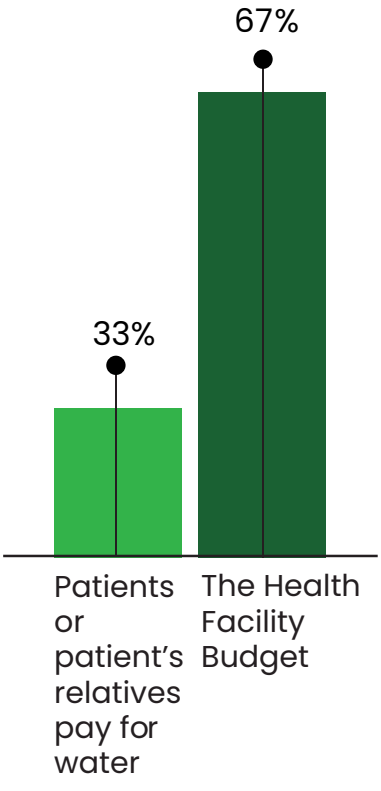
8% Pay to get water from the main source



» WHO PAYS FOR THE WATER ?

67% The Health Facility Budget

33% Patients or patient"s relatives pay for water

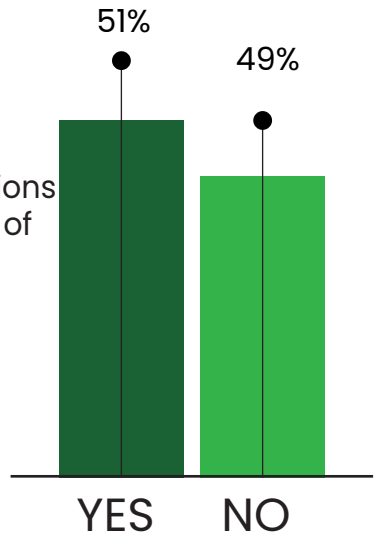


Undoubtedly, when patients or their relatives are burdened with the responsibility of paying for water they use in health facilities, it could negatively impact hospital attendance in such facilities. It is also important for the borehole facilities to be well maintained and improved to serve the PHCs fully, without the PHCs paying extra for their water supply. Meanwhile, in NPHDCA's Minimum Standards for Primary Health Care in Nigeria (NPHCDA, 2015), the NPHCDA expects that each PHC should at least have a clean water source from a motorised borehole. This is because the construction of a motorised borehole helps to greatly reduce the amount of time spent fetching water and also increases the availability of water in PHCs.

WATER SHORTAGE

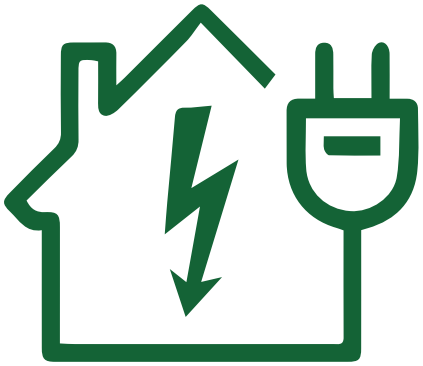
» ARE THERE INTERRUPTIONS AT THE WATER SOURCE?

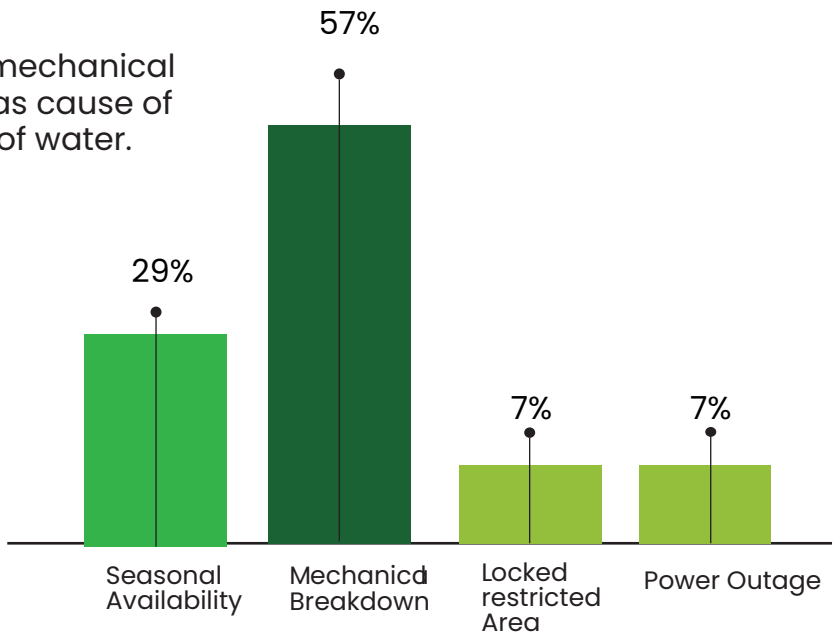
51%
experience interruptions at their main source of water ..



» CAUSES OF INTERRUPTIONS

57%
experience mechanical breakdown as cause of interruption of water.





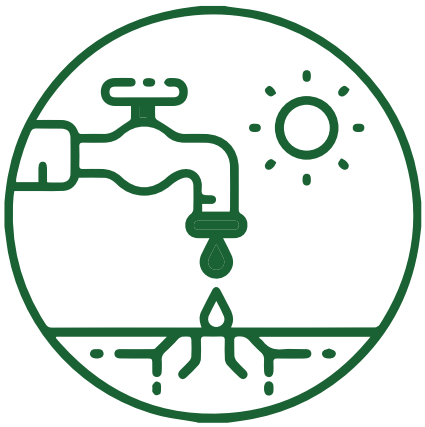
More than half (51.3%) of the PHCs assessed experience interruptions in the water source. This means there are times in which water is not available for use in these facilities, which could also affect sanitary practices in the facility.

Not just because of the water supply alone, the PHCs that have issues with power should be supported with power generators or solar panels by the government or organisations because a healthcare centre cannot afford not to have power in case of an emergency at night.

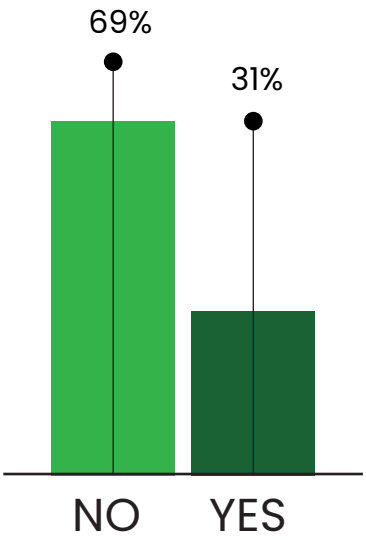
Any shortage of water in the PHCs at any time puts patient safety at great risk, and emergencies can happen at any time and health care facilities need to be prepared at all times to deal with them. With PHCs in Kaduna complaining about power outages, the issue of a constant power supply must be discussed and addressed by the government.

The poor and unreliable availability of water would mean that health workers would not be able to undertake the necessary sterilisation or disinfection of equipment in the facilities. The outbreak of infections, especially where there are disease outbreaks, will compromise the quality of health care offered to patients.

» DOES THIS WATER SOURCE EVER HAVE SEASONAL SHORTAGE ?

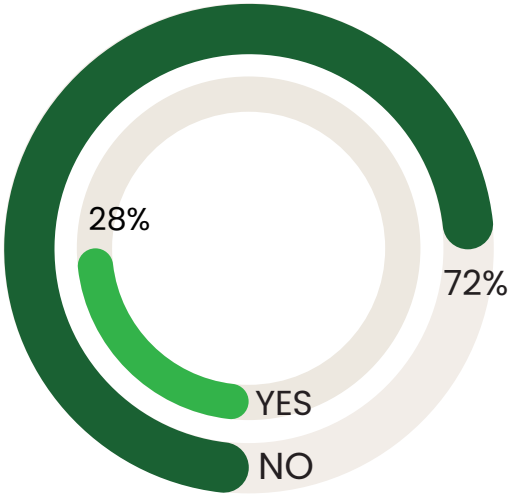


31%
experience interruptions at their main source of water ..



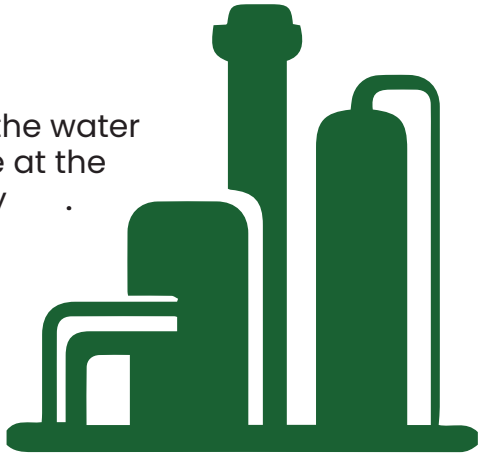
WATER TREATMENT

IS THE WATER TREATED AT THE HEALTH FACILITY BEFORE USAGE ?



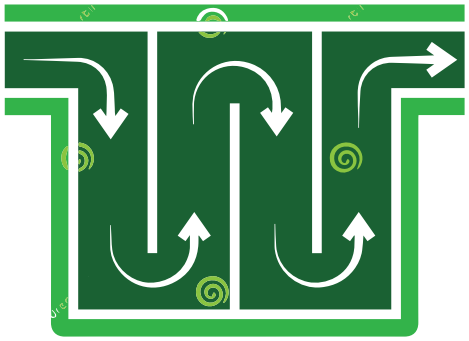
72%

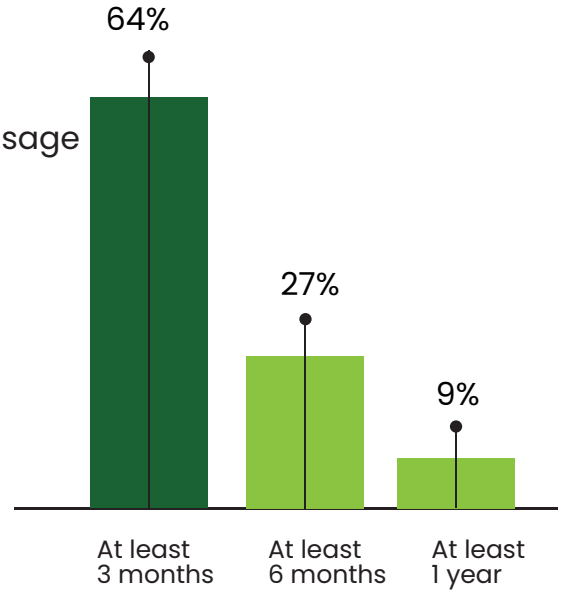
Do not treat the water before usage at the health facility .



WHEN LAST WAS THE WATER TREATED IN THE HAUSAGE ?

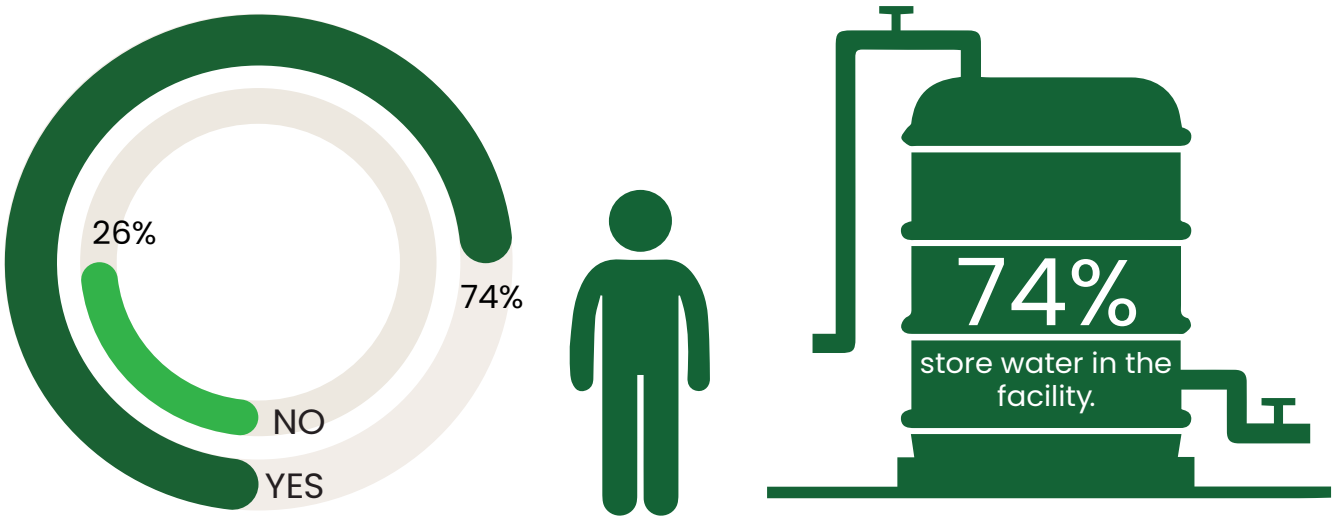
64% say it has been at least 3 months that the water has been treated before usage in the health facility.



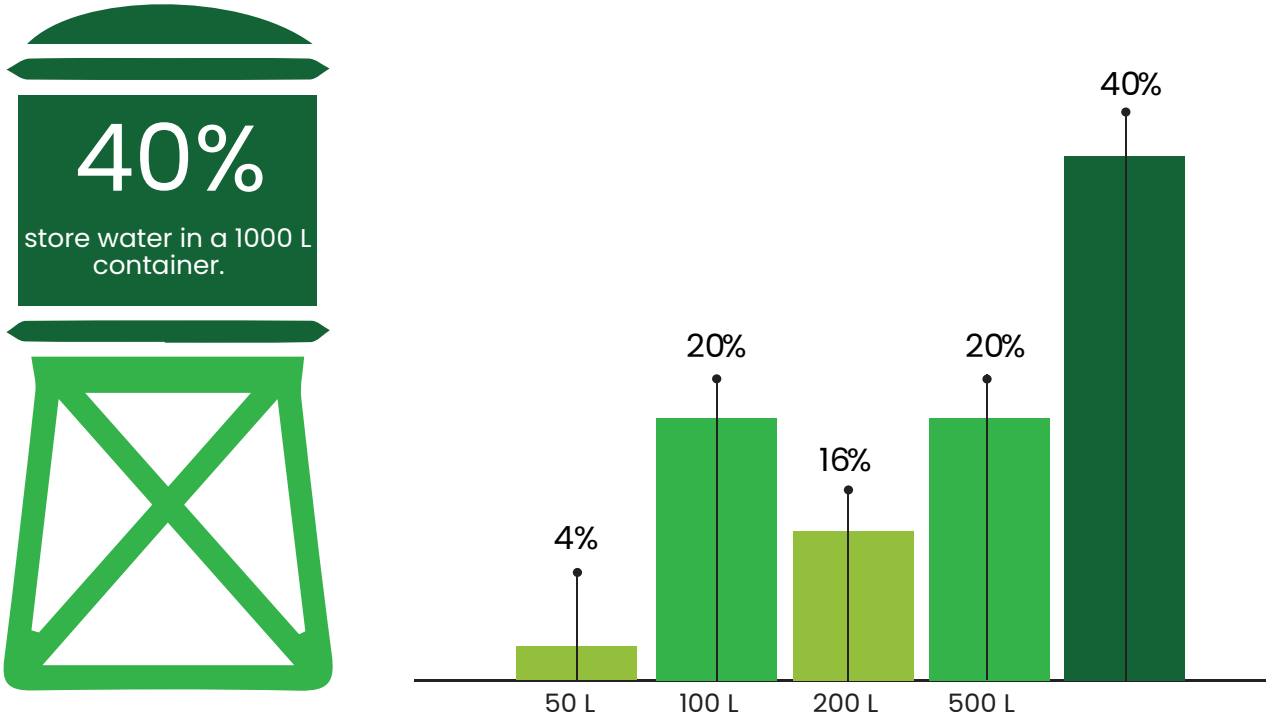


WATER STORAGE

» IS THE WATER REGULARLY STORED ?

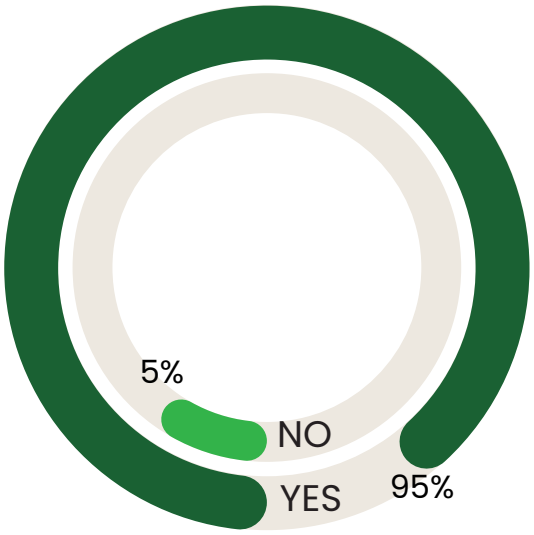


» QUANTITY OF WATER STORED ?



HYGIENE

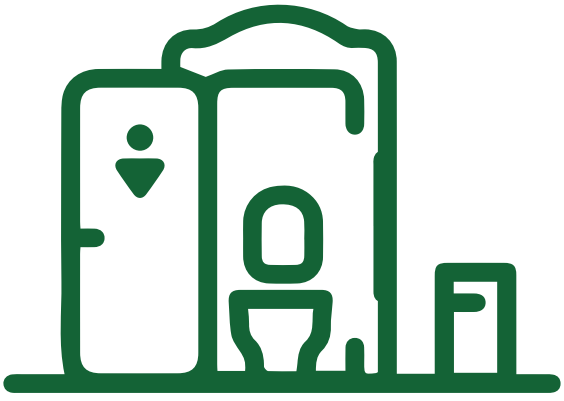
» ARE FACILITIES WITH TOILETS/LATRINES ?

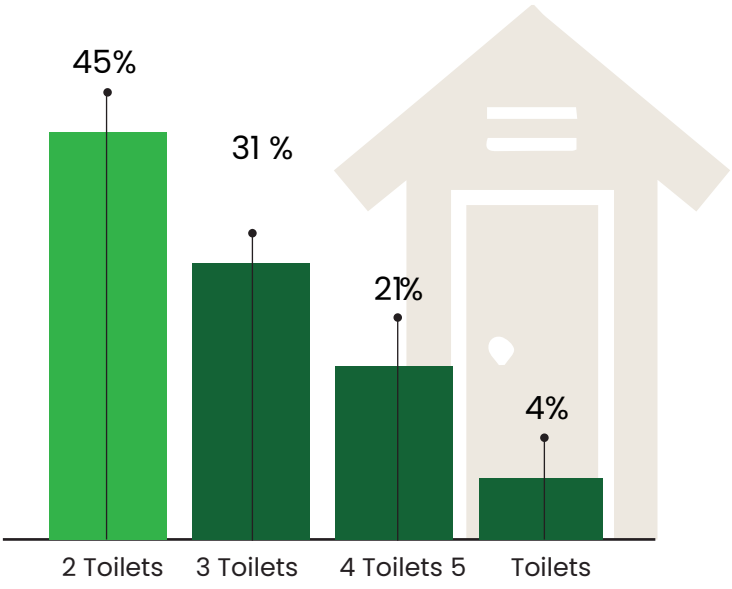


95%
Are equipped with toilets/ latrines.

» WHAT IS THE NUMBER OF TOILETS / LATRINES?

48% Have more than 2 toilets/ latrines in their facilities.

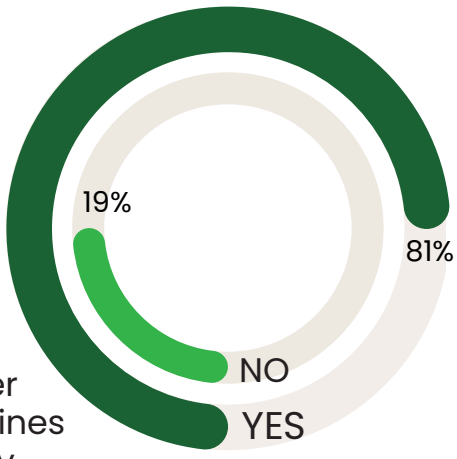




ARE THERE SEPARATE TOILETS FOR MALE & FEMALE PATIENTS ?

81%
have gender specific toilets/latrines in the health facility.

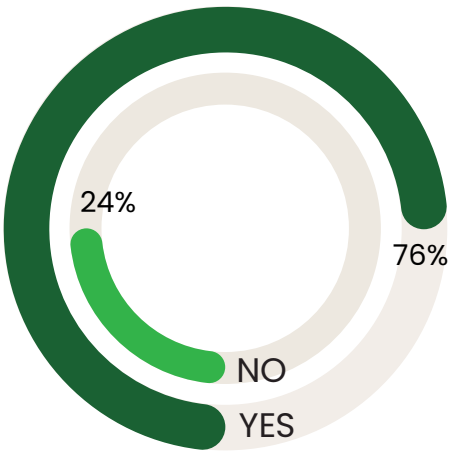
19%
do not have gender specific toilets/latrines in the health facility.



ARE THE TOILETS FOR PATIENTS AND STAFF SEPARATED ?

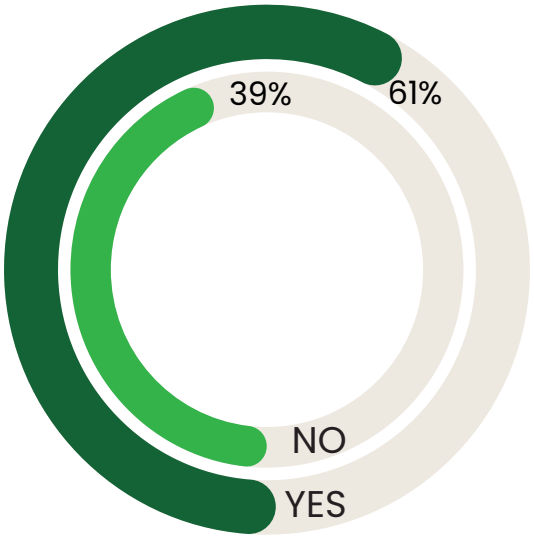
76%
have staff and patient specific toilets in the health facility.

24%
do not have staff and patient specific toilets in the health facility.



PROVISION OF WATER AND TOILETS CLEANING

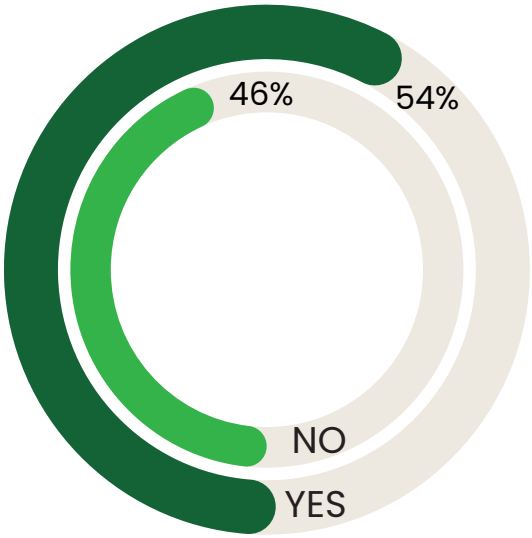
» IS THERE WATER SUPPLY IN THE TOILETS ?



61%
have toilets/latrines with water supply in the health facility.

39%
do not have toilets with water supply in the health facility.

» IS THERE A DEDICATED CLEANER AT THE FACILITY ?

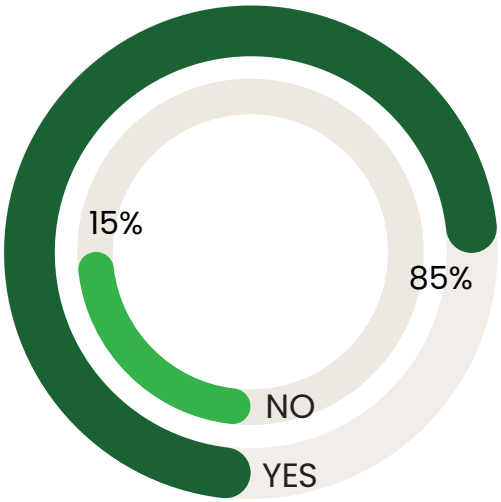


54%
have dedicated cleaners in the health facility.

46%
do not have dedicated cleaners in the health facility.

HANDWASING PRACTICES

» ARE THERE HANDWASHING STATIONS AT STRATEGIC POINTS IN THE FACILITY ?



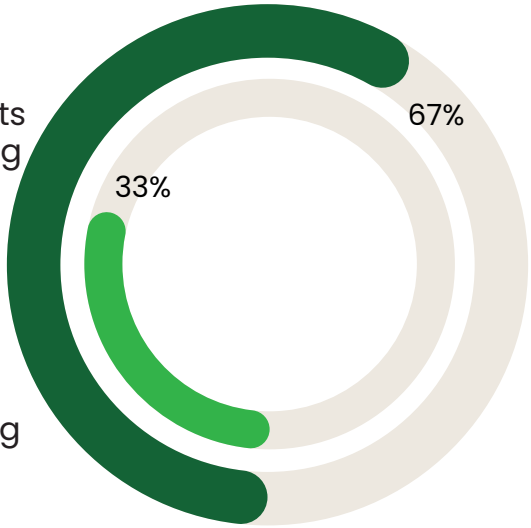
85%
Have handwashing stations in key points in the facility..

15%
do not have such stations positionned.

» ARE THERE PROMPTS TO MANDATE HANDWASHING ?

34%
Do not have prompts to mandate washing of hands in the health facility.

67%
have prompts to mandate washing of hands in the health facility.

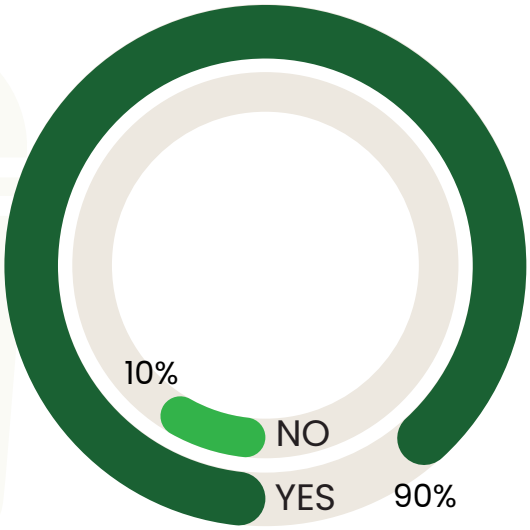


SANITATION GUIDELINES

ARE SOPs or PROTOCOLS AVAILABLE TO MANAGE & DISPOSE OF HEALTHCARE REFUSE PROPERLY IN THE FACILITY ?

90%

10%

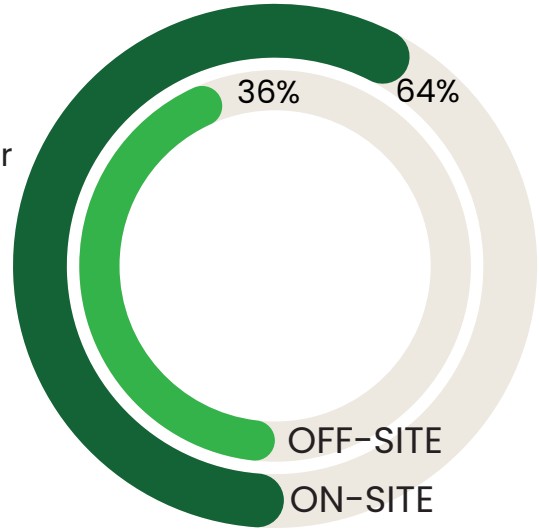


INFECTIOUS WASTE DISPOSAL

» WHERE DO YOU DISPOSE OF INFECTIOUS WASTE ?

64%
.disposed of their infectious waste onsite.

36%
dispose of their infectious waste offsite.

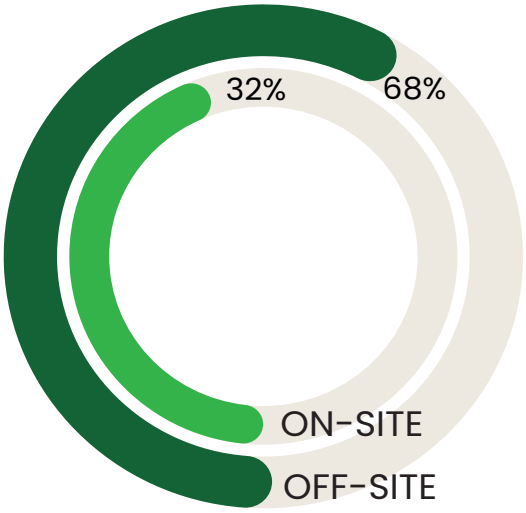


SHARP WASTE DISPOSAL

» WHERE DO YOU DISPOSE OF SHARP WASTES ?

68%
disposed of their sharp waste off-site.

32%
disposed of their sharp waste on-site.

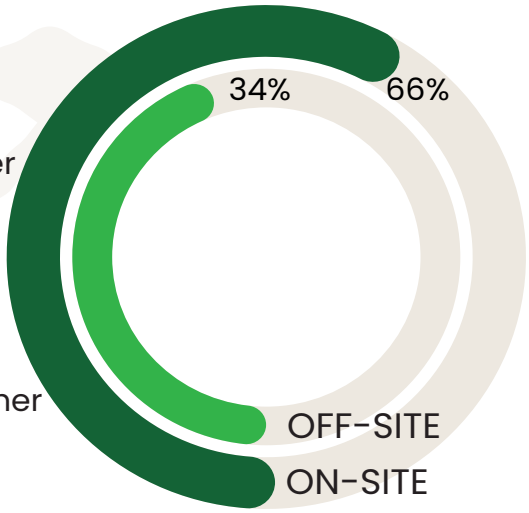


OTHER WASTE DISPOSAL

» WHERE DO YOU DISPOSE OF OTHER WASTE ?

66%
dispose of their other wastes onsite .

34%
dispose of their other wastes offsite

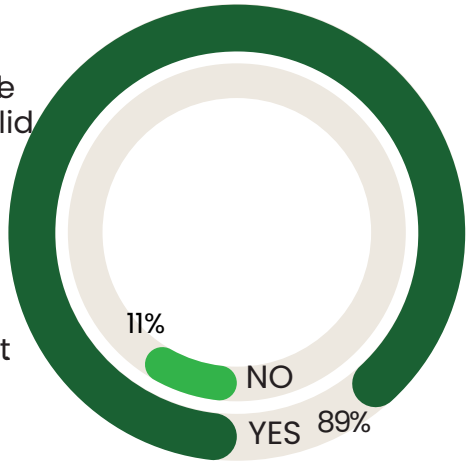


ENVIRONMENTAL CLEANLINESS

» ARE THE FLOORS AND ENVIRONMENT FREE FROM VISIBLE DIRTS AND CLEAR OF SOLID AND LIQUID WASTE ?

89%
were free from visibe dirts and clear of solid and liquid waste.

11%
were not clear of dirt

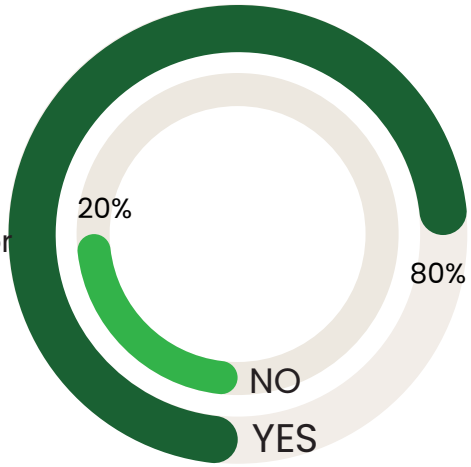


EXTERIOR FENCING

» IS THE EXTERIOR OF THE FACILITY WELL FENCED ?

80%
are well fenced.

20%
do not have exterior fencing ..

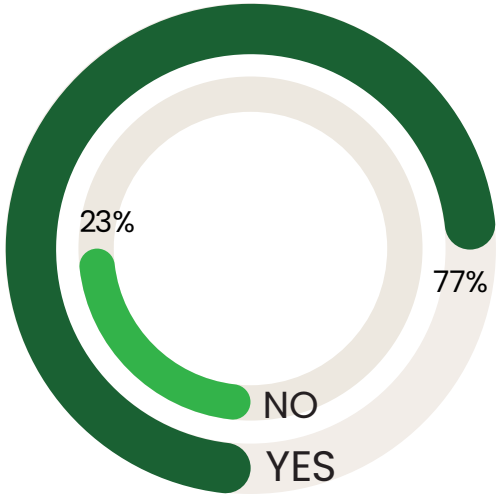


STAGNANT WATER

» IS THE FACILITY GROUNDS FREE FROM STAGNANT WATER ?

77%
were free from visible stagnant water in and around the facility.

23%
have stagnant water around them.

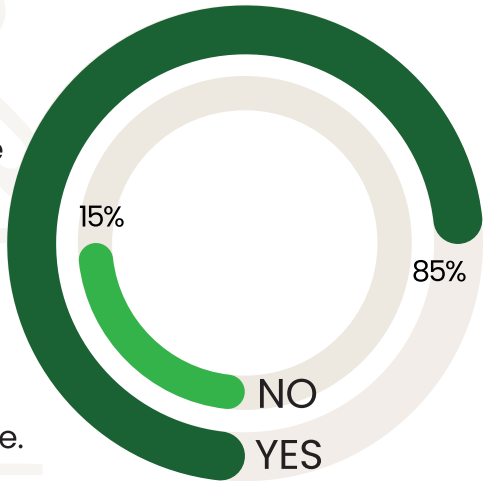


INFECTION PREVENTION AND CONTROL

» DOES THIS FACILITY HAVE IPC PROTOCOLS?

85%
Indicated to have ipc protocols in place.

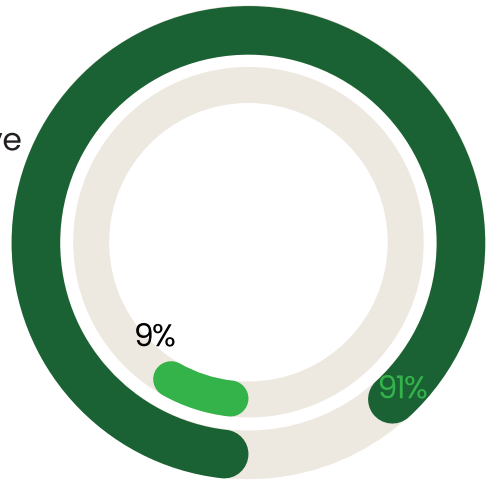
15%
do not have IPC protocols in place.



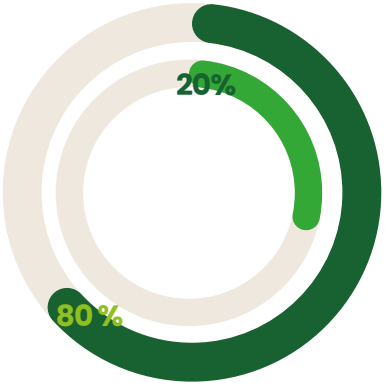
» ARE THE IPC PROTOCOLS REGULARLY FOLLOWED ?

91%
Indicated to have ipc protocols in place.

9%



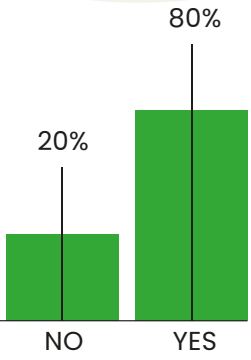
HAVE STAFF BEEN TRAINED ON IPC IN THE LAST 6 MONTHS



For PHCs assessed,

80%

indicated that there has been IPC training for staff in the last 6 months



» IS THERE A POLICY FOR ROUTINE CLEANING

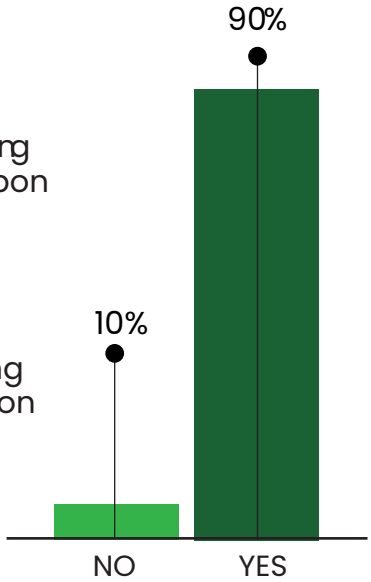
92% Indicated there is a policy for routine cleaning in the facility

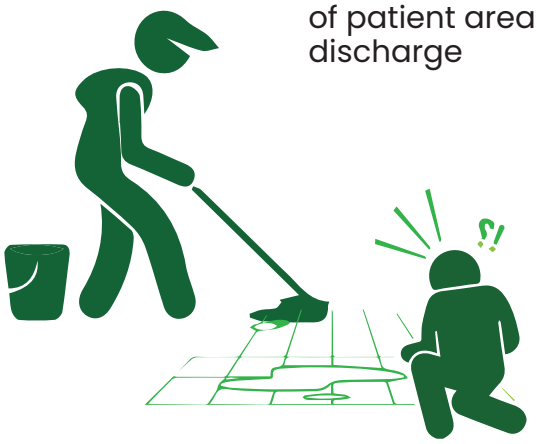
8% Indicated there is no policy for routine cleaning in the facility

» IS THERE A POLICY FOR TERMINAL CLEANING OF PATIENT AREAS

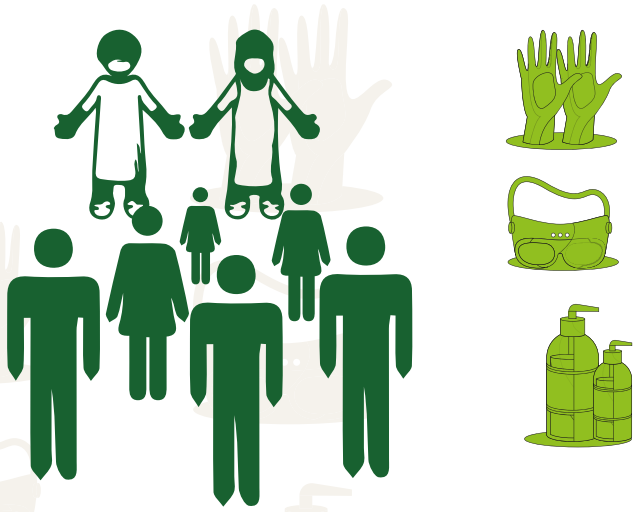
90% Indicated there is a policy available for terminal cleaning of patient areas upon discharge

10% Indicated there is no policy available for terminal cleaning of patient areas upon discharge





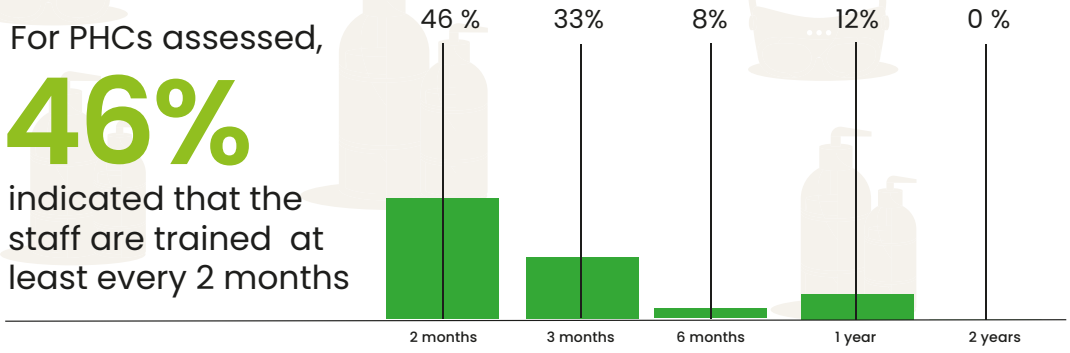
HOW OFTEN ARE STAFF TRAINED ON IPC



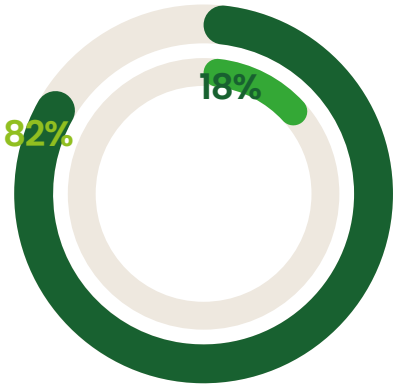
For PHCs assessed,

46%

indicated that the staff are trained at least every 2 months



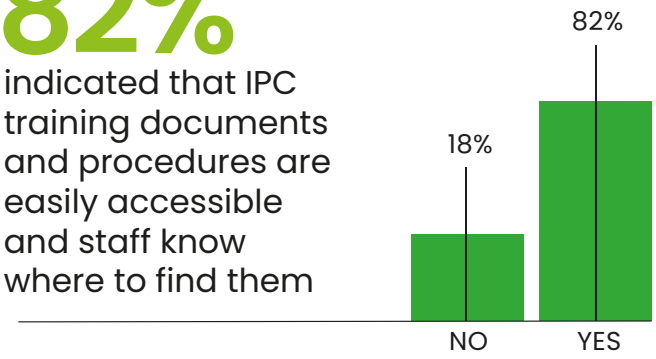
Are IPC training documents and procedures easily accessible



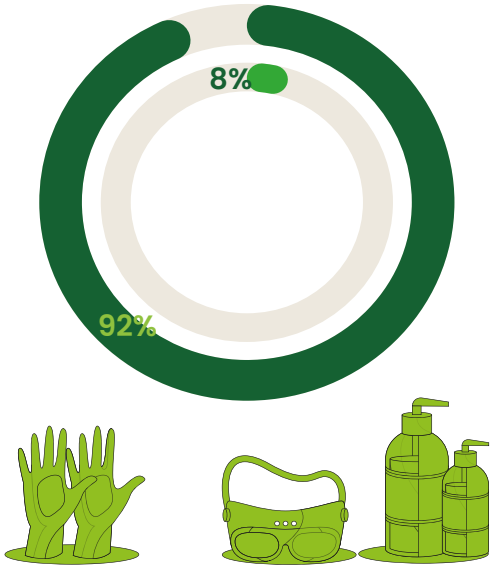
For PHCs assessed,

82%

indicated that IPC training documents and procedures are easily accessible and staff know where to find them



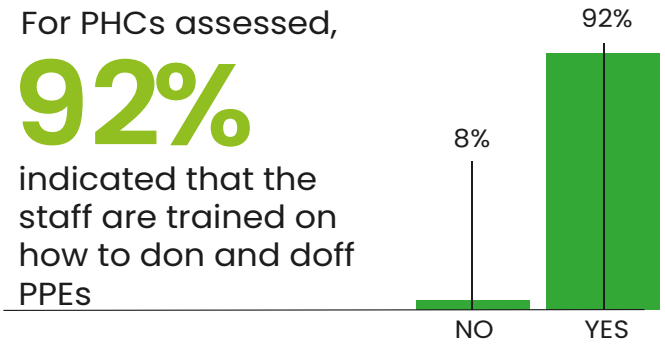
ARE STAFF TRAINED ON HOW TO DON AND DOFF THE PPE



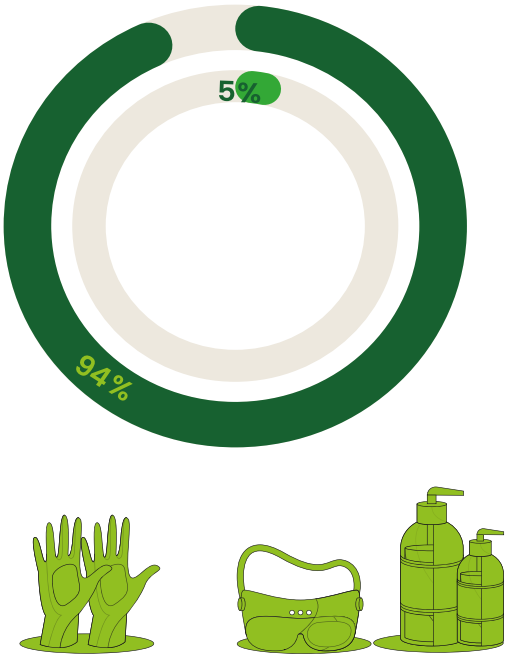
For PHCs assessed,

92%

indicated that the staff are trained on how to don and doff PPEs



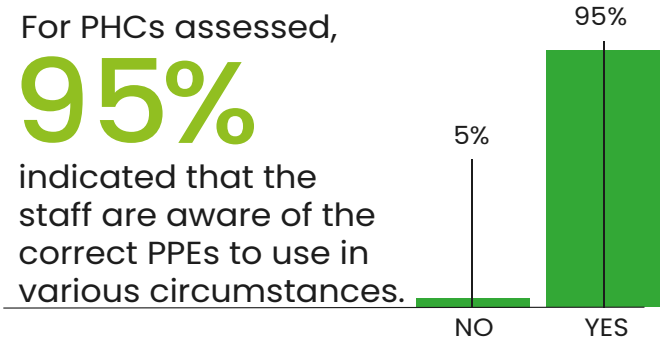
ARE STAFF AWARE OF THE CORRECT PPE TO USE IN VARIOUS CIRCUMSTANCES



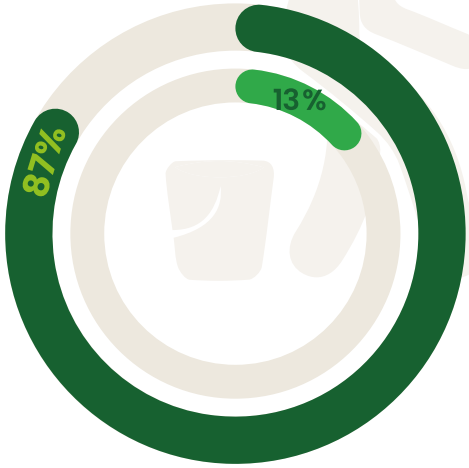
For PHCs assessed,

95%

indicated that the staff are aware of the correct PPEs to use in various circumstances.



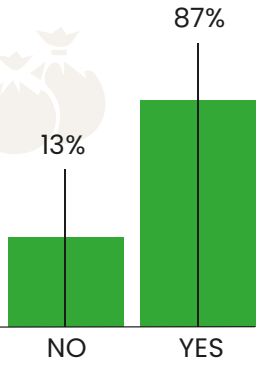
ARE CLEANING PERSONNEL TRAINED ON ALL THE PROCEDURES



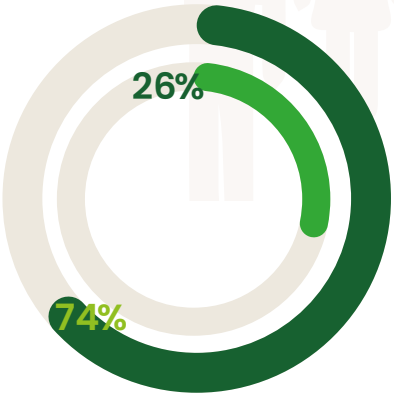
For PHCs assessed,

87%

indicated that cleaning personnel are trained in the relevant procedures.



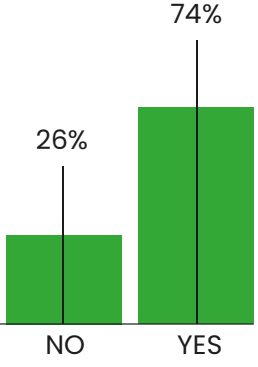
IS THERE AN IPC FOCAL PERSON FOR THE FACILITY



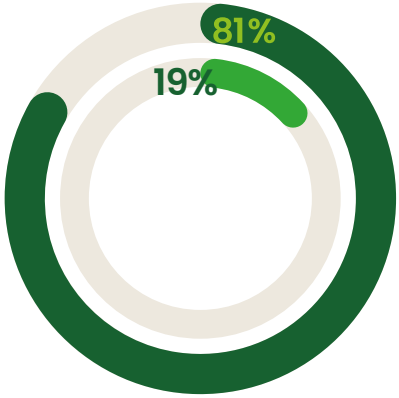
For PHCs assessed,

74%

indicated that there is an IPC focal person for the health facility



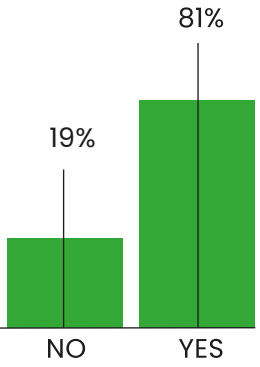
DOES THE IPC FOCAL PERSON HAVE DEDICATED TIME FOR IPC ACTIVITIES?



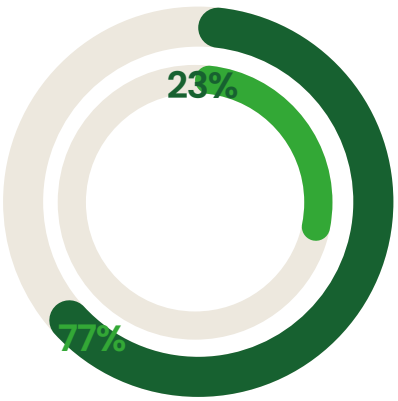
For PHCs assessed,

81%

indicated that there is an IPC focal person for the facility



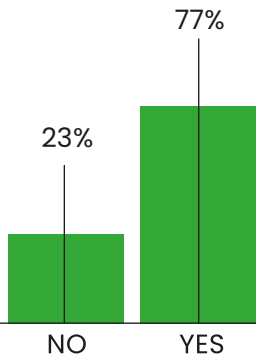
IS THERE A PROCEURE FOR STAFF TO BE ALERT ABOUT INCIDENTS OR EXPOSURE



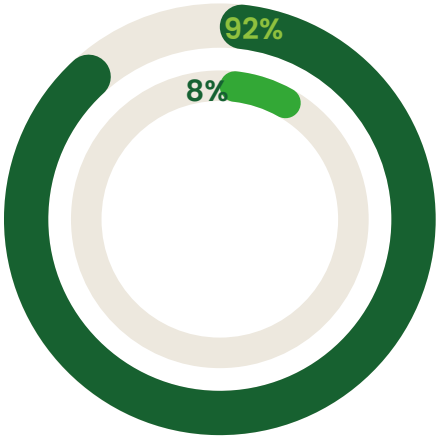
For PHCs assessed,

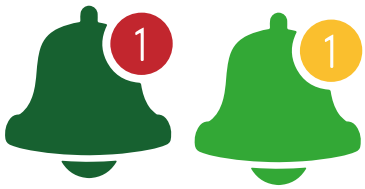
77%

indicated that there is a procedure for staff to be alerted about incidents or exposure



ARE THERE CLEAR PROCEDURES FOR NOTIFICATION OF KEY AUTHORITIES IN CASE OF A SUSPECT PATIENT?

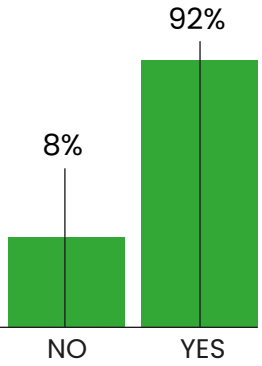




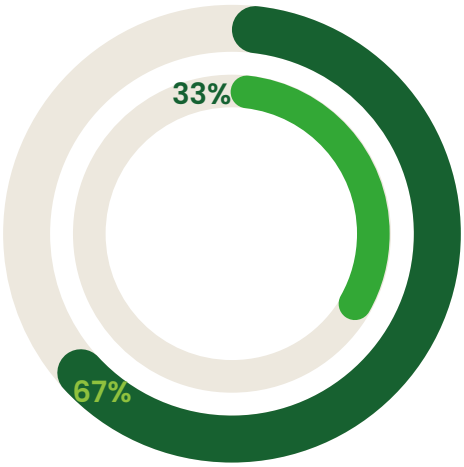
For PHCs assessed,

92%

indicated that there is a procedure for staff to alert about incidents or exposure



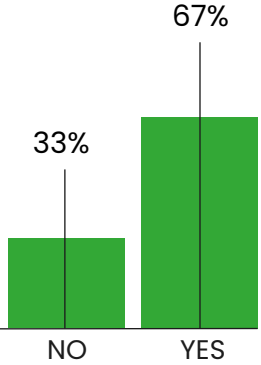
IS THERE AN ONGOING/ROUTINE SCREENING PROCESS FOR ALL THOSE (STAFF, PATIENTS, VISITORS, ETC.) ENTERING THE FACILITY?



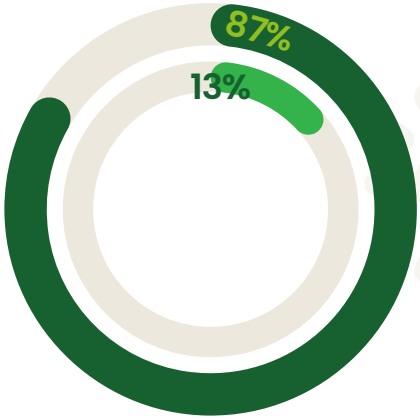
For PHCs assessed,

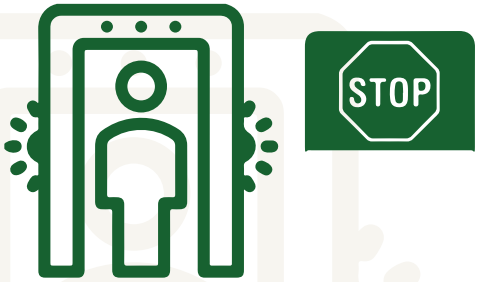
67%

indicated that there is routine screening for all those entering the facility.



IS THERE A SCREENING AREA LOCATED AT THE MAIN ACCESS POINT TO THE FACILITY?

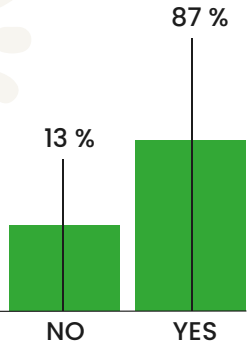




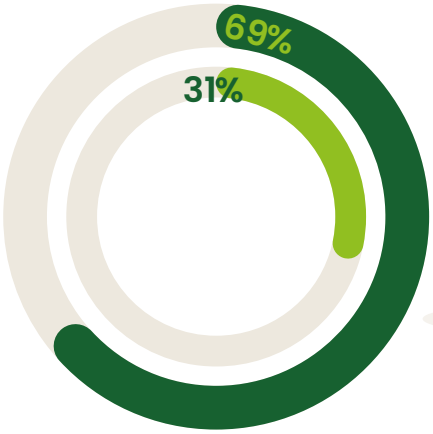
For PHCs assessed,

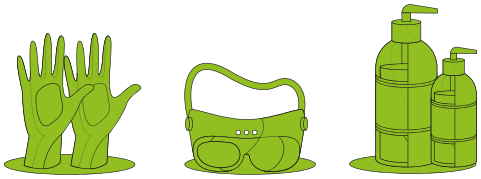
87%

have a screening area located at the main access point to the facility.



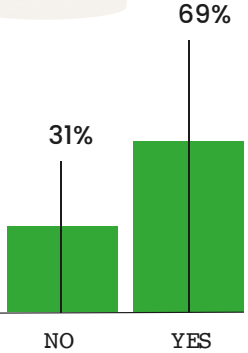
IS THERE ADEQUATE STOCK OF PPE (GLOVES, MASKS, ETC.) AVAILABLE IN SUFFICIENT QUANTITY FOR ALL USES FOR ALL STAFF?





69%

of PHCs indicated that there is adequate stock of PPE available for staff



Qualitative Results

Description of the study participants

Table 1 provides a description of the qualitative study participants and data collection methods. Sixteen focus group discussions (FGDs) were conducted, half of which was with female participants. The average number of female participants (n=5) for each FGD was slightly fewer than that of their male counterparts (n=6). Additionally, eight interviews were conducted with seven health facility managers (Officers-in-Charge).

Table 1: Background characteristics of study participants for the qualitative component

FGD/Interview number	Interview type	Number of participants in FGD/Role in HF	Interview location	Location in Kaduna State
01	Female FGD	6	Dambo PHC	Kaduna North
02	Female FGD	3	PHC Meyetti Allah	Kaduna Central
03	Male FGD	4	Samaru PHC	Kaduna North
04	Male FGD	5	Baban Dodo PHC	Kaduna North
05	Male FGD	4	Iga Dambo PHC	Kaduna North
06	Male FGD	6	PHC Meyetti Allah	Kaduna Central
07	Female FGD	6	Makera PHC	Kaduna Central
08	Female FGD	4	Makera PHC	Kaduna Central
09	Female FGD	5	Baba Dodo	Kaduna North
10	KII	Officer-In-Charge	Baba Dodo PHC	Kaduna North
11	KII	Officer-In-Charge	Dambo PHC	Kaduna North
12	KII	Assistant Officer-In-Charge	Igabi Myette Allah	Kaduna Central
13	KII	Officer-In-Charge	PHC Sabon Sarki	Kaduna South

14	KII	Officer-In-Charge	Kachia PHC	Kaduna South
15	Male FGD	9	Ung Wan PHC	Kaduna Central
16	KII	Officer-In-Charge	Makera Kauri PHC	Kaduna Central
17	Male FGD	6	Makera PHC	Kaduna Central
18	KII	Officer-In-Charge	Ungwan Sanusi PHC	Kaduna Central
19	Female FGD	5	Kubacha-PHC	Kaduna South
20	Male FGD	4	Kubacha PHC	Kaduna South
21	Female FGD	5	Kagarko PHC	Kaduna South
22	Male FGD	6	Kagarko PHC	Kaduna South
23	KII	Officer-In-Charge	Kagarko PHC	Kaduna South
24	KII	Officer-In-Charge	Kubacha PHC	Kaduna South
25	KII	Officer-In-Charge	Sabon-Gari/Sama-ru PHC	Kaduna South
26	Female FGD	6	Sabon-Gari/Sama-ru PHC	Kaduna South

HF: Health facility

KII: Key informant interview

Themes and sub-themes from thematic analyses

Three broad themes were identified from the thematic analyses of transcripts from both the FGDs and key informant interviews (Table 2). These themes include (1) health-seeking pathways, (2) water, sanitation and hygiene status in PHCs, and (3) perceived capacity of PHCs to manage common diseases in the community and needs. The remaining section of the result chapter is presented according to the identified themes and their respective sub-themes.

Table 2: Overview of the main themes and sub-themes

Theme	Sub-theme 1	Sub-theme 2	Sub-theme 3
Health-seeking pathways	Prevalent diseases in the community	Preferred first-line of care and its determining factors	
Water, sanitation and hygiene status in PHCs	Facilitators	Barriers	Implications of government policies
Perceived PHC capacity and needs	PHC capacity	PHC needs	

Health seeking pathways

This theme explores the perspectives of health workers and community members concerning common illnesses in the community and the various pathways taken by community members in seeking healthcare. The theme is described under two sub-themes: prevalent diseases in the community; and preferred first-line of care and its determinants.

Prevalent diseases in the community

Unequivocally, both health professionals and community members considered malaria as the most prevalent disease, followed by typhoid fever and diarrhoeagenic diseases, such as cholera. Additionally, high blood pressure, diabetes and ulcer were identified as prevalent health conditions among adults.

"The most common illness around here is typhoid and malaria, but recently, we've also experienced cholera, where you'll see people vomiting and purging, we've struggled with it also. These are the basic illnesses common around here." [4, Male FGD]

It appears 'malaria' and 'typhoid' are often used interchangeably by community members, with former appearing to be mistaken for the latter frequently. For

instance, a female participant in an FGD at Kagarko PHC implied that typhoid was caused by mosquito bites, which is the case for malaria.

"The most common illness is caused by mosquito bites, that is malaria and typhoid."

[21, Female FGD]

Preferred first-line of care and its determinants

The views regarding first-line of care following illness onset differed among the study participants. While some participants reported a preference for home-based management—usually mediated by Patent Medicine Sellers (PMS) or traditional healers—others reported a preference for PHCs as first-line of care in the community. It is, however, worth noting that hospital and PHC were sometimes used interchangeably by participants in the present study, despite the former traditionally referring to secondary or tertiary healthcare facilities in the study context. Generally, home-based management is practised either to provide first-aid for an illness before seeking proper healthcare in a formal healthcare facility or as the only means of care. Several factors determine the choice for home-based management of an illness, the most significant being a patient having a relative or family member with some medical knowledge or experience, such as a nurse, and when an illness is perceived non-severe.

Other commonly cited reasons for home-based care include proximity and broad distribution of PMS in the community, as well as the belief that such care is relatively cheaper than formal care in a health facility. Furthermore, participants identified community trust for PMS as an enabler of home-based care. This trust tends to be facilitated by mutual friendship (e.g. neighbours) and understanding (e.g. treatment on loan) between the PMS and community members.

"I think it is generally because of their belief, or maybe because they are used to those chemists in the community because they are their people. Even for the deliveries, they come to antenatal and you encourage them to come for deliveries, but they will still not come, and they prefer to call their women at home to assist them in the deliveries." [12, KII]

Interestingly, an assistant health facility manager thought that community preference for home-based care is not entirely based on cost, thus reaffirming the existence of community trust for PMS and the subsequent preference for home-

based care.

"...in fact, the money they pay in the chemist is more than the money they pay here."

[12, KII]

However, few male FGD participants believed that the high cost of healthcare services at PHC is a significant deterrent and a motivation for the preference for home-based care.

"People from other communities prefer this health centre so they come here, but the only problem they are having is the charges, people are complaining about the charges. To treat you something as simple as a fever, they will charge you up to ₦6,000 which is on the high side. That is why people prefer to go to the chemist [PMS] at most with ₦2,000 you will be treated." [17, Male FGD]

Easy access to traditional medicines (popularly called 'Islamic medicines') was identified as another reason for the preference for home-based care. Some participants opined that a reasonable number of community members believe in the efficacy of the traditional medicines, which are also considered cheaper than orthodox medicines. The quotes below explain further:

"It [traditional medicine] is everywhere here." [2, Female FGD]

"Some people may be treated for malaria and typhoid and the drugs used do not fit them, so they will use the native medicine, and it will work for them." [8, Female FGD]

In contrast, proximity (average walking distance being 20 minutes), perceived quality of care and the professionalism of health workers, and respect for patients were outlined as important reasons for preference for PHCs as the first line of care. These attributes, along with the availability of weekend services at some PHCs and the formal documentation of patients' records, were believed to motivate preference for formal health care. Some persons reported having been engaged in the referral of neighbours or relatives to PHCs based on their satisfaction with health services.

"We get properly attended to anytime we visit this hospital [PHC]. When we come

here, we get a good reception, and you'll be asked questions like, what's wrong with you, how do you feel, is this your first visit to this hospital? If you're visiting for the first time, they'll direct you to where you can get the hospital card and then proceed to see a doctor afterwards. We are treated with regard; they don't treat us with disdain." [26, Female FGD]

Most patients or caregivers who present at PHCs do so when an illness becomes severe, often after home-based care (PMS or traditional medicine) has been explored without the desired outcome. Further promoting the preference for PHCs is perceived low cost of formal healthcare services at the primary healthcare level compared to that at the higher levels of care (secondary or tertiary hospitals). Notably, some PHCs have been required by the government to provide healthcare services (e.g., diagnosis and medications) at no cost to the patients. For example, malaria tests and treatment, sometimes including treated insecticide mosquito nets, can be provided to patients by some PHCs free of charge, thus potentially acting as incentives for the high patronage recorded at such healthcare facilities.

"We run a test first before we commence with treatment. The drugs for malaria are free, and we give them for free, and the tests are also free. We also give treated mosquito nets and other medication." [13, KII]

The existence of a prompt referral mechanism from PHC to higher or specialised levels of care was considered beneficial for healthcare at this level of care, especially in ensuring that severe illnesses were properly managed or that incidence of adverse clinical outcomes was minimised. Unlike the PMS, the frequent presence of volunteer clinicians in some PHCs was reassuring to community members and an indication of quality healthcare services.

"... then we have a volunteer doctor who comes to help us see the patients. He is here right now seeing the patients." [16, KII]

Overall, it seemed health-seeking in the community is 'explorative' in nature, commencing with the patronage of PMS or traditional medicines (home-based care), which then proceeds to presentation to a PHC when the illness worsens. Thus, a combination of home-based care and formal healthcare is often utilised by community members rather than a single approach.

Regardless of interview type (FGDs and KIIs), the distance between the health facility and patient residence is a significant determinant of the health-seeking pathway. Distance was measured either the time spent walking from residence to PHC or transportation fare to a PHC, and it varied between 5 minutes and 2 hours or more. It is worth noting that the few community members who spent up to 2 hours or more are residents in local government areas within a neighbouring state (e.g. Nassarawa) without a functioning PHC. Such patients who travel long distances use tricycles or motorcycles and spend between ₦30 and ₦200.

Water, sanitation and hygiene status in PHCs

This theme explores the availability and functionality of WASH in PHCs in the selected LGAs. The theme is discussed according to the identified three sub-themes: (1) Facilitators of WASH availability and functionality; (2) barriers to WASH availability and functionality; and (3) implications of government policies on WASH availability and functionality.

Facilitators of WASH availability and functionality

Most community members believed that the health facilities assessed for this study are generally clean. Specifically, toilets, usually numbering between 3 and 6 per health facility, were reported to be readily available, clean, and functional for use by both patients and health facility staff.

"The hospital is clean even by merely looking, the floor is clean the toilets are clean and there are no cobwebs." [8, Female FGD]

In addition to water availability, many male FGD participants praised the portability of water for drinking by patients, staff and community members in health facilities.

"The water source in the hospital is very clean, and we even drink it." [22, Male FGD]

The availability of water-cistern toilets with functioning doors and a regular water supply also facilitated the use of toilets. However, being able to enjoy privacy when using a toilet appeared to be influenced by the user's status, with health works

more likely to enjoy privacy than patients. This assertation was confirmed by a male FGD participant who mentioned the segregation of toilets by status. Where such segregation exists, only health staff have access to private toilets within the health facility. At the same time, patients are required to use the toilets outside the health facility (and often without doors).

"This one here is open, but the other one inside the facility is locked because most of the staff are using the one inside the facility." [6, Male FGD]

Additionally, the availability of boreholes (powered by electricity, solar or both) and volunteer cleaners contribute to keeping the toilets clean and safe. This situation is however not valid across all the assessed health facilities, as some toilet users are required to use a bucket to fetch water outside from outside the toilet. Furthermore, the frequent cleaning of toilets in line with the appropriate IPC tools contributed to keeping the toilet clean. On average, the frequency of toilet cleaning in a day range from twice to thrice, depending on the financial resources available to the health facility and the number of shifts in a day—health facilities are cleaned before each shift.

"It [the toilet] is cleaned three times a day. The night duty cleans the facility before they leave in the morning, and at 1 pm, the volunteer cleaner cleans the facility. In the evening, the staff on the evening shift clean the toilets before they leave and hand over to the staff on the night shift."

[10, KII]

Although not explicitly mentioned, there appears to be a mutualistic relationship between health facilities and host communities, which enhances WASH availability and functionality. Some health facilities may have to rely on water from an open well within their neighbourhood to augment the water supply. This is a common practice when regular electricity or solar system is interrupted to power the water borehole machine within a health facility. Conversely, there are few instances when a health facility needs to provide water to its host communities. The relationship between a health facility and its host community seems better when community members and leaders are actively engaged in the management of the health facility.

"The source of water is a borehole, but the borehole is not our own; we tapped

it from outside. There is a fire service building outside that is where we have the borehole and we tapped it from there." [12, KII]

Some time ago, one of the toilets broke, and we called the community, and they came and saw it and fixed it. We work hand in hand with the community. The community gives a lot of help to the facility." [18, KII]

"...the water is always [available] because people come from outside to fetch the water, and we have solar that is powering the water and the taps are all running." [3, Male FGD]

In a health facility where volunteer cleaners are not readily available, staff, including facility managers, tend to take on cleaning duties, thereby maintaining the hygiene of the health facility. To accommodate the extra activity, health staff do the cleaning before or after routine service delivery. This scenario is common when a health facility cannot pay the volunteer cleaners, who replaced the professional health attendants that were disengaged from service by the state government.

"Normally, we don't have issues with keeping the environment clean, even after the cleaners were sacked, you'll sometimes see the in-charge herself cleaning the surroundings or other staff as well, mostly after the close of work." [4, Male FGD]

"We have a duty rooster for them, to clean the facility three times a day, that's morning, afternoon and night. They all decide the time that's convenient for them to come and clean, and we divide them accordingly." [25, KII]

Few health facilities reported using pit-latrines, as opposed to the recommended water-cistern toilets by the National Primary health care Development Agency. Nevertheless, the pit-latrines were designed to be gender-sensitive and often kept clean by the volunteer cleaners.

The potential influence of the COVID-19 pandemic on the implementation of IPC measures at some health facilities is worth noting. Handwashing, for example, was made mandatory for admission to health facilities. This measure was enforced outside the health facility (e.g. gate) or within the health facility (reception) by security personnel and health workers, respectively. However, the enforcement of mandatory handwashing appeared to have dwindled following a persistent decline in the number of reported COVID-19 cases in the state and Nigeria in general.

"There are hand sanitisers just by the entrance before you come into the clinic; there is also a tap by the entrance to wash your hands, then you are being mandated to use the face mask." [26, Female FGD]

Other measures believed to aid the enforcement of WASH services were the availability of fences by mitigating the inflow of animals into the health facility, as well as internal generation of funds (e.g., selling of patient registration cards) to cover miscellaneous expenses, including the payment of volunteer cleaners and security personnel.

Barriers to WASH availability and functionality

Difficulty accessing basic health provision funds from the state government (also known as capitation funds) to cover health facility maintenance costs and payment of volunteer cleaners was noted as a major barrier to WASH service availability and functionality. Most health facility managers mentioned that the challenge associated with accessing the capitation funds was due largely to bureaucratic administrative processes at the state and local government levels. This situation was reported to have deleterious effects on WASh services in health facilities, including infrequent cleaning of health facilities, limited water supply, and inability to repair essential equipment, such as a machine for water borehole, as at when required. Moreover, the reliance by some health facilities on an open well or a stream for water supply could potentially compromise WASH services, especially during the dry season when water quantity and quality are suboptimal compared to the rainy season.

"The water quality is very poor because we get it from the stream, and the stream is being contaminated so the quality of water is very poor. Also, water gotten from the neighbours' houses is not well treated, we are just managing and sometimes we use purifier to treat the water." [23, KII]

Interestingly, there are instances when resources or tools for WASH implementation may be available but not functional. An example is when patients and staff are required to get water outside a health facility for a water-cistern toilet within the health facility. This situation could negatively affect compliance with recommended WASH measures. All the health facility managers mentioned that health facility toilets were not suitable for physically challenged persons, with such patients or staff often requiring assistance from relatives or colleagues to use the toilets.

Implications of government policies on WASH

Government policies, such as the disengagement of health attendants, had direct and indirect negative impacts on WASH service delivery in many health facilities, including health workers and patients. Firstly, the non-potability of water from boreholes meant that health workers and patients had to pay out of pocket for drinking water (e.g. water in sachet container, popularly called 'pure water' in Nigeria). In some instances, health workers buy water for patients with personal funds. Secondly, inadequate funds to pay stipends to volunteer cleaners compelled health workers, irrespective of cadre, to clean the health facility. The extra duty of cleaning could affect the efficiency of health workers, especially during antenatal and vaccination activities when health facilities are very busy.

"Before, we had the health attendants' cleaners, but now their appointments have been terminated by the government. So we have one volunteer cleaner and we pay her at the end of the month. We, the staff, put together the money to pay her [volunteer cleaner] for cleaning the environment. Everyone doing the night shift before they go home in the morning help to clean the environment. So the voluntary we have engaged cleans the facility at one o'clock pm every day." [10, KII]

"We have a lot of challenges that we face here. When you look at us cleaning the facility and at the same time taking care of the patients that come here, it is not easy so we need help from the government." [23, KII]

Lastly, limited space for waste management according to standard protocol meant that some health facilities needed to pay individuals (usually almajiri) for waste disposal, either daily or weekly.

"After cleaning and gathering the dirt, there are some little boys who come around and get paid to go dispose of the dirt." [26, Female FGD]

Perceived PHC capacity and needs

This theme explores health workers' and patients' perspectives on the capacity of PHCs to manage common illnesses and the needs of health facilities to improve service delivery.

PHC capacity

The assessed PHCs are generally confident to manage common but less severe illnesses in out-patients, only observing admitted patients over 24 hours to decide whether or not to refer a patient to a higher level of care (e.g. secondary or tertiary hospital). The PHCs also provide health education services to host communities.

"We educate them to take pure water and wash their hands before they take food and wash their hands after they take food and then wash their hands after using the toilet. They should keep the surroundings of their houses clean and do not allow stagnated water in their area." [11]

Depending on resource availability, the assessed PHCs provide services for antenatal and postnatal care, immunisation, family planning, HIV counselling and testing, nutritional advice, laboratory diagnosis of common illnesses (malaria, typhoid, etc.), and cervical cancer screening. One of the participants in a focus group discussion however noted that the quality of healthcare service delivered by a PHC could be dependent on a patient's financial capability.

PHC needs

The primary needs of most PHC, as expressed by both health workers and community members, centred on availability and constant supply of potable water, as well as adequate human and non-human resources to keep the health facility clean. The secondary needs centred around the expansion and provision of essential health facility infrastructure (e.g. building, beds, ambulance, solar system etc.) and salary increment. Strengthening the health worker-patient relationship was also noted as a need.

Synthesis of findings

This assessment was carried out among primary health care workers and key stakeholders in the host communities of randomly selected 39 PHCs across Kaduna State. By using a mixture of quantitative and qualitative data collection tools, we were able to get an indepth understanding of WASH services in the PHCs assessed. Specifically, the assessment shed more light on the availability, use and challenges of WASH services at the primary health care level in the state.

The majority of the PHCs assessed were found to rely on drilled borehole machines as their major water source, while none have access to the government's water board/pipelines. This is in line with data from recent surveys on WASH in low and middle-income countries (LMIC), where 50% of healthcare facilities lack piped water, 33% lack improved sanitation, 39% lack adequate infectious waste disposal and 73% lack sterilization equipment (Cronk and Bartram, 2018).[3] Moreover, some of the PHCs assessed in the present assessment needed to establish their water source, and health workers and patients in some of these PHCs pay for drinking water due to the unavailability or non-potability of water. This is an important area the government and its partners need to address as a matter of urgency, with a view to achieving the SDGs 3 and 6 in the state. The study also revealed that the community contributes to water provision in the health facilities, underlining the important role that community stakeholders can play in achieving the SDGs, if properly and actively engaged.

WASH and healthcare waste management facilities are essential in the operations of PHCs.

The assessment revealed that 46.1% of health facilities do not have a dedicated cleaner at the facility. Most health facility managers also complained of their inability to access funds to cover maintenance costs, including the payment of volunteer cleaners, largely due to bureaucratic challenges. This means that for these PHCs, routine cleaning is either non-existent or not adequate. When WASH facilities are absent or inadequate in PHCs, patients and staff are exposed to the risk of healthcare-associated infections, with newborns, pregnant women, and geriatric patients as the most vulnerable group (UNICEF, 2016), thus highlighting the need for the government to intervene in the access to funds by health facility managers.

3

To further enhance inclusiveness in line with UHC fundamental principles, the government and relevant stakeholders need to prioritise access to WASH services in health facilities by physically challenged persons. For example, in the qualitative component of the present assessment, all the health facility managers answered in the negative when asked about the suitability of toilets for physically challenged persons at their health facilities.

On August 3, 2010, Nigeria was among the 122 countries that entered into a resolution adopted by the UN General Assembly to make water and sanitation human rights for their citizens. The recognition by the UN General Assembly in 2010 of water and sanitation as a human right, provides additional political thrust towards the goal of providing everyone with access to these vital services and ultimately attaining the SDGs 3 and 6 in Kaduna State.

Challenges during assessment

Insecurity: In Nigeria, many states are bedeviled with the problem of insecurity occasioned by terrorist and banditry activities. Kaduna state is one of the top hit states in the North-West region. Unfortunately, the current security situation in the state played a critical role in mapping out the sample size for the WASH research, as the size was limited to communities that were safe. However, the LGAs covered were selected to be representative of the situation in the state.

Poor internet network: Throughout the WASH assessment, quantitative data was collected electronically using Magpi software, but poor network challenges made it difficult to obtain data from out-of-station communities. However, Magpi is structured in a way that it automatically updates imputed data. This, therefore, alleviated some of the challenges of poor network reception.

Respondent bias: Some respondents due to conflicts and personal issues introduced bias to the research, it was mitigated using observational elements and paying attention to the problem statement and proper data gathering.

Data may have also been influenced by the Hawthorne effect, where the respondent's behavior is influenced by the most. However, we would expect this to result in a positive bias, where data would present higher rates of compliance than experienced on a day without observation.

On reflection, future research should consider and plan to engage communities virtually where network is available, should there be any challenge with community visits. The COVID-19 pandemic has drawn greater attention to the prospects that can be leveraged in using technology to increase access to health care.

Recommendations

1. Kaduna State government should work towards the construction of underground boreholes, with reticulation of pipes to supply water to every part of the health facilities needing them. In the case of patients or relatives paying for water to be used during their visit is a major drain on the finances of community members and could be a discouraging factor to the visitation of health facilities. Having quality, functional, and well-maintained water sources in the health facilities would prevent this.

2. Treatment of water before usage would prevent water-borne diseases for both patients and health workers. With more than two-third of health facilities assessed not treating water before use, it shows a great risk patients and health worker face in terms of water-borne diseases. policy, framework, procedures, and infrastructure needed for treating water before use is a necessity for health facilities in Kaduna State.

3. A typical health facility requires around 2000 litres per day for its usage according to the National Guideline for WASH in PHCs. However, none of the facilities assessed has a water storage tanker up to that capacity. We recommend the Kaduna State government and its LGAs to ensure the provision of adequate water storage tankers that can accommodate the needed quantity of water for use in these facilities.

4. Although majority of health facilities assessed have toilet facilities, some still do not have separate toilets for males and females. This is a huge challenge to gender equity and dignity. Also, some facilities still fall below the standard of four to six toilets per PHC. We recommend adequate toilets to be provide for both males and females across all health facilities in Kaduna State.

5. A major concern, however, is that toilets in more one-third of the PHCs assessed are not connected to water, which could further pose challenges to keeping the toilet clean. A toilet facility can never be fully functional without water. We therefore recommend that Kaduna state government should not only investigate making building more toilets in the facilities, but also ensure that the toilets are well connected with water.

6. A great concern is the lack of dedicated cleaners in close to half of the facilities

assessed. No health facility can be always kept clean without a trained and dedicated cleaner, who will ensure that only floors and surfaces are clean but will also enforce hygienic guidelines so that both patients and health workers are not at risk of acquiring infectious diseases. We recommend the employment of at least one cleaner in each PHC in Kaduna state.

7. Even though majority of health facilities visited have handwashing stations, more than one quarter do not have prompt to enforce that mandate handwashing in the facilities. Also, close to one third do not enforce routine screening for people entering the facilities. This is a challenge to the health facilities and the state and local governments to make provisions that ensure anyone visiting the facilities are mandated to wash their hands and screened before gaining access to prevent spread of infectious diseases.

8. A major hygiene and safety risk is that 20% of facilities visited are not fenced, which renders them prone to dirt, reptiles, land encroachment and susceptible to insecurity. For health facilities to remain safe, secure, and clean, they must be fenced. Kaduna State government and LGAs should see to it that health workers and patients as well as the health facilities are safe and clean, and protected by erecting fences around them.

9. Commendably, most of the health facilities assessed have infection, prevention and control protocols which are regularly followed, and staff are trained on IPC. Also, most health facilities have procedures for disposing medical waste. However more than a quarter of health facilities do not have adequate stock of person protective equipment. To protect health workers and patients from infectious diseases including Covid-19, PPEs must be available in sufficient quantity. We recommend all health facilities in Kaduna state be supplied with sufficient and adequate PPEs for use by health workers and patients.

10. Further wider research to generate more evidence on availability, functionalisty and gender sensitive WASH services IPC in PHCs. Research will influence allocation of resources, demand for better services and will help health workers, policy makers and other stakeholders to share learning to drive change.

Conclusion

The Sustainable Development Goal (SDG) six calls for the elimination of open defecation and universal access to drinking water, sanitation, and hygiene (WASH) that are safely managed services both at the household-level and in institutional settings, including schools, health-care facilities (HCFs), workplaces, and other public spaces. This study accessed PHCs in Kaduna state and revealed challenges in WASH facilities faced by these PHCs. There are gaps in WASH facilities across PHCs and achieving the minimum standards set by the NPHCDA's template. The resultant ripple effect cuts across health seeking behaviour, widespread community transmission of infectious diseases, poor utilisation and thus degradation of other facilities in health centres. Assessments and recommendation of WASH in PHCs such as this are critical to identifying specific challenges in achieving WASH minimum standards and understanding how to meet these challenges.

There is never a strong healthcare system without functional PHCs, and PHCs can only function optimally if they have safe, quality, accessible and gender friendly water, sanitation, and hygiene systems. For Nigeria to achieve SDG 3, PHCs must be strengthened, and ensuring functions WASH systems is a way to achieve that. Additionally, improving WASH systems in PHCs will further aid the drive towards achieving SDG 6 in the country.

References

Bature, A. S., Opotu, L. A., & Mounkaila, N. (2021). Evaluation of Water Supply and Sanitation Situation in Kaduna Metropolis in Northern Nigeria. Available at: https://www.researchgate.net/profile/Amina-Bature/publication/351416113_Evaluation_of_Water_Supply_and_Sanitation_Situation_in_Kaduna_Metropolis_in_Northern_Nigeria/links/609678c992851c490fc3f4e1/Evaluation-of-Water-Supply-and-Sanitation-Situation-in-Kaduna-Metropolis-in-Northern-Nigeria.pdf

Bishara, D. B., Oladipo, S., Lawi, M., Ini, N., Collins, O., & Chima, O. E. (2020). Infection Prevention and Control in North-East Nigeria: An Assessment of Hand Hygiene in Health Care Facilities in Protracted Crisis Environment February 2019. Journal of Tropical Diseases & Public Health, 8(1), 1-6.

Bouzid, M., Cumming, O., & Hunter, P. R. (2018). What is the impact of water sanitation and hygiene in healthcare facilities on care seeking behaviour and patient satisfaction? A systematic review of the evidence from low-income and middle-income countries. BMJ global health, 3(3), e000648.

Call for increased prioritization of Hygiene (2021). WaterAid. Available at https://www.wateraid.org/ng/press-releases/wateraid-calls-for-increased-prioritisation-of-hygiene-as-lack-of-handwashing. Accessed 1/10/2021

Cronk, R., & Bartram, J. (2018). Environmental conditions in health care facilities in low-and middle-income countries: coverage and inequalities. International journal of hygiene and environmental health, 221(3), 409-422.

Dairo, M. D., Ibrahim, T. F., & Salawu, A. T. (2017). Prevalence and determinants of diarrhoea among infants in selected primary health centres in Kaduna north local government area, Nigeria. Pan African Medical Journal, 28(1), 151-151.

Diarrhoeal disease (2021). World Health Organisation. Available at: https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease. Cited on 1/10/2021

Ebuka Onyeji (2021). PHCs in Abuja, Niger lack regular water supply – Survey. Premium times. Available at: https://www.premiumtimesng.com/news/top-news/444722-phcs-in-abuja-niger-lack-regular-water-supply-survey.html. Cited on 1/10/2021

Ezegwui, I. R., Okoye, O. I., Aghaji, A. E., Okoye, O., & Oguego, N. (2014). Patients' satisfaction with eye care services in a Nigerian teaching hospital. Nigerian journal of clinical practice, 17(5), 585-588.

GHO (2021). Global Health Observatory. Available at: https://www.who.int/data/

gho/indicator-metadata-registry/imr-details/3010#:~:text=Health%20posts%20are%20either%20community,by%20health%20workers%20or%20nurses. Cited on 12/01/22.
International Decade (2015). International Decade for Action "Water for Life" 2005-2015. United Nations. Available at Water for life (2021). https://www.un.org/waterforlifedecade/human_right_to_water.shtml

Ngure, F. M., Reid, B. M., Humphrey, J. H., Mbuya, M. N., Pelto, G., & Stoltzfus, R. J. (2014). Water, sanitation, and hygiene (WASH), environmental enteropathy, nutrition, and early child development: making the links. Annals of the New York Academy of Sciences, 1308(1), 118-128.

Nigeria Demographic and Health Survey (2018). National Population Commission Abuja, Nigeria. The DHS Program ICF Rockville, Maryland, USA October 2019. Available at: https://dhsprogram.com/pubs/pdf/FR359/FR359.pdf. Cited on 1/10/2021

Nigeria Health Watch (2021). WASH Report in Kano. Nigeria Health Watch. Nigeria Health Watch. https://nigeriahealthwatch.com/wp-content/uploads/bsk-pdf-manager/2021/05/Nigeria-Health-Watch-WASH-Report-2021.pdf

NPHCDA (2015). National Primary Health Care Development Agency Minimum Standards for Primary Health Care in Nigeria. https://hfr.health.gov.ng/resources/download/Minimum%20Standards%20for%20Primary%20Health%20Care%20in%20Nigeria.pdf

Odjegba, E. E., Bankole, A. O., Layi-Adigun, B. O., & Dada, V. O. (2021). Water, sanitation, and hygiene in healthcare centres: appraisal in a pandemic. Journal of Water, Sanitation and Hygiene for Development, 11(6), 926-936.

Olukanni, D. O. (2013). Assessment of wash program in public secondary schools in South-Western Nigeria. ARPN Journal of Engineering and Applied Science, 8(3), 222.

PMNCH (2021). Knowledge Summary 30. Water, sanitation and hygiene - the impact on RMNCH. World Health Organisation available at https://www.who.int/pmnch/knowledge/publications/summaries/ks30/en/

Prüss-Ustün, A., Wolf, J., Bartram, J., Clasen, T., Cumming, O., Freeman, M. C., ... & Johnston, R. (2019). Burden of disease from inadequate water, sanitation and hygiene for selected adverse health outcomes: an updated analysis with a focus on low-and middle-income countries. International journal of hygiene and environmental health, 222(5), 765-777

RUWASSA (2021). KADUNA State Rural Water Supply And Sanitation Agency (RUWASSA). https://www.etenders.com.ng/kaduna-state-rural-water-supply-sanitation-agency-ruwassa/

Social Protection (2020). Health care in Nigeria: Challenges and recommendations. Available at https://socialprotection.org/discover/blog/health-care-nigeria-challenges-and-recommendations.

Sridhar, M. K. C., Okareh, O. T., & Mustapha, M. (2020). Assessment of Knowledge, Attitudes, and Practices on Water, Sanitation, and Hygiene in Some Selected LGAs in Kaduna State, Northwestern Nigeria. Journal of Environmental and Public Health, 2020.

Technical Guide for Water, Sanitation and Hygiene (WASH) in PHC Centres in Nigeria (2020) Availble at: http://www.washpmp.com/files/report_file/1_58b98380-bd58-4453-abca-4e30176f89ae.pdf

The Cable (2021).Kaduna declares state of emergency on water, sanitation. The Cable. Available at: https://www.thecable.ng/kaduna-declares-state-of-emergency-on-water-sanitation

The Vanguard (2021). Kaduna to spend N2.8bn on water, sanitation, hygiene in 2021. Vanguard. Available at: https://www.vanguardngr.com/2020/12/kaduna-to-spend-n2-8bn-on-water-sanitation-hygiene-in-2021/

Towards effective programming for WASH in schools. Delft, the Netherlands, IRC International Water and Sanitation Centre. (Technical paper series; no. 48). Available at: https://www.pseau.org/outils/ouvrages/irc_towards_wash_in_schools.pdf

Towards Effective Programming for WASH in Schools: A manual on scaling up programmes for water, sanitation and hygiene in schools. UNICEF/IRC. http://www.unicef.org/wash/files/TP_48_WASH_Schools _07.pdf

UN Water (2020). Water, Sanitation and Hygiene. The United Nations. Available at https://www.unwater.org/water-facts/water-sanitation-and-hygiene/

UN. 2011. The Millennium Development Goals Report. United Nations, New York, U. S. A. Available at: https://www.un.org/millenniumgoals/MDG2011_PRa_EN.pdf

UNICEF (2016). Technical Guide for Water, Sanitation and Hygiene (WASH) in PHC Centres in Nigeria, p.85

UNICEF (2019). WASH in health care facilities Global baseline report 2019. UNICEF. Available at: https://www.unicef.org/reports/WASH-in-health-care-facilities-2019

UNICEF (2020a). Impact evaluation of WASH Program Nigeria 2014 – 2017

UNICEF (2020b). Integrating water, sanitation and hygiene (WASH) and health for improved universal health outcomes: what governments must do to deliver quality care The United Nations Children's Fund (UNICEF). Available at: https://www.unicef.org/nigeria/media/2986/file/Evaluation%20Report%20 cited 10/12/2021
UNICEF (2020c).Child Health. https://data.unicef.org/topic/child-health/diarrhoeal-disease/

UNICEF (2021d). Water, Sanitation and Hygiene. UNICEF. Available at: https://www.unicef.org/nigeria/water-sanitation-and-hygiene

USAID (2019). Water, Sanitation and Hygiene (WASH), Maternal Child Survival Program 2019. USAID. Available at: https://www.mcsprogram.org/our-work/water-sanitationhygiene-wash/

USAID (2021). USAID launches new water and sanitation project in Nigeria. USAID 2017. https://www.usaid.gov/nigeria/news-information/press-releases/usaid-launches-new-water-and-sanitation-project-nigeria

Victora, C. G., Christian, P., Vidaletti, L. P., Gatica-Domínguez, G., Menon, P., & Black, R. E. (2021). Revisiting maternal and child undernutrition in low-income and middle-income countries: variable progress towards an unfinished agenda. The Lancet.

WaterAid (2018a) https://www.wateraid.org/ng/blog/integrating-water-sanitation-and-hygiene-wash-and-health-for-improved-universal-health

WaterAid (2018b) sanitation project to impact 5,000 Kaduna households. Blueprint. Available at: https://www.blueprint.ng/wateraid-sanitation-project-to-impact-5000-kaduna-households/

WaterAid (2018c). Clean Nigeria Up. https://www.wateraid.org/ng/get-involved/clean-nigeria-campaign

WHO (2010). WASH in Schools Monitoring Package. WHO and UNICEF. 2010. Progress on sanitation and drinking water: 2010 update. Geneva: World Health Organization and United Nations Children`s Fund. Available at: https://www.who.int/water_sanitation_health/publications/jmp-wash-in-schools.pdf

WHO (2011). Water, sanitation and hygiene interventions and the prevention of diarrhoea. https://www.who.int/elena/titles/bbc/wsh_diarrhoea/en/

WHO (2012). Progress on Drinking Water and Sanitation. Joint Monitoring Programme for Water Supply and Sanitation (JMP). WHO, U. (2012). Available at http://www.who.int/water_sanitation_health/mdg1/en/inde x.html

WHO (2016). Health care without avoidable infections The critical role of infection prevention and control. https://apps.who.int/iris/bitstream/handle/10665/246235/WHO-HIS-SDS-2016.10-eng.pdf

WHO (2021a).Social determinants of Health. World Health Organisation. Available at https://www.who.int/teams/social-determinants-of-health/declaration-of-alma-ata

WHO (2021b). Primary Healthcare. World Health Organisation. Available at https://www.who.int/docs/default-source/primary-health-care-conference/quality.pdf

WHO (2021c). Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings. World Health Organisation. Available at: https://www.who.int/water_sanitation_health/publications/wash_standards_school.pdf.

WHO (2021d). Hand Hygiene Guideline. World Health Organisation. Available at: https://www.who.int/gpsc/5may/tools/who_guidelines-handhygiene_summary.pdf

WHO (2021e). World Health Organisation. Available at: https://www.who.int/water_sanitation_health/publications/wash_standards_school.pdf

WHO (2021f). Health care without avoidable infections (2021). the critical role of infection prevention and control. World Health Organisation. Available at htttps://apps.who.int/iris/bitstream/handle/10665/246235/WHO-HIS-SDS-2016.10-eng.pdf

WHO (2021g). Water, sanitation and hygiene in health care facilities Status in low- and middle-income countries and way forward. World Health Organisation. Available at: https://apps.who.int/iris/bitstream/handle/10665/154588/9789241508476_eng.pdf

WHO (2021h). Preventing Diarrhoea through better Water, Sanitation And Hygiene: Exposures and impacts in low- and middle-income countries. https://apps.who.int/iris/bitstream/handle/10665/150112/9789241564823_eng.pdfISBN 978 92 4 156482

Zainab Altine Yusuf (2021). Nigeria: RUWASSA Is Delivering Safe Water, Hygiene to Rural Areas. Leadership (Abuja). https://allafrica.com/stories/202104050184.html

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