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PRIMARY HEALTH CARE ON THE FRONTLINE: APPRAISING IT'S INFLUENCE IN CHOLERA INVESTIGATION AND CONTROL IN KABONG WARD, JOS NORTH.

[1] Azi, E J; [2] Dabo, D; [3] Amah, I. Y; [1]Adangs, L. E; [2] Uka, H.

[1]Departmen of Public Health, Faculty of Health Sciences, Plateau State University, Bokkos, Plateau State, Nigeria

[2] Department of Community Health, Jos Modern College of Health Technology, Plateau State, Nigeria.

[3] Disease Surveillance and Notification Officer (DSNO), Jos, East LGA, Plateau State Primary Health Care Board, Plateau State, Nigeria.

***Corresponding author:** AZI, EMMANUEL JOHN, aziemmanuel@plasu.edu.ng, aziejohnazi@gmail.com, +2347037705945*

ABSTRACT

Cholera remains a significant public health challenge in Kabong Ward, Jos North LGA, Plateau State, Nigeria, necessitating an effective primary healthcare (PHC) approach for outbreak investigation and control. This study assessed the role of PHCs in cholera control, identifying key challenges and evaluating government intervention. A cross-sectional survey was conducted with 150 respondents, including healthcare workers, public health officials, and community members. Data were analyzed using descriptive statistics to determine statistical significance between categorical variables. Results indicated that 63.3% of respondents were aware of surveillance activities and 53.3% had seen PHC workers conducting home visits, only 43.3% believed that cholera cases are detected early. It reflects gaps in timely reporting and community-based surveillance, the majority (73.3%) of respondents confirmed the presence of PHC-led interventions during cholera outbreaks while 56.7% attended cholera awareness programs and 36.7% believed the community was actively engaged in prevention, 33.3% indicated low or no participation, the PHC education campaigns were mostly rated as "good," but their frequency and scope need enhancement, and the major challenges identified were inadequate logistics (reported by 90 respondents), poor funding (75), insufficient training (60), and shortage of health workers (55). Despite these constraints, 76.7% of respondents expressed belief that PHC can effectively manage future cholera outbreaks if strengthened. This finding underscore the critical role of PHCs in cholera management but reveal gaps in infrastructure, awareness, and government support. Strengthening PHC facilities, improving water supply and sanitation, and increasing public health education are essential to enhancing cholera prevention and response. Government intervention should focus on resource allocation and community engagement to bolster PHC effectiveness in Plateau State.

Keywords: Cholera, Investigation, Control, Kabong, Plateau state, Nigeria.

BACKGROUND:

Cholera is an acute diarrheal illness caused by Vibrio cholerae, typically transmitted through ingestion of contaminated food or water. It presents with profuse watery diarrhea, vomiting, and dehydration which, if untreated, can lead to death within hours (WHO, 2022). Cholera is both a health and development issue, closely linked to lack of access to clean water and sanitation infrastructure and remains a significant public health concern in many developing countries, particularly in regions where access to clean water, sanitation, and effective healthcare services is limited (WHO, 2022). Nigeria, and Plateau State in particular, has experienced recurring outbreaks of cholera, often resulting in high morbidity and mortality rates. Factors contributing to these outbreaks include inadequate water, sanitation, and hygiene (WASH) infrastructure, as well as conflict and displacement, particularly in regions like Borno State, which hosts a significant number of internally displaced persons (IDPs) (Donman et al., 2017). In 2024, Nigeria faced another cholera outbreak, underscoring the ongoing public health challenge. Efforts to combat cholera have included the development and deployment of oral cholera vaccines, improvements in water and sanitation infrastructure, and emergency response strategies (Ghosh et al., 2025). The history of cholera in Nigeria reflects the broader global struggle against the disease, highlighting the critical need for sustained public health interventions and infrastructure improvements to mitigate future outbreaks (Elliot et al., 2017).
Primary health care (PHC) is defined as essential health care based on practical, scientifically sound, and socially acceptable methods and technology. It is made universally accessible to individuals and families in the community through their full participation and at a cost that the country can afford to maintain at every stage of development (World Health Organization [WHO], 2004).

The concept of PHC was formulated by 134 countries at the Alma-Ata conference in Russia on September 12, 1978, organized by the WHO. In Nigeria, PHC is a critical component of the three-tier health care system, which includes tertiary health care managed by the federal government, secondary health care overseen by state governments, and primary health care controlled by local governments. In the late 1980s, a national initiative aimed to overhaul the primary health care system through the adoption of a new national health policy, granting local government areas full jurisdiction over the delivery of primary health care services (Ifeanyi, 2025).

The PHC approach emphasizes community-based preventive and curative health services, including disease surveillance, outbreak investigation, health education, and provision of basic health care (Alma-Ata Declaration, 1978; WHO, 2018). In Nigeria, PHC facilities are expected to serve as the first point of contact for communities and play a frontline role in epidemic

control.

However, studies have shown that these health workers often lack the required knowledge to carry out their duties effectively. For example, Aisen and Shobowale (2014) discovered that more than one-third of health workers in their study believed that HIV could be spread through tears, feces, and urine. Similarly, Ebuchi (2014) observed that while PHC workers had a high degree of awareness of emergency contraceptives, they lacked specific knowledge regarding the time frame for effective use, mechanisms of action, legal status, and correct prescription of emergency contraceptive pills. Bawa (2014) found that primary health care workers had poor knowledge of notifiable diseases and reporting procedures. Other studies have indicated that knowledge gaps are largely influenced by factors such as cadre, experience, and location (Balakrishnan, 2025).

Despite the existence of PHC facilities in Kabong Ward, cholera outbreaks persist. This raises questions regarding the effectiveness and responsiveness of the PHC approach in the prevention and control of cholera. Understanding how PHC systems respond to such public health emergencies is critical for strengthening disease surveillance, community health education, sanitation improvement, and epidemic preparedness (Onwujekwe et al., 2020). Kabong Ward has experienced repeated cholera outbreaks, often with devastating health consequences. Although the PHC system is designed to manage such outbreaks through early detection, community engagement, and rapid response, there is limited data on the effectiveness of this approach in Kabong Ward. Inadequate surveillance, poor reporting systems, limited resources, and weak intersectoral collaboration may compromise outbreak control efforts (WHO-AFRO, 2014).

In light of these challenges, this study aims to examine the extent to which primary health care has been able to investigate and control cholera outbreaks in Kabong ward, Jos North LGA of Plateau State. The study will provide valuable insights into the role of primary health care in epidemic control at the community level. It will inform policymakers, healthcare providers, and development partners on strategies to strengthen PHC systems for more effective disease control. The findings will also serve as a resource for public health practitioners and students, especially in developing sustainable health interventions in low-resource settings (Adewuyi, Adefemi, & Ogunbanjo, 2019).

METHODOLOGY

Study Area

Kabong Ward is situated in the Jos North LGA, which is one of the 17 LGAs in Plateau State. The ward is located in the northern part of Jos, the state capital.

The ward is characterized by a mix of rocky outcrops, hills, and valleys. The terrain is generally rugged, with some flat areas. The climate is temperate, with two distinct seasons: a dry season and a rainy season. Kabong Ward has a relatively large population, with a diverse mix of ethnic groups, including the Berom, Afizere, anaguta and other tribes. The economy of Kabong Ward is largely informal, with many residents engaging in small-scale agriculture, trading, and craftsmanship. The ward is known for its vibrant market, where locals sell a variety of goods, including foodstuffs, clothing, and household items.

Kabong Ward has some basic infrastructure, including roads, schools, healthcare facilities, Markets (including the popular Kabong Market) and places of worship. However, the ward still faces some challenges, such as inadequate electricity supply, poor road conditions, and limited access to clean water and sanitation.

Overall, Kabong Ward is a bustling and diverse community with a strong sense of resilience and resourcefulness. Despite facing several challenges, the ward has a rich cultural heritage and a strong sense of community spirit.

This study focused on both rural and urban areas within Kabong Ward to evaluate the role of the Primary Healthcare (PHC) system in cholera outbreak investigation and control (Plateau State Government, 2023; Britannica, 2023).

Study Design

The study employed a cross-sectional and retrospective design, integrating both quantitative and qualitative methods. It evaluated previous cholera outbreaks and assessed the effectiveness of the primary healthcare system in outbreak investigation, management, and control.

Study Population

The study population comprised residents of Kabong Ward, including caregivers, community leaders, and individuals previously affected by cholera. Healthcare personnel, such as primary healthcare workers, environmental health officers, and public health administrators, were also included. Inclusion criteria were: individuals aged 18 years and above, residents of the community for at least one year, and those who gave informed consent.

Sample Size and Sampling Technique

A combination of simple random sampling and purposive sampling techniques was used to sample 150 Community members to ensure fair representation. Healthcare workers and public health officials were selected purposively due to their specialized roles in outbreak response.

Study Instruments

Data were collected using a structured questionnaire developed based on the objectives of the

study. The questionnaire consisted of five sections: Socio-demographic characteristics; PHC surveillance and early detection; PHC response strategies and intervention; community participation and health education and Challenges face by PHC personnel

Reliability:

A pilot study was conducted in Lamingo Ward, which shares similar demographic characteristics with Kabong. Twenty respondents participated in the pre-test. The test-retest method was used to evaluate the consistency of the questionnaire over time.

Validity:

Content validity was ensured through expert review by public health professionals and epidemiologists. The questionnaire was reviewed, pre-tested, and revised based on feedback before being deployed for actual data collection.

Data Collection Methods

Data were collected over a 8-weeks period (April–May 2025). Trained research assistants administered the questionnaires via face-to-face interviews, conducted in English and Hausa depending on the respondent's preference. The principal investigator supervised the process to ensure consistency and adherence to ethical guidelines.

Data Analysis

Quantitative data collected from the questionnaires were analyzed using the Statistical Package for the Social Sciences (SPSS), version 25. Descriptive statistics (frequencies, percentages, means) were used to summarize data.

Ethical Considerations

Informed consent was obtained from all participants prior to data collection. Participation was voluntary, and respondents were informed of their right to withdraw at any time without penalty. Data confidentiality and anonymity were strictly maintained, and responses were used solely for academic purposes.

RESULT

Table 1: Demographic Information of Respondents

Variables	**Frequency**	**Percentage (%)**
Gender		
Male	85	56.7
Female	65	43.3
Age Group		
18–30 years	45	30.0

31–45 years	60	40.0
46 years and above	45	30.0
Education		
No formal education	10	6.7
Primary	25	16.7
Secondary	60	40.0
Tertiary	55	36.6
Occupation		
Health Workers	30	20.0
Traders	45	30.0
Civil Servants	20	13.3
Unemployed/Others	55	36.7

A total of 150 respondents participated in this study, comprising 85 males (56.7%) and 65 females (43.3%). The largest age group was 31–45 years (40%), followed by 18–30 years (30%) and 46 years and above also (30%). Educationally majority had secondary education with 40%, 36.6% tertiary education, 16.7% primary education, and 6.7% no formal education. The presence of 20% health workers provides insight from those directly involved in PHC implementation

Table 2: PHC surveillance and early Detection

Items	**Yes %**	**No %**
Awareness of surveillance activities	63.3	36.7
Home Visit by PHC workers	53.3	46.7
Perceived early detection of cholera	49.6	50.4
Surveillance effectiveness	60.0	40.0
Prompt reporting of cholera	36.7	63.3

While most respondents (63.3%) are aware of surveillance activities, mainly through health workers home visit 53.3%, fewer (49.6%) believe that there is early detection of cholera. This points to a gap in early detection due to delay in reporting or lack of trust.

Table 3: PHC Response Strategies and interventions

Items	**Yes**	**No**

	%	%
Witness PHC interventions	73.3	36.7
Common interventions such as OR, water tablets and awareness campaigns	85	15
Response in time	35.0	65.0
Satisfaction with PHC response	35.0	65.0

Most respondents (73.3%) confirmed that PHC interventions occurred, primarily including ORT and public education (85%). However, only few (35.0%) confirmed immediate PHC response while high responded delayed in response. The fact that 65% respondents were dissatisfied suggest challenges in response coordination, supply chain delays or insufficient workforce. These findings show PHC is active but may lack speed and resources to be optimally effective.

Table 4: Community participation and health education

Items	**Yes %**	**No %**
Attended cholera awareness program	56.7	43.3
Community active participation	66.7	33.3
Good health education rating	70	30.0

The result shows moderate community involvement in cholera control. Over half of the respondents attended health campaign and one-third actively participated. However, the remaining proportion either did not engage or only participated occasionally indicating a gap in sustain community engagement. The health education effort by PHC are largely rated as good but this could be improved through more frequent outreach and culturally tailored messaging.

Table 5: challenges face b PHC personnel

Items	**Yes %**	**No %**	**Not sure %**
Adequacy of material during outbreak	30	20	50
Adequate PHC training	46.7	33.3	20
Major PHC challenges such as supply, funding and manpower	90	10	0
Belief PHC can control future outbreak	76.7	10	13.3

Half of the respondents reported that PHC lacks such as gloves, ORS and chlorine during outbreaks. Many (33.3 %) also felt that PHC staffs are not adequately trained to manage cholera which aligns with earlier concerns over response delays. The top challenge identified were logistic, funding and training. Despite these challenges, 76.7 % of respondents believe PHC can effectively control future outbreaks. A sign of strong community trust and hope if systemic improvements are made.

Discussion of findings

This study investigated the effectiveness of the Primary Health Care (PHC) approach in investigating and controlling cholera outbreaks in Kabong Ward, Jos North Local Government Area (LGA), Plateau State. Using both quantitative and qualitative methods, data were collected from 150 respondents, including PHC personnel, health volunteers, and community residents. The

PHC Surveillance and Early Detection: Although 63.3% of respondents were aware of surveillance activities and 53.3% had seen PHC workers conducting home visits, only 43.3% believed that cholera cases are detected early. This reflects gaps in timely reporting and community-based surveillance (WHO, 2022).

Response Strategies and Interventions: The majority (73.3%) of respondents confirmed the presence of PHC-led interventions during cholera outbreaks. Common strategies included distribution of Oral Rehydration Therapy (ORT), water purification tablets, public health campaigns, and referrals. However, only 26.7% rated the response as "very satisfactory," indicating issues with response time and availability of supplies (UNICEF, 2021).

Community Participation and Health Education: While 56.7% attended cholera awareness programs and 36.7% believed the community was actively engaged in prevention, 33.3% indicated low or no participation. The PHC education campaigns were mostly rated as "good," but their frequency and scope need enhancement (Adewuyi et al., 2019).

Challenges Faced by PHC Personnel: The major challenges identified were inadequate logistics (reported by 90 respondents), poor funding (75), insufficient training (60), and shortage of health workers (55). Despite these constraints, 76.7% of respondents expressed belief that PHC can effectively manage future cholera outbreaks if strengthened.

Conclusion

The Primary Health Care approach in Kabong Ward plays a critical role in the detection, investigation, and control of cholera outbreaks. However, its effectiveness is limited by systemic weaknesses such as poor surveillance integration, delayed response, insufficient community mobilization, and inadequate resources. These findings underscore the need for a

strengthened and better-resourced PHC system to ensure timely and effective outbreak control.

PHC remains the cornerstone of epidemic management at the grassroots level. Strengthening it will not only reduce the burden of cholera but also enhance the overall resilience of the health system in Kabong Ward and similar underserved communities.

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