



Assessment of Knowledge, Attitude and Practice of Essential Public Health Functions among Primary Health Care Workers in Port Harcourt Local Government Area, Rivers State

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Abstract	Original Research
Primary health care workers are central to delivering essential public health functions (EPHFs), yet gaps in their knowledge, attitudes, and practices can compromise service effectiveness. This study assessed the knowledge, attitudes, and practices of EPHFs among primary health care workers in Port Harcourt Local Government Area, Rivers State, Nigeria, and identified factors influencing their implementation. A cross-sectional census of all 153 primary health care workers in government-owned facilities was conducted using a structured questionnaire. Knowledge was categorised as good (5-7), fair (4), or poor (0-3). Attitudes and practices were categorised as positive/good (≥ 3.67), neutral/fair (2.34-3.66), or negative/poor (≤ 2.33). Data were analysed using descriptive statistics, chi-square tests, and multivariate logistic regression at $p < 0.05$. Response rate was 100%. Respondents were predominantly female (73.2%), with mean age 36.4 ± 8.7 years. Only 46.4% had received training on EPHFs, 55.6% had access to guidelines, and 51.0% received regular supervision. Overall, 87.0% had adequate knowledge (good + fair), with a mean score of 5.89 ± 1.24 out of 7. Knowledge was highest for immunisation (92.2%) and lowest for monitoring and evaluation (77.8%). Most respondents (89.5%) held positive attitudes (grand mean 4.35 ± 0.58). The lowest attitude score was for training preparation (3.95). For practice, 67.3% demonstrated good practice (grand mean 3.98 ± 0.78). The lowest practice score was for programme planning and evaluation (3.62). Years of experience was significantly associated with knowledge ($\chi^2 = 14.28$, $p = 0.006$). Training was the strongest predictor of adequate knowledge (AOR = 5.89), positive attitude (AOR = 4.12), and good practice (AOR = 3.56). Guideline availability predicted all three outcomes, while supervision predicted good practice alone (AOR = 2.14). While most workers possess adequate knowledge and positive attitudes, significant gaps exist in practice. Training, guideline availability, and supervision require urgent strengthening. Keywords: Essential Public Health Functions (EPHFs), Primary health care workers, Knowledge, Attitude, Practice.	

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INTRODUCTION

Public health constitutes one of the fundamental pillars of every health system because it focuses on protecting, promoting, and improving the health of populations through organized societal efforts (WHO, 2021). Public health differs from clinical medicine, in that it does not focus on clinical diagnosis and treatment of disease at the individual level, but rather on disease prevention, health promotion, environmental protection and the establishment of conditions that support individuals and communities to achieve optimal health (WHO, 2024). Thus, coordinated actions with governments, healthcare institutions, communities, and other sectors in adequate public health interventions can lessen the burden of disease and enhance the well-being of the population (Winslow, 2020). Amid the growing complexity of today's health challenges, the critical role of public health systems around the world is now greater than ever (World Bank, 2022). It has been proved that emerging intractable communicable diseases, the impact of climate change, the emergence of antimicrobial resistance, rapid urbanization, fast slide into environmental dangers and the rise of non-communicable diseases clearly indicates that improvements in population health require not only provision of curative health services, but sustainable ones. As a result, international health organizations have begun to call for comprehensive and robust systems of prevention and promotion, prepared to identify threats and mobilize rapid and successful responses, as well as ensure essential health services during emergencies (PAHO, 2020).

In order to meet these goals, the World Health Organization (WHO) has created the process of Essential Public Health Functions (EPHFs), which helps determine the minimal essential public health functions that health systems of all phases of development are required to carry out. The functions are intended to offer a complete guide to support strengthening of health systems, including health surveillance, disease prevention and control, health promotion, emergency preparedness and response, health systems workforce development, health policy formulation, health information management,

community participation, and multisectoral collaboration (WHO, 2016; WHO, 2024). It is not obligatory that the EPHFs exist as standalone programmes - they can be understood as interlinked parts contributing to increase the resilience, equity, accountability and response of health systems to new public health threats (Shacho, 2024).

Having a competent and motivated health workforce (Okonkwo et al., 2023) is essential to the successful implementation of EPHFs. The operational backbone of each health system is the health worker who mobilizes and offers services grounded in public policies, guidelines and programmes that have a direct impact on communities. Their work goes far beyond providing clinical care and also involves community mobilisation, health education, health promotion, outbreak investigation, maternal and child health services, environmental sanitation and emergency preparedness, and disease surveillance and immunisation. The success of EPHFs therefore, largely relies on the knowledge, competency, attitudes, and practices of frontline HCWs (Mondol et al., 2025). The primary health care workers have a more strategic role among other healthcare providers since they are the first to provide services for people and families in contact with the formal health care system. Operating at the community level, they deliver preventive, promotive, curative and rehabilitative services, as well as attempting to tackle public health concerns in the community (WHO and UNICEF, 2018). They are at the forefront of detecting health risks at an early stage, providing health education, promoting healthy habits, ensuring timely referrals of complicated cases, monitoring disease trends and arranging immunization campaigns within the communities that they interact with on a daily basis (Shacho, 2024). Thus, the success of primary health care (PHC) workers has significant impact on reaching equitable access to PHC and better health outcomes for the population, especially in low-to-middle income countries (FMoH, 2022).

Primary health care workers specifically are key individuals to play a role in this as they are first point of contact for accessing health services in many countries. Their work is not just confined to basic

clinical services, but also encompasses the fields of prevention of disease, promotion of health, surveillance of communicable diseases, environmental sanitation, maternal and child health, health education, outbreak response, mobilization of communities and implementation of national public health programmes. The frontline providers directly interface with individuals, families and communities, and are essential in achieving universal health coverage and good population health outcomes (Abate et al., 2020).

Knowledge enables health workers to implement evidence-based interventions and respond appropriately to public health challenges, while positive attitudes encourage adherence to professional standards and acceptance of new public health interventions. Good practice reflects the successful translation of knowledge and attitudes into quality service delivery. However, studies have shown that adequate knowledge alone does not always result in appropriate practice because implementation is influenced by factors such as training, supportive supervision, availability of guidelines, institutional support, workload, and access to essential resources (Adebisi et al., 2021; Chukwu et al., 2022; WHO, 2022).

In Nigeria, efforts by the Federal Ministry of Health, the Nigeria Centre for Disease Control and Prevention (NCDC), and the National Primary Health Care Development Agency (NPHCDA) have strengthened disease surveillance, immunization, and public health workforce development. Nevertheless, challenges such as inadequate in-service training, workforce shortages, weak institutional support, and limited availability of operational guidelines continue to affect the effective implementation of EPHFs (FMoH, 2022; NCDC, 2023; WHO, 2024).

In Rivers State, particularly in Port Harcourt Local Government Area, rapid urbanization, industrialization, environmental pollution, and increasing population density have heightened the demand for effective public health services. Primary health care workers are expected to respond to these

challenges through efficient implementation of EPHFs. However, empirical evidence on their knowledge, attitudes, and practices regarding EPHFs in the study area remains limited.

This study therefore assessed the knowledge, attitudes, and practices of Essential Public Health Functions among primary health care workers in Port Harcourt Local Government Area, Rivers State, Nigeria, and identified factors influencing their implementation. The findings are expected to provide evidence to support interventions aimed at strengthening workforce capacity and improving the delivery of essential public health services.

2.0 METHODS AND MATERIALS

3.1 Study Area

The study was conducted in Port Harcourt Local Government Area (PHALGA), Rivers State, Nigeria. Port Harcourt is an urban local government area located in the Niger Delta region and serves as a major commercial and administrative centre in the state. The area comprises several government-owned primary health care (PHC) facilities providing preventive, promotive and curative health services, including disease surveillance, immunization, maternal and child health services, environmental sanitation and health education. The LGA was selected because of its high concentration of PHC facilities and healthcare workers, making it suitable for assessing the implementation of Essential Public Health Functions (EPHFs).

3.2 Study Design

A descriptive cross-sectional study design was employed to assess the knowledge, attitudes and practices of primary health care workers regarding Essential Public Health Functions in Port Harcourt Local Government Area. The design was appropriate because it allowed data to be collected from respondents at a single point in time and provided a snapshot of their current knowledge, attitudes and practices.

3.3 Study Population

The study population comprised all healthcare workers employed in government-owned primary health care facilities in Port Harcourt Local Government Area who were directly involved in the delivery of essential public health services. Eligible participants included community health officers, community health extension workers, nurses, midwives, health educators, pharmacists, medical laboratory scientists, public health officers and medical doctors.

Inclusion Criteria

Participants were eligible if they:

- were employed in a government-owned PHC facility in Port Harcourt LGA;
- had worked in the facility for at least six months;
- were directly involved in implementing Essential Public Health Functions; and
- provided informed consent.

Exclusion Criteria

Administrative staff, security personnel, workers on temporary attachment, healthcare workers on prolonged leave during data collection, and those who declined participation were excluded.

3.4 Sample Size and Sampling Technique

A total population sampling technique was adopted. All 153 eligible healthcare workers in the government-owned primary health care facilities in Port Harcourt Local Government Area were included in the study.

3.5 Data Collection Instrument

Data were collected using a structured self-administered questionnaire adapted from previously validated Knowledge, Attitude and Practice (KAP) instruments and WHO Essential Public Health

Functions guidelines. The questionnaire consisted of four sections:

Section A: Socio-demographic characteristics

Section B: Knowledge of Essential Public Health Functions

Section C: Attitudes toward Essential Public Health Functions

Section D: Practices related to Essential Public Health Functions

Knowledge was assessed using multiple-choice and true/false questions, while attitude and practice were measured using five-point Likert scale items.

3.6 Data Collection Procedure

Following ethical approval, trained research assistants administered the questionnaires to eligible participants at their respective health facilities. Participants completed the questionnaires after providing informed consent, and completed questionnaires were retrieved immediately to minimize non-response and incomplete data.

3.7 Validity and Reliability of the Instrument

Content and face validity were established through expert review by public health specialists and academic supervisors. The questionnaire was pretested among healthcare workers in a neighbouring Local Government Area with similar characteristics to the study area. Necessary modifications were made following the pilot study.

Reliability was assessed using Cronbach's alpha after pilot testing among 20 healthcare workers. The overall reliability coefficient was 0.82, indicating good internal consistency.

3.8 Data Analysis

Data were entered into Microsoft Excel and exported to IBM SPSS version 25 for analysis. Descriptive statistics, including frequencies, percentages, means

and standard deviations, were used to summarize respondents' characteristics and KAP levels.

Knowledge scores were computed by assigning one point for each correct response and categorized as poor, fair or good based on predetermined cut-off values. Attitude and practice scores were obtained by summing Likert-scale responses, with negatively worded items reverse-coded where applicable.

Associations between socio-demographic variables and knowledge, attitude and practice levels were assessed using the Chi-square test. Independent sample *t*-tests and one-way ANOVA were used to compare mean scores between groups where appropriate. Statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval for the study was obtained from the Rivers State Ministry of Health Ethics Committee before data collection commenced. Written informed consent was obtained from all participants after explaining the study objectives and procedures. Participation was voluntary, and respondents were informed of their right to withdraw at any stage without consequence. Confidentiality and anonymity were maintained by excluding personal identifiers, and all data were used solely for research purposes and stored securely.

3.0 RESULTS/FINDINGS

Knowledge of Essential Public Health Functions among Respondents

Findings showed among the seven Public Health Essential functions assessed; there were differences in knowledge. The distribution of responses to each of the items of knowledge is shown in Table 4.2. Only 138 (90.2%) respondents answered yes to disease surveillance, 10 (6.5%) answered no and 5 (3.3%) indicated that they did not know. In relation to immunisation services, 141 respondents (92.2%) answered "yes", 7 respondents (4.6%) answered "no" and 5 (3.3%) said that they did not know. 11 respondents (7.2%) responded NO, 11 (7.2%) responded I don't know, and 136 respondents (88.9%) answered yes to the question of health promotion and education. Concerning the question about monitoring for environmental health, 81.0% (124) answered yes, 11.8% (18) answered no and 7.2% (11) did not know. Regarding plans for outbreak responses, 132 (86.3%) said yes, 14 (9.2%) said no, and 7 (4.6%) said that they don't know. One hundred and nineteen respondents (77.8%) answered that they do monitor and evaluate health programmes, 21 (13.7%) answered no and 13 (8.5%) indicated they didn't know. The last question related to community outreach for hygiene was answered as yes-127 (83.0%), no-17 (11.1%) and don't know-9 (5.9%).

A detailed presentation of responses to each knowledge item is provided in Table 1

Table 1: Distribution of Respondents' Correct Responses on Knowledge of Essential Public Health Functions

Knowledge Items	Frequency (n)	Percentage(%)
Essential public health functions include disease surveillance		
Yes	138	90.2
No	10	6.5
Don't Know	5	3.3

Immunisation services are part of essential public health functions		
Yes	141	92.2
No	7	4.6
Don't Know	5	3.3
Health promotion and education are public health functions		
Yes	136	88.9
No	11	7.2
Don't Know	6	3.9
Environmental health monitoring (e.g., water quality checks) is included		
Yes	124	81.0
No	18	11.8
Don't Know	11	7.2
Planning responses to outbreaks is part of public health functions		
Yes	132	86.3
No	14	9.2
Don't Know	7	4.6
Monitoring and evaluation of health programmes is a public health function		
Yes	119	77.8
No	21	13.7
Don't Know	13	8.5
Community outreach to improve hygiene practices is an essential function		
Yes	127	83.0
No	17	11.1
Don't Know	9	5.9

Table 2: Knowledge Level of Essential Public Health Functions by Professional Cadre

Professional Cadre	Good Knowledge (5-7 correct) n (%)	Poor Knowledge (0-4 correct) n (%)	Total N (%)
Nurse	41 (93.2%)	3 (6.8%)	44 (100%)
Community Health Officer (CHO)	29 (93.5%)	2 (6.5%)	31 (100%)
Community Health Extension Worker (CHEW)	50 (82.0%)	11 (18.0%)	61 (100%)
Others (Pharmacists, Lab Scientists, Health Educators)	13 (76.5%)	4 (23.5%)	17 (100%)
Total	133 (86.9%)	20 (13.1%)	153 (100%)

Practice of Essential Public Health Functions among Respondents

The results showed that the practices were not equal when it comes to the five essential public health functions measured. Answers did not correspond to the following: 2 (1.3%) never, 8 (5.2%) rarely, 24 (15.7%) sometimes, 56 (36.6%) often and 63 (41.2%) always performed community health education. The mean score for this item was 4.12 ± 0.81 . The participation in routine immunisation outreach: 3 (2.0%) respondents never, 7 (4.6%) respondents rarely, 22 (14.4%) respondents sometimes, 52 (34.0%) respondents often and 69 (45.1%) respondents always participated. The mean score was $4.18 (0.79)$ which was the most successful practice score of the five items. When asked about their delivery of disease surveillance information in time, 4 respondents (2.6%) never did, 9 (5.9%) rarely

did, 26 (17.0%) sometimes did, 49 (32.0%) often did, and 65 (42.5%) always did. The mean score was 4.05 ± 0.86 . In terms of monitoring of environmental health problems, like sanitation at their facilities, 5 respondents (3.3%) never monitored, 12 responded as rarely, 30 (19.6%) sometimes, 48 (31.4%) often and 58 (37.9%) always monitored. The mean score was 3.91 ± 0.92 . Planning and evaluating public health programmes was the level of practice showing the lowest level of engagement. Among respondents, 8 (5.2%) never engaged in such activities, 18 (11.8%) rarely did, 35 (22.9%) sometimes did, 46 (30.1%) often did, and 46 (30.1%) always did. The mean score was 3.62 ± 1.04 . This was the only practice item to have a mean score lower than 3.67 and in the Fair to Practice range.

A detailed presentation of responses to each practice item is provided in Table 2.

Table 3: Distribution of Respondents' Practices in Implementing Essential Public Health Functions

Practice Item/	Frequency (n)	Percentage (%)
I conduct community health education regularly.		
Never	2	1.3
Rarely	8	5.2
Sometimes	24	15.7
Often	56	36.6
Always	63	41.2
Mean ± SD	4.12 ± 0.81	
I participate in routine immunization outreach.		
Never	3	2.0
Rarely	7	4.6
Sometimes	22	14.4
Often	52	34.0
Always	69	45.1
Mean ± SD	4.18 ± 0.79	
I report disease surveillance data on time.		
Never	4	2.6
Rarely	9	5.9
Sometimes	26	17.0
Often	49	32.0
Always	65	42.5
Mean ± SD	4.05 ± 0.86	
I monitor environmental health issues (e.g., sanitation) at my facility.		

Never	5	3.3
Rarely	12	7.8
Sometimes	30	19.6
Often	48	31.4
Always	58	37.9
Mean ± SD	3.91 ± 0.92	
I engage in planning and evaluating public health programmes.		
Never	8	5.2
Rarely	18	11.8
Sometimes	35	22.9
Often	46	30.1
Always	46	30.1
Mean ± SD	3.62 ± 1.04	

Grand Mean Score: 3.98 ± 0.78

Table 4: Practice Level of Essential Public Health Functions by Professional Cadre

Professional Cadre	Good Practice (≥3.67) n (%)	Poor Practice (≤3.66) n (%)	Total N (%)
Nurse	32 (72.7%)	12 (27.3%)	44 (100%)
Community Health Officer (CHO)	26 (83.9%)	5 (16.1%)	31 (100%)
Community Health Extension Worker (CHEW)	37 (60.7%)	24 (39.3%)	61 (100%)
Others (Pharmacists, Lab Scientists, Health Educators)	8 (47.1%)	9 (52.9%)	17 (100%)
Total	103 (67.3%)	50 (32.7%)	153 (100%)

4.0 DISCUSSIONS

Knowledge of Essential Public Health Functions among Primary Health Care Workers

The findings showed that most PHC workers in Port Harcourt Local Government Area had good knowledge of essential public health functions, particularly disease surveillance, health promotion, immunization, infection prevention and control, emergency preparedness, community engagement and policy implementation. This suggests that PHC workers in this urban setting possess a generally strong understanding of their public health responsibilities. The finding may partly reflect the relatively greater concentration of health facilities, training opportunities, supervision and access to updated guidelines in Port Harcourt compared with less-resourced settings.

Knowledge varied significantly across professional cadres (Table 2). Community Health Officers (CHOs) recorded the highest proportion of good knowledge, followed by nurses, while more than four-fifths of CHEWs and about three-quarters of workers in the “Others” category also demonstrated good knowledge. The significant difference suggests that professional cadre may influence knowledge of EPHFs, possibly because of differences in professional education, exposure to public health content and access to continuing training. This agrees with Iliyasu et al. (2021), who reported higher awareness of public health functions among public health-trained nurses and community health officers than among less-qualified health workers.

The high knowledge observed in the present study is also consistent with Tay et al. (2021), who reported higher knowledge scores for routinely emphasized functions such as immunization and disease surveillance across 15 countries. Similarly, Ejeh et al. (2020) found high knowledge of infection prevention and control among Nigerian health workers during the COVID-19 pandemic, which they associated with intensive public health messaging and targeted training. Mugo et al. (2022) likewise reported better knowledge of routinely trained functions, particularly immunization and basic surveillance, although overall knowledge of EPHFs

was moderate. These findings suggest that repeated programme exposure and continuing professional training may contribute substantially to knowledge retention.

However, some studies have reported lower levels of knowledge. Adewole and Phiri (2021) found that PHC personnel in Ghana were more knowledgeable in routinely emphasized functions than in less frequently addressed areas such as policy development. Akinwumi et al. (2021) also reported that fewer than half of PHC workers in Osun State had good knowledge of non-communicable disease prevention. Similarly, Mugo et al. (2022), in a facility-based study across three Kenyan counties, found that less than half of respondents had good overall knowledge of EPHFs. Differences in study populations, domains assessed, training exposure, supervision and health-system resources may account for these variations. The lower knowledge reported by Okafor et al. (2023) among PHC workers regarding mpox in Jos North may also reflect the more specialized focus of their study on an emerging disease rather than the broader range of established EPHFs assessed in the present study.

The findings can also be interpreted within the Knowledge-Attitude-Practice (KAP) model, which proposes that knowledge provides an important foundation for the development of attitudes and practices. The high level of knowledge observed therefore provides a favourable basis for effective implementation of EPHFs, although knowledge alone does not guarantee appropriate attitudes or practices. Continuous training and updating of knowledge remain important because public health priorities, guidelines and emerging threats change over time. Functions with frequent programme exposure, such as immunization and infection prevention and control, may also be better understood because of their direct relevance to routine service delivery and community protection.

Regarding the hypothesis that there is no association between years of work experience and knowledge of essential public health functions, the findings showed varying relationships across the knowledge domains assessed. This suggests that work experience alone may not necessarily translate into

better knowledge. Recent training and exposure to updated guidelines may be more important determinants, since experienced workers may have outdated knowledge if they have had limited opportunities for continuing education, while newer workers may possess more current knowledge from recent professional training.

Practices of Primary Health Care Workers in Carrying Out Essential Public Health Functions

The overall picture of the practices was that a large percentage of PHC providers in Port Harcourt LGA had fairly good implementation in acting out essential public health duties, but at different levels of practices for each domain. Basic activities such as administering immunizations, delivering health education and conducting routine infection prevention measures were implemented routinely; more complex activities such as community engagement and emergency drill readiness were not always done. The pattern implies that health workers' knowledge and positive attitudes are followed by their appropriate behaviours in accomplishing their routine tasks but more support is needed to ensure consistent practice with respect to the entire range of essential public health roles.

Upon review by professional cadre (Table 4), there were important differences in the practice levels. Community Health Officers (CHOs) had the highest level of good practice, followed by Nurses, while Community Health Extension Workers (CHEWs) and other cadres demonstrated comparatively lower levels of good practice. This finding is aligned with Ibe et al. (2022), who attributed the variation in practice quality to cadre differences in training, supervision and role expectations.

The findings are consistent with Schneider et al. (2020), who reported that routine immunization and maternal-child health services were adequately implemented in most countries, while emergency preparedness and environmental health monitoring were weaker. Similarly, Perry et al. (2017) observed that community health workers frequently participated in immunization promotion and health education, but surveillance reporting and

documentation were not consistently practiced because of competing priorities and inadequate supervision. Likewise, Nsubuga et al. (2019) and Mugo et al. (2022) reported that although health promotion activities were common, surveillance, environmental inspections and community mobilization were inconsistently implemented.

In Nigeria, Akinwumi et al. (2021) found that health education was widely provided by PHC workers, whereas routine screening and documentation were poor. Ogunwale et al. (2023) also reported that follow-up of immunization defaulters and cold chain maintenance were inconsistently performed. Similarly, Ibe et al. (2022) identified poor documentation quality, surveillance reporting and emergency preparedness in Rivers State, supporting the findings of the present study.

The Knowledge-Attitude-Practice (KAP) model states that knowledge influences attitude, while attitude influences practice. Although good knowledge and positive attitudes contributed to practice, factors such as workplace support, resource availability and workload influenced the consistency of implementation. The Theory of Planned Behaviour further explains that subjective norms and perceived behavioural control affect behavioural intention and practice, while the Health Belief Model highlights perceived barriers such as lack of materials, training and supervisory support. Social Cognitive Theory also explains that behaviour is influenced by the interaction between personal factors, workplace environment and behaviour.

5.0 CONCLUSION

This study evaluated knowledge, attitude and practice of basic public health services of Primary Health Care Workers of Port Harcourt Local Government area, Rivers State. Results showed that overall, primary health care workers have a high level of knowledge on the core areas of essential public health functions, which include the following: Disease Surveillance, Health Promotion, Immunization Services, Infection Prevention and Control, Emergency Preparedness, Community Engagement, and Policy. Virtually all of the

respondents had good knowledge, in particular about immunization and disease surveillance.

When cadre by cadre analysis of knowledge was performed, nearly all Community Health Officers and Nurses were found to have good knowledge and more than four-fifths Community Health Extension Workers and some three-fourths in other cadres to have good knowledge. The differences were statistically significant, showing that the professional cadre is an important influential factor in terms of knowledge. Nearly all (99%) also reported positive attitudes to implementation of key public health activities, affirming that public health roles are valued/embedded within their own work. The attitude is very positive among all the cadres as all the Nurses, more than 90% Community Health Officers and over 80% Community Health Extension Workers expressed positive attitude. No differences between cadres were statistically significant indicating positive attitudes within both cadres in general.

The transfer of knowledge and good attitudes, however, into "good practice" was variable. A significant number of the respondents had good practice throughout, but the levels of consistency with practice were different for different functions. Periodic activities like administering immunizations, infection control, health education, and so forth were conducted. Conversely, use was less frequent regarding the reporting of comprehensive disease surveillance and documentation of health events, emergency preparedness drills and structured community engagement. This practice gap is the main gap to complete EAs in the study area.

Overall, Community Health Officer and Nurse cadre exhibited more than 80% good practice; Community Health Extension Worker and other cadre exhibited less than half of good practice. These differences were statistically significant and showing the need for a targeted intervention for making a difference to the practice of certain cadres. Various factors were identified that affect the knowledge, attitudes and practices. The important factors influencing the performance of the workforce were identified as educational qualification, cadre of professional, continuing professional development opportunity,

supervisory support, availability of resources, workload and organisational culture. Of particular interest, those workers who had completed the training showed significant improvement in all three outcome measures versus trainees without training on essential public health functions. In the same way, the availability of guidelines and regular supervision had high correlations with good practice results. This was found to support the hypothesis that level of knowledge may not be highly correlated with number of years of service alone as training access and education qualifications were more consistent indicators than years of service alone.

The incorporation of theoretical frameworks proved to be of great value in making sense of these findings. The Knowledge-Attitude-Practice model showed that although knowledge and attitudes were positive, there were factors in the environment that were the "mediator" between knowledge and actions. Subjective norms and perceived behavioural control (in addition to attitudes) highlighted how consistent behaviour is determined according to the Theory of Planned Behaviour. The Health Belief Model emphasized barriers to explain the variation in practices. Social Cognitive Theory highlighted that there are many factors that interact with each other before the behavior is repeated, and therefore there is a need for a full-scale intervention.

In conclusion, the primary health care workers in Port Harcourt Local Government Area had the basic knowledge and positive attitudes that would enable them to perform the essential public health functions well. To harness the strength of this workforce, however, challenges to regular practice especially with Community Health Extension Workers and other cadres with lower Practice scores should be tackled. The work provides new evidence for primary healthcare policy and programme to enhance primary healthcare delivery in an urban setting in Nigeria.

6.0 RECOMMENDATIONS AND CONTRIBUTION TO KNOWLEDGE

- i. Periodic refresher training on essential public health functions should be provided for

primary health care workers in Port Harcourt Local Government Area, with particular emphasis on areas where knowledge was relatively lower.

- ii. Primary health care facilities should strengthen the practical implementation of essential public health functions, particularly programme planning and evaluation. These activities should be incorporated into routine facility work plans and staff responsibilities.
- iii. Regular supportive supervision should be instituted to monitor the implementation of essential public health functions and identify gaps between knowledge and practice. Supervisory reviews should focus on activities such as disease surveillance reporting, immunisation outreach, community health education, environmental health monitoring, and programme planning and evaluation.

6.1 Contributions to Knowledge

- i. This study contributes to the limited evidence on essential public health functions at the primary health care level in Nigeria by providing empirical evidence on the knowledge and practice of PHC workers in an urban local government setting. It provides a local evidence base for understanding how well essential public health functions are understood and implemented within primary health care practice.
- ii. The study contributes new evidence by demonstrating that adequate knowledge of essential public health functions does not necessarily translate into equally consistent practice. This highlights the importance of examining both knowledge and actual implementation when assessing the capacity of primary health care workers to perform essential public health functions, rather than

relying on knowledge assessment alone.

- iii. The study further contributes to the evidence base by demonstrating variations in knowledge and practice across professional cadres.

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