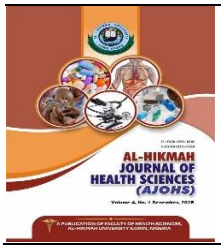
P-ISSN: 2811-1516
E-ISSN: 2811-1524



AL-HIKMAH JOURNAL OF HEALTH SCIENCES (AJOHS)

Official Publication of Faculty of Basic Medical Sciences

Al-Hikmah University Ilorin, Nigeria

https://alhikmahuniversity.edu.ng/AJOHS/index.php/journal

Original Article

Practices and Challenges of Disease Surveillance and Reporting among Healthcare Workers in Primary Health Care Centres in Ilorin West Local Government Area, Kwara State, Nigeria

Isolah Rahliat Tiamiyu[1], Bode Kayode[2], Abdulraheem I.S.[3] and Oladimeji L.O.[4]

[1,2,3& 4]Department of Community Medicine and Public Health, Faculty of Basic Medical Sciences, College of Health Sciences, Al-Hikmah University, Ilorin.

ARTICLE INFO

Article History
Received: 29th September, 2026
Accepted: 11th October, 2026
Available online: 15th November, 2026

Keywords:
Disease surveillance
Knowledge and practice
Healthcare workers
IDSR
Primary health care

Corresponding Author:

Isolah Rahliat Tiamiyu
Department of Community Medicine and Public Health, Faculty of Basic Medical Sciences, Al-Hikmah University, Ilorin, Nigeria.

Email: adeshin380@gmail.com

ABSTRACT

Background: The entire surveillance chain in in Nigeria is impacted by gaps in knowledge, practice and enabling conditions. This study assessed healthcare workers' practices, and perceived challenges regarding disease surveillance and reporting in primary health care centres in Ilorin West Local Government Area, Kwara State, Nigeria.

Methodology: A quantitative, descriptive cross-sectional design was adopted among healthcare workers involved in disease surveillance and reporting across primary health care centres in Ilorin West Local Government Area. A multistage sampling procedure was used to select 205 healthcare workers, of whom 201 questionnaires were valid for analysis (98.0% response rate). A self-administered, researcher-structured questionnaire was used for data collection. Data were analysed using descriptive statistics and Chi-square tests at 0.05 alpha level.

Results: The results showed that surveillance and reporting practices were moderately adequate and significantly associated with years of work experience. Substantial challenges were reported, which were significantly associated with reduced engagement in surveillance activities.

Conclusion: Inadequate training, limited work experience, and heavy workload constitute critical, interrelated obstacles to effective disease surveillance and reporting at the primary health care level in Ilorin West LGA.

Please cite this article as: Isolah, R.T., Kayode, B., Abdulraheem, I.S. & Oladimeji, L.O. (2026). Practices and Challenges of Disease Surveillance and Reporting among Healthcare Workers in Primary Health Care Centres in Ilorin West Local Government Area, Kwara State, Nigeria. *Al-Hikmah Journal of Health Sciences, 5*(3), 81-88.

Introduction

Disease surveillance is the scientific and factual basis for public health action, providing an early warning system for outbreaks, disease monitoring, assessment of control measures and evidence-based allocation of health resources (McNabb et al., 2002). An effective surveillance system has several important roles: timely detection of outbreaks and epidemics, tracking of the magnitude and distribution of health issues, detection of changes in disease patterns, identification of high-risk populations, assessment of prevention and control programmes, and generation of hypotheses for the next study (German *et al.*, 2001). The functions highlight the essential nature of surveillance in protecting population health and health security at a local, national and global scale (World Health Organization, 2022).

Knowledge and practices of healthcare workers are key elements of the performance of surveillance system, as they are the initial nodes for surveillance in

P-ISSN: 2811-1516
E-ISSN: 2811-1524

the wider public health network. In this context, knowledge includes: Healthcare workers' awareness of the goals of surveillance; Understanding of case definitions for priority diseases; Awareness of reporting procedures and time frame; and Understanding their role and responsibilities within the framework of surveillance (Tsegaye *et al.*, 2020). This has been demonstrated in different contexts and found that good knowledge is a necessary condition for good surveillance practice, but is not sufficient to achieve good practice in the absence of appropriate infrastructure, resources and organisational commitment (Adokiya *et al.*, 2020).

The Integrated Disease Surveillance and Response (IDSR) strategy has been adopted by Nigeria to bolster its capacity in the detection, reporting and response to priority diseases in accordance with the requirements of the International Health Regulations (World Health Organization, 2022). In spite of this arrangement, primary health care facility performance in terms of surveillance varies in Nigeria. Only 56.8% of healthcare workers in Northeast, Ethiopia, had good knowledge of IDSR (Tsegaye *et al.,* 2020) and only 82.3% were knowledgeable about IDSR, but only 38.2% had been formally trained in Anambra State (Nnebue *et al.,* 2013). In addition to a lack of knowledge, there are always systemic barriers that hinder surveillance practice. In a systematic review conducted in sub-Saharan Africa, Phalkey *et al.* (2015) identified heavy workload, resource constraints, lack of supervision and lack of motivation as some of the most commonly mentioned challenges to performing surveillance effectively, which was also found in the Nigerian context by Lar *et al.* (2020) and Abubakar *et al.* (2023). More recent Nigerian evidence confirms that these gaps persist: a quasi-experimental study in Enugu State found that training and provision of IDSR forms produced significant improvements in surveillance knowledge and practice relative to an untrained control group (Ibiok et al., 2021), while a 2025 cross-sectional study in Sokoto State similarly found that healthcare workers' educational qualification and years of work experience were significantly associated with their level of disease surveillance and notification knowledge (Akadri, 2025).

Primary health care centres are key sentinel surveillance points and the first point of contact for the majority of the people seeking health care services in Nigeria (Oleribe *et al.*, 2019), making them an integral part of the health system that provides the foundation for detecting and reporting disease outbreaks. The fact that Nigeria has currently been experiencing outbreaks of Lassa fever, an emerging and re-emerging infectious disease, as well as the cholera epidemic and the COVID-19 pandemic, clearly shows the urgent need for strong, and responsive, surveillance systems at this basic level (Ajayi et al., 2021). The entire surveillance chain in primary health care level is impacted by any gaps in knowledge, practice and enabling conditions.

Although, primary health care centres play a crucial role in the surveillance programme of Nigeria, there is a paucity of context-specific studies on the knowledge, practices, and problems of disease surveillance and reporting among health workers in primary health care centres in Ilorin West Local Government Area (LGA), Kwara State. This gap limits the scope of health authorities to develop targeted capacity building interventions in this setting based on evidence (Somda et al., 2009). In this regard, the aims of this study were as follows: To determine the current practices of disease surveillance and reporting among the healthcare workers and to identify the challenges and barriers affecting disease surveillance and reporting in primary health care centres in the study area.

Research Methodology

Research Design

The study adopted a cross-sectional survey design which is descriptive in nature. This design is suitable for determining existing knowledge, practices, and issues associated with disease surveillance and reporting at a particular point in time (Setia, 2016), and facilitated the systematic gathering of quantitative data among healthcare workers, enabling statistical examination of the variables under study.

Population of the Study

The target population comprised all healthcare workers involved in disease surveillance and reporting activities in primary health care centres within Ilorin West Local Government Area, Kwara State, including doctors, nurses, midwives, community health officers, and community health extension workers. According to data obtained from the Local Government Health Department, Ilorin West Local Government Area has about 25 primary health care centres with an estimated 350 healthcare workers involved in disease surveillance and reporting activities.

Sample Size Determination and Sampling Techniques

Because the target population (N = 350) is finite and below the 10,000 threshold above which a population is conventionally treated as infinite, the Finite Population Correction (FPC) formula was applied to the initial Cochran (1977) sample size of 384, yielding a corrected minimum sample size of 184 healthcare workers. This figure was further adjusted upward by 10% to account for anticipated non-response, producing a final target sample of 205 healthcare workers. A multistage sampling procedure was

P-ISSN: 2811-1516
E-ISSN: 2811-1524

employed. In the first stage, a full listing of all functional primary health care centres within Ilorin West Local Government Area was carried out. In the second and third stages, proportionate and stratified sampling techniques were used to select healthcare workers from the various facilities. Of the 205 questionnaires administered, 201 were valid and usable for analysis, representing a response rate of 98.0%.

Research Instrument

The main data collection tool was a self-administered, structured questionnaire constructed based on the literature review and adapted from validated instruments applied in comparable studies (Tsegaye et al., 2020; Adokiya et al., 2020). The questionnaire consisted of two sections. Section A elicited information on the socio-demographic characteristics of respondents, while Section B contained statements on knowledge, practices, and challenges related to disease surveillance and reporting, structured on a four-point Likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree. The questionnaire was administered electronically via Google Forms. Rather than a public, open link, the Google Forms link was shared directly and individually with the specific healthcare workers identified through the multistage, proportionate and stratified sampling procedure described above (via their personal phone numbers/facility WhatsApp platforms), so that only the pre-identified sample of 205 respondents received and completed the questionnaire; the link remained open for a four-week period to accommodate respondents' schedules.

Validity of the Instrument

Content validity was ensured by developing questionnaire items based on extensive literature review and aligning them with the study objectives and research questions (Taherdoost, 2022). The initial draft was submitted to a panel of three public health experts at Al-Hikmah University, who independently reviewed the questionnaire for relevance, clarity, comprehensiveness, and appropriateness of items. Face validity was further assessed by the project supervisor, and comments from the experts and supervisor were incorporated to refine the instrument prior to the reliability assessment.

Reliability of the Instrument

The reliability of the questionnaire was established through internal consistency testing. A pilot study was conducted among 20 healthcare workers (approximately 10% of the calculated sample size) in primary health care facilities in Ilorin South Local Government Area, an area with similar characteristics to the study area but excluded from the main study. Cronbach's Alpha coefficient was calculated for each section of the questionnaire, yielding a minimum acceptable value of 0.88, confirming that the instrument was reliable.

Method of Data Analysis

The coding of data, data entry, cleaning of data and analysis of data were done using the Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistical analysis (frequency, percentage, mean and standard deviation) was used to summarise socio-demographic characteristics and item responses. The association between categorical variables such as training status, years of experience, workload burden and knowledge, practice, and engagement outcomes examined was evaluated through chi-square tests of association. All analyses were performed at a $p < 0.05$ level of statistical significance.

Ethical Consideration

Ethical clearance was given by the Kwara State Ministry of Health Research Ethics Committee (Approval Number: ERC/MOH/2026/06/777), and further permission was granted by the officer-in-charges of the selected Primary Health Care facilities and the Ilorin West Local Government Health authority. The purpose, procedure, risks, benefits and voluntary nature of the study was explained to all participants and informed consent was obtained. The confidentiality and anonymity of the participants was maintained, with code numbers being used instead of names and data securely stored with only members of the research team having access to this.

Results

Demographic Characteristics of Respondents

Table 1: Demographic Characteristics of Respondents

S/N	Characteristics	Frequency	Percentage (%)
1.	**Age (years)**		
	20-30	67	33.3
	31-40	77	38.3
	41-50	38	18.9
	51 and above	19	9.5
	Total	201	100.0
2.	Gender		

P-ISSN: 2811-1516
E-ISSN: 2811-1524

	Male	88	43.8
	Female	113	56.2
	Total	201	100.0
3.	**Profession**		
	Doctor	28	13.9
	Nurse	85	42.3
	Midwife	41	20.4
	Community Health Officer	47	23.4
	Total	201	100.0
4.	**Years of Experience**		
	Less than 2 years	26	12.9
	2-5 years	58	28.9
	6-10 years	72	35.8
	Above 10 years	45	22.4
	Total	201	100.0
5.	**Received IDSR Training**		
	Yes	117	58.2
	No	84	41.8
	Total	201	100.0

Table 1 shows the demographic characteristics of the 201 healthcare workers who participated in the study. Most respondents, 77 (38.3%), fell within the 31-40 years age bracket, and females constituted the majority, 113 (56.2%), compared with males, 88 (43.8%). Nursing was the predominant professional cadre, 85 (42.3%), followed by community health officers, 47 (23.4%), midwives, 41 (20.4%), and doctors, 28 (13.9%). Regarding years of experience, most respondents, 72 (35.8%), had between 6 and 10 years of clinical service. Notably, only 117 (58.2%) of respondents had received formal Integrated Disease Surveillance and Response (IDSR) training, while 84 (41.8%) had never been trained on the national surveillance protocol.

Research Question One: What are the current practices of disease surveillance and reporting among healthcare workers in Ilorin West Local Government Area?

Table 2: Descriptive Statistics of Current Practices of Disease Surveillance and Reporting

Item	SA	A	D	SD	Mean	SD
I consistently report all suspected cases of notifiable diseases encountered in my practice.	71 (35.3%)	78 (38.8%)	35 (17.4%)	17 (8.5%)	3.01	0.94
I use standardized case definitions when identifying and reporting diseases under surveillance.	58 (28.9%)	76 (37.8%)	45 (22.4%)	22 (10.9%)	2.84	0.97
I submit disease surveillance reports within the stipulated timeframes.	65 (32.3%)	74 (36.8%)	40 (19.9%)	22 (10.9%)	2.90	0.99
I maintain accurate and complete records of all cases identified for surveillance purposes.	72 (35.8%)	80 (39.8%)	33 (16.4%)	16 (8.0%)	3.03	0.93
I actively participate in disease surveillance activities such as case investigation and contact tracing.	55 (27.4%)	71 (35.3%)	51 (25.4%)	24 (11.9%)	2.78	0.99
I regularly review and analyze surveillance data from my facility to identify disease trends.	41 (20.4%)	68 (33.8%)	59 (29.4%)	33 (16.4%)	2.58	1.01
I provide feedback to my colleagues about surveillance findings and disease patterns in our community.	47 (23.4%)	72 (35.8%)	54 (26.9%)	28 (13.9%)	2.69	1.00
Grand Mean					2.83	

P-ISSN: 2811-1516
E-ISSN: 2811-1524

Table 2 revealed a grand mean of 2.83 for practices of disease surveillance and reporting which meant the health care workers practised disease surveillance at moderate level in primary health care centres in Ilorin West Local Government Area. The strongest practice item was maintenance of accurate and complete case records (mean = 3.03), followed by consistent reporting of all suspected notifiable cases (mean = 3.01), while the weakest areas of practice included reviewing surveillance data to identify disease trends (mean = 2.58) and giving feedback about surveillance findings to other colleagues (mean = 2.69).

Research Question Two: What are the challenges and barriers affecting disease surveillance and reporting in primary health care centres in Ilorin West Local Government Area?

Table 3: Descriptive Statistics of Challenges and Barriers to Disease Surveillance and Reporting

Item	SA	A	D	SD	Mean	Rank
Inadequate training and capacity-building programmes hinder effective disease surveillance and reporting in my facility.	98 (48.8%)	74 (36.8%)	20 (10.0%)	9 (4.5%)	3.30	2nd
Heavy workload and staff shortage make it difficult to prioritize surveillance activities.	104 (51.7%)	71 (35.3%)	18 (9.0%)	8 (4.0%)	3.35	1st
Lack of essential resources (reporting forms, communication tools, internet access) affects my ability to report diseases promptly.	96 (47.8%)	77 (38.3%)	19 (9.5%)	9 (4.5%)	3.29	3rd
Poor coordination and communication between different levels of the health system creates barriers to effective surveillance.	88 (43.8%)	78 (38.8%)	24 (11.9%)	11 (5.5%)	3.21	6th
Inadequate supervision and supportive feedback from supervisors negatively impacts surveillance reporting.	91 (45.3%)	76 (37.8%)	23 (11.4%)	11 (5.5%)	3.23	5th
Lack of incentives and motivation discourages healthcare workers from actively engaging in surveillance activities.	93 (46.3%)	73 (36.3%)	25 (12.4%)	10 (5.0%)	3.24	4th
Community resistance and poor health-seeking behaviour limit disease detection and reporting in my catchment area.	76 (37.8%)	79 (39.3%)	33 (16.4%)	13 (6.5%)	3.08	7th
Grand Mean					3.24	

Table 3 revealed that the mean for challenges/barriers to disease surveillance/reporting was 3.24, which suggests that the healthcare workers strongly agreed that multiple challenges/barriers significantly affect disease surveillance practice in the Local Government Area, Ilorin West. Heavy workload (mean = 3.35, ranked 1st) and staff shortage (mean = 3.30, ranked 2nd) were the most consistently endorsed barriers followed by inadequate training and capacity building (mean = 3.29, ranked 3rd) and lack of essential resources including reporting forms, communication tools, and internet access (mean = 3.29, ranked 3rd) with 87.0% agreeing or strongly agreeing. Community resistance and poor health-seeking behaviour had the lowest mean score of 3.08 (ranked 7th), but it was positive within the range of agreement.

Hypotheses Testing

H_0^1: There is no significant association between years of work experience and surveillance and reporting practices among healthcare workers in primary health care centres in Ilorin West Local Government Area.

Table 4: Chi-Square Test of Association between Years of Experience and Surveillance Practice Level

Item	≥ 6 Years	< 6 Years	Total	χ^2
High Practice	91 (78.4%)	24 (28.6%)	116	
Low Practice	25 (21.6%)	60 (71.4%)	85	
Total	117 (57.7%)	84 (42.3%)	201	52.47

Note. $\chi^2(1) = 52.47$, $p < .001$. Critical value $\chi^2(1) = 3.841$ at $p = .05$. Total $n = 201$

P-ISSN: 2811-1516
E-ISSN: 2811-1524

At 0.05 alpha level with 1 degree of freedom, calculated chi-square value was 52.47 which is higher than the critical chi-square value of 3.841. Among the healthcare workers who had more than 6 years of experience, 78.4% had high surveillance practice, while 28.6% had less than 6 years of experience, who had high surveillance practice. The calculated value of χ^2 is larger than the critical value so the null hypothesis is rejected. This means that the relationship between the years of work experience and the quality of surveillance and reporting practice of the healthcare workers in PHCCs in Ilorin West LGA is statistically significant.

H_{02}: There is no significant association between perceived workload burden and engagement with disease surveillance and reporting activities among healthcare workers in primary health care centres in Ilorin West Local Government Area.

Table 5: Chi-Square Test of Association between Perceived Workload Burden and Surveillance Engagement

Item	High Workload	Low Workload	Total	χ^2
Low Engagement	87 (79.1%)	14 (22.2%)	101	
High Engagement	23 (20.9%)	49 (77.8%)	72	
Total	110 (63.6%)	63 (36.4%)	173	64.83

Note. $\chi^2(1) = 64.83$, $p < .001$. Critical value $\chi^2(1) = 3.841$ at $p = .05$. Total n = 173 (28 cases excluded via listwise deletion due to missing/incomplete responses on the workload-burden or engagement items; see Limitations).

The calculated Chi Square value is 64.83 and the critical Chi Square value is 3.841 at alpha level of 0.05 and with 1 degree of freedom. Only 22.2% of healthcare workers indicated low workload burden and 79.1% indicated low engagement with surveillance activities, as compared to workers indicating low workload burden. The calculated χ^2 value is greater than the critical value, which means that the null hypothesis is rejected. This indicates that there is a statistically significant relationship between workload burden perception and involvement in disease surveillance activities of healthcare workers in primary health care centres in Ilorin west local government area.

Discussion

The grand mean for practices (2.83) shows moderately good but less than optimal surveillance practices. Results of this study confirmed that the lowest quality of practice were related to the analysis of practice, including reviewing surveillance data to identify trends (mean = 2.58) and giving feedback to colleagues (mean = 2.69), as identified in several studies. In the present study, good surveillance practice was demonstrated among 45.9% of healthcare workers, while 64.3% of the workers demonstrated good knowledge, which is similar to the findings of Bante et al. (2018) in southern Ethiopia where they found only 45.9% of the healthcare workers demonstrated good surveillance practice, while 64.3% of the workers demonstrated good knowledge. Mandyata et al. (2017) found barriers to surveillance in Zambia included heavy clinical workloads, supporting the dimension of barriers identified in this study, and Lakew et al. (2017) found that surveillance is significantly associated with trained staff and regular supervision, which was consistent with the present study.

The highest across all the dimensions measured, grand mean of 3.24 for challenges and barriers, shows that the healthcare workers in Ilorin West are faced with a formidable set of challenges for effective surveillance. The most important obstacle was heavy workload (mean = 3.35), closely followed by inadequate training (mean = 3.30) and resource deficiencies (mean = 3.29). The results are similar to those of a systematic review by Phalkey et al. (2015), who found that workload, resource limitations, supervision shortages and motivational problems were the most commonly reported challenges to surveillance performance in sub-Saharan Africa. The results of the chi-square analysis indicated that there was a statistically significant relationship between perceived workload and the surveillance engagement ($\chi^2(1) = 64.83$, $p < .001$), as 79.1% of the high workload group reported low surveillance engagement. In Ethiopia, 82% of HCWs reported heavy workload as a significant barrier, with resource-specific barriers, like the lack of reporting forms, communication tools and internet access also observed, which is similar to the infrastructure deficiencies found by Abubakar et al. (2023) in Nigerian primary health care facilities. These multi-dimensional barriers require system and concerted action rather than a piecemeal training approach.

Conclusion

The results of this study show that the quality of surveillance and reporting by healthcare workers is moderately satisfactory, while higher-order practices like data review, trend analysis and inter-colleague reporting remain notably low, with years of work experience having a significant association with practice quality. Lastly, the burden of challenges and barriers for effective surveillance is enormous and multidimensional for healthcare workers, with the major challenges include heavy workload, shortage of

P-ISSN: 2811-1516
E-ISSN: 2811-1524

workers, lack of adequate training, lack of resources etc, among which the perceived burden of workload was significantly associated with the reduction of engagement in the activities of healthcare workers in the surveillance of health care workers in Ilorin West Local Government Area, Kwara State.

Recommendations

The study findings led to the following recommendations:

It is highly recommended that more healthcare workers should be recruited and retained to work in health centres in primary health care to decrease the burden of work identified as the major barrier to surveillance performance, state and federal health authorities should prioritise.

Task-shifting protocols should be developed during periods of high workload and protected time for surveillance activities should be provided within each facility, allowing for designated surveillance focal points.

The Ilorin West Local Government Primary Healthcare Board (LGPHB) and the Kwara State Ministry of Health (KSMoH) should ensure that standardised case-definition charts, surveillance reporting forms, communication materials and basic internet access (BINA) are available at all PHCs at all times.

Limitation of the Study

The study is restricted to health care workers of the primary health care centres in the Ilorin West Local Government Area of Kwara State. A cross-sectional descriptive design of the quantitative approach was utilized, therefore the findings cannot be generalized to other geographical locations, private healthcare facilities, or secondary and tertiary healthcare facilities. Moreover, knowledge and practice data were collected based on the self-report of healthcare workers rather than actual performance that could lead to social-desirability and recall bias. The cross-tabulations in Tables 7 is based on slightly smaller sub-samples (n = 173, respectively) than the full valid sample (n = 201), owing to missing or incomplete responses on specific classification items (workload-burden, or engagement) that were excluded via listwise deletion for those specific hypothesis tests; this is noted under the relevant table and should be borne in mind when comparing results across tables.

References

Abubakar, A., Sambo, M., Idris, S., Sabitu, K., & Nguku, P. (2023). Assessment of integrated disease surveillance and response strategy implementation in selected Local Government Areas of Kaduna State. *Annals of Nigerian Medicine,* 7(1), 14-19.

Adokiya, M. N., Awoonor-Williams, J. K., Barau, I. Y., Beiersmann, C., & Mueller, O. (2020). Evaluation of the integrated disease surveillance and response system for infectious diseases control in Northern Ghana. *BMC Public Health,* 15(1), 75.

Ajayi, N. A., Nwigwe, C. G., Azuogu, B. N., Onyire, B. N., Nwonwu, E. U., Ogbonnaya, L. U., Onwe, F. I., & Ekaete, T. (2021). Containing a Lassa fever epidemic in a resource-limited setting: Outbreak description and lessons learned from Abakaliki, Nigeria (January-March 2018). *PLoS Neglected Tropical Diseases,* 15(3), e0009471.

Akadri, A. (2025). Knowledge and practice of disease surveillance and notification among health workers in Wamakko LGA of Sokoto, Nigeria. Nigeria Medical Journal, 66(2), 500. https://doi.org/10.71480/nmj.v66i2.643

Bante, A., Mersha, A., Tesfaye, B., Tsegaye, T., Shibiru, T., & Ayalew, Z. (2018). Challenges of disease surveillance and response system in selected woredas of Gurage zone, southern Ethiopia. *Epidemiology: Open Access,* 8(2), 341.

Cochran, W. G. (1977). Sampling techniques (3rd ed.). John Wiley & Sons.

German, R. R., Lee, L. M., Horan, J. M., Milstein, R. L., Pertowski, C. A., & Waller, M. N. (2001). Updated guidelines for evaluating public health surveillance systems. *Morbidity and Mortality Weekly Report,* 50(RR-13), 1-35.

Ibiok, N. C., Aniwada, E. C., Ossai, E. N., Nwobi, E. A., & Uzochukwu, B. S. C. (2021). The effect of training and provision of logistic support on disease surveillance and notification system in private health facilities in Enugu State, Nigeria. Nigerian Journal of Medicine, 30(5), 573-580. https://doi.org/10.4103/NJM.NJM_226_20

Lakew, G. A., Wassie, E., Ademe, A., Fenta, A., Wube, M., Bante, A., & Hailemariam, D. (2017). Status of surveillance and routine immunization performances in Amhara Region, Ethiopia: Findings from in-depth peer review. *Pan African Medical Journal,* 27(Suppl 2), 6.

Lar, L. A., Afolaranmi, T. O., Tagurum, Y. O., Uzochukwu, B., & Zoakah, A. I. (2020). Challenges of integrated disease surveillance response reporting among healthcare personnel in Mangu, Plateau State, Nigeria. *Journal of Public Health and Epidemiology,* 7(4), 108-113.

Mandyata, C. B., Olowski, L. K., & Mutale, W. (2017). Challenges of implementing the

P-ISSN: 2811-1516
E-ISSN: 2811-1524

integrated disease surveillance and response strategy in Zambia: A health worker perspective. *BMC Public Health,* 17(1), 746.

McNabb, S. J., Chungong, S., Ryan, M., Wuhib, T., Nsubuga, P., Alemu, W., Carande-Kulis, V., & Rodier, G. (2002). Conceptual framework of public health surveillance and action and its application in health sector reform. *BMC Public Health,* 2, 2.

Nnebue, C. C., Onwasigwe, C. N., & Adogu, P. O. (2013). Effectiveness of data collection and information transmission process for disease notification in Anambra State, Nigeria. *Nigerian Journal of Clinical Practice,* 16(4), 483-489.

Oleribe, O. O., Momoh, J., Uzochukwu, B. S., Mbofana, F., Adebiyi, A., Barbera, T., Williams, R., & Taylor-Robinson, S. D. (2019). Identifying key challenges facing healthcare systems in Africa and potential solutions. *International Journal of General Medicine,* 12, 395-403.

Phalkey, R. K., Yamamoto, S., Awate, P., Marx, M., & Schnur, A. (2015). Challenges with the implementation of an Integrated Disease Surveillance and Response (IDSR) system: Systematic review of the lessons learned. *Health Policy and Planning,* 30(1), 131-143.

Setia, M. S. (2016). Methodology series module 3: Cross-sectional studies. *Indian Journal of Dermatology,* 61(3), 261-264.

Somda, Z. C., Meltzer, M. I., Perry, H. N., Messonnier, N. E., Abdulmumini, U., Mebrahtu, G., Sacko, M., Nanyunja, M., Katz, R., Ijaz, K., & Zignego, E. (2009). Cost analysis of an integrated disease surveillance and response system: Case of Burkina Faso, Eritrea, and Mali. C*ost Effectiveness and Resource Allocation,* 7, 1.

Taherdoost, H. (2022). Validity and reliability of the research instrument: How to test the validation of a questionnaire/survey in a research. *International Journal of Academic Research in Management,* 5(3), 28-36.

Tsegaye, A., Mekonnen, B., Yitbarek, K., Sisay, A., Sharma, H. R., Paul, D., & Mekonnen, D. (2020). Knowledge and practice of healthcare professionals towards integrated disease surveillance and response at Dessei Town, Northeast Ethiopia: A facility-based mixed study. *Ethiopian Journal of Health Development,* 34(4), 279-288.

World Health Organization. (2022). *International Health Regulations (2005)* (3rd ed.). WHO.