

Challenges to Effective Implementation of Integrated Disease Surveillance and Response Among Health Workers in Nigeria: A Systematic Review

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ABSTRACT

Introduction: With the high disease burden in most developing countries, especially in Africa, the integrated disease surveillance and response strategy was implemented in Nigeria to create an effective surveillance system. However, despite the adoption of the strategy, the desired goal has still not been met. **Objective:** This systematic review aimed to evaluate the challenges to effective implementation of IDSR among health workers in Nigeria. **Methods:** The study employed a systematic review of literature published in English with a focus on health workers in Nigeria. The search was conducted in databases, namely, PubMed, CINAHL, Advanced Google Scholar, Web of Science, and grey literature search. The PRISMA protocol was adopted for clarity in reporting, and quality appraisals were done using the MMAT tool. A total of 23 papers were included for the review, out of 2326 articles. The included articles focused on IDSR challenges among health workers in Nigeria and their recommendations for effective implementation. **Results:** Despite the high awareness noticed in the recent studies reviewed, there is low implementation of the strategy among health workers. The challenges faced by health workers, as shown by this review, were identified across all IDSR core and support functions. Low reporting due to lack of awareness and knowledge; lack of feedback and supervision; low case confirmation; lack of emergency preparedness unit; low laboratory capacity. **Conclusion:** Although the country has shown a lot of accomplishments since the implementation of IDSR, there are still obvious gaps in this implementation.

Keywords: IDSR, health workers, challenges, Nigeria

INTRODUCTION

Disease surveillance is the ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in the planning, implementation, and evaluation of public health practice.[1].It functions by monitoring, describing, and determining the incidence and prevalence of disease; identifying key risk populations; timely detection of epidemics; productive modelling, and evaluating health improvement programs.[1] The basic components

of surveillance include (1) collection, (2) analysis, (3) dissemination, and (4) response[.2] These components of disease surveillance simultaneously involve the health care delivery system, laboratories, and health workers (Institute of Medicine (US) Forum on Emerging Infections, 2000).[3]

According to FMOH Nigeria, active surveillance system collects disease data that necessitates a stimulus to health care workers in the form of feedback or incentives, which takes more time and resources than a passive surveillance system [4.] The data in an active system is more complete, accurate, and provides timely information, unlike a passive surveillance system [.5].

Strong surveillance systems have aided in the prevention of emerging and re-emerging diseases, such as the eradication of smallpox and the poliomyelitis eradication campaign [6.] However, this was not the case in 1918, when there was no integrated surveillance or as a result of a weak surveillance system, influenza (H1N1 virus) pandemic claimed the lives of 50 million people.[7].

A good surveillance system serves many functions in public health as highlighted above, as well as outbreak detection (i.e., rapid detection of disease incidence).[2].

Surveillance is critical for a country like Nigeria, which similarly to most developing countries in Africa, faces major public health challenges such as infectious diseases outbreaks, vector control, maternal and infant mortality, and non-communicable diseases, but the country still struggles with the implementation of an effective surveillance system.[8]

Following the re-emergence of large outbreaks of meningitis, cholera, yellow fever, and measles in West Africa in 1998, the World Health Organization Regional Office for Africa regional committee at its 48th meeting implemented the integrated disease surveillance and response (IDSR) Strategy in September 1998 to combat the high rate of mortality and disease burden associated with a lack of a good surveillance system in Africa.[9, 10] One of the goals of the IDSR strategy is to improve local government authorities' ability to detect and respond to diseases and conditions that cause a high rate of death, illness, and disability.[11]

The IDSR tool was adopted in Nigeria in 2002 and has proven to be an effective strategy for controlling and preventing diseases, particularly communicable diseases.[12,9,,8] However, Nigeria continues to struggle with the implementation of an effective IDSR tool, as disease-related data collection, collation, analysis, and interpretation in public health institutions is frequently incomplete and late, partly due to the challenges faced by health workers and their understanding of the importance of their role in disease surveillance.[13]. Also, there have been reports of doctors in Nigerian government hospitals having a poor understanding of disease notification and a lack of IDSR form usage by health workers. [14.15]

Indeed, potential disease threats have been identified in Nigerian health facilities, but poor epidemiological data collection has hampered the entire surveillance process, as demonstrated by the recent COVID-19 pandemic, which has been especially prominent in the last year.[16]. Even though HCWs were aware of their vulnerability to COVID-19 infection, nothing was done to improve the debilitating situation.[17]. Poor knowledge of infection prevention and control (IPC) measures for COVID-19, insufficient supply of personal protective equipment (PPE), lack

of political will, and insufficient management support in HFs were cited as reasons for the rapid spread of the infection in Nigeria. [17.] Therefore, to reduce the risk of COVID-19 infection and other infectious diseases among HWs, improved political will and better involvement of HFs management teams in IPC systems are required.[16].

METHODOLOGICAL APPROACH

A methodology involves the procedures and philosophical ideas that guide various approaches to data extraction and analysis.[18]. This study used a systematic review (a narrative review) to investigate the barriers to effective IDSR implementation among Nigerian health workers. This was done by synthesizing primary studies and exploring these studies through the description.

RESEARCH DESIGN

The systematic review technique was found to be the most appropriate and was thus used for this research. As opposed to other types of research, systematic reviews aim to identify, evaluate, and summarise the findings of all relevant individual studies on a related issue, thereby making the available evidence more accessible to the researchers, public, and decision-makers.[19].

ETHICAL CONSIDERATIONS

All the studies reviewed were available in the public domain hence no ethical challenges regarding confidentiality were encountered. Access permission for some of the studies included in this review was obtained from the writer through direct emailing of writers or publishers, while access to others was already given by writers by making them available for public access.

Inclusion Criteria

Articles that met the following criteria were included in the study

- All primary studies conducted solely in Nigeria in relation to the topic and developed in English.
- All published and unpublished articles of any type of methodology that relates to the topic were included. Unpublished studies refer to studies that were not published or were not included in any study reports published in scientific journals (Trespidi et al., 2011) [20]

Exclusion Criteria

- Studies that focused on one particular disease and did not discuss the challenges and knowledge of HCWs surrounding the effective implementation of IDSR in Nigeria.
- Studies with no full text.
- Studies whose research results and conclusion did not answer their study questions.

SELECTION PROCESS

To select papers meeting the inclusion criteria, electronic databases such as PubMed, Web of Science, Cumulative Index for Nursing and Allied Health Literature (CINAHL), a comprehensive advanced Google Scholar search, and snowball searching were employed.

Snowballing was particularly well done by searching the reference (or citations) list of included studies to identify additional studies. Keywords and free terms relating to the IDSR system were used in various combinations. The following keywords were used in various combinations ("surveillance," "integrated disease surveillance and response," "Disease surveillance," "health worker," "Nigeria," "implementation," "Public health surveillance". These keywords were combined using the Boolean operator "AND" to get a narrowly defined relevant article. The list of citations was saved in Endnote X8 and checked for duplicates. Titles and abstracts were reviewed using predefined inclusion criteria as explained above. Papers with titles and abstracts meeting the inclusion criteria were selected for full-text review. The Mixed Methods Appraisal Tool (MMAT) version 2018 was used as a critical appraisal tool for quality appraisal of the included studies in this research

The strength of the papers was determined by doing a quality appraisal with Mixed Method Appraisal Tool (MMAT).

RESULTS

A total of 23 primary studies were extracted from 2326 potential records after a thorough systematic search in electronic databases. This was obtained first by screening and removing duplicates, which resulted in the removal of 826 records. The next step was to screen by title, which removed another 1213 records, leaving a total of 287. The records were reduced to 94 after a total of 193 were removed via abstract screening because they did not meet the inclusion criterion. The 94 records were evaluated for eligibility, and 71 were excluded based on the following criteria: Of the 60 records, 11 were not based on IDSR functions, and 11 lacked access to the full text. In the end, 23 eligible papers were appraised for their quality, and all 23 papers are included in this review after knowing their strength. The 23 papers chosen for this review included twenty (20) cross-sectional studies (analytical, comparative, and descriptive) and three (3) quasi-experimental studies. These papers consist of one (1) qualitative data collection, fourteen (14) quantitative data collections, and eight (8) mixed methods. These studies were conducted in various Nigerian states and health settings, and they all focused on health workers and the challenges they faced in implementing IDSR in Nigeria.

Data on 5,325 HWs were obtained from all 23 studies conducted in Nigeria's various states. Yobe, Oyo, Edo, Ondo, Anambra, Enugu, Plateau, Lagos, Adamawa, Borno, Taraba, Abia, FCT, Kano, Maiduguri, Akwa Ibom, Ekiti, Ogun, and Osun are the 19 (out of the 36) states that were represented by the studies obtained. Each of these studies sought to identify the challenges faced by HWs in the implementation of IDSR, and they included private health facilities, laboratories, and public and teaching hospitals. Except for study four (a voluntary study but consent was obtained from participants), all of the studies received ethical approval from their respective research sites.

Ten (10) of the 23 reviewed studies identified "reporting" as one of the most difficult challenges faced by health workers in implementing IDSR. The reason for low reporting across these studies was attributed to a lack of knowledge and awareness. The knowledge in these studies was defined based on their responses to the IDSR guidelines; identification of the tools of IDSR and how to report them.

Three out of the ten studies demonstrated lack of knowledge about how to report priority diseases, this was attributed to either due to lack of reporting infrastructure, or ignorance. Another reason captured by Study was that health workers were too busy to report, particularly since reporting with health facilities was based on self-reports by health workers. However, seven of the studies in this review showed a higher level of awareness than the rest, and this is because the health workers in the later studies had good training and good practices over the years.

Lack of feedback as a barrier to IDSR implementation was identified in five out of 23 studies. According to these studies, there is no feedback from the local government to the health facilities due to a lack of communication between these levels, lack of materials and resources, and even a wrong attitude towards them. In cases where there are reports of feedback, it is either infrequent, verbal, or too low and very poor.

Low implementation of IDSR in the private sector was also reported as a huge barrier to IDSR. [21; 22...23]. Despite that, the private and alternative medicine practitioners provide a large portion of health care in most low- and middle-income countries, and there have been reports of low IDSR implementation among them. [22, 21, 24] The reason has been attributed to a lack of laws surrounding IDSR in the private sector, lack of awareness and paucity of manpower. [14.]

DISCUSSION

Similar to the findings in this review, a study by Adokiya et al. [25] in Ghana describes that the implementation of IDSR in Africa is enormously faced with reporting problems which are characterized by limited reporting forms and the use of paper-based reporting mechanisms due to limited technological and infrastructural capacity. Furthermore, Maponga et al,[2] stated that reporting forms for critical information might upset data analysis efforts,[26] while other findings depict that low reporting was due to the following factors such as lack of awareness of IDSR guidelines, a lack of training, a lack of knowledge on reporting, and a lack of resources for reporting. [14 27,28,29,30,31]

However, some of the studies in this review showed a high level of awareness and this high level of awareness was attributed to the government's supportive supervision and biannual training to strengthen disease notification in the state, widespread access to information through the internet, cell phones, and emails, a lot of the respondents had a good practice, and the respondents had been sponsored to attend several workshops on disease notification, But, despite the high level of awareness shown across many of the studies, there were still gaps in IDSR form completion, incorrect identification of IDSR forms, and a lack of knowledge of IDSR guidelines, confusion about who to report, and a lack of motivation. This pattern of high awareness with low notification/reporting was also observed in a South African study, where the majority (92%) of HCWs were aware of the IDSR guidelines and reported diseases under the IDSR, but only 51% of those notified of diseases were correctly sent to the designated department.[32] This means that more knowledge about IDSR has to be properly communicated as information is a very vital part of public health surveillance. Relevant recommendations to increase knowledge from the included studies include IDSR support functions like training, case confirmation, equipment and communication infrastructure, and even human resources.[33]

Lack of feedback and supervision demotivates health workers and impedes accurate disease surveillance reporting.[34] Lack of feedback and supervision from higher authorities was a significant factor, and these findings were very similar to surveys conducted in the United States (US) and Germany, where it was reported that a key obstacle to the surveillance reporting system was a lack of feedback and supervision [35]. In a study conducted in Ghana, Adokiya et al. confirmed that a lack of feedback and supervision was a major barrier for health workers [25]. This was very consistent in most of the studies included in this study because no feedback was provided at all, and the only study that received feedback was through occasional verbal calls, which were very inconsistent. These findings are very similar to those of a study conducted in Tanzania, where respondents from health facilities cited a lack of feedback as a factor in late reports.[34]. Another study in Zambia found that more than 63.5% of the respondents thought feedback from higher levels was lacking.[36]

A study by Ng'etich et al. emphasizes that low case confirmation and low laboratory capacity are major factors in effective disease surveillance and notification system.[37] This is currently evident and consistent across the studies in this review as a lack of knowledge in case confirmation and identification posed a major challenge to disease surveillance in general. This is similar to a study conducted in Malawi, where laboratory capacity was a barrier to case confirmation because respondents were unable to perform certain tests (x-rays, full blood count) in the laboratories.[38] This was due to a lack of equipment at the facility.[38] Even though it's clear that IDSR implementation consolidates surveillance efforts with laboratory support to achieve effective public health action and response.[39].

Most of the included studies advocated for HCWs training, IDSR awareness and knowledge, resources, and the relevance of an effective feedback mechanism in the system. [40, 41,42]

Additional results of this study also show that there is limited participation of private facilities in IDSR implementation due to some shortcomings such as lack of awareness, human resources, feedback, and even the laws governing them. This conforms to a study carried out in Lagos which expounds that less than one-tenth of the private facilities in his study have never seen disease notification forms nor participated in disease notification.[43] He further narrates that awareness of the Disease Surveillance and Notification (DSN) policies was generally low, due to lack of knowledge of how to report, and for those who had reported before, they lack the mechanism for feedback on the diseases they have reported. [43]

RECOMMENDATIONS

- A review of the Laws of the Federation, making it mandatory to report notifiable diseases, especially in the private sector with a clear statement on whose responsibility it is to report diseases.
- IDSR guidelines should be added to medical school modules
- IDSR and disease surveillance awareness campaigns should be carried out to sensitize the general public through mass media, social media, emails, public address systems, multimedia presentations, educational and communication materials, etc.
- Education, regular hands-on training, retraining of staff, and routine emergency preparedness drills to improve their knowledge in preparedness.

CONCLUSION

The reviewed disease surveillance assessment studies in Nigeria over the years clearly show the accomplishments since the implementation of IDSR. However, there are still gaps in implementation among Nigerian health workers. This systematic review examined the literature on the barriers to effective IDSR implementation among Nigerian HWs. The review identified several key challenges in the implementation of IDSR among Nigerian health workers as well as recommendations to address those challenges.

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