

Responses to Epidemic Prevention in Nigeria; Hand Hygiene Practices During and After Ebola Virus Disease Outbreak

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Abstract

Most infections are thought to be transmitted by contact with an infected person's body fluid, e.g., Ebola virus disease (EVD). Following the recent EVD outbreak in Nigeria, the essence of this study was to assess the responses to epidemic prevention in Nigeria by individuals and institutions; a comparative study of hand hygiene practices during and after EVD outbreak was carried out.

The aim of this study was to indirectly assess the level of the nation's preparedness to combating disease outbreak by assessing the attitude and practice of hand hygiene among the general population and institutions in Abuja – FCT, Nigeria, after the EVD outbreak and to investigate the presence of the necessary facilities and supplies required for hand hygiene in institutions (schools, banks, hospitals, hotels and NGOs working on healthcare). These institutions were observed to be complying with high hygiene and safety practices and had adequate prevention facilities during the EVD outbreak in Nigeria. A cross-sectional descriptive and observational study was conducted. Observation of the presence of safety facilities and utilization/compliance was conducted at the selected institutions. Staff attitudes and perceptions towards hand hygiene were assessed through self-administered questionnaire to management staff in 10 different institutions: 2 each of schools, hospitals, banks, hotels and health NGOs. Another questionnaire was administered to clients of the institutions to get their own view on the institutions' attitude and practices of hand hygiene during and after EVD outbreak and also to cross check this information with the one provided by the Institutions. A total of 50 questionnaires were administered for this study; 10 to the institution and 40 to their clients. The study showed that 100% of the respondents had adequate knowledge of the EVD and the strategies employed for prevention, about 30% of the respondents were still adhering to the safety precautions like frequent hand wash and use of hand sanitizers; 30% did it intermittently and 40% did so only when they deemed it necessary. On institutional provisions of hand hygiene facilities, 30% still had the facilities in place, 20% no longer provided while 50% had some (water and soap) but not all the needed hand hygiene facilities available.

Keywords: Ebola virus disease; Outbreak; Safety; Compliance; Sanitizers; Hand-hygiene

Abbreviations: APIN: AIDS Project in Nigeria; CHAI: Clinton Health Access Initiative; EOC: Emergency Operation Centre; EVD: Ebola Virus Disease; FCT: Federal Capital Territory; FHI: Family Health International; IEC: Information, Education and Communication; IHVN: Institute of Human Virology in Nigeria; IM: Incident Manager; IMS: Incident Management System; LASUTH: Lagos State University Teaching Hospital; LUTH: Lagos University Teaching Hospital; NCDC: National Centre for disease Control; NGO: Non-Governmental Organization; MSH: Management Science for Health

Introduction

What is Ebola virus disease?

The first case of Ebola virus disease outbreak was recorded in remote villages in Central Africa, near tropical rainforests, but most recently, the outbreak in West Africa has involved major urban as well as rural areas [1]. At the moment, there no licensed treatment proven to neutralize the virus but some blood and drug therapies are under development [2,3]. A good outbreak control strategy engages an integrated intervention package like; case management, surveillance and contact tracing, a good laboratory service, safe burials and social mobilization. Early care with rehydration therapy and treatment of symptom increases chances for survival. There are currently no licensed Ebola vaccines [4,5]. Community involvement and engagement is a key to a successful control of outbreaks [6].

Ebola virus disease in Nigeria

Thomas Sawyer was the first man to be diagnosed of Ebola in

Nigeria. He was a Liberian exposed to EVD at his hometown. He arrived in Nigeria on the 20th of July, 2014, vomiting with diarrhea and fever and was immediately treated for malaria. Due to his failure to respond to the treatment for malaria and for the fact that he travelled from a country already known with Ebola cases; the physician ordered that the patient be isolated and Ebola virus test be conducted on him. As blood specimen was collected and sent to Lagos University Teaching Hospital, local Public Health Authorities were notified about this suspected Ebola case. The test actually turned out positive for Ebola virus infection.

It was later discovered that the patient was exposed to the virus while attending to his sick sister who was diagnosed of having EVD in his home town. The patient developed a fever and while under observation in hospital in Liberia for possible EVD, he left the hospital against medical advice. Even though he was advised not to travel, he joined a team on July 20 to Lagos, where he dropped the "Ebola package" for Nigerians; but the patient when queried about Ebola during his admission in the hospital, denied having any known

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exposure; hence he was initially presumed to have malaria and treated as such. The patient died on July 25, 2014 [7,8].

Experimental

Health sector response to Ebola in Nigeria

The Ebola case in Nigeria came suddenly following the arrival of Thomas Sawyer in Lagos, Africa's largest city and a transit hub with sea port, land and airports. Lagos has thick infrastructure and dense population that creates enabling environment for disease transmission but unfortunately, the health centers lack infection control facilities and this increased the risk of transmission of Ebola virus disease to health workers. Contact tracing efforts was also tasking due to the poor health information, documentation and reporting mechanism and the complex commercial and transit nature of the city. The rapid response was then quickly mounted and implemented using strategic information management system via the available public health assets at the onset of Ebola outbreak [9]. This approach helped to a large extent to contain the outbreak early.

Social mobilization: Continuously keeping the public alert on ways to prevent Ebola and the warning signs were all strategies that helped to create proper awareness. The spread of these messages via the social media were deployed to promote awareness and education and also to correct the myths and misconceptions surrounding Ebola.

Screening: There was a heightened vigilance and screening at the borders by the government of Nigeria. Screening of passengers coming into and out of the country was stepped up significantly. Institutions and organizations also embarked on significant preventive strategies such as screening (using thermometers), frequent hand wash and use of hand sanitizers [10]. Individuals and families engaged in frequent and regular hand washing and use of sanitizers.

Results

Challenges of the response team during EVD outbreak in Nigeria

Unpreparedness brought about several issues observed by the response team during Nigeria's Ebola outbreak which could have been lessened through additional emergency preparedness planning for public health [9]. In the same vein, the Nigerian public had very little or no information about Ebola. This led to the press release of inaccurate information to the public prior to the official information from the proper health authorities. Some individuals also, through the social media sent out wrong and scary information to the public which proved to be very dangerous and deadly to the Nigerian public. This resulted in some persons taking extreme and sometimes harmful measures to avoid infection like bathing with salt and drinking large quantities of brine, even in places hundreds of kilometers away from the city where case was reported. Proper preparation, focused on public education on Ebola virus disease and the preventive measures ahead of the outbreak of epidemic in Nigeria would have been a welcome development seeing that several outbreaks were reported in neighboring countries in the West African region. Lack of information and skills by health care providers on how to care for patients with Ebola also caused a delay in the early initial efforts to establish an isolation ward. Many healthcare workers in Nigeria were not willing to care for Ebola patients because of fear of being infected and the impact of Ebola virus on healthcare workers in the affected countries. Adequate orientation and training of healthcare workers towards safety in service provision with keen attention to infection control procedures and quality case management

in the facility would have worked well to bridge that gap and reduce the death toll of both health workers and the relations of infected persons.

Discussion

Implications on public health practice

Nigeria is the most populated country in West Africa and therefore needs to reassess its readiness to manage disease outbreaks. Preparation plans should include planning and setting up an Emergency Operation Centre/Infection Management System structure that will guide a well-coordinated and effective response to any public health threat. Hand washing which is a key in personal hygiene is also a major way of preventing the spread of diseases generally and EVD in particular, therefore, institutions and individuals need to be alert by making available hand wash/hand sanitizers kit, infection control facilities and routine practice of a preventive health care behaviors. Nigerians at the grass root (rural populace) should be properly educated on the need for hand washing and general sanitation as a measure of curbing the spread of diseases in general and particularly EVD.

The Survey

Methodology

The study was conducted in Abuja metropolis, the FCT which is the Nigerian capital because of the enforcement and prompt response of public institutions (such as schools, hospitals etc.) in the area, to the provision of the various preventive measures/facilities as stipulated by the health authorities. Data collection was through the administration of questionnaires to key officials (Managements Staff) at institutions and their clients/customers.

Every adult Nigerian seems to have an average knowledge of EVD and is at alert to reporting any symptom to the nearest source for interventions. If the knowledge of EVD is not backed up with a routine preventive action, the nation may again be overwhelmed by a return of the virus. The aim of this study was to assess the level of the Nation's preparedness to combating disease outbreak and to assess the available facilities for disease outbreak prevention. This study sought to answer the question – "where are we in disease prevention?" (whether we are at the state of combating epidemic or building infrastructure to prevent the spread) by assessing the attitude and practice of hand hygiene among the general population and institutions in Abuja – FCT Nigeria after the EVD outbreak. To investigate the presence of the necessary facilities and supplies required for hand washing (HW) in institutions (schools, banks, hospitals, hotels and NGOs working on healthcare). These institutions were observed to be complying with high hygienic and safety practices and had adequate facilities for prevention during the EVD outbreak in Nigeria. The institutions slated for this study were observed and a questionnaire was issued to the key staff (management staff) as well as the immediate clients of the institutions. A total of 50 questionnaires were issued; (10 to institutions and 40 to clients) and the following responses were gathered.

Institutions

Knowledge about Ebola virus disease outbreak in Nigeria: All the 10 (100%) participants knew about the Ebola outbreak in Nigeria as well as mode of transmission, preventive strategies and the whole 10 (100%) do practice hand washing as a preventive strategy. During the outbreak, the 10 (100%) of the respondents said they imbibed hand washing habit and the use of hand sanitizers during the EVD outbreak.

As per what facilities was put in place to strengthen the preventive strategies?: 2 respondents (20%) said they educated staff about the EVD and the preventive strategies; all 10 (100%) said they made available, liquid soaps, disinfectants and disposable towels at hand wash stations; and 3 (30%) of the respondent said they got a hand held thermometer for screening. Concerning what was done to ensure staff adherence to the practices required, all 10 (100%) respondents said that embarked on a continuous education and updates on EVD to staff, 6 (60%) Made available all the necessary hand wash materials, 1 (10%) made hand sanitizers available at the office entrance and the staff offices, 1 (10%) set up an Information and Action Committee on EVD. Asking if the institutions still enforce those strategies till date, 3 (30%) said yes; 2 (20%) said not really while 5 (50%) said, some, not all; admitting that hand wash station were still available to staff only. As per their reasons for enforcing those strategies; 1 (10%) said that preventive health practices is better than emergency respond, 7 (70%) said, it serves as a preventive measures for not only EVD but in case of subsequent outbreaks while 3(30%) said it serves as a general disease preventive measure. About reasons for not enforcing 1 (10%) said it's because Ebola has been contained so there is no point spending money on the things; 9(90%) said everyone is aware and can independently enforce the preventive measures; 7 (70%) said every staff now have their own as a way of being cautious 5 (50%) said every staff now has hand sanitizers and 1 (10%) felt the organization has accomplished her own quota of protection so staff can now continue while 3 (30%) said the habit of hand wash/sanitation has been inculcated in the staff so they can now abide by safety rules. Asking how long the organization intends to continue the preventive habits and why: 7 (70%) said for as long as the organization exists, to keep from disease outbreak within the organization, 3(30%) said for as long as the organization exists, to keep everyone in the organization safe.

Individuals

All the 40 (100%) participants knew about the Ebola outbreak in Nigeria as well as mode of transmission, preventive strategies and the whole 40 do practice hand washing as a preventive strategy. During the outbreak, the 40 (100%) of the respondents said they imbibed hand washing habit and the use of hand sanitizers during the EVD outbreak. Asking other preventive strategies they know: 23 (58%) said – avoiding bush meat. On what other preventive strategies they know? 32 (80%) said avoiding bush meat; 31(78%) said avoiding contact with infected person; 21 (53%) said avoiding Hand shake; 13 (33%) said avoid areas of known outbreak; 25 (63%) said use of protective wears like mask, gloves and gowns; 27 (68%) said paying attention to the environment; 19 (48%) said avoid body fluid of infected person, 6 (15%) said handle burials with great care;18 (45%) said to avoid eating some animals, like monkey; 21 (53%) said, by proper cleaning of fruits and avoiding bush meat; 17 (43%) said use of hand sanitizer where water and soap are not available. Asking about the practice of hand hygiene before the EVD 16 (40%) admitted that they have been practicing hand hygiene before EVD outbreak; 12(30%) said No and other 12 (30%) said only after toilet and before meals. On what other hand hygiene was adopted during EVD outbreak; 32 (80%) said the use of hand sanitizer another 32 (80%) said they wash hand with soap and then apply hand sanitizer and all 40 (100%) said frequent hand wash. Asking about the various institutions that adopted hand hygiene and safety practices. 23 (57%) said banks, 14 (%) NGOs (IHAVN, APIN, MSH CHAI and FHI360), 18 (45%) said hospitals, 1(3%) said Ahmadu Bello University, Zaria, 18 (45%) said hotels; 19 (48%) said schools, 9 (23%) said food processing companies. On notable visible changes various institutions during the

EVD outbreak that signifies their preparation to combat the disease? All 40 (100%) mentioned hand held thermometer and hand sanitizers were used in various institutions; 23 (58%) said hand wash stations were provided by most institution; 22(55%) said there was mass awareness created by institutions; 12 (30%) said people were more careful and conscious of their environment and practices; 9(23%) said there was a social behavior change; 15 (38%) said IEC materials were boldly displayed everywhere; 1(3%) said there was a detector machine used to screen individuals before entering into school gate; 9 (23%) said that hand sanitizers, gloves, masks, were made available to staff and visitors in all institutions. Wondering if those changes were still in place now; 12 (30%) said yes but not all, 28 (70) said no. Reasons why they said yes and no; reason for yes; NGOs still maintain the practices, hand wash station and hand sanitizers are still available at the office entrance and in staff office; the other 28(70%) said that other institutions were not maintaining a hand wash station, temperature screening, hand sanitizers anymore and IEC materials were not in place any more.

On individual's adherence to the practices like was done during the EVD? 18 (45%) respondents said yes and 22 (55%) said no; those that responded yes, said they adhered to frequent hand wash, use of hand sanitizer and a combination of hand wash and sanitizer. Asking about their knowledge about institutional adherence to the hygiene practices as before; 6 (15%) said yes because the NGOs earlier listed still have their hand sanitizer at the entrance and in staff offices. They also have educational posters for reminder at different points. 34(85%) said no because they think EVD outbreak in Nigeria is no more and because the outbreak has been contained.

Do you think the adherence or non-adherence has any effect on the people's health?: Please explain your response 15 (33%) said no because the virus has been contained and 25 (67%) said yes because healthcare should be a part of human routine practices; adherence to hygiene practices should be sustained as a measure to avoid other disease outbreak such as cholera, adherence helped to contain the disease and People are more aware of their environments.

Below is the table showing the response to the questionnaire (Table 1).

Conclusion

People have different perceptions to disease prevention through hand wash. To some people, until there is an outbreak, there will be no point adhering preventive measures. To some, hands should be made clean only when it is visibly dirty or after contact with a known infectious agents while only a few see it as a preventive health behavior. Given the EVD outbreak, it was expected that Nigerians will be more cautious about issues bordering on the contracting and spread of diseases, but this research shows that many people and organizations are rather reactive than proactive. From the above survey, we see how different people and institutions respond to epidemic and how the people's behaviors affect disease outbreak in a country. Only 30% of the population surveyed had facilities for routine hand hygiene, another 30% had some facilities while 40% only wait for a reason (probably another outbreak) to practice hand hygiene.

A good personal hygiene and a clean environment is a major way to eliminate the risks of contracting EVD in particular and infections generally. We do a lot of things with our hand; with it we relate, we dig and touch. Hand hygiene when given priority, will positively impact the public health status of the FCT (Abuja Metropolis) and Nigeria in general by preventing the outbreak and rapid spread of epidemics.

Part I: Institutions	
Do you have knowledge of the Ebola virus disease outbreak in Nigeria?	<ul style="list-style-type: none"> All the 10 (100%) participants knew about the Ebola outbreak in Nigeria as well as mode of transmission, preventive strategies. The whole 10 practice hand washing as a preventive strategy. The 10 (100%) of the respondents said they imbibed hand washing habit and the use of hand sanitizers during the EVD outbreak.
What other preventive strategies do you know?	<ul style="list-style-type: none"> Avoiding bush meat (eating wild animals). Avoiding contact with infected person. Avoiding hand shake. Avoiding areas of known outbreak. Using of protective wears like mask, gloves and gowns. Paying attention to the environment. Avoiding body fluid of infected person. Handling burials with great care. Avoiding eating some animals, like monkey. Proper cleaning of fruits. The use of hand sanitizer where water and soap are not available.
What facilities were put in place to strengthen the preventive strategies?	<ul style="list-style-type: none"> 2 respondents (20%) said they educated staff about the EVD and the preventive strategies. All 10 (100%) said they made available liquid soaps, disinfectants and disposable towels at hand wash stations. 3 (30%) of the respondent said they got a hand held thermometer for screening.
What did you do to ensure staff adherence to the practices?	<ul style="list-style-type: none"> 10 (100%) respondents said that they embarked on a continuous education and updates on EVD to staff. 6 (60%) made available all the necessary hand wash materials. 1 (10%) made hand sanitizers available at the office entrance and the staff office. 1 (10%) set up an information and Action Committee on EVD.
Does your institution still enforce those strategies till date?	<ul style="list-style-type: none"> 3 (30%) said yes. 2 (20%) said not really. 5 (50%) said, some, not all; admitting that hand wash station were still available to staff only.
Why were the strategies enforced?	<ul style="list-style-type: none"> 1 (10%) said that preventive health practices is better than emergency respond. 7 (70%) as a preventive measures for not only EVD but in case of subsequent outbreaks while. 3 (30%) as a disease preventive measure.
How long does your organization intend to continue the preventive habits and why?	<ul style="list-style-type: none"> 7 (70%) said for as long as the organization exists, to prevent disease outbreak or spread within the organization. 3(30%) said for as long as the organization exists, to keep everyone in the organization safe.
Why these strategies are no longer enforced?	<ul style="list-style-type: none"> 1 (10%) said because Ebola has been contained so there is no point spending money on the things. 9(90%) said everyone is aware and can independently enforce the preventive measures. 7 (70%) said every staff now have their own as a way of being cautious. 5 (50%) said every staff now has hand sanitizers. 1 (10%) felt the organization has accomplished her own quota of protection so staff can now continue. 3 (30%) said the habit of hand wash/sanitation has been inculcated in the staff so they can now abide by safety rules.

Table 1: Response to the questionnaire.

Recommendation

This research clearly shows that Nigerians are reactive rather than proactive in epidemic management; we recommend that further studies be conducted on the strategies that could be employed to spread the awareness of importance of prevention of diseases in ways that will make people proactive rather than reactive.

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