



Original Research Article

Health workers succumbed to the deadly Ebola disease during the early stages of the 2014 outbreak in Sierra Leone in spite of training, what are the lessons learned

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Frontline health workers in Sierra Leone received training on infection prevention and control (IPC) from experts on Ebola from Guinea and Liberia. Sierra Leone reported Ebola 2 months after Guinea. Many nurses died despite IPC training. The purpose of the study was to answer four questions; why did many health workers succumb to Ebola and survivors ostracized by community? Was this a situation of perceived preparedness without being really effectively prepared? Why was implementation of preparedness not translated into health worker protection in early phases of the disease? Information was compiled from observation of practices associated to risk of Ebola infection and prevention as well as from focus group discussions. IPC capacity of health workers was weak with eleven nurses dying following unprotected contact with one infected nurse. IPC should be provided to health workers including refreshing courses. Workers and families of deceased should receive food, financial, counselling and moral support. New messages portraying nurses as heroines risking their lives and sacrificing to save communities from Ebola should be disseminated in communities. At national level, incentives, and free health insurance cover should be provided.

Key words: Ebola, nurse training in infection prevention control, motivation, incentives, nurses dying from Ebola.

INTRODUCTION

Ebola Viral Hemorrhagic Fever is one of the deadliest zoonotic diseases known to affect man with the first outbreak reported in Zaire in 1976. WHO (1978). Since the first case there have been more than 40 reported outbreaks in isolated remote rural areas initially causing case fatality rates as high as 90%. Stamm (2015). With improved capacity among the countries especially Democratic Republic of Congo and Uganda, the case fatality rates have significantly declined to less than 30%. Bastug (2015). Primary health care workers especially nurses and doctors operating in the rural areas and other frontline care giver people such as traditional healers, spiritualists and herbalists have continued to be the most vulnerable groups of people afflicted by the disease. Osterholm (2015).

Women are another vulnerable population subset as they are traditionally given the responsibility of washing bodies of the deceased in preparation usually associated with close contact to appease the dead as a forbearer and ancestor being an intermediary to God. Swanepoel (2007). The dead have to be buried looking happy as in some communities the belief in life after death is strong.

Physical contact is part of the expression of the first form of relationship with a sick person. Palpating the body is part of the quest for diagnosis, part of the expression of empathy and part as well of treatment application and evaluation. Palpating the body of a sick person is also a way of winning his/her trust. In the households, the women are the first ones to be in physical contact with sick people and

to monitor their health state. Depending on the type and progression of disease, physical contact may include shaking hands, touching the forehead, the arms, the chest and the whole body, rubbing the body, massaging it, hugging, kissing, washing the body, shaving, cutting the nails, changing the clothes, bedding, dressing, giving cosmetic care, toileting, feeding, giving drink, giving medication, caressing, cleaning dirt and vomit .

Bodily contact expresses cultural concepts. This is all about sharing pain which in turn reduces the suffering of the sick person. Bodily contact is also part of the fabric of joy and happiness which are considered to strengthen the sick person. It helps to having him not be obsessed by the pain of the disease and to have the morale and optimism that contribute to the healing process. Physical contact gives evidence of transcended disgust which confers spiritual value to relationship. By cleaning or toileting the sick person, one demonstrates affection and altruism which are part of the criteria for building up social capital. Boudioni (2015). The training of health workers emphasizes on the need for close contact with the sick person as an expression of empathy and to win the trust of the patient. Bramley (2014). Undoing this lifelong practice sometimes leads the professional to unprotected risk to the diseases contagious ones in remote poorly resourced facilities.

While health workers can be better prepared through IPC training, the more traditional practitioners continue to have the brunt of the diseases, especially herbalists and spiritualists. Paige (2015). The 2013 to 2016 Ebola outbreak in West Africa was by far the most complex and largest outbreak in the history of the diseases with nearly 30,000 cases and more than 10, 000 deaths, more than 4,000 of who were from Sierra Leone. Bausch (2007). The outbreak is cross border affecting rural and urban environments and capital cities of the 3 Mano River Union States of Guinea, Liberia and Sierra Leone for the first time in the history of the disease. Sheers (2015).

The index case of the Ebola outbreak is believed to be a child who died in December 2013 and yet the outbreak was reported officially for the first time on 23 March 2014 in Guinea. Dunn (2015). It is believed that the disease was smothering among the Kissy people in the cross border areas of the 3 states and only spilled over into Sierra Leone with the first case reported on 25 May 2014. Ajelli (2015) Sierra Leone had more than 2 months of fine tuning its preparedness plan including mitigations such as buttressing the nationwide training of health workers on IPC and even prepositioning treatment and isolation centres. Ahrweiler (2014).

In addition to succumbing to the deadly disease, health workers were also ostracized by the communities they were sacrificing their lives to serve them. The vulnerability of these workers encapsulated factors such as family pressures stigma from their own intense work load, gaps in training and frustration with regard to wage, status, and stoical. The objective of the study was to examine and identify local beliefs and practices into patient care efforts

directed at health workers capacity to prevent their infection.

METHODS

The study which was conducted between June and August 2014. It was based on a large array of methods for data collection, research sites, and participant populations. For validity and exhaustiveness-related stakes, we have combined several data collection methods, including those of ethnography, qualitative interviews and in-depth case studies. We also carried out observations of the use of the devices of chlorinated water buckets in rural communities. In urban settings, we also carried out observation of the search for suspected cases as well as of collection and transportation of the dead.

The qualitative data collection was based on interviews and focus-group discussions and free-listings. In-depth ethnographic case study investigation was conducted in 2 settings: the village of Njala representing the rural area, and the neighborhood of Nyandeyama representing the urban settings. The case studies consisted of taking the first documented case and following all the cases related to it, with a special emphasis on chronology and social link identification. The ethnographic data collection methods consisted of observation of practices associated to risk of Ebola infection and prevention.

Ethnographic data collection methods were conducted both in rural and urban settings. Kailahun district is predominantly inhabited by the Mende and the Kissi communities sharing borders with Guinea and Liberia. In the Kissi community, research was conducted in the chiefdoms of Kissi Kana, KissiTeng and KissiTongi, with a more in-depth focus on the villages of Koindu and Foindu. The urban sites focused on were Kailahun city and the suburban communities living around the Ebola treatment center.

In Kenema district, investigations followed the pattern of the predominantly urban trend of the Ebola outbreak. We focused on the most affected neighborhood, that of Nyandeyama, and on the town center.

Study populations

Key informants and focus-group participants were selected among the following populations with numbers in brackets:

- Health workers (nurses, physicians and ambulance drivers and members of burial teams, health supervisors and councilors (14)
- Paramount chiefs, the section and village chiefs, and the elderly male heads of households (4)
- Women traditional leaders: female senior household members, female senior members of initiation societies (14)
- The "ordinary" female household members; adult and young women (16)
- Children of both sexes (12)

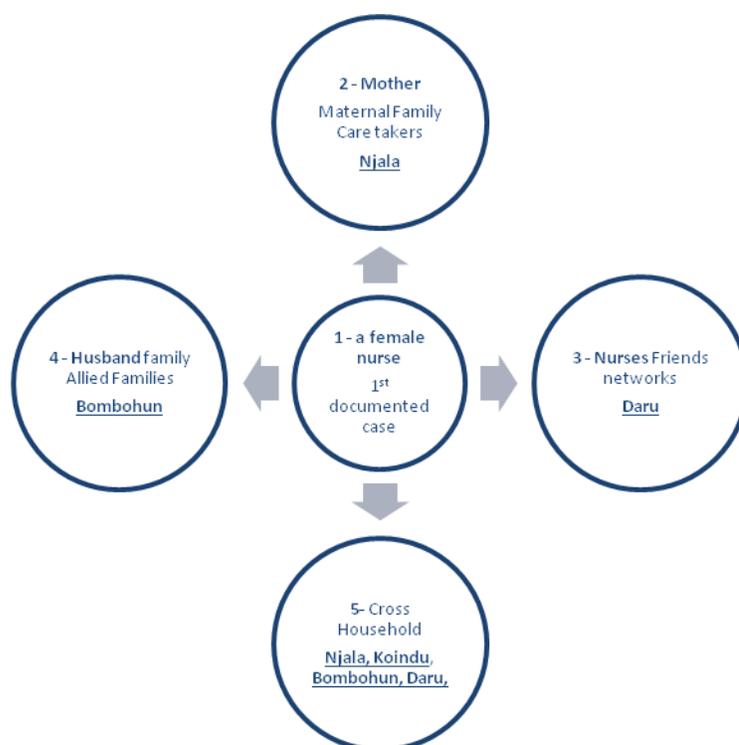


Figure 1: Ethnographic model of the geographic chain of transmission

•Members of modern women’s organizations, women’s church organizations, women’s NGOs and women’s formal and informal community networks (12)

- Herbalists and traditional healers (5)
- Blacksmiths and traditional hunters (6)
- Market vendors (6)

RESULTS

The narrative on chronology and geographic distribution of the first cases of Ebola

One of the first cases of confirmed Ebola in Kailahun, Sierra Leone was that of a female nurse who was the purpose of this study, named “Simee”. Simee was a nurse in service at Koindu health unit, Kailahun, the very first epicenter of the disease in Sierra Leone. This first documented case was said to have been in contact with a female herbalist who was treating a sick woman from Guinea. This latter died of symptoms that resembled Ebola. The herbalist also died with the same symptoms as well as her husband and several members of her family.

The community reports collected in Njala gave the following account: “When Simee got sick, she was taken to Daru health facility. In Daru, there was a workshop attended by many nurses. Upon her arrival, all her colleagues who were in the workshop went to the clinic to

sympathize with her and to help her out. Later on a lot of them fell sick and died. Simee’s family members came from Njala to see her and to help her out from the sickness. Then, they went back to Njala where many of them died and have transmitted the disease to their family members who, in turn, died. When Simee died, she was taken to her husband’s village to bury her corpse. Also a lot of people died there as a result of Ebola. In Koindu, Njala, Bombohun, and Daru, many died because they were infected during the funerals of people who were in contact with Simee or because they were taking care of them”. The transmission chain of the initial cases of the disease is illustrated in Figure 1 above.

Health worker shortages

A major challenge was a serious shortage of health workers. This put the limited number of health workers who were available and responding to this outbreak at risk. When people were tired, they were more likely to make mistakes in infection control especially during the removal of the personal protection equipment and the process of disinfection. Many of these health workers had not seen Ebola cases before. Hospitals and clinics simply did not have enough people to provide the level of care needed. They were working with partners to get more hands on deck. It was vital that all international staff that worked closely with Ebola patients received proper training in

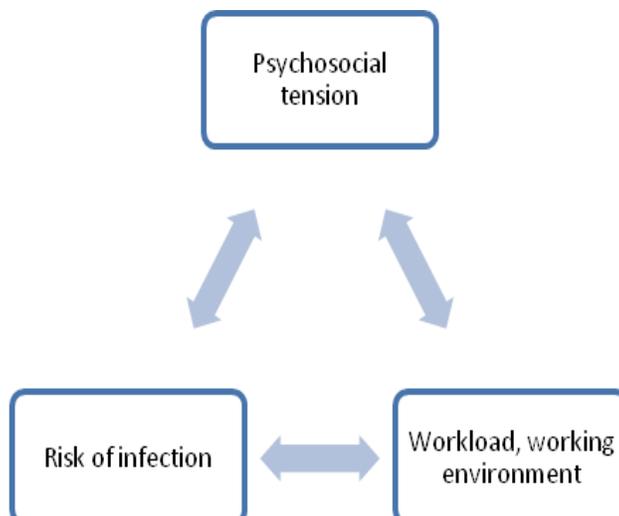


Figure 2: Dynamic approach for understanding nurses' individual vulnerability to the Ebola virus

infection control. There was a shortage of qualified people worldwide with experience in Ebola. It was observed that the Kenema Treatment center had only 6 nurses where 65 of them were needed at some point in August 2014. Nurses were reluctant to work in the Ebola risky areas. The few who worked there worked long hours with limited time for off duty. There was no additional remuneration and risk allowance especially for those who worked in the treatment centres. The work environment in the treatment centres with the extreme heat and the personal protection equipment made work tiring and uncomfortable. The health workers experienced double jeopardy; from the extreme risk of contracting the deadly virus and being ostracized by the communities whose lives the health workers are sacrificing to save. The local communities near the treatment centres began to shun and stigmatize the health workers who lived in their neighborhoods. Some health workers were refused accommodation and or their lease terminated because of their link to Ebola cases.

The individual vulnerability of the health workers typified by nurses is illustrated in Figure 2 above.

How can health workers protect themselves?

- Toll by 25 August 2014: More than 100 health workers had been infected and more than half of them had died during this outbreak.

- Infection control: Ebola is a highly infectious disease and proper infection control practices were essential to prevent those treating Ebola patients from becoming infected themselves.

- Most at risk: Throughout this outbreak, the people who have been most at risk were those who cared for sick people and those who touched dead bodies during funerals.

- Using proper personal protection equipment and infection control practices greatly reduced the risk. The

WHO in Sierra Leone helped supply health workers with protective gear and training workers on infection prevention and control practices. There is a need for more equipment and refresher training.

DISCUSSION

Since the first outbreaks in Sudan and Zaire in 1976, transmission within health facilities has been of major concern, affecting healthcare workers and acting as amplifiers of spread into the community. The lack of resources for infection control and personal protective equipment are the main reasons for nosocomial transmission. Local strategies to improve infection control, and a greater understanding of local community views on the disease, have helped to bring outbreaks under control. Recommendations from previous outbreaks include improved disease surveillance to enable more rapid health responses, the wider availability of personal protective equipment, and greater international preparedness. Dunn (2015).

Delayed recognition of EVD and inadequate personal protection equipment (PPE) likely led to exposures and secondary infections. Earlier recognition of EVD and adequate PPE might have reduced direct contact with body fluids. Limiting non health-care worker contact, improving access to PPE, and enhancing screening methods for pregnant women, children, and inpatients may help decrease EVD transmission in general health care settings. Ajelli (2015).

Containment of EVD in Pujehun district is ascribable to both the natural history of the disease (mainly transmitted through physical contacts, long generation time, over dispersed distribution of secondary cases per single primary case) and intervention measures (isolation of cases

and contact tracing), which in turn strongly depend on preparedness, population awareness, and compliance. Our findings are also essential to determine a successful ring vaccination strategy. Chen (2010).

However, if we look retrospectively at the case of Simee who was advised by her colleagues in Koindu to go to Kailahun (but then she went to Daru), we may find out that this kind of transfer is now quasi inexistent. The displacement of a dead body for the sake of funerals is most probably very rare. However, families continue to hide sick persons and sick persons move discreetly from one family to another in order to escape from being taken to treatment centers. This phenomenon could be amplified as an underground response to the use of public force in reinforcing official quarantine measures. The interventions to reduce vulnerability among nurses should target the nurses themselves as individuals to whom social support should be given in order to increase their self-control and capacity. Debriefing and structural adjustment of the work load organization should be continuously organized at the health facilities. New messages portraying nurses as heroines risking their life and making sacrifice to save communities from Ebola should be disseminated in the communities.

The result revealed that nursing staff members who occupationally contracted Tuberculosis underwent two phases. From the detection of their infection to recovery, they experienced different perceptions and needs. The hospital should be mandated to accommodate nurses' varying needs accordingly. Clinical-implication-related infection control strategies, grouped into three levels of prevention.

The findings indicated that the more comprehensively the professional nurses were trained, the more competent they felt. The less comprehensively trained, the more negative they experienced their work. They viewed their skills as ranging from adequate to inadequate, depending on their training. The conclusion was drawn that professional nurses' perceptions were congruent with the skills they possessed. Recommendations for nursing research, education and practice, including guidelines to facilitate trained professional nurses to truly render comprehensive primary health care, were formulated. Hlahane (2006).

The local concepts of pain sharing, altruism and social capital could have been positively reinterpreted in the Ebola prevention messages. This includes, first, feeling the pain of the sick person at the same time when the mind accepts the idea of taking him/her to the health center to take the slightest opportunity to save his/her life. Secondly, the concept of empathy extension from individual to community could be used. The sacrifice made in favor of an individual by touching him is extends to the sacrifice of not touching him for the sake of protecting the household or the community. In the context of Ebola, not touching a sick person is a consequence of a will to protect the group. In this regard, the Mende and Kissi concepts of "begging for apology" could be mobilized to make acceptable the idea of

not touching a sick person. This is all about expressing sorrow when someone else is facing frustration.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of the paper

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