Unsafe Burials: Challenge to Controlling Local Ebola Outbreaks in Guinea 2015–2016

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Abstract

Guinea was declared Ebola free on December 29, 2015. However, resurgence of cases underscores challenges to end the epidemic. We describe two Ebola outbreaks in the prefectures of Nzérékoré and Dubreka that provide epidemiological evidence of the importance for adherence to prompt case reporting and safe burial practices to prevent future outbreaks.

Keywords: Ebola Virus Disease; Ebola Virus; Unsafe Burials; Case Investigation

Introduction

The World Health Organization (WHO) was notified of a communicable disease outbreak in March of 2014 [1]. Patients exhibited symptoms which included diarrhea, fever, vomiting, with a high fatality rate in four prefectures in Guinea (Kissidougou, Macenta, Gueckedou, and Conacry) [1]. Further virologic investigation identified Ebola virus as the causative agent [2]. As of June 10, 2016, Ebola virus disease (EVD) has killed over 11,000 persons in Guinea, Liberia, and Sierra Leone [3]. In Guinea alone, it has affected over 3,800 persons and reportedly killed 2,544 persons [4]. Guinea was declared Ebola free in December 2015 by WHO, however, resurgence of EVD in Guinea during February–April 2016 underscored the need for improved training on prompt case reporting and safe burials of corpses infected with Ebola.

Ebola virus can be transmitted by direct physical contact with body fluids of an infected patient in later stages of the disease or with an infected corpse [5]. In November of 2014, WHO recommended a safe and dignified burial protocol as a guide to reducing Ebola virus transmission [6]; however, unsafe burials practices still occur throughout Guinea and have been reported as contributing factors of Ebola virus transmission as of March 2016 [7].

Guinea was the last of the affected countries to be declared Ebola free. However, as of June 2016, seven documented clusters have occurred following control of the epidemic; rapid and coordinated efforts controlled all occurrences. The recent resurgence of EVD in Guinea has been linked to possible sexual transmission of the virus in the semen of a male survivor [4,8]. This resurgence coupled with delayed case reporting and increased viral transmission through unsafe burials remains a challenge for controlling Ebola outbreaks. We describe the two most recent local Ebola outbreaks in the Guinean prefectures of Nzérékoré and Dubreka that provide further epidemiological evidence of the challenge of prompt case reporting and unsafe burials in controlling Ebola virus transmission.

Methods

Cases from the Nzérékoré and Dubreka clusters were obtained from the Guinean national EVD database and categorized according to modified WHO definitions for suspect, probable, and confirmed cases [9]. A suspect case was defined as a living person with fever and at least three of the following symptoms: headache, anorexia, lethargy, aching muscles or joints, difficulty breathing, vomiting, diarrhea, stomach pain, difficulty swallowing, hiccup; or with fever and a history of contact with a person with hemorrhagic fever or a dead or sick animal; or with unexplained bleeding. A probable case is a deceased person who otherwise met the suspect case definition and has an epidemiologic link to a confirmed or probable case. A confirmed case is a suspect or probable case that has been verified through laboratory testing.

Specimens collected were later tested by reverse transcription-polymerase chain reaction (RT-PCR) for Ebola virus [10]. Persons with suspected EVD were isolated from villages and then transported to an Ebola treatment center (ETC). At the ETC, confirmation of Ebola virus by RT-PCR was done and medical care was provided to patients by both local and international responders. For patients who died in villages with suspected EVD, oral swabs were collected within 24 hours of their deaths and immediately tested for Ebola using rapid diagnostic tests. Specimens were later confirmed by RT-PCR.

Rapid response teams included clinicians, epidemiologists, and local public health officials. These teams deployed to four rural villages of Nzérékoré, in the south-eastern side of the country in March, 2016 and five villages of Dubreka, in the western part of the country in May 2015 where potential cases had been reported, to establish transmission chains. The teams conducted active case identification and followed contacts for 21 days from their last reported exposure to a case. In addition, teams reviewed Ebola case investigation forms to classify patients as either suspect, probable, or confirmed cases.

Results

An outbreak resulting from delayed reporting of suspect cases and unsafe burials occurred in Nzérékoré, from March–April 2016 in the sub-prefecture of Koropara. A total of six confirmed and three probable cases were linked to this local outbreak (Figure 1) with a case fatality rate of 60%. All three probable cases were reported community deaths who had not been tested for Ebola virus. An outbreak investigation linked all six confirmed cases and three probable cases to an unsafe burial of the index case around...
February 27, 2016. In addition to these cases, one additional confirmed case related to this outbreak was reported in the prefecture of Macenta. Improved training for local public health workers in prompt case reporting, contact tracing methods, and safe burials of corpses infected with Ebola were implemented in this prefecture. In addition, health communication messages in local languages were provided to residents and healthcare workers in Nzérékoré on Ebola infection control practices and the importance of safe and culturally sensitive burials. After these recommendation strategies were fully implemented; no additional cases associated with this Ebola virus transmission chain have been reported in this prefecture since March 27, 2016.

A similar outbreak occurred in the prefecture of Dubreka where the investigation of a cluster of 11 confirmed cases was associated with the burial of a corpse that occurred in mid-April, 2015 in the sub-prefecture of Tanene; the burial reportedly did not follow safe practices (Figure 2). These cases represented 41% (11/27) of the total cases reported in Guinea during May 11–17, 2015. An investigation linked all 11 confirmed cases to 4 probable cases who attended the unsafe burial of the index case in this cluster. Eight of the 11 confirmed cases died (case-fatality rate = 73%). After the recommendation strategies mentioned above were fully implemented; no additional cases have been reported in association with this Ebola virus transmission chain since May 14, 2015.

**Discussion**

As of April 2016, delayed reporting of suspect cases and unsafe burials continued to be a major contributor to the transmission of Ebola virus in Guinea despite previous efforts made by local and international responders [4,7]. A previous report described the largest documented transmission of Ebola virus from delayed case reporting and unsafe burials in Guinea from December, 2014-January 2015 [11]. Although the Nzérékoré and Dubreka outbreaks were relatively smaller in size, both examples illustrate how exposure resulting from delayed case reporting and unsafe burials can lead to outbreaks.
The index case in both the Nzérékoré and Dubreka clusters had symptoms that were compatible with EVD. These symptoms went unrecognized and EVD was not suspected until after multiple exposures had occurred before or after death, leading to increased Ebola virus transmission and secondary cases. Response team personnel in both the Nzérékoré and Dubreka investigations also encountered challenges in their efforts to identify and isolate patients with suspected EVD, establish transmission chains, and implement prevention and control measures. Some of these challenges included community resistance, hiding of suspected cases, and poor health communication messages on Ebola infection control practices.

There have been several reports of local public health officials and other responders not being allowed to enter communities to identify cases and contacts because of mistrust of government and reported resistance in several communities [11,12]. A recent study identified similar factors behind community resistance in Guinea which included hiding of suspected cases because of rumors circulating about EVD patients being killed at ETCs for organ donation and cultural beliefs of caring for the sick at home based on traditional healing practices [13]. Similarly, cultural beliefs that the soul of the deceased will be condemned if traditional burials are not followed can lead to unsafe burials of corpses infected with Ebola virus [13-15]. These factors contributed to delayed case reporting and increased Ebola virus transmission through unsafe burials in both the Nzérékoré and Dubreka clusters.

The outbreaks in Nzérékoré and Dubreka also highlight the importance of considering social and cultural factors when planning and implementing public health interventions and the need to strengthen primary health services in Guinea. Collaboration and trust from the population, respect of local customs and religious practices, accommodation of cultural preferences to the extent that they do not endanger the community, and involvement of the population in resolving the challenges of incompatible cultural and public health practices are essential for the interventions to succeed. These social and cultural factors have been shown to be very effective in other studies to improve awareness among groups that might be resistant to Ebola intervention efforts [4,14-15]. Involvement of community leaders in the planning and implementation of these interventions and community acceptance of safe burial practices which could be culturally sensitive is critical for the successful management and prevention of future Ebola outbreaks.

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Disclaimer

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