Outbreak

The current Ebola outbreak: old and new contexts

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Abstract

Within the ongoing Ebola outbreak in West Africa, separate scenarios reflect old contexts with well-known strategies to face the epidemic on one side and completely new and unprecedented situations requiring new approaches on the other side.

While Senegal and Nigeria represent success stories on the implementation of appropriate standard public health measures for containment, Liberia, Sierra Leone, and Guinea require a major and innovative scale of actions to halt even more catastrophic consequences.

Key words: Ebola hemorrhagic fever; outbreak; infection control

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Introduction

The ongoing humanitarian crisis in West Africa caused by the Ebola virus disease (EVD) reached 10,141 confirmed, probable, and suspected cases and a total of 4,922 deaths by 25 October 2014 [1]. The epidemic started in Guinea in December 2013 [2], and after 10 months, all but one administrative district in Liberia and all administrative districts in Sierra Leone reported at least one confirmed or probable case of EVD [1]. The outbreaks of EVD in Senegal and Nigeria were declared over on 17 October and 19 October, respectively, reflecting the importance, for the containment of epidemics, of the length of time it takes public health systems to intervene.

Past Ebola outbreaks were stopped through three main interventions: exhaustive case and contact findings, effective response to patients and the community, and preventive interventions [3].

Responding to cases involves a correct coordination between isolation and treatment, contact tracing and follow-up of each contact for 21 days after exposure, and the strategic use of laboratories that could reduce the chances of hospital amplification of EVD in resource-limited health systems such as in the three West African countries currently ravaged by Ebola [4].

Nevertheless, past outbreaks of Ebola were stopped while they were still in rural areas, where population density was lower, community ties were stronger, and measures to prevent transmission were easier to implement [5].

The above-mentioned public health measures were promptly and correctly adopted in three different scenarios of the current epidemic; the Nigerian index case flew from Liberia to Lagos on the 20 July 2014 and was quickly detected and isolated [6]. In addition to that, intense contact tracing efforts and the subsequent isolation of infected secondary cases allowed for containment of the outbreak [7]. Senegal was the fifth West African country to be affected but managed a rapid containment response due to the early alert given to the local Ministry of Health by public health staff in Guinea from where the index case was arriving [8].

Despite the dramatic situation, in Guinea itself there has been one success story: in May 2014, a well-coordinated interagency (Ministry of Health, Medecins Sans Frontieres, Red Cross, and World Health Organization) action in Telimele, north of Conakry, succeeded in cutting the chain of transmission of a small cluster of cases that originated from a woman coming from the capital city to visit her relatives [9].

Liberia, Sierra Leone, and the rest of Guinea are a completely different story; the initial outbreak started in South Guinea, near the border with Sierra Leone and Liberia, and remained undetected for several weeks until the alert was given by the WHO on 23 March 2014 [10]. By 30 March, cases were reported

in Foya district in Liberia, and in May, the first cases were reported in Sierra Leone [11].

This epidemic has severely strained the public health and healthcare infrastructure of Liberia [12], which has the highest number of cases (4,665), followed by Sierra Leone (3,896) and Guinea (1,553) [1]. Transmission of the disease is particularly intense in Monrovia, with an approximate population of one million inhabitants, where the first case died on 2 April 2014 [13].

If this information are taken into account with the fact that only 23% of the Ebola Treatment Unit's required beds are in place for Liberia, 29% for Sierra Leone and 61% for Guinea [14], it can easily be concluded that still too many people are dying either at home or in the streets as they cannot be cured, and that the chances of Ebola transmission in the community are enhanced.

Strategies that were appropriate in past epidemics, such as contact tracing, remain one step behind other infection control actions to be taken in a city like Monrovia where every person is a potential contact of an Ebola case. Safe burials and new approaches to limit contamination of individuals in contact with Ebola patients at home stand as current priorities in order to slow down the epidemic and avoid increasing the number of cases from hundreds to thousands in the coming months [15].

Conclusions

In this brief report, the key role played by the time it takes the public health system to react is emphasized. The delay of several weeks at the start of the epidemic flanked by the high mobility of the population led to a "public health emergency of international concern" as declared by WHO on 8 August 2014 [16] with the objective of pushing international partners to be actively involved in the management of the current situation in West Africa; similarly, Peter Piot, director of the London School of Hygiene and Tropical Medicine and the microbiologist who first identified the Ebola virus in 1976, called in September for a "quasi-military intervention".

On the other hand, it is of fundamental importance for neighboring West African countries and ports of entry for travelers from West Africa to put into place systems of health screenings, policies and procedures typically successful when promptly adopted.

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