



## Review

## Ebola virus disease outbreak in the Democratic Republic of the Congo: A mini-review



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## ABSTRACT

Ebola virus disease is one of the most serious and deadliest infectious diseases in the world with a sufficient number of recorded deaths. Since its discovery in 1976 until its last epidemic (14th), recorded and declared on April 23, 2022 by the National Minister of Public Health of the Democratic Republic of Congo and we have observed a succession of simultaneous epidemics of the disease to Ebola virus. This disease escapes the control of the health system of the Democratic Republic of the Congo, a health system which is already destabilized by the corona virus disease 2019 pandemic. Since the World Health Organization has already classified the Ebola virus disease as a major public health problem at the global level, this epidemic remains an important issue to consider the possible and necessary means at all levels (political as well as health) to put an end to this disease. Despite the seriousness of this disease, the dangers, clinical manifestations and modes of transmission of which are well understood by healthcare personnel. The Congolese population should be informed of the risks of this Ebola virus disease. The World Health Organization, the disease control center in collaboration with the Congolese government are implementing preventive and curative measures to slow the progression of this disease in the affected areas and prevent the areas still spared from being affected.

In this present work, we will talk about some characteristics of the Ebola virus disease and show the different efforts and recommendations to be taken to end this disease.

## 1. Introduction

Ebola Virus Disease (EVD), formerly known as Ebola hemorrhagic fever, is one of the deadliest viral hemorrhagic fevers in humans. An infection caused by viruses from the family of filoviruses, which are viruses with a filamentous appearance and whose symptoms appear suddenly [1]. The first species of Ebola virus was first discovered in 1976 in the Democratic Republic of Congo (DRC) near the Ebola River. The first epidemic of the EVD was the deadliest in history, with ten thousand deaths; this disease remains identifiable today in restricted geographical areas, claiming hundreds of victims at most [2]. As most diseases escape health control in the DRC [3], on April 23, 2022, the national minister of

public health, hygiene and prevention declared the 14th epidemic of EVD in the country. The disease appeared in Mbandaka in a young student who unfortunately died [4].

This present work shows us the efforts and recommendations to be used to eradicate the Ebola virus disease.

## 2. Main text

## 2.1. Epidemiology of Ebola hemorrhagic fever

In the DRC, the country in which a large outbreak of the EVD was recorded in the provinces of North Kivu, South Kivu, and Ituri around

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August 2018 until June 2020, many of the cases have been registered with 2299 deaths [5]. DRC, a country in Central Africa that has been hit by different waves of EVD contamination, with 135 cases including 55 deaths (42% fatality) in 2020 during its 11th epidemic, and in this year (2022), we are witnessing an explosion of the EVD with one death recorded and 108 contacts [4]. In 2018 and 2019, new cases of the EVD in the provinces of North Kivu and Ituri, the number of instances increased dramatically following a situation of armed conflicts and insecurity maintained by armed groups, which made it difficult to control the EVD, despite the good programs that are in place to fight against this disease [1]. Throughout the world, the EVD is very often located in Africa because of its geographical location, and its favorable fauna and flora facilitate its spread. The equatorial forest of the DRC contains a large number of reservoir agents (bats) which promote the concentration of repeated epidemics in the tropical region (1.5).

## 2.2. The etiology of Ebola hemorrhagic fever

Ebola virus is a severe and fatal disease in humans, classified by the World Health Organization (WHO) as a public health emergency of global concern. The virus is transmitted to humans from wild animals and then spreads through populations through human-to-human transmission [6]. Nowadays, bats are thought to be the natural hosts of the Ebola virus. It enters the human population after close contact with blood, secretions, organs, or body fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, antelopes wood found diseased or dead in the rainforest [1].

Some research shows that the rapid spread of EVD occurred partly in 1976 as part of a vaccination program and partly from filoviruses. Cases of exposure to the virus and even deaths for which the history of the disease reports the use of either the same sanitary objects previously used by a person who recently died of EVD, as well as many forms of contact: conversation, sharing a meal, sharing a bed, direct or indirect touch, were likely to lead to the transmission of the disease during incubation, but in its advanced phase, these contacts could play an essential role in the transmission of infection [7].

## 2.3. Current efforts to migrate Ebola hemorrhagic fever

A few weeks after the first reported cases, the WHO and the DRC Ministry of Health launched an effective intervention program with laboratory support and international agencies providing personnel and material resources [4].

The Congolese health system must put in place strategies to combat (treat, and eradicate) and prevent this outbreak of the Ebola virus disease by strengthening the multisector team responsible for the response, improving surveillance (search for new cases, contact tracing, and management of entry points), by enhancing the means of diagnosis and care of patients carrying the Ebola virus and by strengthening communication of the risks of this disease, social mobilization, and community participation. These efforts must be intensified to rapidly combat this 14th epidemic of the EVD even though the coronavirus disease 19 (Covid 19) pandemic has already destabilized the health system of the DRC [3]. The Congolese government, together with the WHO, the Center for Disease Control, and their partners, must put in place a national program to strengthen surveillance and response capacities for the EVD as well as finance the national institute of biomedical research of the DRC in their process of the production of vaccines sufficient for the vaccination of the entire Congolese population.

## 2.4. Recommendations

The Ebola virus disease is a plague for the health system in the DRC. To deal with this 14th epidemic of the EVD in the DRC, we recommend that the Congolese government set up a vaccination program for the population at risk and operational and logistical support for the

multisector team responsible for the response in areas where this disease is an outbreak. As the transmission of this disease is made by animals (bats and others), animal handlers must be protected and avoid contact with animals that have died of unknown causes.

The risks of this disease must be informed, and the training of health workers on the prevention of this disease in outbreaks and the vigilance of preventive measures must be respected.

The symptoms of the EVD are of sudden onset, and the centralization of care in patients suspected of Ebola must be put in an emergency to prevent the spread of this disease during the outbreak. Healthcare workers must protect themselves by wearing specialized medical gowns, gloves, masks, and goggles during medical interventions on patients with Ebola virus disease and when handling Ebola virus samples.

The government must provide protective kits to healthcare personnel and build surveillance posts for the response and build specialized centers for the care of patients infected with the Ebola virus. A green number must be available for communication or alerts.

Travelers entering the DRC, a region that is in its 14th epidemic of the EDV, must be vaccinated against this disease and must observe sanitary measures (wash hands with soap and water or with the alcoholic gel) the prevention against the Ebola virus.

The Congolese population, during this outbreak of the EVD, must respect sanitary measures and avoid contact with animals.

## 3. Conclusion

This review aims to highlight the characteristic elements of the Ebola virus disease, including its epidemiology in Africa and particularly in the Democratic Republic of Congo, a country in Central Africa which is in its 14th epidemic. As its symptoms are sudden onset and similar to other pathologies, the implementation of strategies to control and treat this Ebola virus disease must be centralized. This review shows the efforts to be deployed on the national territory of the DR Congo for the eradication of the Ebola virus disease as well as the recommendations to be taken into account to improve the health conditions of people living in the most affected regions and guarantee the health of the Congolese population.

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Aymar AKILIMALI is the guarantor of this study and accept full

responsibility for the work and the conduct of the study, has access to the data and controlled the decision to publish.

#### CRediT authorship contribution statement

**Paterne Bisimwa:** Conceptualization, Project administration, Funding acquisition. **Chrispin Biamba:** Investigation, Writing – original draft. **Abdullahi Tunde Aborode:** Writing – review & editing, Visualization. **Hugues Cakwira:** Writing – original draft. **Aymar Akilimali:** Writing – original draft, Visualization, Supervision.

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The authors declare that they have no conflicts of interest.

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#### Abbreviations

Covid 19 Corona Virus Disease 19

DRC Democratic Republic of the Congo  
EVD Ebola Virus Disease  
WHO World Health Organization

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