



# Ebola virus: a new concern, its virological characteristics, diagnosis, present condition, and treatment during the ongoing SARS-CoV-2 omicron variant – correspondence

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Dear Editor,

In humans and great apes, Ebola viruses are pathogenic agents linked to severe, life-threatening organ dysfunction. Equatorial or West Africa is home to four different Ebola virus species. The spread of the most virulent species into the world population happens mostly through interaction with contaminated biological fluids and can cause severe illness outbreaks in places with few resources<sup>[1]</sup>. Widespread transcription and replication, immunological suppression, aberrant inflammatory reactions, significant fluid and electrolyte losses, and high mortality mark a sickness brought on by these viruses. Although the latest innovations in vaccine technology and the lack of a licensed prophylaxis or therapeutic, counseling for multiple severe organ failures brought on by immune-mediated cellular damage primarily consists of supportive care. The WHO categorized the 2013–2016 outbreak as a Public Health Emergency of International Concern, highlighting the difficulties associated with treating Ebola virus infections and raising concerns about society's readiness to explore the potential epidemics on a scientific, clinical, and sociological level<sup>[2]</sup>.

This pathogen creates serious public health concerns and immediate illness with a high fatality rate, primarily spread by living person exposure to infected bodily fluids and corpses. The 2013–2016 West African outbreaks demonstrated the significant

pandemic potential of Ebola viruses. This pandemic was unparalleled, with almost 28 000 cases reported and 11 000 fatalities<sup>[3]</sup>. The Sudan ebolavirus, which causes Ebola, broke out in the Western and Central Regions of Uganda in the 2022 Uganda Ebola outbreak. Over 160 persons were affected, and 77 of them passed away. The Sudan ebolavirus, which causes Ebola, broke out in the Western and Central Regions of Uganda in the 2022 Uganda Ebola outbreak. Over 160 persons were affected, and 77 of them passed away. It was the fifth epidemic of Sudan ebolavirus in Uganda<sup>[4]</sup>. The Ugandan Ministry of Health reported an occurrence of the illnesses on 20 September 2022<sup>[5]</sup>. There were 44 fatalities and 90 recognized or likely circumstances as of 24 October 2022. The first fatality in the country's capital of Kampala was reported on 12 October. Twelve days later, on 24 October, there had been 14 infections over the previous 2 days<sup>[6]</sup>. On 11 January 2023, the epidemic was deemed to be over after 42 days with no suspected cases<sup>[7]</sup>.

Ebolaviruses are viruses with a singular, negatively polarized strand of RNA as their genome. They are members of the genus *Ebolavirus* in the group *Filoviridae* of the order *Mononegaviruses*. *Bundibugyo ebolavirus* (Bundibugyo virus), *Reston ebolavirus* (Reston virus), *Sudan ebolavirus* (Sudan virus), *Ta Forest ebolavirus* (Ta Forest virus), and *Zaire ebolavirus* are the five species that make up the genus *Ebolavirus* (Ebola virus). It is important to emphasize this taxonomy because virtually identical names have different meanings: Ebolavirus and Zaire ebolavirus relate to taxonomic classifications, whereas Ebola is a virus. This taxonomy was amended in 2011<sup>[8]</sup>.

The Ebola and Sudan viruses are mostly to blame for these outbreaks. Since the discovery of ebolaviruses in 1976, more than 20 countries of the virus have been documented in Sub-Saharan Africa, particularly in Sudan, Uganda, the Democratic Republic of the Congo, and Gabon. The infection in Gulu, Uganda, in 2000 was in a semi-urban region, in contrast to most of these outbreaks, which took place in remote rural areas. It is possible that minor epidemics may not have been recognized as such. The biggest Ebola outbreak occurred in West Africa from 2013 to 2016, primarily affecting Guinea, Sierra Leone, and Liberia<sup>[9]</sup>. It spread to numerous nations in rural and urban regions and had a very high incidence and fatality rate (more than 28 000 cases and more than 11 000 fatalities). The actual impact, meanwhile, may have been far higher due to underrepresentation. The total average mortality rate in this epidemic was 62.9% (95% CI: 61.9–64.0%) for known cases with documented health outcomes<sup>[10]</sup>.

If someone has been exposed to the virus and is showing symptoms, public health officials should be contacted, and the

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patient should be quarantined. The patient's infection status may be confirmed by testing blood samples taken from the patient. After the beginning of manifestations, the Ebola virus may be identified in the blood. For the virus to be detected, it may take up to 3 days following the onset of symptoms. Because of its sensitivity to identifying even trace amounts of the Ebola virus, polymerase chain reaction (PCR) is one of the most widely utilized diagnostic tools. Even while PCR techniques are sensitive enough to identify individual virus particles in low blood concentrations, their sensitivity improves as the viral load rises in an ongoing infection. Once there are not enough virus particles in a patient's blood, PCR tests will no longer be able to detect the disease. Patients may be confirmed to have been exposed to and infected with the Ebola virus using other means, such as identifying antibodies an Ebola virus disease (EVD) case develops in response to an infection<sup>[11]</sup>.

Still, if this pathogen infects someone, they should administer supportive clinical treatment, which includes rehydration, nourishment, analgesics, and blood transfusions, when necessary, which is currently a pillar of EVD patient management, despite the lack of conclusive evidence for its usefulness. Maintaining intravascular volume with oral rehydration solution or intravenous fluids that provide proper electrolyte exchange is a crucial component of supportive treatment. Individuals with recurrent diarrhea and vomiting may also benefit from antiemetics and antidiarrheal medications<sup>[12]</sup>. To improve the prognosis of infected individuals and lower the infection rate and hence the danger of future infections, an appropriate therapy would be required for epidemic control. Several possible therapeutic compounds for antiviral medications have shown promise, and they each have unique mechanisms<sup>[13]</sup>.

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The authors declare no conflicts of interest, financial or otherwise.

### Data availability statement

All data used to support the findings of this study are included in the article.

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