

“Ebola in the Twenty-First Century: Lessons from a Persistent Threat”

“History tells us that this will not be the last pandemic and epidemics are a fact of life.”

Tedros Adhanom Ghebreyesus

Each emerging infection is a warning from nature, revealing the gaps in our surveillance, preparedness, and global solidarity. These emerging infectious diseases are not merely biological events; they are mirrors reflecting the strengths and vulnerabilities of global health systems. Among them, Ebola virus disease remains one of the most formidable reminders of the need for constant vigilance and preparedness.

Ebola Virus Disease is a severe, often fatal zoonotic disease caused by viruses belonging to the genus *Ebolavirus* in the family *Filoviridae*. The disease was first recognized in 1976 during simultaneous outbreaks in Democratic Republic of the Congo and Sudan. Six species of *Ebolavirus* have been identified, among them Zaire ebolavirus was responsible for most large outbreaks and highest mortality. Till now, 6 major outbreaks have occurred in Sub-Saharan Africa starting from 1976-2022. The 2014–2016 West African (Guinea, Liberia, Sierra Leone) epidemic was the largest Ebola outbreak ever recorded, accounting for more cases and deaths than all previous outbreaks combined accounting >28,000 cases and 11,000 deaths.

Recent Outbreak

In May 2026, the Ebola outbreak was caused by Bundibugyo virus species in the Democratic Republic of the Congo and Uganda, the Director-General of the World Health Organization (WHO), after having consulted the States Parties where the event is known to be currently occurring, is hereby determining that this Ebola outbreak constitutes a public health emergency of international concern (PHEIC). As of 11 June 2026, 695 laboratory-confirmed cases, and 138 suspected deaths have been reported in Ituri Province of the Democratic Republic of the Congo across at least three health zones, including Bunia, Rwampara and Mongbwalu. In addition Unusual clusters of community deaths with symptoms compatible with Bundibugyo virus disease (BVD) have been reported across several health zones in Ituri, and suspected cases have been reported across Ituri and North Kivu. In addition, at least four deaths among healthcare workers in a clinical context suggestive of viral haemorrhagic fever have been reported

from the affected area raising concerns regarding healthcare-associated transmission, gaps in infection prevention and control measures, and the potential for amplification within health facilities.

Transmission

It is thought that fruit bats of the *Pteropodidae* family are natural hosts of the *Orthoebolavirus*. The virus can get into the human population when people have close contact with the blood, secretions, organs or other bodily fluids of infected animals such as fruit bats, chimpanzees, gorillas, monkeys, forest antelope or porcupines found ill or dead or in the rainforest.

People can get infected with the virus from another person by direct contact (through broken skin or mucous membranes) with:

- the blood or body fluids of a person who is sick with or has died from Ebola disease; and
- objects or surfaces that have been contaminated with body fluids (like blood, feces, vomit) from a person sick with the disease or who has died from the disease.

Health and care workers have frequently been infected while treating patients with Ebola disease. This occurs through close contact with patients when infection control precautions are not strictly practiced.

Symptoms

The incubation period or interval from infection to onset of symptoms varies from 2 to 21 days. The symptoms of Ebola disease can be sudden and include fever, fatigue, malaise, muscle pain, headache and sore throat. These are followed by vomiting, diarrhoea, abdominal pain rash, and symptoms of impaired kidney and liver functions. It is important for health and care workers to be on the lookout for these symptoms. Despite a perception that bleeding is a common symptom, this is less frequent and can occur later in the disease. Some patients may develop internal and external bleeding, including blood in vomit and faeces, bleeding from the nose, gums and vagina. Bleeding at the sites where needles have punctured the skin can also occur. The impact on the central nervous system can result in confusion, irritability and aggression.

Diagnosis

- Reverse transcriptase polymerase chain reaction (RT-PCR) assay
- Antibody-capture enzyme-linked immunosorbent assay (ELISA)
- Antigen-capture detection tests
- Virus isolation by cell culture.

Treatment

Over the years, WHO and partners have developed training that outline how to provide the best possible care for patients and increase their chance of survival, whether or not specific treatments are being used. Called optimized supportive care, this covers the relevant tests to administer, how to manage pain, nutrition and co-infections (such as malaria), and other approaches that put the patient on the best path to recovery.

For Ebola virus disease, WHO recommends treatment with the monoclonal antibodies mAb114 (ansuvimabTM) or REGN-EB3 (InmazebTM). For other Ebola diseases, there are no approved therapeutics, but candidate products are under development and a CORE protocol for clinical trials is available.

Two vaccines have been approved for Ebola virus disease: Ervebo[®] and Zabdeno and Mvabea[®]. The Ervebo vaccine is recommended as part of outbreak response.

International Response

The event requires international coordination and cooperation to understand the extent of the outbreak, to coordinate surveillance, prevention and response efforts, to scale up and strengthen operations and ensure ability to implement control measures. The Director-General of WHO, under the provisions of the IHR, will be convening an Emergency Committee, to provide recommendations. This includes,

- Coordination and high-level engagement
- Risk communication and community engagement
- Surveillance and laboratory
- Infection prevention and control in health facilities and in the context of care
- Patients' referral pathway and access to safe and optimized intensive care
- Research and development of medical countermeasures
- Border health, travels and mass-gathering events
- Safe and dignified burials
- Operations, supplies and logistics

Challenges

1. Recurrent Outbreaks in Endemic Regions

Most Ebola outbreaks continue to occur in parts of Democratic Republic of the Congo, Uganda, and neighboring countries. Spillover from animal reservoirs (particularly fruit bats) to humans continues to trigger outbreaks, making complete eradication difficult.

2. Weak Health Systems

Many affected countries have fragile healthcare infrastructures. Inadequate laboratory facilities and Shortage of trained healthcare workers makes the situation worse.

3. Delayed Detection and Surveillance

4. Community Resistance and Misinformation

Fear, rumors, and mistrust of authorities often hinder outbreak response.

5. Conflict and Humanitarian Crises

Several Ebola-prone regions are affected by armed conflict and population displacement.

6. Limited Access to Vaccines and Therapeutics

Although effective vaccines and treatments are now available, equitable access remains a challenge.

7. Risk of International Spread

Global travel increases the possibility of exporting cases to non-endemic countries. Although the risk is generally low, imported cases can create public concern and require extensive public health responses.

8. Animal Reservoirs and One Health Challenges

The virus is believed to persist in wildlife populations leading to difficulty in identifying all reservoir species

9. Funding and Preparedness Fatigue

After outbreaks subside, attention and funding often decline. Reduced investment in surveillance systems, Inadequate preparedness planning and Difficulty sustaining trained response teams

India Scenario

India currently has **no confirmed cases** of the Ebola virus, and the risk to the general public remains extremely low. However, following the recent World Health Organization, global health emergency declaration, the MOHFW has intensified airport screenings and travel advisories to prevent potential imported cases.

Conclusion

The major global challenges of Ebola today are recurrent outbreaks, weak healthcare systems, misinformation, conflict-related barriers, inequitable access to vaccines and treatments, and the persistent risk of zoonotic transmission. Integrating Ebola preparedness into broader health security frameworks is the need of the hour. Addressing these challenges requires sustained international cooperation, stronger health systems, and a comprehensive One Health approach.

References

1. <https://www.cdc.gov/ebola/situation-summary/index.html>. Accessed on 12-06-2026.
2. <https://www.who.int/news/item/17-05-2026-epidemic-of-ebola-disease-in-the-democratic-republic-of-the-congo-and-uganda-determined-a-public-health-emergency-of-international-concern>. Accessed on 12-06-2026.
3. <https://www.ecdc.europa.eu/en/ebola-outbreak-democratic-republic-congo-and-uganda>. Accessed on 12-06-2026.

Authors.

1. Dr. Anasuya Desai, MD

Associate Professor
Department of Medicine
St. John's Medical College
Phone No: 9482134503
Email: anasuyarajeev@rediffmail.com

2. Dr. Manjula R, MD, PhD

Professor
Department of Community Medicine
S Nijalingappa Medical College
Navanagar, Bagalkote - 587102
Phone: 9481981702
Email: drmanjulakashinakunti@gmail.com