

Ebola Virus Disease (EVD)

Ebola virus disease (EVD), is a rare and acute viral illness first discovered in 1967 near the Ebola River in what is now the Democratic Republic of the Congo. Outbreaks occur sporadically often after spillover events when a person is infected through contact with an infected animal or from transmission of persistent virus from recovered individuals, such as through sexual contact. Ebola virus then spreads to other people through direct contact with body fluids. EVD begins with an abrupt onset of febrile illness and can progress to vomiting and diarrhea, then hemorrhage, shock with multiorgan failure, and death in the most severe cases. Individuals who do not use proper infection control during the care of Ebola patients are at the highest risk of becoming infected.

Disease Summary

- **Transmission:** Person-to-person through direct contact (broken skin, needle stick, or mucous membranes in the eyes, nose or mouth) with bodily fluids (blood, feces, vomit, sweat, saliva, urine, semen), objects (contaminated clothing, medical equipment, etc.), or infected animals (bats or non-human primates).
- **Incubation Period:** 2 to 21 days, with an average of 8 to 10 days. **A person can only spread Ebola virus to other people after they develop signs and symptoms of infection.**
- **Symptoms:** Illness typically progresses from “dry” symptoms initially (such as fever, headache, myalgia), and then progresses to “wet” symptoms (such as diarrhea and vomiting) as the person becomes sicker. Many common illnesses can have the same symptoms as EVD, including influenza, malaria, typhoid fever, or other viral hemorrhagic fevers. Acute signs and symptoms of EVD often may include:
 - Fever
 - Severe headache
 - Myalgia
 - Weakness and fatigue
 - Sore throat
 - Loss of appetite
 - Gastrointestinal symptoms including abdominal pain, diarrhea, and vomiting
 - Unexplained hemorrhaging, bleeding or bruising
 - Other symptoms may include red eyes, skin rash, and hiccups (late-stage).

Case Definition

- Suspected Case
 - Clinical and Epidemiological Criteria:
 - One or more symptoms of EBV (listed above) AND one or more of the following exposures within the 3 weeks before onset of symptoms:
 - Residence in or history of travel to endemic regions
 - Contact with blood or other body fluids of a patient with EVD
 - Work in a laboratory that handles EVD specimens
 - Work in a laboratory that handles bats, rodents, or primates from endemic areas
 - Exposure to semen from a confirmed acute or convalescent case of Ebola within the 10 weeks of that person's onset of symptoms
- Confirmed Case
 - A case that is laboratory confirmed.

Key Screening Steps

1. **Identify:** Assess the patient for signs and symptoms, travel history, and epidemiological criteria. For assistance, contact facility Infection Prevention and Control or on-call hospital epidemiologist.
2. **Isolate:** Provide a mask to the patient, initiate prompt triage and isolation, and follow infection prevention guidance.
3. **Inform:** Notify department and facility leadership, infection prevention and control, and local on-call hospital epidemiologist. Call NYC DOHMH Provider Access Line to ascertain risk: 866-692-3641. If determined to be a Person Under Investigation per NYC DOHMH, call Central Office Special Pathogens Program/Emergency Management: 646-864-5442.

Infection Prevention

Hand Hygiene

Perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves. Use soap and water for at least 20 seconds or use alcohol-based hand rubs. If hands are visibly soiled, use soap and water.

Patient Placement

Place patient in a single patient **Airborne Infection Isolation Room (AIIR)**. If an AIIR is not available, isolate patient in a private examination room. Keep door closed, minimize entry and exit, and avoid entry without appropriate PPE until transfer to Bellevue Hospital.

Limit transport and movement of the patient outside of the room. When outside of the AIIR, patients should wear a facemask to contain secretions.

Keep a log of all persons who care for or enter the rooms or care area of these patients.

Transmission-based Precautions and PPE

Adhere to **Standard + Airborne + Contact Precautions**. Use a respirator, 2 pairs of extended cuff gloves, coverall or gown, apron, face shield, hood, knee high boot covers and/or ankle high shoe covers. **Follow the SP Level 2 PPE Donning and Doffing Checklist.**

Environmental Infection Control

Ebola virus **is considered a Category A infectious substance**: capable of causing permanent disability or life-threatening/fatal disease in healthy humans if exposure occurs. Keep all waste, supplies, or medical equipment in the patient room until Lassa fever is ruled out.

If Ebola is ruled out, clean and disinfect the patient's care area using an EPA registered disinfectant for appropriate contact times. Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.

If Ebola is ruled in, all cleaning, disinfection, and transport of waste will **be escalated to and managed by vendors with expertise in handling Category A waste**. Once the patient vacates a room, all unprotected individuals, including HCP, should not be allowed in that room until sufficient time has elapsed for enough air changes to remove potentially infectious particles and the room has been cleaned and disinfected by designated vendor.

Further information regarding waste and transport can be found here: <https://www.cdc.gov/vhf/ebola/clinicians/cleaning/hospitals.html>

Diagnostic Testing

Consultation and approval from NYC DOHMH is required if specimen collection is warranted. Further information regarding specimen collection can be found here: <https://www.cdc.gov/vhf/ebola/laboratory-personnel/specimens.html>

Treatment

There are currently two treatments approved by the U.S. Food and Drug Administration (FDA) to treat EVD caused by the Ebola virus, species Zaire ebolavirus, in adults and children: Inmazeb™ and Ebanga™. There is one vaccine approved by the FDA for the prevention of disease caused by Zaire ebolavirus in individuals 18 years of age and older as a single dose administration and is available through CDC for pre-exposure vaccination of individuals who fall into specific occupational categories.

Additional Information

- CDC Ebola Information for Clinicians: <https://www.cdc.gov/vhf/ebola/clinicians/index.html>
- CDC Ebola Virus Disease: <https://www.cdc.gov/vhf/ebola/index.html>