

# Ebola Virus Disease (EVD)

**Ebola Virus Disease (EVD) is a rare and deadly disease most commonly affecting people and nonhuman primates (monkeys, gorillas, chimpanzees).**

There are six known species of viruses within the genus *Ebolavirus*: Ebola virus (*Zaire ebolavirus*), Sudan virus (*Sudan ebolavirus*), Tai Forest virus (*Tai Forest ebolavirus*, formerly *Cote d'Ivoire ebolavirus*), Bundibugyo virus (*Bundibugyo ebolavirus*), Reston virus (*Reston ebolavirus*,) and Bombali virus (*Bombali ebolavirus*). Of these, **only four are known to cause disease in people** (Ebola, Sudan, Tai Forest, and Bundibugyo viruses). Reston virus is known to cause disease in nonhuman primates and pigs, but not in people. It is unknown if Bombali virus, which was recently identified in bats, causes disease in either animals or people.

Ebola virus was first discovered in 1976 near the Ebola River in what is now the Democratic Republic of the Congo. Since then, outbreaks have occurred sporadically in Africa. The natural reservoir host of Ebola viruses remains unknown. However, based on the nature of similar viruses, experts think the virus is animal-borne, with bats being the most likely reservoir.

## Transmission

How the virus first infects a person at the start of an outbreak is not known. However, experts think the first patient becomes infected through contact with an infected animal such as a fruit bat or nonhuman primate.

People can be infected with the Ebola virus through direct contact (like touching) with:

- Blood or body fluids (urine, saliva, sweat, feces, vomit, breast milk, semen) of a person who is sick with or has died from EVD
- Objects (such as clothes, bedding, needles, and syringes) contaminated with body fluids from a person sick with EVD or a body of a person who died from EVD
- Blood or body fluids of infected fruit bats or nonhuman primates such as apes and monkeys
- Semen from a man who recovered from EVD (through oral, vaginal, or anal sex)

Ebola virus CANNOT spread to others when a person has no signs or symptoms of EVD. Additionally, the virus is not spread through the air, by water, or in general, by food. However, in certain parts of the world, Ebola virus may spread through the handling and consumption of bushmeat (wild animals hunted for food). There is no evidence that mosquitos or other insects can transmit Ebola virus.

## Signs and Symptoms

Symptoms of EVD may appear 2 to 21 days after exposure to the virus, but the average is 8 to 10 days. A person infected with Ebola virus is not contagious until symptoms appear. Signs and symptoms of EVD include:

- Fever
- Severe headache
- Fatigue
- Muscle pain
- Weakness
- Diarrhea
- Vomiting
- Stomach pain
- Unexplained bleeding or bruising

## Risk of Exposure

Healthcare providers, family, and friends in close contact with EVD patients are at the highest risk of getting sick with EVD because they may be exposed to infected blood and body fluids. During an outbreak, EVD can spread quickly within healthcare settings. Infection control measures, like screening patients for signs/symptoms of EVD and practicing proper personal protective equipment procedures, must be in place to ensure exposure to Ebola virus does not occur.

Ebola viruses are found in several countries. Past EVD outbreaks have occurred in the following countries:

- Democratic Republic of the Congo (DRC)
- Gabon
- Guinea
- Ivory Coast
- Liberia
- Republic of the Congo (ROC)
- Sierra Leone
- Sudan
- Uganda

## Diagnosis

Early symptoms of EVD such as fever, headache, and weakness are not specific to Ebola virus infection and are seen in patients with more common diseases, like malaria and typhoid fever. To determine whether Ebola virus infection is a possible diagnosis, there must be a combination of 1) symptoms suggestive of EVD **AND** 2) a possible exposure to the virus within 21 days before onset of symptoms.

If a person has early symptoms of EVD and there is reason to believe the virus should be considered, the patient should be isolated and public health professionals notified. Samples from the patient should be collected and tested to confirm infection. Ebola virus can be detected in blood **after** onset of symptoms. It may take up to three days after symptoms start for the virus to reach detectable levels.

## Treatment

Symptoms of EVD are treated as they appear. When used early, basic interventions can significantly improve the chances of survival. These include:

- Providing fluids and electrolytes (body salts) through infusion into the vein (intravenously).
- Offering oxygen therapy to maintain oxygen status.
- Using medication to support blood pressure, reduce vomiting and diarrhea and to manage fever and pain.
- Treating other infections if they occur.

Recovery from EVD depends on supportive care and the patient's immune response. People who recover from EVD develop antibodies that can last for 10 years. It is not known if people who recover are immune for life or if they can become infected with a different species of Ebola virus. Some survivors may have long-term complications such as joint and vision problems.

There is currently no antiviral drug licensed by the U.S. Food and Drug Administration (FDA) to treat EVD in people. Drugs that are being developed to treat Ebola virus infection work by stopping the virus from making copies of itself.

## Prevention

When living in or traveling to a region affected by the Ebola virus, there are ways to protect yourself and prevent the spread of the virus. Practicing good hand hygiene is an effective method of preventing the spread of dangerous germs, like the Ebola virus. Proper hand hygiene means washing hands often with soap and water or an alcohol-based hand sanitizer.

**While in an area affected by Ebola virus, you should AVOID:**

- Contact with blood and body fluids (such as urine, feces, saliva, sweat, vomit, breast milk, semen, and vaginal fluids).
- Items that may have come in contact with an infected person's blood or body fluids (such as clothes, bedding, needles, and medical equipment).
- Funeral or burial rituals that require handling the body of someone who died from EVD.
- Contact with bats and nonhuman primates or blood, fluids, and raw meat prepared from these animals (bushmeat) or meat from an unknown source.
- Contact with semen from a man who had EVD until you know the virus is gone from the semen.

**After returning from an area affected by Ebola virus, monitor your health for 21 days and seek medical care immediately if you develop symptoms of EVD.**

There is currently no vaccine licensed by the FDA to protect people from Ebola virus. However, an experimental vaccine, proven highly protective against the virus in trials, is currently approved for use during an outbreak while awaiting FDA approval.

**Healthcare workers who may be exposed to people with EVD should:**

- Wear appropriate personal protective equipment (PPE).
- Practice proper infection control and sterilization measures.
- Avoid direct contact with the bodies of people who have died from EVD.
- Notify health officials if you have direct contact with blood or body fluids of a person sick with EVD.

For more information about Ebola Virus Disease, visit [www.cdc.gov/vhf/ebola/](http://www.cdc.gov/vhf/ebola/)