



## Ebola Q and A for the General Public

### What is Ebola?

Ebola is an infection caused by a virus. The infection can result in internal and external bleeding. The virus is currently being transmitted in sub-Saharan Africa (Guinea, Sierra Leone, Liberia and Nigeria). The current outbreak has a mortality rate of more than 50 percent. The Centers for Disease Control and Prevention (CDC) will continue to provide updates on which countries are being affected by this outbreak.

### How are people infected?

The disease is primarily spread by direct contact with the body fluids of people ill with Ebola virus disease (Ebola). Body fluids from infected people are introduced through breaks in the skin or through mucous membranes of healthy people. All body fluids of those who have Ebola are considered potentially infectious. This virus is not spread through air, food or water. In addition, people are only infectious when they show symptoms of Ebola.

### What are the symptoms?

Symptoms can start two to 21 days after infection. Initial symptoms usually are non-specific and can include fever, headache, muscle and joint pain, tiredness, and just not feeling well. Nausea, vomiting and diarrhea are common. Diarrhea is usually severe and watery. Additional symptoms can include stomach pain, unusual bleeding and lack of appetite.

### What part of the world is experiencing the Ebola outbreak?

The current outbreak is occurring in four countries in western Africa: Guinea, Liberia, Sierra Leone and Nigeria.

### Who is at greatest risk for this disease?

The risk for the introduction of this virus into the United States is low. According to the CDC, Ebola does not pose a significant risk to the U.S. public. Therefore, those living in the U.S. are at very low risk for developing Ebola unless they have travelled to or have had contact with someone who has travelled to the affected countries in Africa.

returning home, pay close attention to your health and monitor your temperature for fever twice a day for 21 days. Seek medical care immediately if you develop any symptoms of illness within that 21 day period. If you become ill, seek medical care immediately and make sure you advise your health care provider of your recent travel both before and after you arrive at the medical care facility.

Where can I get more information about Ebola?

You can find more information at the North Dakota Department of Health webpage at [www.ndhealth.gov/disease/ebola/default.aspx](http://www.ndhealth.gov/disease/ebola/default.aspx) or the CDC website at [www.cdc.gov/vhf/ebola/index.html?s\\_cid=cdc\\_homepage\\_feature\\_001](http://www.cdc.gov/vhf/ebola/index.html?s_cid=cdc_homepage_feature_001), or you can contact your health care provider.

My family has traveled with me from an affected area; what should they do?

Have your family members monitor their health as outlined above. If a family member shows any sign of illness within 21 days of possible exposure, they should see a healthcare provider immediately and indicate their travel history.

Our organization sponsors missionaries and humanitarian workers that work in the affected countries. What should we be doing?

First, make sure the people traveling have all the immunizations and anti-malarial medication they will need for their trip. Provide them with the information they will need to protect themselves from Ebola and other diseases. For persons who have engaged in activities that put them at high risk for Ebola, such as caring for Ebola patients or participating in funeral and burial rituals that result in exposure to body fluids, we recommend consulting the North Dakota Department of Health to coordinate preventions measures for these individuals after they arrive back in North Dakota.

## What Child Care Providers and Schools Need to Know About Ebola

Fall is here, which means child care facilities will be filled to capacity and schools will soon have classrooms full of students. Even though there is **very low** risk of an Ebola diagnosis, the North Dakota Department of Health (NDDoH) encourages school and child care staff to become informed about Ebola and what can be done to help protect your child care centers and classrooms.

### What you need to know

1. Ebola is an infection caused by a virus; it cannot be treated with antibiotics.
2. The disease is **NOT** easy to catch.
  - a. It is spread by direct contact with body fluids of people sick with Ebola
  - b. This infected body fluid (blood, spit, sweat, urine, vomit, feces, etc.) must be introduced through breaks in the skin or through mucous membranes (eyes, nose, mouth, etc.)
  - c. This virus is not spread through air, food or water
  - d. People can only spread the disease when they have symptoms
3. The time from infection to showing symptoms can be up to 21 days.
4. Symptoms of Ebola may include: fever, headache, muscle and joint pain, tiredness, nausea, vomiting, diarrhea, and just not feeling well.
5. It is safe to be around people who are not ill even if they have traveled to or from the affected countries.

### The big question is, **What should we do if we have children/students in our child care programs/classrooms that have recently been in Africa?**

1. Determine if the child has visited an Ebola-affected area (for a list of affected areas see NDDoH website listed below).
2. Ask the parent/guardian when the child (and/or family members) returned from Africa. If it has been longer than 21 days since their return from an affected area, no follow-up is needed and the child may attend school or child care.
3. If it has been less than 21 days, determine if the child has been ill since returning to the United States. If not, ask the parent/guardian to monitor for fever for 21 days starting from the day they left the affected region in Africa. **AS LONG AS THE CHILD IS NOT ILL, they may attend school and child care.**
4. If the child is currently ill or becomes ill within 21 days, the child should not attend school/child care until they have been seen by a health care provider.

### **Children do not need special permission to attend child care or school just because they have been in a country that is suffering from the outbreak.**

For more information on Ebola, visit the following websites or contact the NDDoH:

- North Dakota Department of Health: [www.ndhealth.gov/disease/Ebola/Default.aspx](http://www.ndhealth.gov/disease/Ebola/Default.aspx)
- Centers for Disease Control and Prevention (CDC): [www.cdc.gov/vhf/ebola/](http://www.cdc.gov/vhf/ebola/)
- Call the NDDoH at 701.328.2378 or ND Toll Free at 800.476.2180



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## Questions and Answers about Ebola and Pets

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The ongoing epidemic of Ebola in West Africa has raised several questions about how the disease affects the animal population, and in particular, the risk to household pets. While the information available suggests that the virus may be found in several kinds of animals, CDC, the US Department of Agriculture, and the American Veterinary Medical Association do not believe that pets are at significant risk for Ebola in the United States.

### How are animals involved in Ebola outbreaks?

Because the natural reservoir host of Ebola has not yet been confirmed, the way in which the virus first appears in a human at the start of an outbreak is unknown. However, scientists believe that the first patient becomes infected through contact with an infected animal, such as a fruit bat or primate (apes and monkeys), which is called a spillover event. Person-to-person transmission follows and can lead to large numbers of affected persons. In some past Ebola outbreaks, primates were also affected by Ebola, and multiple spillover events occurred when people touched or ate infected primates. In the current West African epidemic, animals have not been found to be a factor in ongoing Ebola transmission.

### How does Ebola spread?

When infection occurs in humans, the virus can be spread in several ways to others. Ebola is spread through direct contact (through broken skin or mucous membranes in, for example, the eyes, nose, or mouth) with

- blood or body fluids (including but not limited to urine, saliva, sweat, feces, vomit, breast milk, and semen) of a person who is sick with Ebola
- objects (like needles and syringes) that have been contaminated with the virus
- Ebola is not spread through the air or by water, or in general, by food. However, in Africa, Ebola may be spread as a result of handling bushmeat (wild animals hunted for food) and contact with infected bats.
- Only a few species of mammals (for example, humans, monkeys, and apes) have shown the ability to become infected with and spread Ebola virus. There is no evidence that mosquitos or other insects can transmit Ebola virus.

### Can dogs get infected or sick with Ebola?

At this time, there have been no reports of dogs or cats becoming sick with Ebola or of being able to spread Ebola to people or other animals. Even in areas in Africa where Ebola is present, there have been no reports of dogs and cats becoming sick with Ebola. There is limited evidence that dogs become infected with Ebola virus, but there is no evidence that they develop disease.

## Here in the United States, are our dogs and cats at risk of becoming sick with Ebola?

The risk of an Ebola outbreak affecting multiple people in the United States is very low. Therefore, the risk to pets is also very low, as they would have to come into contact with blood and body fluids of a person with Ebola. Even in areas in Africa where Ebola is present, there have been no reports of dogs and cats becoming sick with Ebola.

## Can I get Ebola from my dog or cat?

At this time, there have been no reports of dogs or cats becoming sick with Ebola or of being able to spread Ebola to people or animals. The chances of a dog or cat being exposed to Ebola virus in the United States is very low as they would have to come into contact with blood and body fluids of a symptomatic person sick with Ebola.

## Can my pet's body, fur, or paws spread Ebola to a person?

We do not yet know whether or not a pet's body, paws, or fur can pick up and spread Ebola to people or other animals. It is important to keep people and animals away from blood or body fluids of a person with symptoms of Ebola infection.

## What if there is a pet in the home of an Ebola patient?

CDC recommends that public health officials in collaboration with a veterinarian evaluate the pet's risk of exposure to the virus (close contact or exposure to blood or body fluids of an Ebola patient). Based on this evaluation as well as the specific situation, local and state human and animal health officials will determine how the pet should be handled.

## Can I get my dog or cat tested for Ebola?

There would not be any reason to test a dog or cat for Ebola if there was no exposure to a person infected with Ebola. Currently, routine testing for Ebola is not available for pets.

## What are the requirements for bringing pets or other animals into the United States from West Africa?

CDC regulations require that dogs and cats imported into the United States be healthy. Dogs must be vaccinated against rabies before arrival into the United States. Monkeys and African rodents are not allowed to be imported as pets under any circumstances.

Each state and U.S. Territory has its own rules for pet ownership and importation, and these rules may be different from federal regulations. Airlines may have additional requirements.

## Can monkeys spread Ebola?

Yes, monkeys are at risk for Ebola. Symptoms of Ebola infection in monkeys include fever, decreased appetite, and sudden death. Monkeys should not be allowed to have contact with anyone who may have Ebola. Healthy monkeys already living in the United States and without exposure to a person infected with Ebola are not at risk for spreading Ebola.

## Can bats spread Ebola?

Fruit bats in Africa are considered to be a natural reservoir for Ebola. Bats in North America are not known to carry Ebola and so CDC considers the risk of an Ebola outbreak from bats occurring in the United States to be very low. However, bats are known to carry rabies and other diseases here in the United States. To reduce the risk of disease transmission, never attempt to touch a bat, living or dead.

## Where can I find more information about Ebola and pet dogs and cats?

CDC is currently working with the U.S. Department of Agriculture, the American Veterinary Medical Association, and many other partners to develop additional guidance for the U.S. pet population. Additional information and guidance will be posted on this website as well as partner websites as soon as it becomes available.

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Content source: Centers for Disease Control and Prevention ([/index.htm](#))

National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) ([/ncezid/index.html](#))

Division of High-Consequence Pathogens and Pathology (DHCPP) ([/ncezid/dhcpp/index.html](#))

Viral Special Pathogens Branch (VSPB) ([/ncezid/dhcpp/vspb/index.html](#))

# Ebola

Ebola, previously known as Ebola hemorrhagic fever, is a severe, often fatal disease in humans and nonhuman primates (such as monkeys, gorillas, and chimpanzees).

Ebola is a rare and deadly disease caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus*. There are five identified *Ebolavirus* species, four of which have caused disease in humans: *Zaire ebolavirus*; *Sudan ebolavirus*; *Tai Forest ebolavirus*, formerly *Côte d'Ivoire ebolavirus*; and *Bundibugyo ebolavirus*. The fifth, *Reston ebolavirus*, has caused disease in nonhuman primates but not in humans.

Ebola is found in several African countries. The first Ebola species was discovered in 1976 near the Ebola River in what is now the Democratic Republic of the Congo. Since then, outbreaks have appeared sporadically in Africa.

The natural reservoir host of Ebola remains unknown. However, on the basis of available evidence and the nature of similar viruses, researchers believe that the virus is animal-borne with bats being the most likely reservoir. Four of the five subtypes occur in an animal host native to Africa.

## Transmission

Because the natural reservoir host of Ebola has not yet been identified, the manner by which the virus first appears in a human at the start of an outbreak is unknown. However, researchers believe that the first patient becomes infected through contact with an infected animal.

When an infection does occur in humans, there are several ways the virus can be spread to others. These include:

- direct contact with the blood or body fluids (including but not limited to feces, saliva, urine, vomit and semen) of a person who is sick with Ebola
- contact with objects (like needles and syringes) that have been contaminated with the blood or body fluids of an infected person or with infected animals

The virus in the blood and body fluids can enter another person's body through broken skin or unprotected mucous membranes in, for example, the eyes, nose, or mouth. The viruses that cause Ebola are often spread among families and friends, because they come in close contact with blood or body fluids when caring for ill persons.

During outbreaks of Ebola, the disease can spread quickly within healthcare settings, such as clinics or hospitals. Exposure to Ebola can occur in healthcare settings where hospital staff are not wearing appropriate protective clothing including masks, gowns, gloves, and eye protection.

Dedicated medical equipment (preferably disposable, when possible) should be used by healthcare personnel providing care for someone sick with Ebola. Proper cleaning and disposal of instruments, such as needles and syringes, is also important. If instruments are not disposable, they must be sterilized before being used again. Without adequate instrument sterilization, virus transmission can continue and amplify an outbreak.

## Signs and Symptoms

A person infected with Ebola is not contagious until symptoms appear.

Signs and Symptoms of Ebola typically include:

- Fever (greater than 38.6°C or 101.5°F)
- Severe headache
- Muscle pain
- Vomiting
- Diarrhea
- Stomach pain
- Unexplained bleeding or bruising

Symptoms may appear anywhere from 2 to 21 days after exposure to Ebola but the average is 8 to 10 days.

Recovery from Ebola depends on the patient's immune response. People who recover from Ebola infection develop antibodies that last for at least 10 years.



## Risk of Exposure

Ebola is found in several African countries. Since 1976, Ebola outbreaks have occurred in the following countries:

- Democratic Republic of the Congo (DRC)
- Gabon
- South Sudan
- Ivory Coast
- Uganda
- Republic of the Congo (ROC)
- South Africa (imported)
- Guinea
- Liberia
- Sierra Leone
- Senegal
- Nigeria

Because the natural reservoir host of Ebola, and the manner in which transmission of the virus to humans remain unknown, risk assessment in endemic areas is difficult.

During outbreaks of Ebola, those at highest risk include healthcare workers and the family and friends of a person infected with Ebola. Healthcare workers in Africa should consult the Infection Control for Viral Hemorrhagic Fevers In the African Health Care Setting to learn how to prevent and control infections in these settings. Medical professionals in the United States should consult the Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in U.S. Hospitals.

## Diagnosis

Diagnosing Ebola in a person who has been infected for only a few days is difficult because the early symptoms, such as fever, are not specific to Ebola infection and are seen often in patients with more commonly occurring diseases, such as malaria and typhoid fever.

However, if a person has symptoms of Ebola and had contact with blood or body fluids of a person sick with Ebola, contact with objects that have been contaminated with blood or body fluids of a person sick with Ebola or contact with infected animals, the patient should be isolated and public health professionals notified. Samples from the patient can then be collected and tested to confirm infection.

Laboratory tests used in diagnosis include

Timeline of Infection	Diagnostic tests available
Within a few days after symptoms begin	- Antigen-capture enzyme-linked immunosorbent assay (ELISA) testing - IgM ELISA - Polymerase chain reaction (PCR) - Virus isolation
Later in disease course or after recovery	- IgM and IgG antibodies
Retrospectively in deceased patients	- Immunohistochemistry testing - PCR - Virus isolation



## Treatment

Currently there are no specific vaccines or medicines (such as antiviral drug) that have been proven to be effective against Ebola.

Symptoms of Ebola are treated as they appear. The following basic interventions, when used early, can significantly improve the chances of survival:

- Providing intravenous(IV) fluids and balancing electrolytes (body salts)
- Maintaining oxygen status and blood pressure
- Treating other infections if they occur

Timely treatment of Ebola is important but challenging since the disease is difficult to diagnose clinically in the early stages of infection. Because early symptoms such as headache and fever are not specific to *Ebolaviruses*, cases of Ebola may be initially misdiagnosed.

However, if a person has symptoms of Ebola and had contact with blood or body fluids of a person sick with Ebola, contact with objects that have been contaminated with blood or body fluids of a person sick with Ebola, or contact with an infected animal, the patient should be isolated and public health professionals notified. Supportive therapy can continue with proper protective clothing until samples from the patient are tested to confirm infection.

Experimental treatment has been tested and proven effective in some animals but has not yet been evaluated in humans.

## Prevention

When cases of the disease do appear, there is increased risk of transmission within healthcare settings. Therefore, healthcare workers must be able to recognize a case of Ebola and be ready to use appropriate infection control measures. The aim of these techniques is to avoid contact with the blood or body fluids of an infected patient.

Appropriate procedures include:

- isolation of patients with Ebola from contact with unprotected persons
- wearing of protective clothing (including masks, gloves, impermeable gowns, and goggles or face shields) by persons caring for Ebola patients
- the use of other infection-control measures (such as complete equipment sterilization and routine use of disinfectant)
- Avoid touching the bodies of patients who have died from Ebola

Healthcare workers should also have the capability to request diagnostic tests or prepare samples for shipping and testing elsewhere.

CDC, in conjunction with the World Health Organization, has developed a set of guidelines to help prevent and control the spread of Ebola. Entitled Infection Control for Viral Hemorrhagic Fevers In the African Health Care Setting, the manual describes how to:

- recognize cases of viral hemorrhagic fever
- prevent further transmission in health care setting by using locally available materials and minimal financial resources