

Patient information from BMJ

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Ebola

Ebola is a serious, often fatal illness caused by a virus. It was first recorded in Africa, where there have been several outbreaks since the illness was discovered in 1976.

Ebola is a frightening illness, as many people who become infected die from it. The risk of getting Ebola is much higher for people living in, or traveling in, countries with outbreaks of the illness, and for health professionals treating those who become infected. The largest outbreak of Ebola virus was in West Africa in 2014 to 2016. This outbreak affected Guinea, Liberia and Sierra Leone. Since 2016 there have also been outbreaks in Democratic Republic of The Congo and Uganda

For people in other countries, especially where there has never been an outbreak, the chance of getting Ebola is extremely small.

Key things to know about Ebola

- Ebola is spread through direct contact with body fluids from a person who is infected with Ebola virus. For example, if you touch their body fluids and then touch your eyes, nose or mouth. The virus can also enter your body if you touch fluids from a person infected with Ebola, and you have a cut on your skin, or through sexual contact. The virus can also be spread by handling wild animals who have the virus.
- Ebola is not spread through the air (for example, when someone coughs or sneezes) or through casual contact (for example, being in the same building as someone with Ebola or passing them on the street).
- Ebola symptoms develop within 21 days of the virus entering a person's body. So if someone who might have been at risk of catching the virus hasn't developed symptoms within this time, then they have not been infected.
- If you think you may have been in contact with someone who is unwell with Ebola virus and you start feeling unwell, get medical help immediately and make it clear that you may have come in contact with the virus. People who are diagnosed and cared for quickly have a better chance of surviving the illness.
- There is now a vaccine that is being used in some parts of Africa where it is most likely to be needed. Other vaccines are being developed.

What is Ebola?

The full name for Ebola is the Ebola virus disease (EVD). There are four known types of Ebola virus that can make people ill. The *Zaire ebolavirus* was responsible for the largest outbreak that happened in Africa in 2014.

Outbreaks of Ebola are thought to start when infected animals pass on the virus to people. This can happen if a person touches an infected animal's body fluids or tissue. For example, this can happen by eating contaminated with an infected animal's droppings or handling raw meat from an infected animal. People caring for sick animals who have the virus may also be at risk.

Animals that can pass on the virus to people include bats, baboons, chimpanzees and monkeys.

Once the Ebola virus enters a person's body, it invades their cells and creates copies of itself. The cells then burst, allowing the virus to spread. The virus most affects cells that are part of the body's immune system. In this way, the virus weakens the body's natural defences.

Once the immune system is weakened, the virus can cause damage throughout the body, which can lead to serious bleeding, organ damage, and death.

Unlike other viruses like the common cold and flu, Ebola can't be passed from person to person through the air (for example, by coughing or sneezing). Instead, Ebola is spread through direct contact with body fluids from a person who is unwell with Ebola virus infection.

These fluids include blood, urine, stools, vomit, sweat, saliva, semen, vaginal fluid, and breast milk.

What are the symptoms?

The first symptoms of Ebola are similar to many illnesses caused by viruses. These include:

- A fever
- Tiredness (fatigue)
- Loss of appetite
- Feeling sick to your stomach or vomiting
- Diarrhea
- Headache
- Stomach pain
- Muscle pain
- Intense weakness
- Sore throat
- Chest pain and coughing

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- Unexplained bleeding and bruising.

As the illness gets worse it can cause other symptoms. These may include:

- A rash
- Bleeding
- Hiccups
- Confusion
- Seizures.

How is Ebola diagnosed?

Doctors usually can't diagnose Ebola based on just the symptoms you have. This is because the early symptoms of Ebola are so similar to other common illnesses such as flu. Ebola symptoms are also similar to symptoms of malaria, which is common in parts of Africa and many other regions with warm, humid climates. A blood test can check for this infection. Some people have malaria as well as Ebola.

Healthcare workers usually work out whether someone has Ebola based on three main things:

- Their symptoms
- How likely they are to have recently come into contact with the Ebola virus
- The results of blood tests.

Symptoms

The most common symptoms in recent outbreaks were fever, tiredness, loss of appetite, vomiting, diarrhea, and headache.

Recent exposure to the virus

Doctors can usually rule out Ebola infection if you haven't been living in, or recently travelling in, an area where the virus is causing an outbreak. This is because most people in places where Ebola hasn't spread, such as the UK or Europe, have an extremely small chance of getting Ebola.

However, very rarely, people in these countries can get the illness if they have been in close contact with someone with Ebola who traveled from a country where Ebola is widespread.

People living in, or traveling in, countries with an Ebola outbreak have a much bigger chance of being exposed to the virus. If you are in one of these countries with an outbreak, you have a bigger chance of becoming infected include:

- A family member of someone with Ebola
- A health professional treating patients with Ebola

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- In contact with the bodies of people who have died of Ebola (for example, during burials).

Blood tests

There is a certain type of blood test that can show if someone has been infected with Ebola virus. This blood test is called a reverse transcriptase-polymerase chain reaction (RT-PCR) test.

This test can show whether a person has the virus in their body. If someone has a negative test (a test that does not show they have the virus), the test will be repeated within 48 hours to make sure that the person has not been infected.

These blood tests can now be done away from hospitals, using rapid fingerprick tests.

Other blood tests may be done to test whether the Ebola virus has already caused damage to parts of the body. Or to show how severe the infection is.

How is Ebola treated?

Treatment for Ebola has two main focuses:

- Stopping the infection from spreading to other people (infection control), and
- Providing supportive care to help people fight off the infection and recover.

Transfusions of blood from Ebola survivors have also helped some people recover. Several treatments are being developed to try to help treat Ebola, including **antiviral medications**.

Infection control

When health professionals suspect someone has Ebola they immediately take actions to prevent the virus from spreading. The person will be isolated. This means they are kept away from other people and other patients. If possible, they are tested and treated in a private room, with their own toilet. Testing should be done using a "no-touch" technique.

When health professionals enter their room they wear protective clothing that covers their body – including their eyes, head, and hands – so that no skin is exposed. They follow strict procedures for putting on and taking off this clothing each time they enter the patient's room, so that they do not come in contact with the virus.

In care centers and rooms where patients with Ebola are looked after, all surfaces should be disinfected regularly. Waste and items used by patients such as bed linens should be disposed of safely.

Supportive care

There is no medication that can get rid of the Ebola virus. Antibiotics don't help, as these medicines kill bacteria, not viruses. So the aim of treatment is to provide **supportive care**.

This means keeping the person as comfortable and healthy as possible. This gives their immune system the best chance of fighting off the infection.

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Supportive care involves three main things:

- **Treating the person's symptoms.** People will usually be given acetaminophen to help reduce their fever and pain. Stronger pain relievers, such as morphine, can be used for more severe pain.

People may be given other medications to help with nausea and vomiting and other problems, such as heartburn and difficulty swallowing. They may also be given medicines to help with less common symptoms, such as seizures (fits).

- **Preventing and treating dehydration.** Many people with Ebola vomit and have diarrhea. This means that their bodies lose fluids. If someone becomes very low on fluids (severely dehydrated), this can cause serious problems.

People may be given special drinks (called rehydration solutions). In severe dehydration people can have fluids put directly into a vein through an intravenous infusion (also called an IV).

- **Managing other problems that the infection can cause.** Ebola can lead to problems throughout the body. These can include severe bleeding both inside and outside of the body and serious damage to internal organs such as the kidneys, pancreas, and liver. For severe bleeding, a person may be given a transfusion of platelets and plasma from someone else's blood.

Keeping patients hydrated and treating other problems can help prevent damaged organs from stopping working completely (called organ failure). If organ failure does occur, patients may need intensive care.

People with Ebola may also get a serious problem called sepsis. This is an extreme response to an infection which is life-threatening. This may be caused by a separate infection with bacteria. Antibiotics are used to treat separate infections.

Blood transfusions from survivors

People who have survived Ebola have developed special proteins in their blood that kill the virus. These proteins are called antibodies. People who are ill with Ebola are sometimes given transfusions of blood from survivors. The survivors' antibodies can help them to fight the infection.

Evidence from Ebola outbreaks suggests that this can help people recover from the illness. However, blood from survivors isn't always available.

Treatments in development

Several drugs are being worked on to try and help prevent and treat Ebola.

- A **vaccine** has been created to stop people becoming ill if they are at risk of catching the virus.
- Medications are being developed to fight the infection. Some are being used outside of hospitals in emergency situations.

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- It is hoped that some **antiviral medications** will help. They are not a cure for everyone who receive them. But research suggests that people given this treatment are more likely to survive.

How can I avoid getting Ebola?

If you are living in, or traveling in, an area with an Ebola outbreak

- Wash your hands with soap and water often, or use an alcohol-based hand sanitizer
- Avoid touching anyone else's blood or other body fluids
- Do not handle items that may have an infected person's body fluids them (for example, clothes, bedclothes, medical equipment, and needles)
- Avoid funeral or burial rituals that require handling the body of someone who has died from Ebola
- Avoid touching animals that may carry the virus, such as bats, and primates such as chimpanzees and monkeys. This includes avoiding their body fluids and raw meat prepared from these animals
- If possible, avoid hospitals in outbreak areas where patients with Ebola are being treated
- After traveling in an area with an Ebola outbreak, closely monitor your health for 21 days. Get medical help immediately if you get possible symptoms, especially a fever.

If you are a health professional treating someone with Ebola

- Wear protective clothing and strictly follow the procedures for putting this clothing on and taking it off
- Use the proper infection-control measures
- Avoid direct contact with the body of someone who has died of Ebola
- Notify health officials if you have direct contact with the body fluids of an infected patient.

If you live in a country where the Ebola virus hasn't spread (where there isn't an outbreak)

- Unless you have had close contact with someone with Ebola, your chance of getting Ebola is extremely small. You do not need to take any special steps to protect yourself from the virus.

What will happen to me if I get Ebola?

Estimates of how many people with Ebola die vary greatly, ranging from 25 in every 100 people to 90 in every 100. If you are infected, your chance of surviving depends on several things. These include:

- **Which Ebola virus is making you ill.** The *Zaire ebolavirus* is the most deadly. In the past it has killed up to 90 in every 100 people who were infected. But in the more-recent outbreaks more people have survived, with around 50 out of every 100 people with the virus dying.

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- **How quickly you are diagnosed and treated.** Getting help early on can give your body a better chance of getting rid of the virus.
- **Where you are treated.** Most Ebola outbreaks happen in areas with limited healthcare resources. This means fewer people are able to get good-quality supportive care. People who receive good-quality care are more likely to recover. Some research suggests that, with better care, the chance of surviving Ebola infection is much higher.

Where can I go for more information?

The World Health Organization (WHO) provides detailed information on Ebola at <https://www.who.int/ebola/en/>.

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