

Patient information from BMJ

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Ebola

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

Ebola is a frightening illness, as many people who become infected die from it. The risk of getting Ebola is a very real concern for people living in, or travelling in, countries with outbreaks of the illness, and for health professionals treating those who become infected.

However, for people in countries a long way from Africa, including the UK, 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 – but only once that person has symptoms. These fluids include blood, urine, faeces, and vomit.
- 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 exposed to the virus hasn't developed symptoms within this time, then they have not been infected.
- If you think you may have been exposed to the virus and you start feeling unwell, seek medical attention 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 the areas where it is most likely to be needed.
- Most treatment for Ebola focuses on 'supportive care'. This means treating the person's symptoms (such as fever and pain), making sure they don't become low on fluids (dehydrated), and managing other problems that the infection causes in their body.

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- Antiviral treatments to treat ebola are becoming available. They are not a cure for everyone, but research suggests that people given these treatments are more likely to survive.

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 most recent outbreaks in Africa.

Outbreaks of Ebola are thought to start when infected animals pass on the virus to people. This can happen if a person has direct contact with an infected animal's body fluids or tissue: for example, if they eat food contaminated with an infected animal's droppings or handle raw meat from an infected animal.

Animals that can pass on the virus to people include bats, and primates such as 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 targets 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 infected – but only once that person has symptoms.

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

What are the symptoms?

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

- a fever (high temperature)
- tiredness (fatigue)
- loss of appetite
- feeling sick or vomiting
- diarrhoea
- headache
- stomach pain
- muscle pain

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- intense weakness
- sore throat
- chest pain and coughing
- unexplained bleeding and bruising.

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

- a rash
- bleeding
- hiccups
- confusion
- seizures (fits).

How is Ebola diagnosed?

Doctors usually can't diagnose Ebola based on the symptoms people have. This is because the early symptoms of Ebola are much like those of common illnesses such as flu. Ebola symptoms can also resemble those of malaria, which is common in parts of Africa and many other regions with warm, humid climates.

So doctors 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 virus
- The results of blood tests.

Symptoms

Of the symptoms listed above, the most common in recent outbreaks were fever, tiredness, loss of appetite, vomiting, diarrhoea, and headache. As these symptoms can also be caused by malaria, doctors often do a blood test to check for this infection. Some people have malaria as well as Ebola.

Recent exposure to the virus

Doctors can usually rule out Ebola as a cause of someone's symptoms if the person hasn't been living in, or recently travelling in, an area where the virus is widespread. This is because most people in countries where Ebola hasn't spread, such as the UK, have an extremely small chance of getting Ebola.

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

People living in, or travelling in, countries with an Ebola outbreak have a much greater chance of being exposed to the virus. People with the greatest chance of becoming infected include:

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- family members of someone with Ebola
- health professionals treating Ebola patients
- people who have direct contact with the bodies of people who have died of Ebola (for example, during burials).

Ebola symptoms develop within 21 days of a person being infected with the virus. So if someone exposed to the virus hasn't developed symptoms within this time, then they have not been infected.

Blood tests

If doctors think someone might have Ebola based on their symptoms and their exposure to the virus, they will do a blood test. This is called a reverse transcriptase-polymerase chain reaction (RT-PCR) test.

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

These blood tests can now be done in the field, using rapid fingerprick tests.

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, and several treatments are being developed, including **antiviral medications**.

Infection control

When doctors suspect someone has Ebola they take strict precautions to prevent the virus from spreading. The person is examined, diagnosed, and treated in a private room, with their own toilet.

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.

Supportive care

There is not yet a medicine 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, giving 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 paracetamol 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 medicines to help with nausea and vomiting and with other problems that may develop, such as heartburn and difficulty swallowing. They may also be given medicines to help with less common symptoms, such as seizures.

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

People may be given special drinks (called rehydration solutions) or have fluids put directly into a vein through an intravenous infusion (also called an IV, or a drip).

- **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, organ damage, and organ failure. For severe bleeding, a person may be given a transfusion of platelets and plasma from someone else's blood.

Kidney failure is sometimes treated through dialysis (this involves having a machine take over the work of the kidneys). However, dialysis isn't usually available for Ebola patients in countries with limited healthcare resources.

People with Ebola may also get a serious problem called sepsis, which causes inflammation (swelling) throughout the body. This may be caused by a separate infection with bacteria. Antibiotics are used to treat this.

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 so that they can use the survivors' antibodies 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 on the horizon

Several drugs are being developed to help prevent and treat Ebola.

- A **vaccine** has been created to stop people becoming ill if they are exposed to the virus.
- Drug treatments are being developed to fight the infection, and some are being used in the field, in emergency situations.
- One promising treatment area is certain **antiviral medications**. This is not a cure for everyone who receives it. 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 travelling in, an area with an Ebola outbreak

- Frequently wash your hands with soap and water, or use an alcohol-based hand sanitiser
- Avoid contact with anyone else's blood or other body fluids
- Do not handle items that have come into contact with an infected person's body fluids (for example, clothes, bedclothes, medical equipment, and needles)
- Avoid funeral or burial rituals that require handling of the body of someone who has died from Ebola
- Avoid contact with animals that may carry the virus, such as bats, and primates such as chimpanzees and monkeys. This includes avoiding contact with 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 travelling in an area with an Ebola outbreak, closely monitor your health for 21 days and seek medical attention 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 the UK or another country where the 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 previous outbreaks 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 in every 100 dying.
- **how quickly you are diagnosed and treated.** Starting supportive care early on can give your body a better chance of getting rid of the virus.

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- **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 dying from Ebola is much lower, with less than 40 in every 100 people dying.

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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