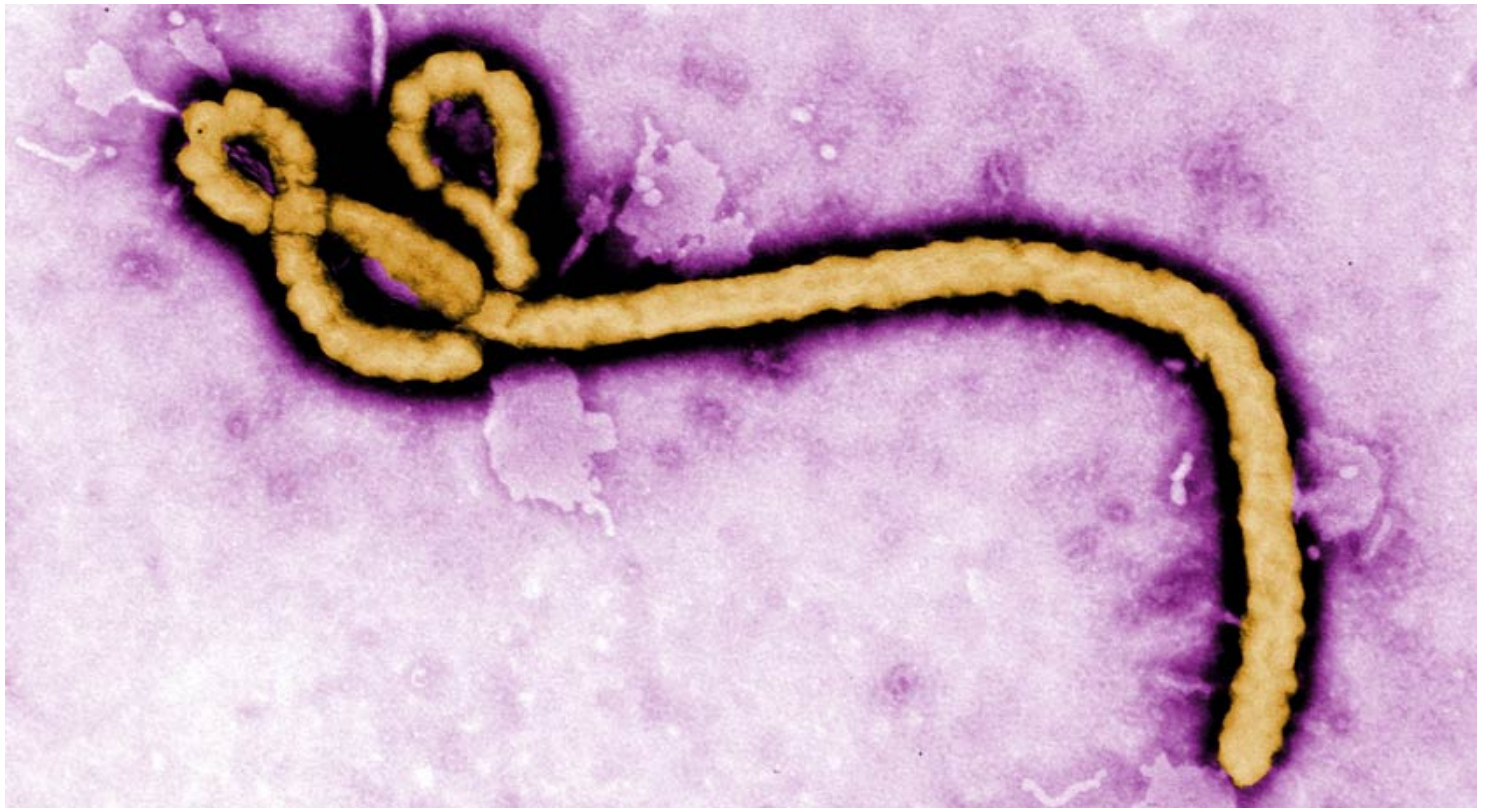


Body & Health

Explainer: What is Ebola?

An unusual type of virus has periodically led to outbreaks of a devastating infection where people may bleed to death

By Janet Raloff 5:41pm, August 22, 2014



The Ebola virus, seen here in a colorized transmission electron micrograph, has a distinct shape.

Frederick A. Murphy/CDC

It's got a long name: Ebola hemorrhagic fever. As infections go, this is a scary one. It kills anywhere from 25 to 88 percent of everyone it infects. And people who do come down with the disease suffer mightily. From 2 to 21 days after exposure, they can develop a fever, headaches, muscle pain, diarrhea, vomiting and loss of appetite. As the disease progresses, it can cause the body to start bleeding internally — and seemingly uncontrollably.

The good news: This disease is *not* easy to spread. For instance, people do not appear to become infected through the air, as occurs with influenza and many other germs. The virus lives in blood. And that's the primary means by which people become infected — by getting tainted blood or other bodily fluids into a cut, an eye or the mouth.

The disease takes its name from the region where it was first identified: communities near the Ebola River in what was known as Zaire. (That country is now the Democratic Republic of Congo.) As of 2014, there appear to have been 21 major outbreaks of the disease, mostly in central or East Africa. The first was reported in 1976. At that time, 318 people in Zaire contracted

the disease — and 280 died.

The germ responsible is called a filovirus. It's a threadlike germ that causes only two known diseases: Ebola and a related infection known as Marburg. No one knows where the virus hides between outbreaks in humans. The suspicion is that bats, deerlike creatures, or some other wild animals carry the virus — perhaps without becoming ill themselves. Then, when people pick up an infected animal, or butcher it to eat it, they may encounter the virus.

Diseases that spill over from wild animals to people are known as *zoonoses*. Many of the most famous emerging diseases, including Nipah virus and influenza, seem to hide out in animals. Such animal hosts are known as *reservoirs*.

As of early 2014, there were no drugs to cure Ebola nor vaccines to prevent it. But many research centers have been working on such medicines for many years. Because the West African outbreak of 2014 was so severe, killing well over 1,000 people, public health officials authorized the use of one experimental drug. It was called Zmapp. Doctors administered it to six Ebola patients during the summer of 2014. Several of the treated patients recovered. It was not known, however, if the drug helped their survival or their body's immune systems simply killed the germs.

There wasn't enough Zmapp (which was only supposed to be tested in a few animals) to treat any more people right away. So health officials got together in August 2014 to review a range of possible candidate new drugs. Their goal was to fast-track the testing of these medicines.

Power Words

Ebola A family of viruses that cause a deadly disease in people. Most cases occur in Africa and Asia. Its symptoms include headaches, fever, muscle pain and extensive bleeding. The infection spreads from person to person (or animal to some person) through contact with infected body fluids.

epidemic A widespread outbreak of an infectious disease that sickens many people in a community at the same time.

germ Any one-celled microorganism, such as a bacterium, fungal species or virus particle. Some germs cause disease. Others can promote the health of higher-order organisms, including birds and mammals. The health effects of most germs, however, remain unknown.

hemorrhage (adjective is hemorrhagic) Related to major or uncontrolled bleeding, often internally.

infection A disease that can spread from one organism to another.

influenza (or flu) A highly contagious viral infection of the respiratory passages causing fever and severe aching. It often occurs as an epidemic.

reservoir A large store of something. Lakes are reservoirs that hold water. People who study infections refer to the environment in which germs can survive safely (such as the bodies of birds or pigs) as living reservoirs.

vaccine A biological mixture that resembles a disease-causing agent. It is given to help the body create immunity to a particular disease. The injections used to administer most vaccines

are known as vaccinations.

virus Tiny infectious particles consisting of RNA or DNA surrounded by protein. Viruses can reproduce only by injecting their genetic material into the cells of living creatures. Although scientists frequently refer to viruses as live or dead, in fact no virus is truly alive. It doesn't eat like animals do, or make its own food the way plants do. It must hijack the cellular machinery of a living cell in order to survive.

zoonosis (plural: zoonoses) Any disease that originates in nonhuman animals and is later contracted by people. Many zoonotic diseases also spread among a host of non-human species. For instance, the type of swine flu that sickened people throughout the world in 2009 also infected marine mammals, including sea otters.

Further Reading

N. Seppa. "[Ebola treatments and vaccines could be near.](#)" *Science News for Students*. Aug. 22, 2014.

T.H. Saey. "[Record Ebola epidemic strikes.](#)" *Science News for Students*. Aug. 8, 2014.

A.L. Mascarelli. "[Explainer: Animals' role in human disease.](#)" *Science News for Students*. Aug. 15, 2013.

A.L. Mascarelli. "[Infectious animals.](#)" *Science News for Students*. April 17, 2013.

J. Raloff. "[Bush meat can be a viral feast.](#)" *Science News Online*. Jan. 12, 2012.

S. Ornes. "[Ebola in the air.](#)" *Science News for Kids*. Dec. 11, 2012.

World Health Organization. [Global Alert and Response: Ebola virus disease update – West Africa.](#) Last accessed August 20, 2014.

World Health Organization. [Ebola outbreak in West Africa – press briefings \(12 August 2014\).](#) Last accessed August 20, 2014.

World Health Organization. [WHO Statement on the Meeting of the International Health Regulations Emergency Committee Regarding the 2014 Ebola Outbreak in West Africa.](#) August 8, 2014.

Centers for Disease Control and Prevention. [2014 Ebola Outbreak in West Africa.](#) Last Accessed August 20, 2014.

Centers for Disease Control and Prevention. [Questions and Answers on Experimental Treatments and Vaccines for Ebola.](#) Last accessed August 20, 2014.

Source URL: <https://student.societyforscience.org/article/explainer-what-ebola>