

EBOLA

Harford County Health Department
October 22, 2014



Public Health
Prevent. Promote. Protect.

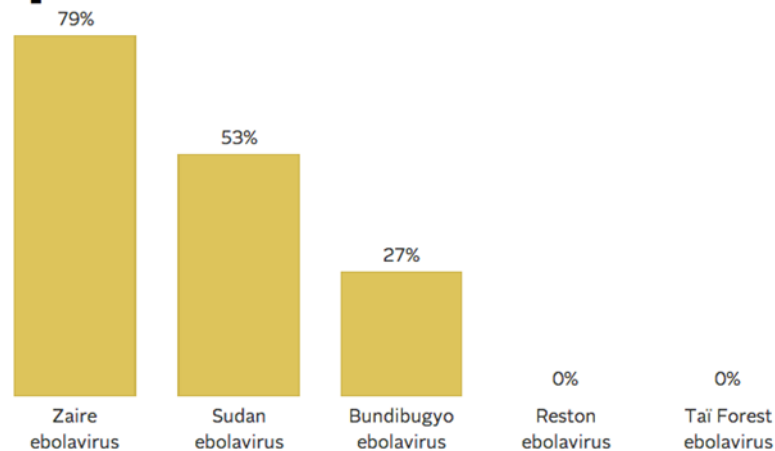
**Harford County
Health Department**

Zaire ebolavirus

The 2014 Ebola outbreak concerns the most deadly of the five Ebola viruses, *Zaire ebolavirus*, which has killed 79 percent of the people it has infected.

The virus received its name from the African country of Zaire, which on May 17, 1997, became known as the Democratic republic of the Congo. Zaire and Sudan experienced the first Ebola outbreak in 1976.

Death rates of the 5 Ebola virus species



Source: CDC

The Largest Ebola Outbreak in Recorded History

- The Ebola virus has now hit five countries: Guinea, Liberia, Sierra Leone, Nigeria, and Senegal. (There is also a separate outbreak happening in the Democratic Republic of the Congo.)
- As of October 15th there have been [8,998 cases with 4,493 deaths and a 50% case fatality](#).



Other Ebola Outbreaks

Only 7 other of the few dozen past outbreaks have involved more than 100 cases, and before now, the largest outbreak was in Uganda between 2000 and 2001, in which 425 people were infected and 224 died.

Since Ebola first appeared in 1976, only 19 outbreaks have had more than 10 victims, and around 2,000 people in total have died from the disease. *By comparison, malaria kills some 3,200 people a day, and diarrheal diseases some 4,000. Snakes and other venomous animals cause some 55,000 deaths a year — 27 times more than the entire number of people killed by Ebola in 38 years.*

Why is the outbreak continuing in Guinea, Sierra Leone and Liberia?

- 1) The sheer size of the outbreak is stretching response teams.
- 2) This is the first major Ebola outbreak in West Africa and therefore many of this region's health workers did not have experience or training in how to protect themselves or care for patients with this disease.
- 3) Local health authorities and international organizations such as WHO and Doctors Without Borders are also struggling to control the spread in these areas because of a lack of trust and cooperation among the affected populations.
- 4) According to the WHO, not all people who are infected are getting or seeking care, and so are passing the virus on to family and other close contacts.
- 5) Families are often continuing to perform traditional burial rites that involve mourners having direct contact with the bodies of the dead – and unfortunately all too often Ebola.



Doctors and health workers have sometimes been blocked from accessing affected places because of opposition from villagers who fear health professionals will bring the disease.

Burial rites include kissing the body and bathing the body before burial.




Public Health
Prevent. Promote. Protect.
Harford County
Health Department

Is Ebola hard to catch?


- YES. People are generally NOT infectious until they are sick.
- The virus is NOT spread through air, water, or in general, by food. There is no evidence that a mosquito or other insects can transmit the Ebola virus.

Facts *about* Ebola in the U.S.

You can't get Ebola through air



You can't get Ebola through water




You can't get Ebola through food



You can only get Ebola from:

- Touching the blood or body fluids of a person who is sick with or has died from Ebola.
- Touching contaminated objects, like needles.
- Touching infected animals, their blood or other body fluids, or their meat.



CDC

Your risk of getting the flu is much higher than getting Ebola. Why?

The common cold or the flu spreads much faster and easier than Ebola because it travels through the air (an infected person coughs or sneezes into the air) and droplets can be breathed in by others and land on surfaces that are later touched by others who then touch their own mouth or nose.

Please consider getting a flu vaccination this year.

There were 48,614 deaths resulting from flu during the 2003-2004 flu season, 152 of those deaths were children. During the 2013-14 flu season, 108 children died.



How is the Ebola virus transmitted?

- 1) Objects (like needles and syringes or clothing or bed linen) that have been contaminated with the virus.
- 2) Infected animals (mammals)
- 3) 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, sweat, saliva, semen, breast milk, stool) of a person who is sick with Ebola.
- 4) Once someone recovers from Ebola, they can no longer spread the virus.

Once an Ebola survivor tests negative for the virus, they are negative for life.

Officials in Spain euthanized nurse Teresa Romero's dog, Excalibur, after she tested positive for the virus.

Can dogs get Ebola?

Yes. Animals that come into direct contact with disease, later test positive for it. However the virus generally has no harmful effect on the canines as they showed no symptoms and do not become ill or die.

What about other animals?

Ebola is a zoonotic disease, which means it can be transmitted between humans and animals. Ebola virus originated from fruit bats living in tropical rainforests in equatorial Africa. The disease spread to humans when they came into contact with the organs, blood or other bodily fluids from infected animals through hunting.

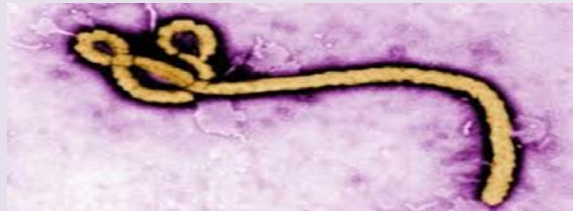
It has also been observed in other domesticated animals such as guinea pigs, goats, and horses, but like in dogs, the virus is asymptomatic.

So, could they pass it on to humans?

In theory, yes. However there is no documented evidence of this and the risk remains "low". Infected animals that are not showing signs of infection can potentially be capable of transferring virus to humans.

How long can the virus exist outside a human host?

- The viruses can only replicate in living tissue; they commandeer certain proteins and functions of a living cell for their replication. So once any organism (host) dies, there can be no more replication of a virus.
- We can kill the virus pretty easily through bleach and Lysol and alcohol, and a host of different things. And so once it gets out in the environment, it's not particularly hardy.
- You can't give an exact number of hours or days because there has not been a lot of research; we need more research, and it also depends upon the conditions.
- Viruses don't like heat and light, and that will inactivate what they call a lipid membrane of this virus. And so if that virus is out in an area where there's a lot of heat and light, then it's going to be inactivated relatively soon.



Can Ebola be spread through a drop of water or carried through the water system?

Viruses aren't as resistant outside the body as bacteria are. They depend heavily on the cells of their host — animal or human — for survival. The virus will not remain for a long time in the water.

In water, the Ebola virus would be deactivated in a matter of minutes because each Ebola virus is encased in an envelope taken from the outer surface, or membrane, of a host cell.

So what about cells in water that are infected with Ebola? Could you get the virus from infected cells in contaminated water?

Infected cells don't live long inside a liquid that doesn't have the same salt concentration as in our bodily fluids.

Drinking water has a lower salt concentration than that found inside human cells. As water rushes inside the cell to balance the salt concentration, pressure builds up. Eventually the cell bursts, killing the virus in the process.



Public Health
Prevent. Promote. Protect.
Harford County
Health Department

Who is at greatest risk of becoming infected?

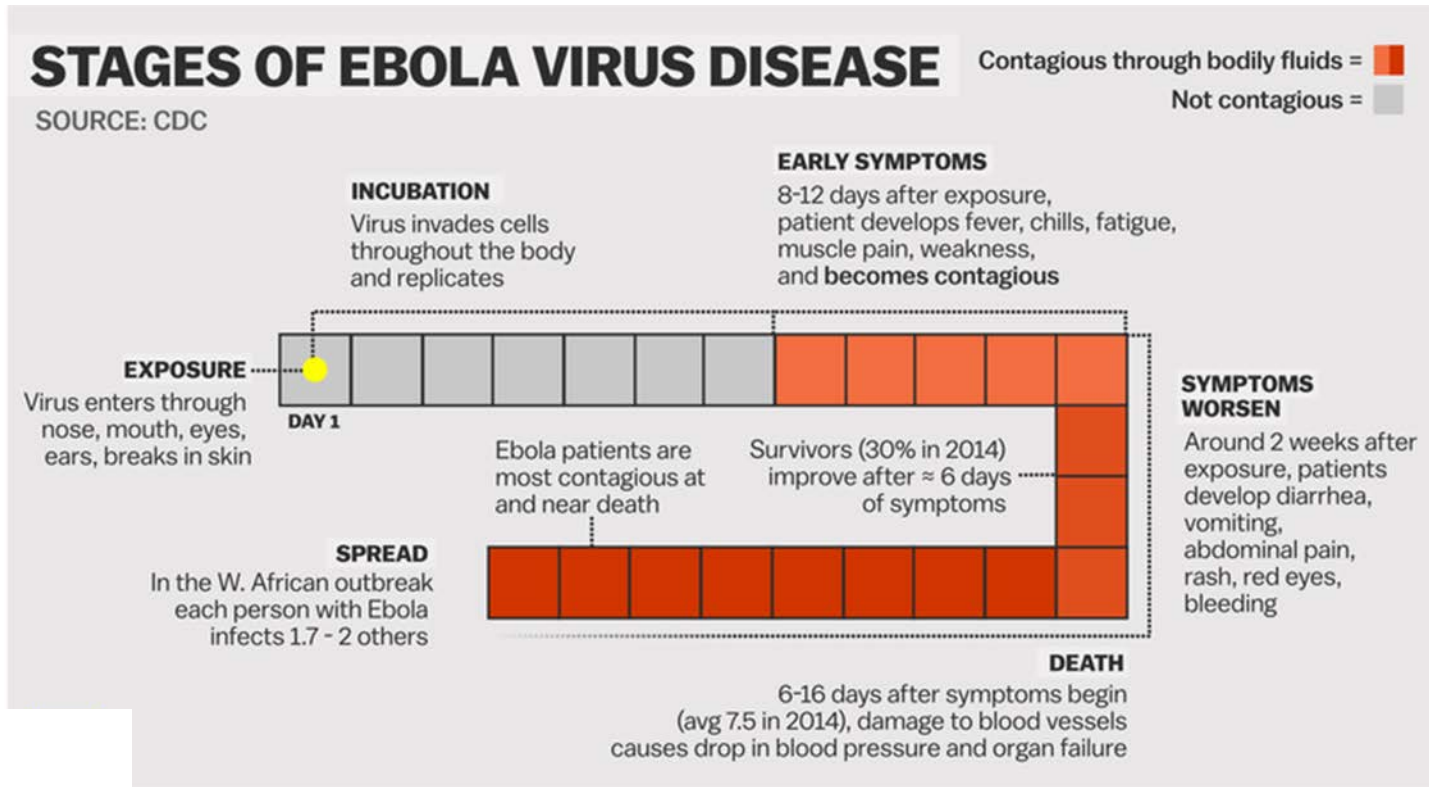
- 1) Healthcare providers caring for Ebola patients.
- 2) Family members and friends in close contact with Ebola patients.

They may come in contact with infected blood or body fluids of sick patients.

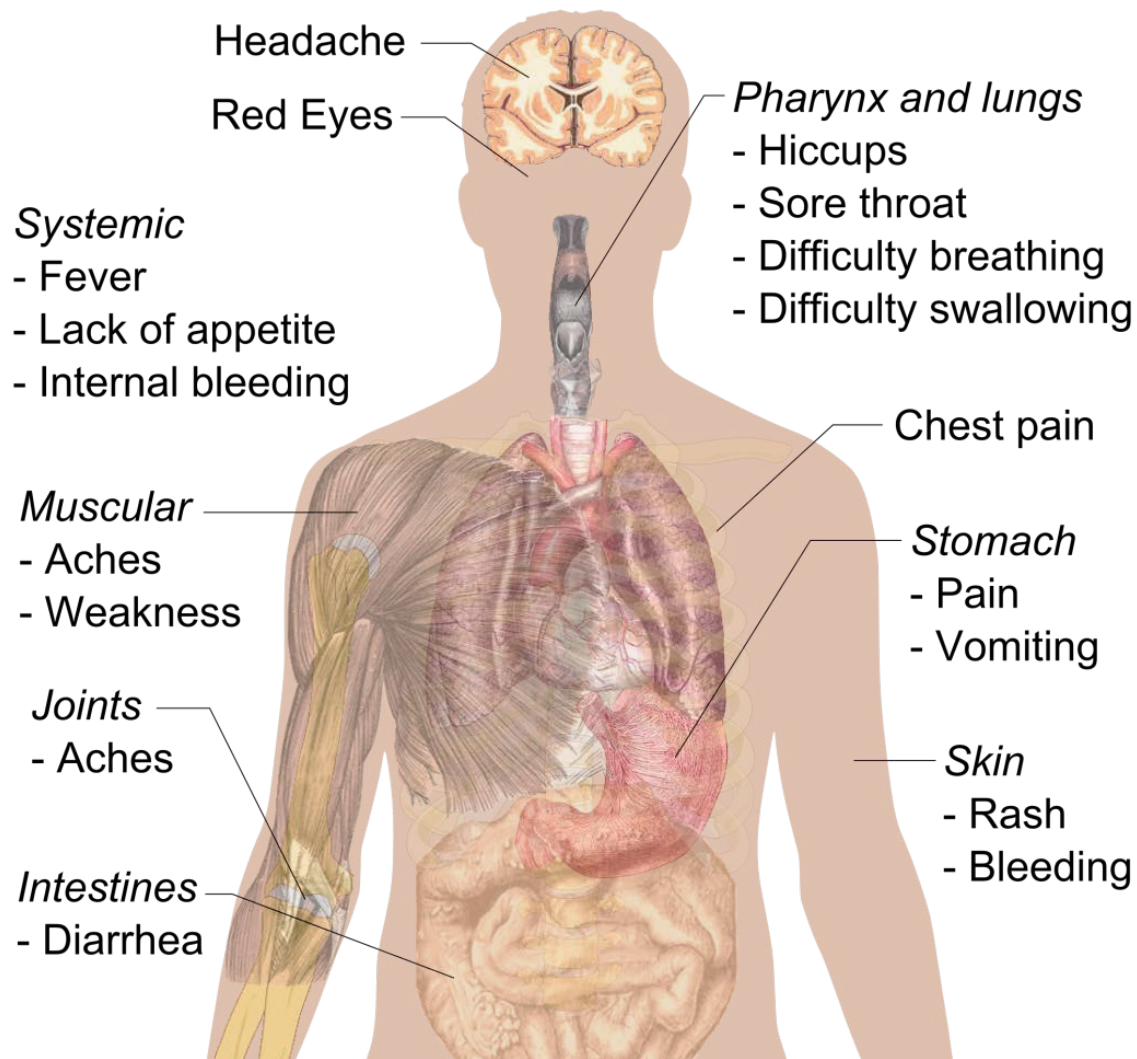


Ebola Stages of Illness

- 1) The virus enters the body through a break in the skin or through a mucous membrane.
- 2) Symptoms come on abruptly after an incubation period of 2-21 days.
- 3) After 6 days of illness the patient will begin to improve or decline. Death generally occurs between day 6-16 of the illness.



Symptoms of **Ebola**



Symptoms include fever, headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain, or bleeding/ bruising.

Bleeding can occur from the eyes, nose, ears mouth, and rectum or IV site. However, bleeding does not always happen and does not indicate whether or not the person is at higher risk of death.

Death results from shock due to multiple organ failure, including problems with the liver, kidneys, and central nervous system.

What is the treatment for Ebola?

Patients are treated for symptoms, including IV fluids for dehydration.

Several patients have received an experimental treatment called ZMapp that had never been used in people. Use of the drug skirted the usual FDA regulatory process and is in limited supply. However, on August 12th, a WHO panel decide that it could be ethical to use such unproven treatment.

Officials began testing a Canadian-made Ebola vaccine on human volunteers in the US on Oct 13th. The Walter Reed Army Institute of Research enlisted 39 health volunteers for the trial, and injected the first subject with the VSV-EBOV vaccine in phase 1 of testing.

What questions should be asked to determine if someone is at risk of having the Ebola virus?

- 1) Have you traveled to a country where an Ebola outbreak is occurring in the past 21 days or exposed to an Ebola patient?

YES to just question 1...contact the local health department at 410-612-1779.

- 2) Do you have any of the following symptoms: feeling feverish, headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain, or bleeding/bruising?

YES to question 1 AND 2911 should be called as soon as possible and contact the local health department.

Steps to Control Ebola

- 1) Identify the outbreak
- 2) Isolate the patient
- 3) Track down other potential patients
- 4) Keep patients in the hospital until they are not a threat



1) Individuals are only **contagious once they show symptoms.**

EARLY SYMPTOMS COULD BE CONFUSED WITH THE FLU OR DIARRHEA

2) In US hospitals, any suspected case of Ebola would be treated as a potential risk until tests come back negative. This means that procedures to protect other patients and health-care workers from the patient's bodily fluids would be put into place.

3) Detective work is a major part of controlling a disease like Ebola. Experts would interview the patient, his/her relatives, and other potential close contacts to monitor them and make sure that they don't spread the disease to others.

Officials will then suggest various options for these people, depending on the level of risk, including watching and waiting, isolation at home, and testing for infection.

There is no specific pill or shot that will make an Ebola infection go away, but doctors can try to make the patient comfortable, give IV fluids, and treat symptoms.

4) To prevent Ebola from spreading, health authorities wouldn't release a patient from the hospital until it's clear that the person won't be a danger to others.