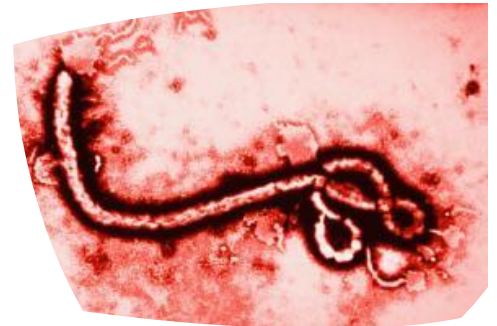


Ebola 2014 Outbreak



REV. 10/14/2014

General Information

Ebola virus disease (EVD) or Ebola hemorrhagic fever (Ebola HF) is a disease caused by the Ebola Virus, an enveloped virus. It is a severe, and often fatal, disease in humans and non-human primates, such as monkeys, gorillas and chimpanzees.

The first *Ebolavirus* species was discovered in 1976, near the Ebola River, where bat hunting is common, and since then, outbreaks have appeared sporadically.

The natural reservoir host of ebolaviruses remains unknown; however, researchers believe that the virus is animal-borne (zoonotic), and that bats are the most likely reservoir.



Source: Google Maps



Source: CDC.gov

Significance

The deadliest Ebola outbreak in recorded history has developed in Western Africa. An alarming number of people, including several healthcare workers, have been infected with the Ebola virus in Liberia, Sierra Leone, and Guinea. The outbreak started in March 2014 and continues at a rapid pace. As of October 8, 2014, there have been nearly 8,400 confirmed cases and over 4,000 deaths, and in some cases, healthcare workers have become infected. Although the outbreak remains contained in Liberia, Sierra Leone, and Guinea, localized cases have been reported in Nigeria, Senegal, Spain and the U.S., and new cases are being reported daily. Close to half of patients who contracted the virus have died. The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) have partnered to better understand and manage the public health risks associated with EVD.

Symptoms

When infection occurs, symptoms usually begin abruptly. Symptoms of EVD include fever, headache, joint and muscle aches, weakness, diarrhea, vomiting, stomach pain, lack of appetite, and abnormal bleeding. Symptoms may appear anywhere from 2-21 days after exposure to ebolavirus, although 8-10 days is most common. In approximately half of the patients, the disease becomes severe, causing bleeding. These patients may vomit blood, pass it through their urine, or bleed under the skin or from their eyes or mouth. Death occurs when vessels deep in the body begin leaking fluid, causing a drastic drop in blood pressure which ultimately leads to multi organ (heart, kidneys, liver, and other organs) failure. The fatality rate is estimated from 40-90%.

Transmission

The infection is transmitted by direct contact with blood, body fluids or tissue of infected animals or people. Patients can transmit the virus after showing symptoms and also postmortem. According to infectious disease experts at the WHO and the CDC, the virus is transmitted through direct contact with blood and body fluids of an infected symptomatic person or through direct contact with objects that have been contaminated with infected secretions (i.e. needles). The infection can enter

the body through open wounds or mucous membranes such as the mouth, nose or eyes. The virus is also able to survive on contaminated surfaces, so objects contaminated with blood or body fluids such as gloves and needles may be a source of diseases transmission. Ebola is not transmitted through the air, food or water. In outbreak settings, Ebola virus is typically first spread to humans after contact with infected wildlife and then is spread person-to-person through direct contact with blood and other body fluids, including sweat, semen and breast milk. The disease can also be spread postmortem, when a person could become infected by touching the body during funeral preparations. During an outbreak, those at higher risk of infection are health workers, family members and others in close contact with infected and deceased patients. Unfortunately, healthcare personnel are at a high risk for acquiring the infection, especially if they have not been provided with the appropriate personnel protective equipment.

Treatment

Currently, there are no specific vaccines or medicines (such as antiviral drugs) that have been proven to work against the Ebola virus. Severely ill patients require intensive supportive care. Supportive therapy is the best therapy available at this time. This includes maintaining the blood pressure of patients through proper fluid support. Studies showed that a small percentage of people develop immunity to the virus after recovery from an infection with the Ebola virus. Experimental treatments have been tested and proven effective in animal models but have not yet been used in humans.

Prevention

Keep in mind the likelihood of contracting Ebola is considered extremely low unless there is direct exposure to the body fluids of an infected person. Ebola is not spread through casual contact; therefore, the risk of an outbreak in North America is very low. The CDC has reinforced that EVD can be controlled through the use of recommended protective measures in clinics and hospitals. Hospitals are being directed to follow standard,

contact, and droplet precautions for management of hospitalized patients with known or suspected Ebola virus disease (EVD). Early recognition and identification of patients with potential EVD is critical.

Guidelines and Recommendations

Any hospital with suspected patients should follow CDC's Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Hemorrhagic Fever in Hospitals.

(<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>).

These recommendations include the following:

- **Patient placement:** Patients should be placed in a single patient room (containing a private bathroom) with the door closed. A log of persons entering the room should be maintained. Facilities may consider posting personnel at the patient's door to ensure appropriate and consistent use of PPE by all persons entering the room.
- **Healthcare provider protection:** Healthcare providers should wear protective clothing at a minimum to include masks, gloves, gowns (fluid resistant or impermeable), and eye protection. Additional PPE, such as double gloving, disposable shoe covers or leg coverings, might be required in certain situations, e.g., copious amounts of blood, other body fluids, vomit, or feces present in the environment. Proper training and competency in donning and doffing of PPE key for safety.
- **Aerosol-generating procedures:** Avoid aerosol-generating procedures. If performing

these procedures, PPE should include respiratory protection (N95 filtering face piece respirator or higher) and the procedure should be performed in an airborne isolation room.

- **Environmental infection control:** Diligent environmental cleaning and disinfection and safe handling of potentially contaminated materials is paramount, as blood, sweat, emesis, feces and other body secretions represent potentially infectious materials. The CDC recommend the use of a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces in rooms of patients with suspected or confirmed Ebola virus infection. The Public Health Agency of Canada recommend the use of DIN-registered disinfectant with broad spectrum virucide claims that is registered effective against *Adenovirus type 5*, *Bovine Parvovirus*, *Canine Parvovirus* or *Poliovirus type 1*.

Although there are no products with specific label claims against the Ebola virus, enveloped viruses such as Ebola are susceptible to a broad range of hospital disinfectants used to disinfect hard, non-porous surfaces. In contrast, non-enveloped viruses are more resistant to disinfectants. As a precaution, selection of a disinfectant product with a higher potency than what is normally required for an enveloped virus is being recommended at this time. EPA-registered hospital disinfectants with label claims against non-enveloped viruses (e.g.,

norovirus, rotavirus, adenovirus, and poliovirus) are broadly antiviral and capable of inactivating both enveloped and non-enveloped viruses.

Healthcare providers performing environmental cleaning and disinfection should wear recommended PPE (described above) and consider use of additional barriers if needed. Face protection (face shield or facemask with goggles) should be worn when performing tasks such as liquid waste disposal that can generate splashes. Follow procedures, per hospital policy and manufacturers' instructions, for cleaning and/or disinfection of environmental surfaces, equipment, textiles, laundry, food utensils and dishware.

Detailed guidelines and recommendations are available at the following links:

WHO:

<http://www.who.int/csr/disease/ebola/en/>

CDC:

<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>

<http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>








Health Canada:

<http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/ebola-eng.php>

Cleaning and Disinfection of Environmental Surfaces

The following disinfectants qualify based on the above CDC and PHAC (Public Health Agency of Canada) recommendations as disinfectant with a label claim for “a non-enveloped- virus.”

Here is a list of Diversey Care disinfectants that are effective against non-enveloped viruses:

Product	Oxivir® Tb RTU / Wipes	Virex® Tb	Oxivir® Five 16	Alpha® HP Multisurface Disinfectant Cleaner	Virex® II 256	Expose® II 256
Contact Time (Min)	1	3	5	5	10	10
						

Product	Oxivir® Tb RTU / Wipes	Oxivir® Five 16, Oxivir® Plus	Virox® AHP5 (Concentrate, RTU & Wipes)	Oxivir® Plus (Concentrate, RTU, & Wipes)	Virex® II 256
Contact Time (Min)	1	5	5	5	10
