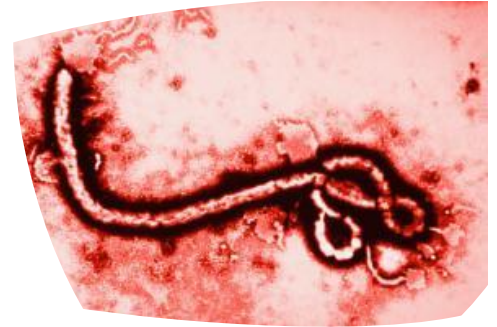


Ebola 2014 Outbreak



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 is happening now. It is one of the world's most dangerous diseases. An alarming number of people have been infected with the Ebola virus in Liberia, Nigeria, Sierra Leone, and Guinea. The outbreak started in March 2014 and continues at rapid pace. To date, it is estimated that more than 900 people have died during this outbreak, and in some cases, healthcare workers have become infected. New cases are being reported daily. More than 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. To date, no cases have been reported in North America.

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 mouths. 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 the blood, body fluids and tissues 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

Severely ill patients require intensive supportive care. No licensed specific treatment or vaccine is available for use in people or animals. 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

EVD can be controlled through the use of recommended protective measures in clinics and hospitals. Hospitals can safely manage a patient with EVD by following recommended isolation and infection control procedures, including standard, contact, and droplet precautions. 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.
- **Healthcare provider protection:** Healthcare providers should wear: gloves, gown (fluid resistant or impermeable), shoe covers, eye protection (goggles or face shield), and a facemask. Additional PPE might be required in certain situations (e.g., copious amounts of blood, other body fluids, vomit, or feces present in the environment), including but not limited to double gloving, disposable shoe covers, and leg coverings.
- **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. Appropriate disinfectants for Ebola virus and other

filoviruses include 10% sodium hypochlorite (bleach) solution, or hospital-grade disinfectants. Healthcare providers performing environmental cleaning and disinfection should wear recommended PPE (described above) and consider use of additional barriers (e.g., shoe and leg coverings) 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 standard 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>

Health Canada:








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

Cleaning and Disinfection of Environmental Surfaces

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. EPA- or Health Canada-registered disinfectants will not have a specific Ebola Virus claim. To achieve this claim, a product would have to be tested for the virus or an

appropriate surrogate which does not exist at this time, and this testing would have to be done in a level 4 biosafety level laboratory. The Ebola virus is an enveloped virus, which are relatively easy to kill with hospital grade disinfectants.

Here is a list of Diversey Care disinfectants that are effective against 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
