

RISKTOPICS

Ebola Outbreak: Tips for Protecting Workers October 2014

While Ebola outbreaks have generally been limited to Africa, the latest outbreak raises some important implications for travelers, the healthcare industry and travel related services due to the potential for disease spread. This Risktopic outlines some of the strategies that can be used to address this issue.

INTRODUCTION

Ebola virus disease (EVD) is a type of filovirus that causes a hemorrhagic fever that begins with a fever and nausea and can lead to multiple organ failure and death. Filoviruses belong to a virus family called Filoviridae and can cause severe hemorrhagic fever in humans and nonhuman primates. EVD first appeared in Africa in 1976 and has reoccurred in periodic outbreaks since that time. The current outbreak in Western Africa began in January 2014 and has surpassed the size of any previous outbreak. Currently the outbreak is focused in Liberia, Guinea, Sierra Leone, Nigeria, Mali, Spain and the United States. The spread to Nigeria, Spain and the U.S. occurred through the air travel of an infected person. According to the World Health Organization (WHO), the number of cases of EVD has risen steadily and as of the revision of this Risktopic (October 27), over 10100 cases have been documented. It has a very high mortality rate, with deaths occurring in over 4900 cases. It is for this reason that concern has been raised regarding this outbreak and the possible spread through humanitarian activities and global travel.

This Risktopic provides background on the current assessment of the Ebola outbreak in Western Africa and provides guidance for businesses in managing the Ebola threat. As with any emerging disease outbreak, the information on Ebola is changing and current references should be monitored periodically for up to date information. A list of useful references is included at the end of this document.

DISCUSSION

Ebola virus disease (EVD) is a member of the filovirus family and comprises five distinct species. Three of the five species have been associated with outbreaks in Africa while the other two species have not. The species associated with the current Western Africa outbreak, Zaire ebolavirus, has been associated with about half of the prior outbreaks. Thus far the vast majority of cases have occurred in Africa, with only a few cases occurring in Europe and North America.

Typical symptoms of EVD begin with a sudden onset of fever, weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhea, rash and impaired liver/kidney function and jaundice. In some cases massive organ failure occurs and internal/external bleeding is noted. Currently, there are no vaccines or confirmed treatments. Severely ill patients need intensive support including oral rehydration with electrolytes or intravenous fluids. Unlike the common cold or flu, EVD is not transmitted through casual contact such as being in the vicinity of an infected person as they cough. Direct contact of open wounds or mucous membranes with contaminated blood, other bodily fluids or organs is needed

to transmit the virus. EVD can remain on surfaces, so surfaces contaminated with these fluids can also transmit the disease. The incubation period for EVD can range from 2 to 21 days. Some body fluids may retain the virus longer even in asymptomatic individuals.

The source of the virus and transmission to humans appears to be exposure to diseased animals including chimpanzees, gorillas, monkeys, forest antelope and porcupines. The ultimate repository of the virus is likely to be fruit bats that are common in the tropical rain forests in these regions of Africa. Human to human transmission occurs through contact of open wounds and mucous membranes of bodily fluids from an infected person. Another important source of transmission has been in the healthcare setting where resources are strained and the use of standard precautions is not universally followed. Most incidences of EVD have been transmitted through contact with animals, close contact with caregivers either in the home or healthcare setting or during burial proceedings. Public health and healthcare resources in this region of Africa are strained, resulting in limited public education of the Ebola threat and difficulties in enforcement of public health actions, such as limiting public gatherings and quarantines.

In most areas of West Africa, passengers are screened in airports prior to boarding of air flights. Many airports in Europe and North America are screening passengers who originated in Western Africa upon arrival. In addition, the U.S. Centers for Disease Control (CDC) and local public health authorities are monitoring passengers from Western Africa for 21 days after arrival in the U.S. Some U.S. states have also implemented mandatory quarantine periods for travelers returning from Western Africa who had contact with ebola patients.

Due to the threat of transmission, the U.S. CDC has issued a travel advisory urging individuals to avoid non-essential travel to this region. If travel for essential or humanitarian purposes is necessary, travelers should use caution and avoid live animals, practice good personal hygiene, particularly hand washing, and avoid contact with individuals who are ill. If caring for the ill, significant precautions as outlined below are necessary. Travelers are also advised to monitor their health and seek immediate medical attention if any symptoms, such as fever, nausea, etc. occur.

GUIDANCE

Ebola is not transmitted through the air like the common cold, the flu or other common illnesses. Transmission occurs only through contact with raw milk, meat and other fluids from infected animals or contact with the bodily fluids (e.g., blood, saliva, feces, perspiration, etc.) of infected individuals.

The following suggestions are based on information from the WHO and CDC as best practices for preparing for and addressing the Ebola threat.

Healthcare Setting:

- Information regarding the EVD threat and appropriate actions to be taken should be communicated to all staff that may have potential patient contact. In addition, as appropriate, staff should be retrained on skills for infection prevention and control. Training should include sufficient practice in infection control procedures including the use of personal protective equipment (PPE).
- Frontline healthcare providers (particularly ER, intake and primary care workers) should be acutely aware of the symptoms of EVD and prepared to implement standard (or universal) precautions when warranted. Staff should inquire about travel or recent contact with travelers when evaluating patients and insure that all pertinent patient information is communicated to all staff.
- Standard (or universal) precautions should be followed for all patients presenting with fever, nausea, muscle pain, etc. even prior to detailed examination or laboratory testing. This includes both patients and staff using surgical type masks for droplet protection and practicing good personal hygiene (particularly hand washing).
- Once Ebola is suspected, the patient should be moved to an isolation type room and staff should follow enhanced contact precautions as outlined by the revised CDC guidance referenced at the end of this document.
- Exposure of staff and family members to patients with suspected or confirmed cases should be controlled.
- Laboratory samples from patients are an extreme biohazard risk and testing should be performed under maximum biological containment conditions.
- Cleaning personnel should follow the CDC guidance in handling any soiled laundry or equipment/surfaces that may have contacted body fluids. Laundry and equipment should be cleaned following standard disinfection protocols or incinerated if heavily soiled.

- Deceased EDV patients should be handled with the same level of precautions as infected individuals and buried in body bags and sealed caskets, or cremated as soon as practical.

Humanitarian Efforts:

Due to the size of the current outbreak and the strained public health and healthcare resources within the region, many humanitarian organizations are sending volunteers to the area to assist. These volunteers should follow the same precautions during patient care and support services as those listed earlier for the healthcare setting, while also following many of the general business advice discussed below. A link to additional CDC guidance for humanitarian workers is provided in the reference list at the end of this document.

Travel Related Setting:

- Some countries in Western Africa have instituted screening at airports and border crossings watching for individuals with high fever and other illness.
- Individuals (e.g., passengers or crew members) who have been exposed to Ebola should not travel on commercial airplanes until they have been monitored for symptoms for 21 days and been cleared by a physician.
- Based on CDC guidance, crew members on a flight where a passenger or crew member becomes ill with fever, jaundice or bleeding should ask if the traveler has been in Western Africa and separate the sick person as much as possible from others.
- Provide a surgical mask if the traveler is coughing or sneezing to prevent droplet spread. Use impermeable gloves during direct contact of blood, other bodily fluids or items contaminated with blood (e.g., syringes). Crew members should practice good personal hygiene (particularly hand washing) and use face shields, surgical mask and aprons if the traveler has been in Western Africa. Airlines may wish to provide universal precaution kits for crews.
- The captain of an aircraft bound for the United States is required to report onboard ill travelers to the CDC prior to arrival, in addition to following company procedures for in-flight medical consultation or obtaining medical assistance.
- Additional guidance from the CDC is provided in the reference list at the end of this document.

General Business Setting:

- Given the U.S. CDC's travel advisory, businesses should seriously consider postponing business related travel to the areas of Western Africa where the Ebola outbreak is occurring. That being said, exposure to Ebola in the general business setting should be less than that in the healthcare industry.
- Employees or visitors who have traveled to Western Africa should monitor themselves for symptoms for 21 days. Voluntary self isolation (such as working from home) may also be appropriate. If these employees or visitors develop symptoms, they should not come to work and seek medical attention immediately. Prior to visiting the healthcare facility, they should call ahead of time and make the facility aware of the potential of Ebola exposure so that isolation precautions can be taken upon arrival.
- If travel to affected areas is necessary, the WHO and CDC suggest:
 - Individuals planning to work/meet in a healthcare setting should carefully follow standard precautions and infection control.
 - Travelers should avoid contact with animals (alive or dead) and assure that any milk consumed is pasteurized and meat is cooked thoroughly. Also, facilities that prepare meats (such as slaughter houses) and bushmeat should be avoided.
 - Avoid close, unprotected contact with sick people.
 - Ensure good personal hygiene (particularly thorough hand washing).
- Employees traveling to Western Africa should consult with their physician regarding appropriate vaccinations and other inoculations before the trip.

- If employees traveling in Western Africa note symptoms, they should seek medical care locally before returning home. This helps minimize the chances of disease spread while traveling. If possible, they should use healthcare facilities with a good track record of infection control/treatment. Travel protection services, if engaged prior to travel, may assist in identifying appropriate medical providers and in providing other assistance to the traveler. In addition, U.S. Embassies may be able to provide advice on appropriate healthcare facilities.

Should an employee or visitor with suspected ebola exposure become ill while on premises, prompt medical attention should be provided. If clean up is needed due to bodily fluids, such as vomit, the area should be restricted and a cleaning crew with experience in hazardous material clean up should be engaged. The crew should use EPA suggested disinfectants, cleaning methods, PPE and precautions as outlined in the OSHA guidance for cleaning and decontaminating of ebola in non-healthcare facilities. A link to this guidance is included in the reference list at the end of this document.

CONCLUSION

The current Ebola outbreak is concentrated in Western Africa and has generally been associated with contact with diseased individuals from close contact by caregivers either at home or in the healthcare setting. Standard precautions should be used universally to minimize potential disease spread by sick individuals. Healthcare facilities should be proactive in staff education, patient treatment and follow the enhanced precautions outlined in the CDC guidance. Other businesses should seriously consider delaying business travel to Western Africa, but if necessary, educate employees on ways to protect themselves. As with any emerging disease outbreak, the information on this Ebola outbreak is changing and current references should be monitored periodically for up to date information. A list of useful references is included below.

RELATED MATERIALS

Zurich Risktopics:

- Overseas Travel Safety and Security
- Cleaning and disinfection plans during an influenza outbreak
- Influenza Outbreak: What your business should be doing

REFERENCES

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

U.S. Centers for Disease Control: <http://www.cdc.gov/vhf/ebola/index.html>

CDC Ebola Guidance for Airlines: <http://www.cdc.gov/quarantine/air/managing-sick-travelers/ebola-guidance-airlines.html>

CDC Guidance for Management of Ebola Patients in Hospitals: <http://www.cdc.gov/vhf/ebola/hcp/patient-management-us-hospitals.html>

CDC Revised Guidance on PPE: <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

CDC Fact Sheet on Laboratory Specimen Handling: <http://www.cdc.gov/vhf/ebola/pdf/ebola-lab-guidance.pdf>

CDC Checklist for Hospitals on Ebola Preparedness: <http://www.cdc.gov/vhf/ebola/pdf/hospital-checklist-ebola-preparedness.pdf>

CDC Guidance for Environmental Infection Control in Hospitals for Ebola Virus: <http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>

OSHA Fact Sheet on Cleaning and Decontamination of Ebola on Surfaces: https://www.osha.gov/Publications/OSHA_FS-3756.pdf

CDC Guidance for Humanitarian Workers: <http://wwwnc.cdc.gov/travel/page/humanitarian-workers-ebola>

CDC Fact Sheet on Monitoring Symptoms and Controlling Movement to Stop Spread of Ebola: <http://www.cdc.gov/media/releases/2014/fs1027-monitoring-symptoms-controlling-movement.html>

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