

Rescue Medicine Emergency Ebola Advisory for International Corporations

Rescue Medicine is an international health security and medical evacuation organization that has been delivering care to patients with Ebola and Marburg Viral Disease in Angola, Democratic Republic of Congo, and Uganda since 2001. To date Rescue Medicine has over 500 direct patient encounters with Ebola patients and was recognized for achieving one of the highest case survival rates in Africa. The 2014 Ebola Zaire outbreak in West Africa has however changed the organization's posture in preparing, deploying and caring for the patients of Ebola viral disease. This outbreak is unprecedented in magnitude, in area of impact, and in the first major involvement of African cities. The prospects for further spread to high-density populations in other African nations and to nations connected by culture, commerce and kinship is significant. For this reason recommendations are needed to assist expatriate corporations in protecting their employees, their continuity of infrastructure and in the engagement of local, national and international health authorities. This briefing is written and revised on a 48 hour cycle to give your organization the most up-to-date information about Ebola in West Africa and among travelers to Europe, Asia and the Americas.

The Ebola Virus:

Ebola, the cause of Ebola Virus Disease (EVD), is one of 5 related RNA viruses that reside in wild animal species (reservoirs). There is evidence that migratory fruit bats can carry the virus without apparent illness. Of the 5 strains, Ebola Zaire (EBOV) is the most lethal. The number of infected patients that can die from this strain-without medical support is estimated between 72-88%. Ebola can kill primates such as baboons, monkeys, gorillas and chimpanzees. Eating primates and other bush meat such as bats, is implicated in the start of Ebola outbreaks in rural Africa.

Ebola Infection:

Humans are believed to become infected after contact with an infected animal or after eating undercooked meat from an infected animal. Human to human spread of Ebola commonly occurs during medical care and cleaning of family and friends with EVD, and during the care of patients in the hospital. Once a person becomes symptomatic with Ebola, typically with onset of fever, headache, vomiting and later, diarrhea, body fluids from that patient will contain virus. The risk of infection from patients that have only recently developed fever is very low. Ebola can spread to other people if two events occur: (1) the person comes in direct contact with body fluid from an infected person and (2) that fluid enters the body through breaks in the skin or by contact with a mucous membrane (the lining of the mouth, eyelids or nose, or during sexual activity)

- **Body Fluids:** examples of high risk body fluids are blood, feces and vomit. Saliva, semen and breast milk have also been found to harbor infectious virus. Urine has negligible virus. Contact with infected tissues, such as during butchering of infected animals, can transmit the virus.
- **Surface Contact:** Ebola infection can also occur from skin contact with materials

contaminated with infected body fluids. Door handles, medical devices and contaminated bed linen have all been implicated in Ebola transmission.

- **Ebola does not spread through direct contact with dry skin or through the air. Under rare circumstances, health care workers have become infected when they ingested droplets from an infected patient.**

Signs and Symptoms of EVD

The following list of signs and symptoms routinely appear in the infected patient between day 2 and 21 after infection.

Initial symptoms (75-90% of 408 patients):

- Fever above 101.57°F
- Headache (typically behind the eyes and unremitting)
- Myalgia of large muscles
- Fatigue
- Abdominal pain
- Nausea and vomiting
- Sore throat

Symptoms within 24hr of Fever

- Diarrhea
- Increased vomiting
- Anorexia

Less common Symptoms (~50% in days 1-5)

- Injected sclera
- Rash, first over follicles, then spreading
- Shortness of breath.
- Jaundice from liver involvement
- Confusion
- Bleeding from mouth, nose, iv sites or GI tract

Risk of Ebola

Medical care, feeding and cleaning of symptomatic Ebola patients can put the caregiver at risk of contracting the disease. The primary source of infection in these cases is believed to be infection from vomit or feces, either involving the mucous membranes or through small breaks in the skin.

Expatriates and Foreign Nationals may have additional risks for EVD resulting from:

- Unavoidable contact with contaminated body fluids on shared buses, aircraft and confined spaces
- Participation in cultural practices associated with Ebola transmission such as weddings and traditional funerals
- Participation in traditional healer rituals
- Receiving care in a hospital which is incorrectly controlling contamination from a Ebola patient or from an infected health care worker

Treatment

Ebola has no cure at this time. Multiple patients survive (perhaps as many as 65%) with aggressive medical care consisting of IV fluids, antibiotics, replacement of electrolytes lost to diarrhea and vomiting and support of the liver and kidneys. Self cure takes many weeks and total return to function may take years.

Our team is working with international organizations to evaluate new drugs and vaccines to treat health care workers and patients with Ebola infection.

Prevention:

- Ensure your vaccines are up to date. Many disease such as influenza, viral hepatitis, and typhoid fever can mimic Ebola. Keeping your vaccines up to date reduces the chance of a false alarm.
- Practice careful hygiene. Avoid touching contaminated surfaces. Keep your area of the aircraft, bus or other public transportation clean and dry. Wash your hands with a industrial soap and running water and make scheduled use of a ethanol based hand sanitizer containing at least 62% ethanol.
- Avoid contact with symptomatic persons. If they are vomiting or have diarrhea, relocate to another areas.
- Avoid seeking medical care in African hospitals treating EVD patients.
- Monitor your health for 21 days after a suspected exposure or upon return from West Africa.

If you develop fever call your personal care physician and avoid further contact with family members and colleagues. Self isolate in a separate hotel room. If you are being transported, sit in the back of the car alone. Do not attempt to travel to another areas as you are likely to be sick during transit.

If you are required to provide care to a patient who may have Ebola and no qualified protected

health care worker is nearby, you need to first protect yourself from exposure.

- Wear water-proof barriers or impermeable clothing. Trash bags can be used to cover protective clothing.
- Gloves are an absolute priority. Rubber dishwashing gloves may be used if no hospital gloves are available. Masks and eye protection and clothing that covers your body, legs and feet are necessary.
- Avoid direct contact with body fluid from suspect cases. If you have skin contamination, wash off immediately and apply a antiviral gel or decontaminating solution such as dilute bleach (1:40-1:100).
- Notify your personal physician if you have direct contact with body fluids from a suspected, symptomatic case.

These recommendations have been revised in response to recent developments in health care worker transmission in West Africa. For additional details please check the CDC website www.cdc.gov/vhf/ebola/ or contact Rescue Medicine at filovirus@rescuemedicine.com.