

Mission:

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



Rick Scott
Governor

John H. Armstrong, MD, FACS
State Surgeon General & Secretary

Vision: To be the **Healthiest State** in the Nation

UPDATED: 10/20/2014

Ebola Virus Disease (EVD) Fact Sheet for Medical Professionals

Background

Ebola is a disease in humans and nonhuman primates caused by five virus species, four of which are known to cause disease in humans. The 2014 epidemic in Western Africa is caused by *Zaire ebolavirus*, considered the most virulent species. Transmission is through unprotected direct contact with blood, body fluids (including but not limited to feces, saliva, sweat, urine, vomit, semen), and organs/tissues of infected persons or animals. The virus also can be spread through contact with contaminated objects, like needles and syringes. Ebola virus dried on surfaces such as doorknobs and countertops can survive for several hours; however, virus in fluids (such as blood) can survive up to several days at room temperature. Ebola virus is killed with hospital-grade disinfectants (such as household bleach). The incubation period, from exposure to when signs or symptoms appear, is 2 to 21 days, generally averaging 8-10 days for the current outbreak.

Clinical Presentation

- Patients have abrupt onset of fever and symptoms, typically 8 – 10 days after exposure.
- Initial signs and symptoms are nonspecific and may include fever, chills, myalgias, and malaise.
- Patients can progress after several days (from early symptom onset) to gastrointestinal symptoms such as severe watery diarrhea, nausea, vomiting and abdominal pain. Patients often have conjunctival injection. Chest pain, shortness of breath, headache or confusion may also develop. Hiccups have been reported. Seizures may occur, and cerebral edema has been reported.
- Bleeding is not universally present but can manifest later in the course as petechiae, ecchymosis/bruising, or oozing from venipuncture sites and mucosal hemorrhage. Frank hemorrhage is less common; in the current outbreak unexplained bleeding has been reported from only 18% of patients, most often as blood in the stool (about 6%).
- Patients may develop a diffuse erythematous maculopapular rash by day 5 to 7 (after early symptom onset and usually involving the neck, trunk, and arms) that can desquamate.
- Pregnant women may experience spontaneous miscarriages.

Diagnostic Evaluation

- Travel history is critical. If a person has early symptoms of Ebola (fever, chills, myalgia and malaise) and had contact with the blood or body fluids of a person sick with Ebola, contact with objects contaminated with the blood or body fluids of a person sick with Ebola, or contact with infected animals, that individual should be **isolated (with standard, contact, and droplet precautions) and Public Health officials notified.** Samples from the patient can then be collected and tested to confirm infection.

- Due to nonspecific symptoms, particularly early in the course, EVD can often be confused with other more common (especially from West Africa) diseases such as malaria, dengue, yellow fever, influenza, meningococemia, typhoid fever, shigella, and bacterial pneumonia.
- Concern for possible EBV should not delay diagnosis and treatment of other infections.
- Diagnostic laboratory testing within a few days after symptoms begin can be accomplished with PCR, ELISA, IgM ELISA, and virus isolation. Later in the disease course or after recovery, diagnostic testing includes detection of IgM and IgG antibodies.
- PCR may be negative during the first 72 hours after initial symptom onset, so a repeat PCR test post 72 hours may be needed to rule out EVD.
- Other clinical laboratory tests:
 - Early leukopenia (as low as 1,000 cells per μL) with lymphopenia and subsequent neutrophilia, left shift with atypical lymphocytes. In a later stage, secondary bacterial infection might lead to raised counts of white blood cells.
 - Thrombocytopenia (50,000–100,000 cells per μL).
 - Prothrombin and partial thromboplastin times are extended and fibrin split products are detectable, indicating diffuse intravascular coagulopathy.
 - High serum aminotransferase (aspartate aminotransferase typically exceeding alanine aminotransferase). However, peak serum concentrations of these enzymes are usually much lower than seen in hepatitis A or B or yellow fever.
 - Hyperproteinemia and proteinuria

Initial Management

- No FDA-approved vaccine or medicine (e.g., antiviral drug) is available for Ebola.
- Symptoms of Ebola are treated as they appear. The following basic interventions, when used early, can significantly improve the chance of survival:
 - Providing intravenous fluids and balancing electrolytes
 - Maintaining oxygenation and blood pressure
 - Treating other infections if they occur.
- Experimental vaccines and treatments for Ebola are under development, but they have not yet been fully tested for safety or effectiveness.

Disposition/Recovery

- Recovery from Ebola depends on good supportive clinical care and the patient's immune response.
- People who recover from Ebola infection develop antibodies that last at least 10 years. It isn't known if they are immune for life or can become infected with a different species of Ebola.
- In non-fatal cases, patients may have fever for several days and improve, typically around day 6. Patients that survive can have a prolonged convalescence.
- Some people who have recovered from Ebola have developed long-term complications, such as joint and muscle pain and vision problems.
- Patients with fatal disease usually develop more severe clinical signs early during infection and die between days 6 and 16 of complications, including multi-organ failure and septic

shock (mean of 7.5 days from symptom-onset to death during the current outbreak in West Africa).

- Risk factors significantly associated with a fatal outcome in the affected countries in West Africa include age >45 years old, unexplained bleeding, and a constellation of other signs and symptoms (diarrhea, chest pain, cough, difficulty breathing, difficulty swallowing, conjunctivitis, sore throat, confusion, hiccups, and coma).