

Ebola Virus Disease (EVD) FAQ for Clinicians

Ebola General Questions

Q. Why is this outbreak so widespread compared to previous outbreaks?

A. Ebola virus likely exists in an animal reservoir in rural areas of Africa. In the past, people living in these rural areas have probably come into contact with the animal reservoir and experienced small outbreaks. Because of the isolated nature of these areas, the outbreaks have tended to be limited. Now, because of increased motor transportation and better roads, the rural areas in Africa are more connected to each other and accessible to larger cities. In addition, the limited numbers of hospitals and health care providers have made it difficult to isolate and care for people sick with Ebola virus disease (EVD). Many were previously sent home for families to provide care, in homes without electricity, sewers, or clean water. The bodies of those who died at home were ritually cleaned by family and visited by family and neighbors during a cultural burial ceremony that included touching the dead body. This practice resulted in many family members contracting EVD. All these reasons have resulted in rapid spread of this Ebola outbreak to major cities, such as Monrovia, Liberia, where the combination of poor public health infrastructure and large population size make the public health work needed to stop the outbreak very difficult.

Q. Has the animal reservoir for Ebola virus been discovered?

A. No. It is suspected that the animal reservoir for Ebola virus is an animal that people in West Africa hunt and eat (bushmeat), such as a species of bat or monkey.

Q. If you have EVD and recover, are you then immune?

A. Scientists have identified five different strains of Ebola Virus. If you contract EVD and recover, you are immune from the strain that caused your infection.

Q. Is Ebola airborne or does it have potential to become airborne?

A. No, Ebola is not airborne. Ebola is spread through direct contact with bodily fluids. Theoretically, spread through large, wet droplets such as vomitus or violent coughing may be possible at close distances. The general scientific consensus is that it is highly unlikely that Ebola can evolve to become airborne.

Q. What resources are available for the general public who are afraid of catching EVD?

A. The CDC website (<http://www.cdc.gov/vhf/ebola/index.html>) is an excellent source of information about Ebola for the general public as well as for healthcare workers. This website also has an area where you can obtain educational posters, charts, and quick algorithms to help educate the public and your patients (<http://www.cdc.gov/vhf/ebola/resources/index.html>). The Indiana State Department of Health (ISDH) website (<http://www.statehealth.in.gov>) is also a good source of information.

Diagnosis and Management of patients with EVD

Q. How does a patient with suspected EVD get diagnosed?

A. There are lab tests including PCR that are used to diagnose EVD (<http://www.cdc.gov/vhf/ebola/diagnosis/>). However, early in the course of the disease these lab tests may not always be positive and we must rely on history and symptoms for likely diagnosis. Patients are only considered to be at risk for EVD if they exhibit symptoms (fever, headache, body aches, vomiting and diarrhea, or unexplained bleeding) **AND** they have had exposure to someone else who had EVD – this means travel to one of the affected countries or direct contact with someone known to have EVD. In early cases other lab findings such as elevated LFTs or thrombocytopenia may help aid in the diagnosis. It is important to remember that these lab findings can also be seen with other infectious diseases common in West Africa such as malaria.

Q. If a patient who is suspected to have EVD comes into the Emergency Department (ED), how long will they have to stay in the ED? What will happen next?

A. If you have a patient who has traveled from Guinea, Liberia, or Sierra Leone within the past 21 days **AND** has signs and symptoms of EVD, you should immediately **isolate** the patient, and then contact the ISDH at **844-257-0052** (<http://www.cdc.gov/vhf/ebola/pdf/ed-algorithm-management-patients-possible-ebola.pdf>). The ISDH will work with the CDC to help you determine what further tests are needed and how to best proceed.

The hospital should be prepared to care for the patient for 24-48 hours while the diagnosis is being confirmed and more definitive care is arranged.

Q. Who should be asked about travel history?

A. Anyone who exhibits signs and symptoms of EVD should be asked about travel history to the affected countries (Liberia, Guinea, Sierra Leone).

Q. When I have a patient with suspected EVD, after I contact the health department, what will happen next?

A. The ISDH will immediately contact the CDC Emergency Operations Center and work with you to determine what needs to happen next. The ISDH will verify that the patient does meet the criteria for suspected EVD based on travel history and symptoms. The patient will then be risk-stratified based on exposure history to determine the need for further testing. If testing is indicated, the ISDH Laboratory will work with you to collect the appropriate samples and package them appropriately for shipping. The EVD PCR test may take up to 24 hours for results.

[http://www.in.gov/isdh/files/ISDH Decision Guide for Initial Evaluation of Suspect Cases of EVD.pdf](http://www.in.gov/isdh/files/ISDH%20Decision%20Guide%20for%20Initial%20Evaluation%20of%20Suspect%20Cases%20of%20EVD.pdf)

Q. What if my facility does not have the capability or capacity to care for someone with EVD or my staff are not prepared to care for a patient with EVD?

A. All healthcare facilities should be aware of the signs and symptoms and travel history of EVD and should have training and a plan in place to appropriately manage a patient who presents with possible EVD. All hospitals should have the capacity to isolate and care for a patient with EVD for 24-48 hours using standard contact and droplet precautions, while the local health department, the ISDH, and the CDC assist in definitive diagnosis and preparations for definitive care.

It is unlikely that this outbreak will significantly affect Indiana. However, the CDC is working with states to identify state or regional facilities prepared to provide ongoing care for patients with EVD should a state have multiple patients with EVD who present simultaneously.

Q. What if a patient calls into the clinic with symptoms worrisome for EVD?

A. Personnel answering the phones in the clinic should be trained to ask about signs and symptoms of EVD as well as travel history. If the patient has a positive travel history as described above and has signs and symptoms consistent with EVD, you should advise them to stay at home and minimize contact with family members. You should advise them to contact the ISDH **immediately** at **844-257-0052** and your clinic should also contact the ISDH at that number. If the situation is a medical emergency, call 911 and inform the dispatch providers that the patient has risk factors for EVD so that they can take necessary precautions.

Q. What do I do if a patient in a clinic or in the ED who is suspected of having EVD wants to leave?

A. Understand that EVD is a very frightening diagnosis and patients may panic and wish to leave. Try to discuss the situation rationally with the patient and allay their fears. Explain that everything you are doing is for their safety as well as the safety of their family. However, if a patient is agitated or attempts to use force, avoid contact with the patient as much as possible. If they do leave, immediately notify the ISDH and the local health department and provide them with contact information for the patient. Hospital security or the police should be called if the patient is threatening employees or other patients.

Q. What is the clinical course of EVD?

A. If a person is infected with EVD they may exhibit symptoms anywhere from 2-21 days after they were exposed, though most people develop symptoms within 8-10 days. Symptoms may be mild at first and present like any other viral illness. Most people with EVD initially have a fever, headache, and body aches, and then progress to vomiting and profuse diarrhea. Without appropriate management of fluid and electrolyte balance, they will eventually progress to profound septic shock and multisystem organ failure. Patients with EVD can develop liver failure and disseminated intravascular coagulation (DIC) which

can lead to abnormal bleeding. Patients in West Africa with profound disease die within 8-10 days of symptom onset. During the course of illness, patients may develop any number of complications such as renal failure, cardiac or respiratory failure (arrest), and superimposed bacterial infections. In the United States and Europe, intensive management of fluid and electrolyte balance and the use of blood donations from people who survived EVD and other experimental drugs and treatment have significantly reduced mortality from EVD.

Q. What treatments are available for EVD?

A. Treatment for EVD is similar to treatment for any septic shock and includes fluid resuscitation, the use of vasopressors, and electrolyte replacement. As in any septic shock, end-organ failure can occur and other supportive measures such as hemodialysis and ventilator support may be needed. Patients with EVD may develop other bacterial infections and need to be treated with antibiotics as well.

There are experimental treatments, including transfusions of serum from patients who have recovered from EVD and use of the drug ZMapp (<http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/qa-experimental-treatments.html>), but no treatments for Ebola have been studied thoroughly and none have proven clinical efficacy in humans.

Q. Should extreme measures such as hemodialysis or surgeries be performed for patients with EVD?

A. This is an ethical question that individual providers as well as healthcare institutions should discuss and prepare to answer prior to having to care for a patient with EVD. Providers must weigh the risks to themselves and other staff caring for the patient versus the potential benefit to the patient.

Q. Is there a vaccine for EVD?

A. There is no approved vaccine for EVD currently available, although there are some candidate vaccines in development undergoing safety and efficacy trials (<http://www.cdc.gov/vhf/ebola/outbreaks/2014-west-africa/qa-experimental-treatments.html>).

Q. Why are mortality rates so different in U.S. healthcare facilities for patients with EVD compared to Africa?

A. Historically mortality rates for EVD outbreaks have been as high as 90%. Mortality rates in this West African EVD outbreak are between 50-60% and the mortality rate in U.S. and European countries is much lower. The higher survival rate in the U.S. and Europe is multifactorial and includes the ability of U.S. and European hospitals to provide high levels of intensive supportive care as well as access to wider resources including varieties of medications, abundant laboratory testing, and advanced equipment such as ventilators and hemodialysis units. Patients from developed countries may also be healthier at baseline

than patients from West Africa, contributing to survivability. Additionally, the severity of EVD may be related to the amount of virus to which a patient is exposed. The two nurses exposed in the U.S. were wearing personal protective equipment and had limited exposure to the virus.

Personal Protective Equipment (PPE) and Environmental Care

Q. What kind of isolation area should my clinic or ED have for patients suspected of having EVD?

A. Guidelines for isolating and infection control are outlined on the CDC website (<http://www.cdc.gov/vhf/ebola/hcp/infection-prevention-and-control-recommendations.html>).

Q. How long does Ebola virus live outside the body on surfaces?

A. Ebola virus is only transmitted through contact with body fluids of an infected person. Ebola virus is very sensitive to heating and drying, and does not survive for more than two hours on hard surfaces without visible soiling. Surfaces such as tabletops and doorknobs are thought to be low-risk for virus transmission. Most hospital industrial cleaners are able to kill the virus. There is evidence that the virus lives longer on surfaces or fabrics that are contaminated with body fluids or in dead bodies.

Q. What kind of PPE should I be wearing?

A. The CDC has full guidelines (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>) regarding PPE and appropriate usage. However, not all facilities may have access to full PPE and there are variations on the types and levels of PPE available. You should become familiar with what is available at your facility and make sure to attend any available PPE training.

It is important to note that often you might be caring for patients with minimal symptoms who have *possible* or *suspected* EVD, not yet confirmed by laboratory test. If the patient is confirmed, the risk of transmission at the onset of symptoms is very low. You should also remember that other febrile illnesses from West Africa, such as malaria, are much more common. There is room for clinical judgment in the amount of PPE that is required to be worn. The minimum level of PPE recommended is a face mask with shield, an impermeable gown, and two pairs of gloves. If patients exhibit florid symptoms such as vomiting, diarrhea, or bleeding, you should use the highest level of PPE available.

Remember that your safety is the highest priority. If you do not feel safe or you do not have appropriate levels of PPE for the clinical situation, you should refrain from close contact with the patient.

Q. Why do some recommendations say I need to wear a facemask, while some recommend wearing N95 or PAPR?

A. Patients who are suspected of having EVD and who are mildly symptomatic are not highly infectious. In these patients, a facemask with shield is sufficient protection. Higher levels of PPE such as the N95 or PAPR should be used in patients who are floridly ill with vomiting, diarrhea, or bleeding.

Q. What if my facility doesn't have enough of the recommended PPE?

A. There are shortages of some types of PPE due to the large orders placed by healthcare facilities and health departments.

It is important to note that when caring for mildly symptomatic patients with *possible* or *suspected* EVD, not yet confirmed by laboratory test, the risk of transmission is very low. You should also remember that other febrile illnesses from West Africa, such as malaria, are much more common. There is room for clinical judgment in the amount and type of PPE that is worn and you may be able to safely treat patients with PPE available at your facility. If a patient exhibits florid symptoms such as vomiting, diarrhea, or bleeding, you should avoid caring for that patient if you do not have appropriate PPE.

Remember that your safety is the highest priority. If you do not feel safe or you do not have appropriate levels of PPE for the clinical situation, you should refrain from close contact with the patient.

Q. If Ebola virus isn't airborne, why do I need to wear a PAPR?

A. Although Ebola isn't airborne, there is potential for the virus to be spread through large droplets if a patient is vomiting or coughing violently. Additionally, patients might require treatments that have the potential for aerosolizing the virus such as intubation, nebulizer treatments, or bronchoscopy. For floridly ill patients in these cases, the N95 or PAPR is a prudent choice.

Q. Is Ebola virus absorbed through the skin? Why do I need to wear full protective gear covering all of my skin?

A. Ebola virus is absorbed through mucous membranes or micro-abrasions in the skin, but not through intact skin. However, all skin should be covered when treating a patient with florid symptoms such as vomiting, diarrhea, or bleeding. If there is any skin exposure to a patient's bodily fluids you should immediately wash the affected area.

Q. What if I come into contact with the bodily fluids from a patient suspected of having EVD?

A. Remain calm. Immediately remove yourself from the environment while avoiding contact with other providers and thoroughly wash yourself with soap and water. You should contact your infection control administrator as well as the ISDH.

Q. Should anything special be done for patients who were in the same waiting room as a patient who had suspected EVD?

A. These patients are considered extremely low risk of contracting EVD unless the patient was floridly symptomatic. You will need to write down the names and phone numbers of all people in the waiting room so the ISDH and local health department can contact them to assess their risk, answer their questions, and provide appropriate guidance.

Q. How should a waiting room be cleaned after a patient with suspected EVD? What about the isolation room?

A. The CDC provides guidance on how to clean these areas (<http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>). The ISDH and local health department can also provide guidance. Unless surfaces are visibly soiled with infected body fluids, there is little risk of transmission from surfaces in these areas. The Ebola virus can be easily killed by most industrial cleaning solutions found in the healthcare environment.

Healthcare Workers who care for Patients with EVD

Q. Is the health department monitoring travelers from Africa?

A. The ISDH and local health departments are providing direct, active monitoring for all travelers who have been in Liberia, Guinea, and Sierra Leone during the past 21 days. The CDC Division of Global Migration and Quarantine provides local contact information for these travelers, and local health departments actively monitor them twice daily for fever and symptoms of EVD until they complete the 21 day risk period.

Q. Can the health department inform local hospitals about travelers Africa in their area?

A. The ISDH is not permitted to share information about healthy travelers from the affected countries who are involved in direct, active monitoring. Indiana code § 16-41-8-1 requires health officials to keep confidential medical or epidemiological information regarding communicable diseases or other diseases that are a danger to health. Releasing the number of individuals being monitored at a county level could potentially identify an individual, therefore the Indiana State Department of Health will release the number of individuals being monitored statewide, rather than by county.

Q. Does Indiana require quarantine for returning healthcare workers from West Africa? Will Indiana quarantine me if I take care of a patient with EVD in the U.S.?

A. Indiana is following the CDC guidance for returning visitors from affected countries (<http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html>) with the exception that all individuals returning to Indiana or healthcare workers caring for a patient with EVD in the US will be provided direct, active monitoring for fever and other signs and symptoms of EVD by the local health department twice daily during the 21-day risk period. The CDC guidance stratifies travelers and healthcare workers based on their risk of contact with symptomatic people infected with Ebola virus. The guidance also provides isolation and quarantine recommendations but leaves some

discretion to state health departments for individuals who are not high-risk but who are also not low-risk regarding further quarantine or travel restrictions.

Q. Will I be able to see other patients after I've taken care of a patient with EVD?

A. This will ultimately depend on the policies of your employer. The ISDH supports the CDC guidance (<http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html>) that healthcare workers without a high-risk exposure may participate in patient care while being actively monitored as long as they remain afebrile and asymptomatic. If you have taken care of a patient with confirmed EVD and you develop any of the signs and symptoms of EVD, however mild, **immediately** remove yourself from patient care and report to the health department and to your supervisor.

Q. What next steps do I need to take after I cared for a patient with suspected EVD?

A. People traveling from Liberia, Sierra Leone, and Guinea are much more likely to have malaria, Dengue fever, or typhoid than EVD. In addition, most patient contact in an outpatient setting is considered very low-risk exposure.

If the patient you cared for is confirmed to have EVD, there is still a very low risk of disease transmission during the first 48-72 hours of symptoms. The ISDH and your local health department will assess your risk and monitor you twice daily for 21 days for fever and symptoms of EVD. Depending on your level of exposure and risk as described by the CDC (<http://www.cdc.gov/vhf/ebola/exposure/monitoring-and-movement-of-persons-with-exposure.html>) you may be restricted in your travel or work. If you develop any symptoms during that time, you should contact the health department and minimize contact with others at that point.

Q. After an exposure when would I potentially test positive for the disease?

A. After an exposure, it can take symptoms anywhere from 2 to 21 days to develop, though most people will develop symptoms in 8-10 days. If you have been exposed, you may be offered a blood test for Ebola. It is important to know that blood tests are typically negative until a person develops symptoms of EVD. A negative test for EVD before the onset of symptoms does not mean you won't develop EVD within the 21-day incubation period. In fact, Ebola tests may not turn positive for a few days even after symptoms develop. The health department will assist you in determining what blood tests need to be performed and when.

Q. How long will the virus stay active in my system?

A. Ebola virus has been found in semen for up to 3 months after a person recovered from the disease. Although there are no reported cases of EVD transmission after a person recovers from EVD, your EVD treatment team will provide you with discharge recommendations to protect the safety of your sexual partners.

