



Department of Health & Human Services

Milwaukee County

Emergency Medical Services



Number: 14-08

Date: October 3, 2014

From: **M. Riccardo Colella, DO, MPH, FACEP**
Christopher J. Mol RN MBA COHN-S

Section: Medical Director

To: EMS Admin, EMS Communications, EMS Health Information Management, EMS Medical Control, EMS QM, EMS Providers

Subject: Infection Control Notice: Ebola

Purpose: Ebola Information and Provider Safety

Infection Control Notice: Ebola

The purpose of this notice is to inform you regarding an outbreak of a virus that is affecting a number of individuals in several African countries (Guinea, Liberia, Nigeria, Senegal, Sierra Leona). A confirmed case of Ebola in a Texan hospital was announced. This index case is a patient who traveled from West Africa and developed symptoms in the United States.

What is Ebola?

Ebola, previously known as Ebola hemorrhagic fever, is a rare and deadly disease caused by infection with one of the Ebola virus strains. Ebola can cause disease in humans and nonhuman primates (monkeys, gorillas, and chimpanzees). Ebola is caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus*. Ebola virus is one of the most dangerous natural occurring biologic agents in the world with a case fatality rate of between 50% and 90%. This means that over half the people who are infected with Ebola die from the disease. Ebola viruses are currently found in several African countries and recently in the United States through a visitor from Liberia. It is important to understand how global travel and migration can increase the spread of this disease. A recent report from the Milwaukee Health Department noted that there are approximately one hundred Wisconsin residents currently residing in West Africa performing various volunteer and missionary work and may likely return home at some point. Ebola was first discovered in 1976 near the Ebola River in what is now the Democratic Republic of the Congo. Since then, outbreaks have appeared sporadically in Africa.

How is Ebola transmitted?

Ebola is spread through direct contact (through broken skin or mucous membranes) with blood or body fluids (including but not limited to urine, saliva, feces, vomit, and semen) of a person who is infected with Ebola or objects that have been contaminated with the virus. Ebola is not spread through the air, by water, or in general, food. The disease is not contagious until symptoms begin. Because of the austere care environment, unfamiliarity with screening for infectious diseases, and the lack of appropriate PPE, EMS may be at high risk for exposure.

What are the symptoms of an Ebola infection?

The symptoms of an Ebola infection are:

Fever (greater than 101.5°F)	Diarrhea
Severe Headache	Abdominal Pain
Weakness	Muscle pain
Vomiting	Unexplained Bleeding or Bruising

Symptoms may appear anytime from 2 to 21 days after exposure but the average is 8 to 10 days.

Many of the symptoms of Ebola may mimic other infectious diseases that we encounter on a daily or seasonal basis such as influenza. It is important to appreciate the context of presenting symptoms with a travel history to an Ebola endemic region within 3 weeks or a history of known exposure to Ebola.

How should I do patient assessment?

- BSI PPE
- Take a temperature and ask about travel history in patient with fever >101.5 F.
- Use caution when approaching a patient with Ebola. Illness can cause delirium, with erratic behavior that can place EMS personnel at risk of infection, e.g., flailing or staggering.
- Inform MCEMS EMSCOM so early notification to hospitals can be provided. A detailed process will soon be released.

How can I protect myself with high risk Ebola patients?

- Consider having your PSAP screen for travel in patient's calling 911 for fever related complaints. Fever of > 101.5 and travel to an endemic region within 21 days should heighten your suspicion for Ebola.
- EMS personnel should don appropriate PPE ideally before entering the scene and throughout the entire patient encounter:
 - Fluid resistant or impermeable gown
 - Eye shield/face mask
 - Gloves
 - Standard mask for droplet precaution
 - Additional PPE might be required in certain situations (e.g., large amounts of blood and body fluids present in the environment, invasive procedures such as endotracheal intubation), including but not limited to double gloving, disposable shoe covers, cap, leg coverings and NIOSH-certified fit-tested N95 filtering face piece respirator or higher should be worn (instead of a facemask).
- Limit invasive interventions in patients at high risk for Ebola unless absolutely necessary. (ex, IV, nebulized medications)
- Perform any resuscitation related procedures in a controlled environment (non-moving ambulance).

What if I get exposed to the body fluid of a high risk Ebola patient?

If blood, body fluids, secretions, or excretions from a patient with suspected Ebola come into direct contact with the EMS provider's skin or mucous membranes, then the EMS provider should immediately stop working. They should immediately wash the affected skin surfaces with soap and water and report the exposure to an occupational health provider or supervisor for additional guidance.

How do I clean up after the call?

- PPE should be carefully removed without contaminating one's eyes, mucous membranes, or clothing with potentially infectious materials.
- PPE should be placed into a medical waste container at the hospital or double bagged in a labeled biohazard bag and disposed of according to your agency policy.
- Use a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces in rooms of patients with suspected or confirmed Ebola virus infection. Although there are no products with specific label claims against the Ebola virus, enveloped viruses such as Ebola are susceptible to a broad

range of hospital disinfectants used to disinfect hard, non-porous surfaces. In contrast, non-enveloped viruses are more resistant to disinfectants. As a precaution, selection of a disinfectant product with a higher potency than what is normally required for an enveloped virus is being recommended at this time. EPA-registered hospital disinfectants with label claims against non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus) are broadly antiviral and capable of inactivating both enveloped and non-enveloped viruses.

- Avoid contamination of reusable porous surfaces that cannot be made single use. Use only a mattress and pillow with plastic or other covering that fluids cannot get through. Do not place patients with suspected or confirmed Ebola virus infection in carpeted rooms and remove all upholstered furniture and decorative curtains from patient rooms before use.

Is there any treatment?

No specific vaccine or medicine (e.g., antiviral drug) has been proven to be effective against Ebola. Treatment is supportive including: providing intravenous fluids, maintaining oxygen status and blood pressure, treating other infections if they occur. Some experimental treatments developed for Ebola have been tested and proven effective in animals but have not yet been tested in randomized trials in humans.

MCEMS system receiving hospitals are poised and preparing to receive these types of patients. At this point, there is no specific single receiving hospital for suspect Ebola patients.

What do I do if I think I have been exposed or if I have more questions?

If you think you may have been exposed or if you have any additional questions or concerns please contact your occupational health or infectious exposure officer.