



BioTel MEDICAL DIRECTOR'S CORNER

February 25, 2019

Ebola Virus Disease (EVD)

What is Ebola Virus Disease (EVD)?

- Ebola Virus Disease (EVD) is caused by infection with Ebola viruses, which are thought to be carried by bats in some parts of Africa. Ebola viruses can cause severe disease when transmitted to humans.

How is Ebola virus transmitted?

- Humans can be infected through **contact with the infected reservoir bats**.
- Ebola virus can also spread from person to person through **direct contact with droplets of bodily fluids** of persons who are infected with EVD.
- Ebola virus transmission to persons can also occur through **direct contact with objects or equipment which have become contaminated** with infectious bodily fluids or tissues.
- Ebola virus can also be transmitted through **sexual contact**.
- Ebola virus is NOT transmitted via:
 - Airborne virus particles (unlike measles, smallpox or some bacteria, such as TB);
 - A person with no signs or symptoms of Ebola Virus Disease (EVD);
 - Mosquitoes or other insects.

What is the clinical presentation for EVD?

- Many initial signs and symptoms of EVD can be “non-specific” and similar to other infectious diseases, such as malaria or typhoid fever. These include fever, headache, fatigue, generalized weakness, abdominal pain, nausea and diarrhea.
- As with other viral hemorrhagic fevers (VHF), severe cases of EVD can present with bleeding, including internal hemorrhaging or bloody emesis/diarrhea.
- Patients may also exhibit shock & CNS dysfunction (e.g. coma, delirium, and seizures).

When should EMS Providers suspect EVD?

- Consider EVD for any patient with measured or subjective fever or symptoms, or unexplained hemorrhage, **WHO REPORTS ANY** of the following in the past 21 days:
 - Travel to a region currently experiencing Ebola outbreaks, as designated by the CDC on the web page here: [“Alert Level 2” Travel Advisories](#)
 - Example: January 2019 outbreak in the [Democratic Republic of the Congo \(DRC\)](#)
 - **AND/OR**
 - Direct contact with an acutely sick person who was diagnosed with Ebola, or with a person who died of an Ebola-compatible illness but unknown cause of death.

What actions should EMS Providers take when a patient meets these criteria for suspected EVD?

- **Any patient meeting the criteria described above shall be considered to be a POSSIBLE Person Under Investigation (PUI) and shall, following consultation with BioTel, be transported to Clements University Hospital (CUH) Emergency Department for further evaluation and care.**
- **If a patient reports acute illness but HAS NOT traveled to an outbreak region and HAS NOT had direct contact with a sick person diagnosed with Ebola, that patient will generally NOT be considered a possible PUI.**
 - **After consultation with BioTel, such patients may be transported to the closest appropriate hospital Emergency Department for further evaluation and screening.**

What actions should EMS Providers take during transport for patients considered to be a possible PUI?

- **Prior to direct contact with or immediately after identifying a patient, implement precautions and Personal Protective Equipment (PPE):**
 - Standard, Contact, Droplet and Airborne Precautions shall be used for contact by EMS Providers with all possible PUIs. This includes at least the following items:
 - Long-sleeve disposable gown (fluid-impermeable)
 - Respiratory protection (N95 or N100 respirator)
 - Eye protection (disposable face shield or clean reusable goggles)
 - Clean, non-sterile gloves (double-gloving is required)
- **Implement source-control:**
 - Limit the number of personnel in direct contact with the patient.
 - Keep the patient separated from others as much as possible.
 - Apply a standard surgical mask to the patient as tolerated.
 - If nasal cannula is required, use with the surgical mask.
 - For a severely ill patient, apply a non-rebreather mask (NRBM) with supplemental oxygen.
 - Perform advanced airway management ONLY if ABSOLUTELY necessary and then with extreme caution.
- **Treat the patient:**
 - Perform routine and appropriate patient care as indicated by clinical status.
 - Use dedicated (disposable, if possible) medical equipment.
 - Limit aerosol-generating procedures (e.g. airway suctioning or nebulized medications) and the use of needles/other sharps as much as possible.
- **Transport the patient:**
 - **EMS Providers shall contact BioTel PRIOR TO TRANSPORT for receiving hospital destination decision-making assistance and for pre-notification, as detailed on page 2 above, in red.**
 - **ALL PUIs SHALL BE evaluated and transported, unless otherwise directed by BioTel.**
 - BioTel will notify Dallas County Health and Human Services (DCHHS) of the transport at their 24/7 on-call Epidemiology cell number: (214) 235-1799.
 - The receiving hospital ED should also call DCHHS upon evaluating the patient.

What procedures should EMS Providers follow after patient transport?

- Exercise great care for proper removal (doffing) of PPE:
 - Avoid contamination of clothing, skin or mucous membranes (particularly eyes, nose and mouth).
 - If hands become contaminated at any point during removal, immediately wash them with soap and water or use alcohol-based hand sanitizer.
 - The use of a “buddy system” to observe for inadvertent breaks in technique during doffing is recommended.
 - Perform rigorous hand hygiene with soap and water after complete PPE removal.
- Follow Ambulance/Equipment, Laundry and Medical Waste procedures:
 - If notified by a BioTel Medical Director that a possible EVD PUI has been confirmed, EMS Providers shall be given additional directions at that time.
 - If notified by a BioTel Medical Director that a possible PUI has been “ruled-out” for Ebola Virus Disease, then EMS Providers need only perform standard cleaning and disinfection procedures of ambulance surfaces and equipment, as well as routine management of laundry and medical waste.
- Follow EMS Agency-specific direction regarding notification of supervisors and “chain-of-command” for these responses.

Thank you for all that you do, each and every day, in service of our patients.

S. Marshal Isaacs, MD

Any questions regarding this memorandum shall be directed to Dr. Marshal Isaacs at marshal.isaacs@utsouthwestern.edu, or to a member of the BioTel Medical Direction team either via email at BioTelDocs@utsouthwestern.edu or in real-time through BioTel.

Resources for Additional Review (links accessed 02/13/2019, subject to change):

- This “Medical Director’s Corner” memorandum is available for download at the [BioTel Web Site](#)
- BioTel TB 14-006: Ebola Virus Disease [PDF](#)
- BioTel TB 14-007: Medical PPE Donning and Doffing [PDF](#) [VIDEO](#)
- BioTel TB 14-008: Ambulance & Medical Equipment Disinfection and Personnel Decontamination [PDF](#)
- BioTel TB 14-010: Ebola Virus Update [PDF](#)

Links to current CDC/HHS and MSF EVD resources, including PPE donning/doffing procedures:

- [CDC Ebola Main Page](#) (Updated May 2018)
- [CDC Ebola Emergency Services Page](#) (Updated January 2016)
- [CDC PPE Guidance for PUIs for Ebola Who Do Not Have Vomiting or Bleeding](#) (Revised August 30, 2018)
- [CDC FAQs about PPE for Ebola](#) (Revised August 30, 2018)
- HHS-ASPR-TRACIE EMS Infectious Disease Playbook [PDF](#) (pp. 7-42 – 7-63) & [EMS Resource Website](#)
- [MSF Ebola Main Page](#) (Updated January 2019)