

## Bellevue Emergency Department Guidelines for Management of Patients with Suspected Viral Hemorrhagic Fever (VHF)

We had our first high risk patient in the ED in the evening on 7.30.14 who traveled from Monrovia, Liberia. There have been 2 recent suspected Ebola cases in Charlotte and Carolinas Medical center presumed to be high risk and requiring appropriate responses. Please keep in mind that even patients from an endemic region are still most at risk for other more common causes of febrile illnesses and regional infectious causes like chikungunya, dengue, malaria, typhoid, uri, etc.

1. **Signage at hospital entrance and ED entrance**- We are working with the hospital to hang appropriate signage at the entrance of the facility. Currently we have signs in multiple languages at the entrance of the emergency department asking any patient with suspected fever, cough, rash, or recent travel to notify the triage/greeter nurse immediately. We are training all staff to be especially vigilant and to rapidly identify patients from endemic countries in triage, waiting room, or in the ED who might be high risk.

2. **Rapid Identification of Patients at Triage**- It is very important to screen and identify those patients who might have a high-risk symptoms and recent (within 21 days) travel to an endemic country in western Africa. These countries include Sierra Leone, Liberia, Guinea, and Nigeria.

3. **Symptoms of VHF**- Ebola infection is characterized by sudden onset of fever and malaise, accompanied by other nonspecific signs and symptoms, such as myalgia, headache, vomiting, and diarrhea. Patients with severe forms of the disease may develop multi-organ dysfunction, including hepatic damage, renal failure, and central nervous system involvement, leading to shock and death.

Ebola virus is typically first spread to humans after contact with infected wildlife and is then spread person-to-person through direct contact with bodily fluids such as, but not limited to, blood, urine, sweat, semen, and breast milk. The incubation period is usually 8–10 days (rarely ranging from 2– 21 days). Patients can transmit the virus while febrile and through later stages of disease, as well as postmortem. Epidemiologic studies in humans do not indicate that VHF is readily transmitted from person to person by the airborne route; however airborne transmission of VHF is a hypothetical possibility during procedures that may generate aerosols and those with respiratory symptoms.

As of July 23, 2014, according to WHO, a total of 1,201 cases and 672 deaths (case fatality 55-60%) had been reported in West Africa. No VHF infection has been reported in persons whose contact with an infected person occurred only during the incubation period. In one study, fever and other systemic signs of illness preceded detection of infectious virus in the animals' pharynx by 2-4 days, in the conjunctivae and on anal swabs by 5-6 days, and in the nares by 5-10 days.

4. **Risk Categories**- VHF should be suspected in febrile persons who, within 3 weeks before onset of fever, have either 1) traveled in the specific local area of a country where VHF has recently occurred; 2) had direct unprotected contact with blood, other body fluids, secretions, or excretions of a person or animal with VHF; or 3) had a possible exposure when working in a laboratory that handles hemorrhagic fever viruses.

5. **Triage Model for all patients, adults and children** – Patients identified at either medical walk-in by the greeter nurse/triage nurse in either the AES or PES and patients identified at ambulance triage will be escorted by that nurse to EW room 10.. A surgical mask should be placed on the patient immediately and appropriate contact precautions should be used during this transport (see further). Triage will occur in EW room 10. This room is a negative pressure isolation room and also has an antechamber for appropriate donning and doffing of personal protective equipment PPE. The EW nurse will then don full PPE to perform triage. The nurse escorting the patient into EW Room 10 from any point of triage will designate someone to notify the Team 2 administrative attending or, for patients 24 years of age or younger, the PES attending.

6. **Early escalation**- Please notify the duty officer, Assistant nursing director (AND), and myself immediately (212-263-0571 or text 901-628-6325). This will allow us to notify and involve the CDC and the Department of Health. Please involve the ID Fellow and infection control at the earliest possible time. They will escalate to the Infection Control Director Harold Horowitz. If needed you may reach him directly at 914-450-3016.

7. **Limiting staff in contact/log of contacts** – All attempts should be made to limit the staff who are in contact with the patient. Donning full PPE may be time consuming and this will limit the number of staff needing to don/doff PPE. A log should be kept of all staff entering the patient's room by placing a sign in sheet at the entrance of the room. Obtain as detailed a history using appropriate interpretation services on initial contact – fever, systemic symptoms, contact with other patients with a febrile illness, travel history, patients other contacts, etc.

8. **PPE**- Patients need to be isolated. Contact and droplet precautions are recommended by the experts (see revised CDC guidelines) and should be sufficient for most patients. Those patients with respiratory symptoms, large amounts of secretions or bodily fluids, or those patients that may have aerosol generating procedures (see CDC guidelines) will need airborne precautions. This is a standard above what is considered to be necessary for most patients. Given that most patients will present with fever and history of travel from an endemic country, it may be prudent to place the patient in isolation and use airborne precautions until you have obtained a sufficient history/exam to suggest that they do not have respiratory symptoms or high risk features.

The equipment to be used:

- Blue procedure gown (fluid repellent)
- Face shield mask worn above the N95 mask.
- Staff should use procedure bonnets, shoe booties, double glove, and use tape to secure the gloves to the gown.

Attached is a guideline for donning and doffing PPE in the correct order (most important for the removal process). The PPE should be removed in the order described and be placed in red biohazard bags in the antechamber that connects to EW room 10. The charge nurse has access to the disaster supply closet where additional Tyvek suits are available.

**9. Specimen handling-** phlebotomy/LPNs should be instructed to use the same level of personal protective equipment as described above when performing blood draws on these patients. Optimally the physician provider that is examining the patient should also perform venipuncture for any necessary labs.

Please ensure all sharps are disposed of in the patient's room. Labs should be placed in a biohazard bag and contact precautions with gloves should be used when handling the specimen outside of the patient's room.

You should not use the pneumatic tube system to deliver these labs and they should be hand carried to each individual lab department, not central accession. The lab manager should be notified about the nature of the specimen so they can be securely handled in the lab and that the instruments may be appropriately cleaned. The person delivering the specimen and the duty officer/ADN should notify the lab manager for added redundancy.

**10. Radiology-** these patients will at least require a chest x-ray. This should be done with portable equipment in room 10 to minimize patient movement. If advanced imaging is needed please use the escalation policy so that we may appropriately prep the radiology staff and use appropriate environmental procedures to service the CT room.

**11. Limiting patient movement-** after emergency department evaluation the patient should remain in the EW room 10 if there still suspicion for Ebola infection. Handoff may occur to the medicine team, however the patient should not be moved to the inpatient unit (likely 7W chest service) until you receive Department of Health clearance and local leadership instruction.

**12. Linens/Housekeeping-** all soiled linens from a patient's room must be double bagged in a red biohazard bag and delivered directly to the laundry area.

**13. Patient waste-** solid and liquid patient waste should be double bagged and the red biohazard bags and be left in a secure corner in the patient's room.

**14. Multiple Simultaneous Patients**- in the event of multiple simultaneous patients who require evaluation, we will need to mobilize the additional isolation rooms of the emergency ward. Though these rooms do not have full anti-chambers, every effort should be made to contain all used personal protective equipment within the patient's room prior to leaving.

For additional information please see attached CDC bulletin, CDC guidelines on hospital management of suspected patients, and document on properly donning/doffing PPE.