

# Viral Hemorrhagic Fever

## History

- Exposure to infected persons
- Recent travel to an endemic area

## Signs and Symptoms

- Fever
- Headache
- Joint & Muscle aches
- Weakness & Fatigue
- Vomiting & Diarrhea
- Stomach pain
- In some cases bleeding

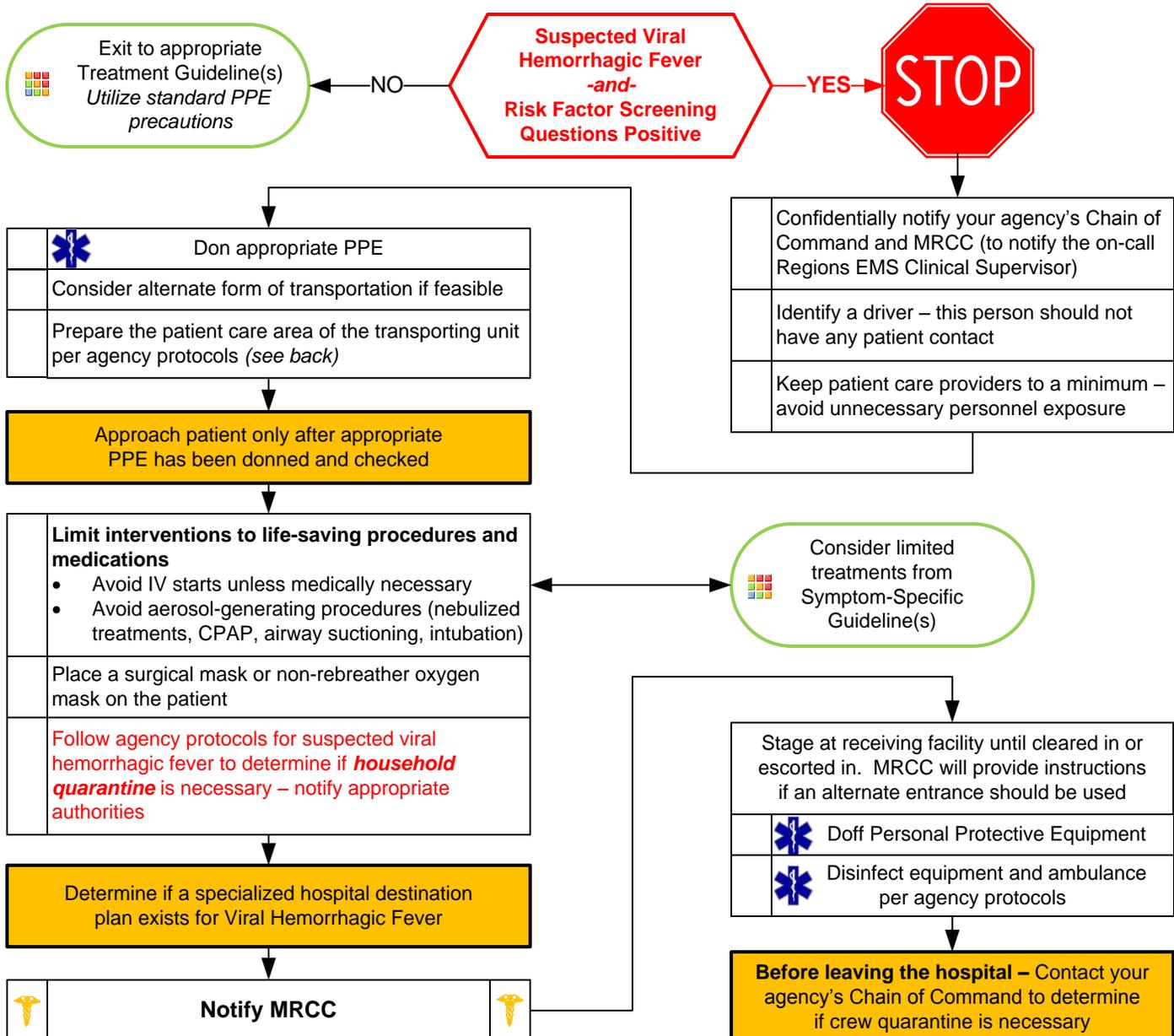
## Differential

- Ebola
- Malaria
- Influenza
- Other common viral infections
- Sepsis
- Tick-borne illness
- Biological warfare agent exposure
- Non-infectious metabolic crisis

- Do not rely solely on dispatchers to screen patients for biohazard exposure or infectious disease risk factors
- EMS Personnel must screen all potential patients for exposures, risk factors, travel history, and symptoms

## Ebola Screening Questions

- 1) Have you travelled to West Africa (Sierra Leone, Guinea, Nigeria, Senegal or Liberia) in the past 21 days?
- 2) Do you have a fever over 100.4 **AND** another symptom (headache, body aches, weakness, vomiting/diarrhea, abdominal pain, or unexplained bleeding)?



# Viral Hemorrhagic Fever

## Ebola Screening Questions

- 1) Have you travelled to West Africa (Sierra Leone, Guinea, Nigeria, Senegal or Liberia) in the past 21 days?
- 2) Do you have a fever over 100.4 **AND** another symptom, such as a headache, body aches, weakness/fatigue, vomiting/diarrhea, abdominal pain, or unexplained bleeding?

## Ebola Pearls

- Incubation period is 2-21 days, however most patients develop symptoms within 8-10 days
- A patient is only infectious when symptomatic
- Once ill, a person can spread the virus to others through direct contact with body fluids (blood, urine, sweat, semen, vomit, feces, etc.)

**When in doubt, SLOW DOWN! The vast majority of patients with viral hemorrhagic fever infection are not critically ill at the time of EMS encounter.**

## Donning PPE

Remove all jewelry, valuables, and tie hair back. If time permits, change into scrubs prior to donning PPE.

- Gloves (double gloves, extra long cuffs)
- Fluid resistant or impermeable Tyvek-like suit
- Tyvek-like hood with apron
- Full-face splash shield
- N-95 face mask or APR/PAPR
- Shoe covers up to mid-calf or knees

Utilize the buddy system to check your PPE. PPE must be in place **BEFORE** approaching the patient. It should not be doffed until personnel are no longer in contact with the patient, ideally at the receiving hospital.

## Doffing PPE

- PPE must be carefully removed without contaminating one's eyes, mucous membranes, or clothing with potentially infectious materials. Utilize the buddy system to ensure no cross contamination occurs.
- PPE must be double bagged and placed into a regulated medical waste container and disposed of in an appropriate location.
- Appropriate PPE must be worn while decontaminating / disinfecting EMS equipment or unit.
- Re-useable PPE should be cleaned and disinfected according to the manufacturer's reprocessing instructions

## Patient Isolation

- Place an impermeable barrier (preferred) or blanket on stretcher to "cocoon" the patient
- If time permits, remove unnecessary equipment and secure plastic sheeting over interior of ambulance

## Documentation should include the following:

- Risk factors and suspicions for infection with viral hemorrhagic fever
- Specific precautions taken to prevent transmission
- Names of all personnel who had contact with patient
- Steps taken to decontaminate equipment and ambulance
- Department of Health notification if appropriate

## Cardiac Arrests or Obvious Deaths

Ebola is still transmissible after death of the host patient. Consider that either the screening questions may not have been asked, or travel history and recent symptoms are unknown.

## Pearls

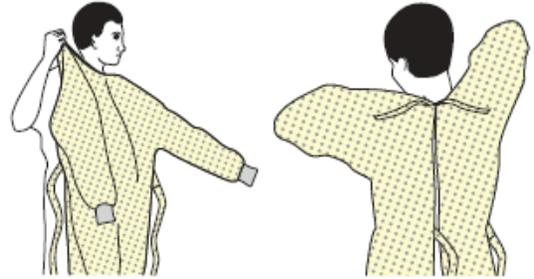
- **Do NOT rely solely on dispatchers to screen patients for viral hemorrhagic fever risk factors. Dispatch information is often limited and may come from third parties not familiar with the patient's exposure risks.**
- **Limit interventions to life-saving or medically indicated procedures and medications**
- **Place a fluid-resistant or impermeable barrier over stretcher before loading patient**
- Identify a driver who will not have any patient contact or enter an area with potential exposure
- Limit the number of providers necessary for patient contact
- If possible, identify a dedicated radio operator to limit equipment contamination
- When safe to do so, consider stopping the ambulance when performing invasive procedures
- Notify the receiving hospital as early as possible to allow time for preparations to receive an infectious patient
- Do not enter the receiving facility until cleared in or escorted by hospital staff
- Most infectious diseases are effectively decontaminated with bleach, chlorine, and other hospital-grade disinfectants
- Consult with local public health officials to determine how to manage exposed household contacts on scene

# SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

## 1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



## 2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



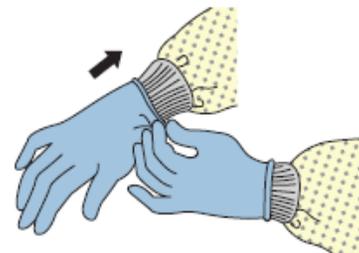
## 3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



## 4. GLOVES

- Extend to cover wrist of isolation gown



## USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

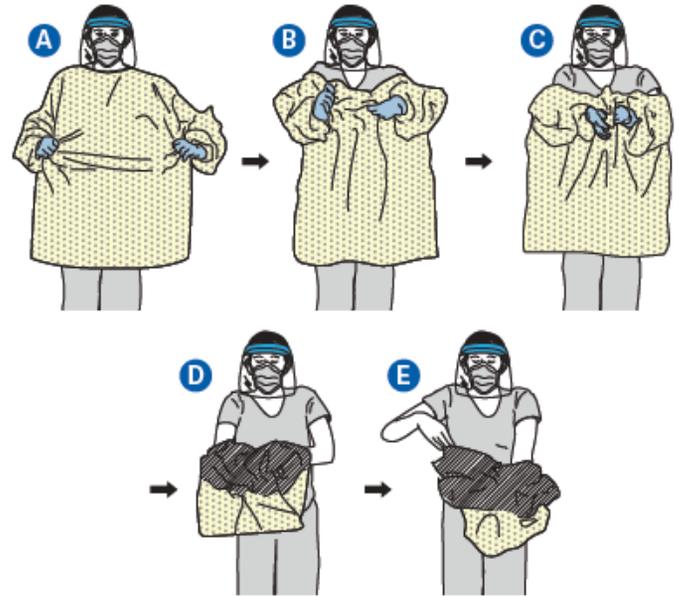


# HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Remove all PPE before exiting the patient room except a respirator, if worn. Remove the respirator after leaving the patient room and closing the door. Remove PPE in the following sequence:

## 1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container



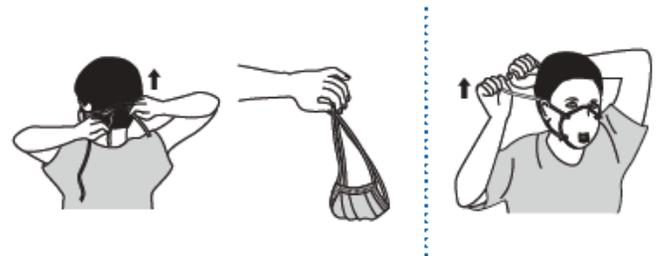
## 2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

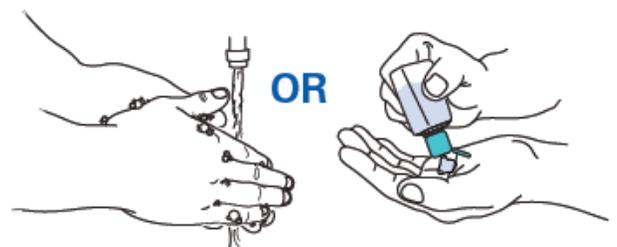


## 3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



## 4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



**PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE**





If a hooded PAPR is not available, a Tyvek-style hood should be worn with either a full-face APR respirator or a full-face splash shield with an N-95 filter mask.



***Use extreme caution when doffing the head and facial protection!***



**X 2**

Long-cuffed gloves

Knee-high boot covers