



North Carolina Department of Health and Human Services  
Division of Health Service Regulation

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**MEMORANDUM**

**TO:** North Carolina EMS Systems, EMS Medical Directors

**FROM:** Dr. JE "Tripp" Winslow, MD MPH  
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**DATE:** 23 October 2014

**SUBJECT:** Updated Suspected Ebola Protocol

Based on the updated guidance from the Centers for Disease Control and Prevention (CDC), please see the following attachments for EMS agencies and first responders:

1. Protocol 100: Suspected Ebola (*Updated per CDC guidance regarding PPE*)
2. Protocol 101: Suspected Ebola EMS Unit Decontamination (*New*)
3. Protocol 102: Suspected Ebola Safe Transportation of Human Remains (*New*)

These protocols are approved for use by the NCOEMS, have been vetted by the North Carolina Division of Public Health, other relevant state agencies, and are the collaborative effort of many.

Please note, if a service chooses to utilize these protocols, please officially notify your NCOEMS Regional Office via letter.

<http://www.ncdhhs.gov/dhsr/EMS/ems.htm>

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# Suspected Ebola

**Immediate Concern:**

Travelers from an area with an Ebola outbreak can arrive in North Carolina prior to exhibiting symptoms and become ill here.

**Evolving Protocol:**

This protocol should be considered an evolving protocol that can change as outbreak locations change. All EMS personnel should carefully monitor this protocol for updates.

**A Suspected Ebola Patient Defined**

- 1) Within the past 21 Days before the onset of symptoms, residence in, or travel within, an area where Ebola transmission is active West Africa (Sierra Leone, Guinea, or Liberia)
- AND
- 2) Presents with a Fever, headache, Joint & Muscle aches, Weakness, Fatigue, Vomiting & Diarrhea, Stomach pain, Lack of appetite, or Bleeding.

**EMD DISPATCH CENTER STAFF**

**•Use Emerging Infectious Disease [EID] Surveillance Tool With The Following Chief Complaints•**

**\*\*TYPICAL FLU-LIKE SYMPTOMS\*\* and/or \*\*UNEXPECTED BLEEDING\*\***

**•THE EMERGING INFECTIOUS DISEASE TOOL SHOULD BE USED WITH THE FOLLOWING PROTOCOLS•**

- EMD Protocol 26 Sick Person
- EMD Protocol 6 Breathing Problem
- EMD Protocol 18 Headache
- EMD Protocol 10 Chest Pain
- EMD Protocol 21 Hemorrhage (Medical)

**Ask the Following Questions**

- 1) **"In the past 21 days have you been to Africa?"**  
•If Yes,
- 2) **"Do you have a fever?"**

If "yes" answer to the above questions, First Responders should NOT be dispatched. Dispatch EMS unit and alert the EMS supervisor on duty. Confidentially, notify both that there is a potential Ebola case.

**•DO NOT RELY SOLELY ON EMD PERSONNEL TO DIAGNOSE AN EBOLA PATIENT DUE TO DISPATCH TIME CONSTRAINTS**  
**•EMS PERSONNEL MUST OBTAIN A TRAVEL HISTORY AND CHECK CLINICAL SIGNS AND SYMPTOMS ONCE ON SCENE.**

**EMS Personnel Required Personal Protective Equipment (PPE) must be donned prior to entry**  
(please see next page for PPE requirement and Donning and Doffing guidelines)

**No Routine Aerosol Generating Procedures**

- Pre-hospital providers should avoid aerosol generating procedures unless absolutely medically necessary.
- These include; CPAP, BiPAP, nebulizer treatments, intubation and suctioning.
- If these airway procedures are absolutely medically necessary, control conditions (e.g. briefly stop vehicle).

**No Routine Intravenous (IV) Lines**

- Unless absolutely medically necessary do not initiate IV's on suspected Ebola patients in the pre-hospital environment.
- If an IV is necessary, it must be performed under controlled conditions (e.g. briefly stop vehicle) to lessen the chance exposure from a contaminated needle.

**Links**

[CDC Ebola info Link](#)

[NC Department of Health Link](#)

[CDC PPE Standards Link](#)

**Pearls**

**-Incubation period 2-21 days**

- A patient is only infectious when symptomatic
- Personnel should only use PPE if they have been well trained in its use and know how to put it on on take it off safely and properly.
- Once ill, a person can spread virus to others through direct contact with body fluids: blood, urine, sweat, semen, feces, tears.
- Limit the use of needles and other sharps as much as possible. All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers. Safety devices must be employed immediately after use.
- Personnel caring for possible Ebola cases should contact their local health department or the state Communicable Disease Branch (919-733-3419; available 24/7)
- Always have a monitor for the doffing procedure to insure there is no provider self contamination during doffing
- There should be a standardized procedure for donning and doffing that is monitored by a safety officer
- There should be no exposed skin once full PPE has been put on

**Protocol 100 Suspected Ebola Precautions**

### EMS Contact of Suspected Ebola Patient

**•REMEMBER, PARTICULAR ATTENTION MUST BE PAID TO PROTECTING MUCOUS MEMBRANES OF THE EYES, NOSE, & MOUTH FROM SPLASHES OF INFECTIOUS MATERIAL OR SELF INOCULATION FROM SOILED PPE / GLOVES. THERE SHOULD BE NO EXPOSED SKIN**

•1) Don personal protective equipment (PPE) **BEFORE** you enter the patient area.

Recommended PPE

PAPR: A PAPR with a full face shield, helmet, or headpiece. Any reusable helmet or headpiece must be covered with a single-use (disposable) hood that extends to the shoulders and fully covers the neck and is compatible with the selected PAPR.

N95 Respirator: Single-use (disposable) N95 respirator in combination with single-use (disposable) surgical hood extending to shoulders and single-use (disposable) full face shield. If N95 respirators are used instead of PAPRs, careful observation is required to ensure healthcare workers are not inadvertently touching their faces under the face shield during patient care.

Single-use (disposable) fluid-resistant or impermeable gown that extends to at least mid-calf or coverall with out integrated hood. Coveralls with or without integrated socks are acceptable.

Single-use (disposable) nitrile examination gloves with extended cuffs. Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs.

Single-use (disposable), fluid-resistant or impermeable boot covers that extend to at least mid-calf or single-use (disposable) shoe covers. Boot and shoe covers should allow for ease of movement and not present a slip hazard to the worker.

Single-use (disposable) fluid-resistant or impermeable shoe covers are acceptable only if they will be used in combination with a coverall with integrated socks.

Single-use (disposable), fluid-resistant or impermeable apron that covers the torso to the level of the mid-calf should be used if Ebola patients have vomiting or diarrhea. An apron provides additional protection against exposure of the front of the body to body fluids or excrement. If a PAPR will be worn, consider selecting an apron that ties behind the neck to facilitate easier removal during the doffing procedure

•2) Obtain a **Travel History** and **Clinical Signs and Symptoms**.

•3) If there are no Ebola risk factors, proceed to the appropriate EMS treatment protocols based on clinical status

•4) If **Travel history** and **Clinical signs and symptoms** is positive and Ebola is suspected, a surgical mask (Non-N-95) should be placed on the patient, **(Use Non-Rebreathing Mask if oxygen is clinically indicated)**.

•4) If the patient is being transported via stretcher then a disposable sheet can be placed over them.

**Doffing PPE: OUTSIDE OF PPE IS CONTAMINATED! DO NOT TOUCH**

1) PPE must be carefully removed without contaminating one's eyes, mucous membranes, or clothing with potentially infectious materials.

**Use great care while doffing your PPE so as not to contaminate yourself (e.g. Do not remove your N-95 facemask or eye protection BEFORE you remove your gown). There should be a trained and dedicated monitor to observe donning and doffing of PPE. It is very easy for personnel to contaminate themselves when doffing. A dedicated monitor should observe doffing to insure it is done correctly. Follow CDC guidance on doffing. PPE should not be worn unless personnel have been well trained in its use.**

2) PPE must be double bagged and placed into a regulated medical waste container and disposed of in an appropriate location.

3) Appropriate PPE must be worn while decontaminating / disinfecting EMS equipment or unit.

3) Re-useable PPE should be cleaned and disinfected according to the manufacturer's reprocessing instructions.

1) Hand Hygiene should be performed by washing with soap and water with hand friction for a minimum of 20 seconds.

2) Alcohol-based hand rubs may be used if soap and water are not available.

3) **EVEN IF AN ALCOHOL-BASED HAND RUB IS USED, WASH HANDS WITH SOAP AND WATER AS SOON AS FEASIBLE.**

**THE USE OF GLOVES IS NOT A SUBSTITUTE FOR HAND WASHING WITH SOAP & WATER**

For any provider exposure or contamination contact occupational health.

### Alert the Receiving Medical Facility

•1) As soon as feasible, confidentially notify the receiving medical facility that you are transporting a potential Ebola patient.

**Patient Disposition**

**•2) DO NOT TAKE THE PATIENT INTO THE MEDICAL FACILITY UNTIL YOU ARE INSTRUCTED TO DO SO.**

**•3) MEDICAL FACILITY PERSONNEL WILL DIRECT YOU TO THE PROPER ROOM THROUGH A SAFE ENTRANCE.**

•**Diligent Decontamination / disinfection** along with safe handling of potentially contaminated materials (Objects such as contaminated EMS Equipment-supplies, sharps) is paramount, as blood, sweat, urine, saliva, feces, vomit, and semen represent potentially infectious materials.

### EMS Personnel Exposure-Immediate Actions

•If EMS personnel are exposed to blood, bodily fluids, secretions, or excretions from a patient with suspected or confirmed Ebola should immediately:

•1) Stop working and wash the affected skin surfaces with soap and water.

•2) Mucous membranes (e.g., conjunctiva) should be irrigated with a large amount of water or eyewash solution;

# Protocol

## Suspected Ebola EMS Unit Decontamination

### Decontamination / Disinfection Guidelines:

The following are general guidelines for cleaning or maintaining EMS transport vehicles and equipment after transporting a patient with suspected or confirmed Ebola:

### Required Personal Protective Equipment (PPE) for Decontamination

#### When performing Decontamination EMS Personnel MUST wear appropriate PPE:

- Follow current CDC guidelines for PPE.
- There should be no exposed skin.
- Refer to Protocol 100 Suspected Ebola page 2 for PPE guidelines

### Recommendations for Personal Protective Equipment (PPE) for Decontamination

- 1) EMS personnel performing decontamination / disinfection should wear recommended PPE (described above)
- 2) Face protection (N-95 respirator with goggles or face shield) should be worn since tasks such as liquid waste disposal can generate splashes.
- 3) Patient-care surfaces (including stretchers, railings, medical equipment control panels, and adjacent flooring, walls and work surfaces) are likely to become contaminated and should be decontaminated and disinfected.
- 4) A blood spill or spill of other body fluid or substance (e.g., feces or vomit) should be managed through removal of bulk spill matter, cleaning the site, and then disinfecting the site. For large spills, a chemical disinfectant with sufficient potency is needed to overcome the tendency of proteins in blood and other body substances to neutralize the disinfectant's active ingredient. An EPA-registered hospital disinfectant with label claims for non-enveloped viruses to disinfect environmental surfaces should be used according to label instructions. If the label states that it's effective against common nonenveloped viruses like norovirus, rotavirus, adenovirus, or poliovirus then it should be effective on Ebola.  
  
(Alternatively, a 1:10 dilution of household bleach (final working concentration of 500 parts per million or 0.5% hypochlorite solution) that is prepared fresh daily (i.e., within 12 hours) can be used to treat the spill before covering with absorbent material and wiping up. The spill should soak in the bleach solution for 15 minutes. After the bulk waste is wiped up, the surface should be disinfected as described in the section above).
- 5) Contaminated reusable patient care equipment should be placed in red biohazard bags (double-bagged) and labeled for decontamination and disinfection. Place bags in leak proof spill proof containers.
- 6) Reusable equipment should be cleaned and disinfected according to manufacturer's instructions by appropriately trained personnel wearing correct PPE.
- 7) 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.
- 8) To reduce exposure, all potentially contaminated textiles (cloth products) should be discarded. This includes non-fluid-impermeable pillows or mattresses. They should be considered regulated medical waste and placed in biohazard red bags. They must be double-bagged prior to being placed into regulated medical waste containers.
- 9) Use caution when removing PPE as to avoid contaminating the wearer. A buddy system should be used to insure that doffing is done safely. Use the established CDC guidelines.
- 10) Hand hygiene should be performed immediately following the removal of PPE. Soap and water should be used when available. If not available then use an alcohol based hand rub and soap and water as soon as possible

#### **Ebola Information:** For a complete review of Ebola EMS Vehicle Disinfection go to :

<http://www.cdc.gov/vhf/ebola/hcp/interim-guidance-emergency-medical-services-systems-911-public-safety-answering-points-management-patients-known-suspected-united-states.html>

# Protocol

## **Ebola (Safe Transportation of Human Remains)**

**These recommendations are designed to offer guidance on the safe transportation and handling of human remains that may contain the Ebola Virus.**

- Only personnel trained in handling infected human remains, and wearing full PPE, should touch, or move any Ebola-infected remains.
- Handling human remains should be kept to a minimum.

### **Putting on (Donning) PPE**

PPE should be in place **BEFORE** contact with the body

- Refer to protocol 100 Suspected Ebola page 2 for PPE guidelines
- There should be no exposed skin
- Refer to CDC guidelines for doffing and donning

### **Removal of (Doffing) PPE**

Remove PPE following appropriate guidelines.

- 1) Use caution when removing PPE as to avoid contaminating the wearer. A buddy system and checklist should be used to insure that doffing is done safely.
- 2) Hand hygiene (washing your hands thoroughly with soap and water or an alcohol based hand rub) should be performed immediately following the removal of PPE. Soap and water is preferred. If hands visibly soiled must use soap and water

### **Preparation of the Body**

- 1) At the site of death, the body should be wrapped in a plastic shroud. Wrapping of the body should be done in a way that prevents contamination of the outside of the shroud.
- 2) Change your coveralls or gloves if they become heavily contaminated with blood or body fluids.
- 3) Leave any intravenous lines or endotracheal tubes that may be present in place.
- 4) Avoid washing or cleaning the body.
- 5) After wrapping, the body should be immediately placed in a leak-proof plastic bag not less than 150 µm thick and zippered closed. The bagged body should then be placed in another leak-proof plastic bag not less than 150 µm thick and zippered closed before being transported to the morgue.

### **Surface Decontamination**

- 1) Prior to transport to the morgue, perform surface decontamination of the corpse-containing body bags by removing visible soil on outer bag surfaces with EPA-registered disinfectants that can kill non-enveloped viruses.
- 2) Follow the product's label instructions. Once the visible soil has been removed, reapply the disinfectant to the entire bag surface and allow to dry.
- 3) Following the removal of the body, the surrounding area where the body was removed from should be cleaned and disinfected.
- 4) Reusable equipment should be cleaned and disinfected with agents as described in protocol 101.

### **Transportation of Ebola Infected Remains**

#### **• 1) Individuals driving or riding in a vehicle carrying human remains:**

PPE is **not** required for individuals driving or riding in a vehicle carrying human remains, provided that drivers or riders will not be handling the remains of a suspected or confirmed case of Ebola, and the remains are safely contained and the body bag is disinfected as described above.

**Ebola Information:** For a complete review of Handling Remains of Ebola Infected Patients go to:

<http://www.cdc.gov/vhf/ebola/hcp/guidance-safe-handling-human-remains-ebola-patients-us-hospitals-mortuaries.html>

#### **Pearls of Wisdom**

- **In patients who die of Ebola virus infection, virus can be detected throughout the body.**
- **Ebola virus can be transmitted in postmortem care settings by laceration and puncture with contaminated instruments used during postmortem care, through direct handling of human remains without appropriate personal protective equipment, and through splashes of blood or other body fluids (e.g. urine, saliva, feces) to unprotected mucosa (e.g., eyes, nose, or mouth) which occur during postmortem care.**
- **Only personnel trained in handling infected human remains, and wearing PPE, should touch, or move, any Ebola-infected remains.**
- **Handling of human remains, which may occur during postmortem care should be kept to a minimum.**