

Ebola Preparedness for Emergency Medical Services Interim Guidelines as of October 31, 2014

Identify Patients, Protect Yourself, Respond Safely

The Vermont Department of Health Office of Public Health Preparedness and Emergency Medical Services recognize the critical role of VT EMS Providers and Services for response to a possible Ebola Virus Disease patient. Because Federal guidance is evolving, this document should be considered as interim VT guidance. One aspect that will never change, however, is that our providers and healthcare workers must be protected. If there is a call to render care to a suspect or confirmed Ebola patient, no matter the patient condition, your first priority must be to ensure that you and your team are properly equipped and trained. Taking steps now to prepare for a suspect Ebola patient will allow you to provide needed care safely.

Key Actions for EMS to take now (see below for important details):

- Review and update, if needed, your agency's infection control program/plan including identifying local and regional resources can assist you.
- Become expert in standard, contact, and droplet precautions. Refresh your training, review the equipment, and practice donning and doffing using your PPE, especially how to remove potentially contaminated equipment without infecting yourself or others and with a trained observer.
- Review the Vermont EMS Ebola Virus Disease Education module on *LearnEMS* including: Overview of Ebola Virus Disease, Vermont Ebola Virus Disease patient care protocol, Checklist and instructions and CDC video for putting on (Donning) and removing (Doffing) PPE.
- See the most recent CDC guidance for EMS and on use of PPE for Ebola
 - "Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)"
<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>
 - "Tightened Guidance for U.S. Healthcare Workers on Personal Protective Equipment for Ebola" <http://www.cdc.gov/media/releases/2014/fs1020-ebola-personal-protective-equipment.html>
 - "Interim Guidance for EMS Systems and 911-PSAPs..."
<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>
- Review equipment and vehicle decontamination procedures.
- Review screening questions for possible Ebola patients and post screening guidance in your station and vehicles for frequent review.
- Confirm that you have an adequate supply of the necessary PPE (See details below), which includes at minimum: N95 Respirator or Powered Air Purifying Respirator (PAPR); with single-use disposable full-face shield and surgical hood that ensures complete coverage of the head and neck, single use fluid resistant or impermeable gown that extends to at least mid-calf or coverall, double gloves (outer with extended cuffs), boot covers and apron if patient has vomiting or

diarrhea.

Screening and Suspect Case Identification

- 911 Emerging Infectious Disease Surveillance Tool
 - VT e911 is currently screening for potential Ebola patients with questions regarding fever or other Ebola-compatible symptoms and travel or exposure history.
 - If VT e911 PSAP advises that the patient is suspected of having Ebola, put on appropriate PPE **BEFORE** entering the scene and follow the Vermont Ebola Virus Disease patient care protocol.
 - Personnel with First Responder agencies without appropriate PPE and trained observer should NOT enter the scene or have contact with the patient.

To support early identification, EMS providers should perform initial screening of all patients from at least 3 feet away as follows:

- **Identify exposure history:** Has the patient lived in or traveled to a country with widespread Ebola transmission or had contact with an individual with confirmed Ebola Virus Disease within the previous 21 days? (Involved countries currently include: Guinea, Liberia and Sierra Leone).
NO – Proceed with normal EMS care
YES – Proceed with secondary questions
- **Identify signs and symptoms:** Does the patient have a fever (subjective or > 100.4 °F or 38.0°C) or Ebola-compatible symptoms: headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain, or hemorrhage?
NO – Proceed with normal EMS care and appropriate PPE and notify receiving facility of exposure history
YES – Consider the patient a **Suspect Case for Ebola Virus Disease**. Notify receiving hospital before transport and the VT Department of Health at 802-863-7240 and implement Ebola Virus Disease patient care protocol IMMEDIATELY

General Guidance:

- Review CDC “Detailed Emergency Medical Services (EMS) Checklist for Ebola Preparedness” <http://www.cdc.gov/vhf/ebola/pdf/ems-checklist-ebola-preparedness.pdf>
- Keep the patient separated from other persons as much as possible.
- Minimize the number of EMS personnel that directly care for the patient as appropriate depending on the condition of the patient and scene.
- Consider obtaining additional resources or mutual aid to ensure adequate staffing and PPE. Recommended crew includes 2 patient care providers and one driver.
- 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.
- Initiate transport to the closest facility. Consider transport directly to FAHC or DHMC if additional transport time is < 15 minutes. Contact Medical Control for guidance.
- **Notify the receiving hospital before transport and notify the Vermont Department of Health at 802-863-7240.**
- Keep an accurate list of all EMS personnel involved in suspect patient care.

- 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 when it is safe to do so. They should wash the affected skin surfaces with soap and water and mucous membranes (e.g., conjunctiva) should be irrigated with a large amount of water or eyewash solution. Report exposure to an occupational health provider or supervisor for follow-up and receive medical evaluation.
- Follow CDC guidelines for cleaning EMS transport vehicles after transporting a patient with suspected or confirmed Ebola.
- EMS personnel involved in care of a suspect or known Ebola case must follow up with VDH to determine appropriate monitoring, follow-up and reporting requirements.
- Contact the Vermont Department of Health 802-863-7240 and Medical Control for guidance for patients that refuse transport or are deceased on scene.
- Special Note: Patients being actively monitored by VT Department of Health (based on travel history alone) who develop symptoms/have a change in health status will be managed in direct coordination with the Department of Health. Similarly, interfacility transfers of suspected cases from a local ED to a tertiary center will be performed by specialty designated ground units (FACT, DHART) in coordination with the Department of Health.

Medical Care Guidance

- If patient is cooperative and able to assist, request the patient put on a Tyvek coverall. If the patient cannot tolerate the Tyvek coverall, or the coverall is likely to interfere with patient care activities, or the patient cannot assist in putting it on, the patient may be wrapped in a sheet or similar barrier to prevent environmental contamination.
- Limit activities, especially during transport that can increase the risk of exposure to infectious material.
- Limit aerosol-generating procedures such as nebulized medications, CPAP, intubation or suctioning unless absolutely necessary for patient care.
- Limit the use of needles and other sharps as much as possible. IVs should not be started unless the patient is in emergent need of volume replacement of IV medications. No sharps are to be utilized in a moving vehicle. All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers.

Personal Protective Equipment (PPE) Recommendations

Standard, contact and droplet precautions are recommended for patients with suspect EVD according to CDC guidelines, "Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)" <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

Special note regarding shortages of PPE:

Select PPE based on its ability to protect the worker from splashes of blood, body fluids, or other sources of infectious material. Train workers on when and how to use PPE, including how to put it on (donning), take it off (doffing), and dispose of it. Employers must also comply with provisions of OSHA standards that apply to PPE (e.g., 29 CFR 1910.132) and respirator use (e.g., 29 CFR 1910.134), such as medical exams and fit testing for workers who wear respirators.

The use of surgical hoods, to ensure complete coverage of the head and neck, may require the use of performance based options due to the large demand of these products creating a back log of orders. Use of performance based procedures should continue to follow CDC guidelines leaving the no skin showing recommendation in place. We are currently working with Federal OSHA to determine what if any performance based options may exist.

As of October 31, 2014, for interim PPE until surgical hood supplies are available, OSHA is stating an alternative includes a Tyvek suit with attached hood and either the use of a full face respirator or a N95 with a full face shield to ensure no skin exposure. We are cautioning the medical community to limit the use of tape, and other variations of PPE that would be difficult to remove as this may result in secondary exposure issues during the doffing procedure.

Recommended Personal Protective Equipment

- PAPR or N95 Respirator. If a NIOSH-certified PAPR and a NIOSH-certified fit-tested disposable N95 respirator is used in facility protocols, ensure compliance with all elements of the [OSHA Respiratory Protection Standard, 29 CFR 1910.134](#), including fit testing, medical evaluation, and training of the healthcare worker.
 - **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. The facility should follow manufacturer's instructions for decontamination of all reusable components and, based upon those instructions, develop facility protocols that include the designation of responsible personnel who assure that the equipment is appropriately reprocessed and that batteries are fully charged before reuse.
 - A PAPR with a self-contained filter and blower unit integrated inside the helmet is preferred.
 - A PAPR with external belt-mounted blower unit requires adjustment of the sequence for donning and doffing, as described below.
 - **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 EMS providers 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 overall without integrated hood. Coveralls with or without integrated socks are acceptable. Consideration should be given to selecting gowns or coveralls with thumb hooks to secure sleeves over inner glove. 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.

Recommended PPE for Trained Observer during Observations of PPE Doffing (at hospital)

The trained observer should not enter the room of a patient with Ebola, but will be in the PPE removal area to observe and assist with removal of specific components of PPE, as outlined below. The observer should not participate in any Ebola patient care activities while conducting observations. The following PPE are recommended for trained observers:

- Single-use (disposable) fluid-resistant or impermeable gown that extends to at least mid-calf or **coverall without integrated hood.**
- Single-use (disposable) full face shield.
- 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 shoe covers. Shoe covers should allow for ease of movement and not present a slip hazard to the worker.

Trained observers should don and doff selected PPE according to same procedures outlined below. Of note, if the trained observer assists with PPE doffing, then the trained observer should disinfect outer-gloved hands with an *EPA-registered disinfectant (used according to manufacturers' instructions) wipe or ABHR immediately after contact with EMS provider's PPE.

Donning PPE, PAPR Option – This donning procedure assumes the facility has elected to use PAPRs. An established protocol facilitates training and compliance. Use a trained observer to verify successful compliance with the protocol.

1. **Engage Trained Observer:** The donning process is conducted under the guidance and supervision of a trained observer, who confirms visually that all PPE is serviceable and has been donned successfully. The trained observer uses a written checklist to confirm each step in donning PPE and can assist with ensuring and verifying the integrity of the ensemble. No exposed skin or hair of the healthcare worker should be visible at the conclusion of the donning process.
2. **Remove Personal Clothing and Items:** If possible, change into surgical scrubs (or disposable garments) and dedicated washable (plastic or rubber) footwear in a suitable clean area. No personal items (e.g., jewelry, watches, cell phones, pagers, pens) should be worn.
3. **Inspect PPE Prior to Donning:** Visually inspect the PPE ensemble to be worn to ensure that it is in serviceable condition, that all required PPE and supplies are available, and that the sizes selected are correct for the EMS provider. The trained observer reviews the donning sequence with the EMS provider before the EMS provider begins the donning process and reads it to the EMS provider in a step-by-step fashion.
4. **Perform Hand Hygiene:** Perform hand hygiene with ABHR. When using ABHR, allow hands to dry before moving to next step.
5. **Put on Inner Gloves:** Put on first pair of gloves.
6. **Put on Boot or Shoe Covers.**
7. **Put on Gown or Coverall:** Put on gown *or* coverall. Ensure gown or coverall is large enough to allow unrestricted freedom of movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown *or* coverall
 - a. If a PAPR with a self-contained filter and blower unit that is integrated inside the helmet is used, then the belt and battery unit must be put on prior to donning the impermeable gown *or* coverall so that the belt and battery unit are contained under the gown *or* coverall.
 - b. If a PAPR with external belt-mounted blower is used, then the blower and tubing must be on the outside of gown *or* coverall to ensure proper airflow.

8. **Put on Outer Gloves:** Put on second pair of gloves (with extended cuffs). Ensure the cuffs are pulled over the sleeves of the gown *or* coverall
9. **Put on Respirator:** Put on PAPR with a full face-shield, helmet, or headpiece
 - a. If a PAPR with a self-contained filter and blower unit integrated inside the helmet is used, then a single-use (disposable) hood that extends to the shoulders and fully covers the neck must also be used. Be sure that the hood covers all of the hair and the ears, and that it extends past the neck to the shoulders.
 - b. If a PAPR with external belt-mounted blower unit and attached reusable headpiece is used, then a single-use (disposable) hood that extends to the shoulders and fully covers the neck must also be used. Be sure that the hood covers all of the hair and the ears, and that it extends past the neck to the shoulders.
10. **Put on Outer Apron (if used):** Put on full-body apron to provide additional protection to the front of the body against exposure to body fluids or excrement from the patient.
11. **Verify:** After completing the donning process, the integrity of the ensemble is verified by the trained observer. The EMS provider should be comfortable and able to extend the arms, bend at the waist, and go through a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered.
12. **Disinfect Outer Gloves:** Disinfect outer-gloved hands with ABHR. Allow to dry prior to patient contact.

Donning PPE, N95 Respirator Option – This donning procedure assumes the facility has elected to use N95 respirators. An established protocol facilitates training and compliance. Use a trained observer to verify successful compliance with the protocol.

1. **Engage Trained Observer:** The donning process is conducted under the guidance and supervision of a trained observer who confirms visually that all PPE is serviceable and has been donned successfully. The trained observer will use a written checklist to confirm each step in donning PPE and can assist with ensuring and verifying the integrity of the ensemble. No exposed skin or hair of the EMS provider should be visible at the conclusion of the donning process.
2. **Remove Personal Clothing and Items:** If possible, change into surgical scrubs (or disposable garments) and dedicated washable (plastic or rubber) footwear in a suitable, clean area. No personal items (e.g., jewelry, watches, cell phones, pagers, pens) should be worn.
3. **Inspect PPE Prior to Donning:** Visually inspect the PPE ensemble to be worn to ensure it is in serviceable condition, all required PPE and supplies are available, and that the sizes selected are correct for the EMS provider. The trained observer reviews the donning sequence with the EMS provider before the EMS provider begins and reads it to the EMS provider in a step-by-step fashion.
4. **Perform Hand Hygiene:** Perform hand hygiene with ABHR. When using ABHR, allow hands to dry before moving to next step.
5. **Put on Inner Gloves:** Put on first pair of gloves.
6. **Put on Boot *or* Shoe Covers.**
7. **Put on Gown *or* Coverall:** Put on gown *or* coverall. Ensure gown *or* coverall is large enough to allow unrestricted freedom of movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown *or* coverall.
8. **Put on N95 Respirator:** Put on N95 respirator. Complete a user seal check.
9. **Put on Surgical Hood:** Over the N95 respirator, place a surgical hood that covers all of the hair and the ears, and ensure that it extends past the neck to the shoulders. Be certain that hood completely covers the ears and neck.
10. **Put on Outer Apron (if used):** Put on full-body apron to provide additional protection to the front of the body against exposure to body fluids or excrement from the patient.

11. **Put on Outer Gloves:** Put on second pair of gloves (with extended cuffs). Ensure the cuffs are pulled over the sleeves of the gown *or* coverall.
12. **Put on Face Shield:** Put on full face shield over the N95 respirator and surgical hood to provide additional protection to the front and sides of the face, including skin and eyes.
13. **Verify:** After completing the donning process, the integrity of the ensemble is verified by the trained observer. The EMS provider should be comfortable and able to extend the arms, bend at the waist and go through a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered.
14. **Disinfect Outer Gloves:** Disinfect outer-gloved hands with ABHR. Allow to dry prior to patient contact.

Preparing for Doffing (at the hospital)

The purpose of this step is to prepare for the removal of PPE. Before entering the PPE removal area, inspect and disinfect (using an *EPA-registered disinfectant wipe (used according to manufacturers' instructions any visible contamination on the PPE. As a final step, disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR, and allow to dry. Verify that the trained observer is available in the PPE removal area before entering and beginning the PPE removal process.

Doffing PPE, PAPR Option – PPE doffing should be performed in the designated PPE removal area at receiving facility. Place all PPE waste in a leak-proof infectious waste container.

<http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>

1. **Engage Trained Observer:** The doffing process is conducted under the supervision of a trained observer, who reads aloud each step of the procedure and confirms visually that the PPE is removed properly. Prior to doffing PPE, the trained observer must remind the EMS provider to avoid reflexive actions that may put them at risk, such as touching their face. Post this instruction and repeat it verbally during doffing. Although the trained observer should minimize touching the EMS provider or the EMS provider's PPE during the doffing process, the trained observer may assist with removal of specific components of PPE, as outlined below. The trained observer disinfects the outer-gloved hands immediately after handling any EMS provider PPE.
2. **Inspect:** Inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is potentially contaminated, then disinfect using an *EPA-registered disinfectant wipe (used according to manufacturers' instructions). If the facility conditions permit and appropriate regulations are followed, an *EPA-registered disinfectant spray (used according to manufacturers' instructions) can be used, particularly on contaminated areas.
3. **Disinfect Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR, and allow to dry.
4. **Remove Apron (if used):** Remove and discard apron taking care to avoid contaminating gloves by rolling the apron from inside to outside.
5. **Inspect:** Following apron removal, inspect the PPE ensemble to assess for visible contamination or cuts or tears. If visibly contaminated, then disinfect affected PPE using an *EPA-registered disinfectant wipe (used according to manufacturers' instructions).
6. **Disinfect Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
7. **Remove Boot or Shoe Covers:** While sitting down, remove and discard boot *or* shoe covers, making sure to step in area not contaminated with bottoms of booties.

8. **Disinfect and Remove Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR. Remove and discard outer gloves, taking care not to contaminate inner glove during removal process.
9. **Inspect and Disinfect Inner Gloves:** Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, then disinfect the glove with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR. Then remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
10. **Remove Respirator (PAPR)***:**
 - a. If a PAPR with a self-contained filter and blower unit integrated inside the helmet is used, then wait until Step 15 for removal and go to Step 11.
 - b. If a PAPR with an external belt-mounted blower unit is used, then all components must be removed at this step.
 - i. Remove and discard disposable hood.
 - ii. Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
 - iii. Remove headpiece, blower, tubing, and the belt and battery unit. This step might require assistance from the trained observer.
 - iv. Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
 - v. Place all reusable PAPR components in an area or container designated for the collection of PAPR components for disinfection.
11. **Remove Gown or Coverall:** Remove and discard.
 - a. Depending on gown design and location of fasteners, the EMS provider can either untie fasteners, receive assistance by the trained observer to unfasten the gown, or gently break fasteners. Avoid contact of scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown.
 - b. To remove coverall, tilt head back and reach under the PAPR hood to reach zipper or fasteners. Use a mirror to help avoid touching the skin. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall.
12. **Disinfect Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR
13. **Disinfect Washable Shoes:** Sitting on a new clean surface (e.g., second clean chair, clean side of a bench) use an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) to wipe down every external surface of the washable shoes (including the bottoms of both shoes).
14. **Disinfect Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
15. **Remove Respirator (if not already removed):** If a PAPR with a self-contained filter and blower unit that is integrated inside helmet is used, then remove all components.
 - a. Remove and discard disposable hood
 - b. Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR
 - c. Remove and discard inner gloves taking care not to contaminate bare hands during removal process
 - d. Perform hand hygiene with ABHR

- e. Don a new pair of inner gloves
 - f. Remove helmet and the belt and battery unit. This step might require assistance from the trained observer.
16. **Disinfect and Remove Inner Gloves:** Disinfect inner-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions') or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process.
 17. **Perform Hand Hygiene:** Perform hand hygiene with ABHR.
 18. **Inspect:** Perform a final inspection of EMS provider for any indication of contamination of the surgical scrubs or disposable or other garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.
 19. **Scrubs:** EMS provider can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments or regular garments if no scrubs available.
 20. **Wash hands** with soap and running water at first opportunity.
 21. **Shower:** Showers are recommended at each shift's end for EMS providers performing high-risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta).
 22. **Protocol Evaluation/Medical Assessment:** Either the infection preventionist or occupational safety and health coordinator or their designee on the unit at the time should meet with the healthcare worker to review the patient care activities performed to identify any concerns about care protocols and to record healthcare worker's level of fatigue.

Doffing PPE, N95 Respirator Option – PPE doffing is performed in the designated PPE removal area.

Place all PPE waste in a leak-proof infectious waste container.

<http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html>

1. **Engage Trained Observer:** The doffing process is conducted under the supervision of a trained observer, who reads aloud each step of the procedure and confirms visually that the PPE has been removed properly. Prior to doffing PPE, the trained observer must remind EMS providers to avoid reflexive actions that may put them at risk, such as touching their face. Post this instruction and repeat it verbally during doffing. Although the trained observer should minimize touching EMS providers or their PPE during the doffing process, the trained observer may assist with removal of specific components of PPE as outlined below. The trained observer disinfects the outer-gloved hands immediately after handling any EMS provider PPE.
2. **Inspect:** Inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is visibly contaminated, then disinfect using an *EPA-registered disinfectant wipe (used according to manufacturers' instructions). If the facility conditions permit and appropriate regulations are followed, an *EPA-registered disinfectant spray (used according to manufacturers' instructions) can be used, particularly on contaminated areas.
3. **Disinfect Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
4. **Remove Apron (if used):** Remove and discard apron taking care to avoid contaminating gloves by rolling the apron from inside to outside.
5. **Inspect:** Following apron removal, inspect the PPE ensemble to assess for visible contamination or cuts or tears. If visibly contaminated, then disinfect affected PPE using an *EPA-registered disinfectant wipe(used according to manufacturers' instructions).
6. **Disinfect Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
7. **Remove Boot or Shoe Covers:** While sitting down, remove and discard boot or shoe covers, making sure not to step in area contaminated by booties previously .

8. **Disinfect and Remove Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR. Remove and discard outer gloves taking care not to contaminate inner gloves during removal process.
9. **Inspect and Disinfect Inner Gloves:** Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, then disinfect the glove with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR. Then remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
10. **Remove Face Shield:** Remove the full face shield by tilting the head slightly forward, grabbing the rear strap and pulling it over the head, gently allowing the face shield to fall forward and discard. Avoid touching the front surface of the face shield.
11. **Disinfect Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
12. **Remove Surgical Hood:** Unfasten (if applicable) surgical hood, gently remove, and discard. The trained observer may assist with unfastening hood.
13. **Disinfect Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR.
14. **Remove Gown or Coverall:** Remove and discard.
 - a. Depending on gown design and location of fasteners, the EMS provider can either untie fasteners, receive assistance by the trained observer to unfasten to gown, or gently break fasteners. Avoid contact of scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown.
 - b. To remove coverall, tilt head back to reach zipper or fasteners. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall.
15. **Disinfect and Change Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process. Perform hand hygiene with ABHR. Don a new pair of inner gloves.
16. **Remove N95 Respirator:** Remove the N95 respirator by tilting the head slightly forward, grasping first the bottom tie or elastic strap, then the top tie or elastic strap, and remove without touching the front of the N95 respirator. Discard N95 respirator.
17. **Disinfect Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR
18. **Disinfect Washable Shoes:** Sitting on a new clean surface (e.g., second clean chair, clean side of a bench) use an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) to wipe down every external surface of the washable shoes (including bottoms).
19. **Disinfect and Remove Inner Gloves:** Disinfect inner-gloved hands with either an *EPA-registered disinfectant wipe (used according to manufacturers' instructions) or ABHR. Remove and discard gloves taking care not to contaminate bare hands during removal process.
20. **Perform Hand Hygiene:** Perform hand hygiene with ABHR.
21. **Inspect:** Perform a final inspection of EMS provider for any indication of contamination of the surgical scrubs or disposable or other garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.

22. **Scrubs:** EMS provider can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments or regular garments if no scrubs available.
23. **Wash hands with soap and running water at first opportunity.**
24. **Shower:** Showers are recommended at each shift's end for healthcare workers performing high risk patient care (e.g., exposed to large quantities of blood, body fluids, or excreta). Showers are also suggested for healthcare workers spending extended periods of time in the Ebola patient room.
25. **Protocol Evaluation/Medical Assessment:** Either the infection preventionist or occupational health safety and health coordinator or their designee on the unit at the time should meet with the healthcare worker to review the patient care activities performed to identify any concerns about care protocols and to record healthcare worker's level of fatigue.

PPE Preparedness

The following activities are recommended for EMS units to prepare for the possible use of these PPE recommendations.

- Create Ebola PPE "go kits". This Ebola PPE kit should contain various sizes of the different PPE components to ensure adequate fit for varying EMS provider sizes, and be located on the ambulance or other EMS response vehicle. The kit should contain PPE equipment as listed above.
- Provide refresher PPE training now to all EMS providers who may come into contact with a suspect Ebola patient. This training should ensure proficiency in selection, donning, and doffing of PPE.
- Organizations should incorporate actual practice of these techniques in the training program, preferably with the chosen PPE of that unit.
- Institute proficiency testing for proper donning and doffing with trained observer.

Cleaning EMS Transport Vehicles after Transporting a Patient with Suspected or Confirmed Ebola

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

- An EPA-registered hospital disinfectant (used according to manufacturers' instructions) with label claims for viruses that share some technical similarities to Ebola (such as, norovirus, rotavirus, adenovirus, poliovirus)⁴ and instructions for cleaning and decontaminating surfaces or objects soiled with blood or body fluids should be used according to those instructions. After the bulk waste is wiped up, the surface should be disinfected as described below.
- EMS personnel performing cleaning and disinfection should follow the "Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)" (<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>). There should be the same careful attention to the safety of the EMS personnel during the cleaning and disinfection of the transport vehicle as there is during the care of the patient.
- Patient-care surfaces (including stretchers, railings, medical equipment control panels, and adjacent flooring, walls and work surfaces), as well as stretcher wheels, brackets, and other areas are likely to become contaminated and should be cleaned and disinfected after each transport.
- A blood spill or spill of other body fluid or substance (e.g., feces or vomit) should be managed by trained personnel wearing correct PPE, 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. Contaminated reusable patient care equipment (e.g., glucometer, blood pressure cuff) should be placed in biohazard bags and labeled for cleaning and disinfection according to agency policies. Reusable equipment should be cleaned and disinfected according to manufacturer's instructions by trained personnel wearing correct PPE. 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. To reduce exposure among staff to potentially contaminated textiles (cloth products) while laundering, discard all linens, non-fluid-impermeable pillows or mattresses as appropriate.

The Ebola virus is a Category A infectious substance regulated by the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180). Any item transported for disposal that is contaminated or suspected of being contaminated with a Category A infectious substance must be packaged and transported in accordance with the HMR. This includes medical equipment, sharps, linens, and used health care products (such as soiled absorbent pads or dressings, kidney-shaped emesis pans, portable toilets, used PPE, [e.g., gowns, masks, gloves, goggles, face shields, respirators, booties] or byproducts of cleaning) contaminated or suspected of being contaminated with a Category A infectious substance.⁵

Follow-up and/or reporting measures by EMS personnel after caring for a suspected or confirmed Ebola patient

- EMS personnel should be aware of the follow-up and/or reporting measures they should take after caring for a suspected or confirmed Ebola patient.
- EMS agencies should develop policies for monitoring and management of EMS personnel potentially exposed to Ebola.
- EMS agencies should develop sick leave policies for EMS personnel that are non-punitive, flexible and consistent with public health guidance
- Ensure that all EMS personnel, including staff who are not directly employed by the healthcare facility but provide essential daily services, are aware of the sick leave policies.
- EMS personnel with exposure to blood, bodily fluids, secretions, or excretions from a patient with suspected or confirmed Ebola should immediately:
 - Stop working when it is safe to do so and wash the affected skin surfaces with soap and water. Mucous membranes (e.g., conjunctiva) should be irrigated with a large amount of water or eyewash solution;
 - Contact occupational health/supervisor for assessment and access to post-exposure management services; and notify the Vermont Department of Health at (802) 863-7200 and Receive medical evaluation and follow-up care, including enrollment in an active monitoring program through the Department of Health if indicated.