



For U.S. Healthcare Settings: Donning and Doffing Personal Protective Equipment (PPE) for Evaluating Persons Under Investigation (PUIs) for Ebola Who Are Clinically Stable and Do Not Have Bleeding, Vomiting, or Diarrhea

Page Summary

Who this is for: Healthcare providers in the U.S. evaluating PUIs for Ebola who are clinically stable AND do not have bleeding, vomiting, or diarrhea

What this is for: Provides guidance on the processes for donning and doffing PPE for healthcare workers and staff who are evaluating a PUI who is clinically stable and does not have bleeding, vomiting, or diarrhea

How to use this, how it relates to other guidance documents: Use this guidance with [frontline](http://www.cdc.gov/vhf/ebola/hcp/preparing-frontline-healthcare-facilities.html) (<http://www.cdc.gov/vhf/ebola/hcp/preparing-frontline-healthcare-facilities.html>) and [assessment](http://www.cdc.gov/vhf/ebola/hcp/preparing-ebola-assessment-hospitals.html) (<http://www.cdc.gov/vhf/ebola/hcp/preparing-ebola-assessment-hospitals.html>) healthcare facilities described in [Interim Guidance for U.S. Hospital Preparedness for Patients Under Investigation \(PUIs\) or with Confirmed Ebola Virus Disease \(EVD\): A Framework for a Tiered Approach](#) (<http://www.cdc.gov/vhf/ebola/hcp/us-hospital-preparedness.html>). It offers step-by-step processes for donning and doffing PPE described in [Identify, Isolate, Inform: Emergency Department Evaluation and Management for Patients Under Investigation \(PUIs\) for Ebola Virus Disease \(EVD\)](#). These procedures do NOT apply to healthcare workers caring for patients with confirmed Ebola or to healthcare workers caring for PUIs who have bleeding, vomiting, diarrhea, or who are clinically unstable and/or will require invasive or aerosol-generating procedures (e.g., intubation, suctioning, active resuscitation). In those cases, use the [Guidance on Personal Protective Equipment \(PPE\) To Be Used By Healthcare Workers during Management of Patients with Confirmed Ebola or Persons under Investigation \(PUIs\) for Ebola who are Clinically Unstable or Have Bleeding, Vomiting, or Diarrhea in U.S. Hospitals, Including Procedures for Donning and Doffing PPE](#).

Recommended PPE:

While evaluating and managing PUIs who are clinically stable and do not have bleeding, vomiting, or diarrhea, healthcare providers should at a minimum wear:

- Single-use (disposable) fluid-resistant gown that extends to at least mid-calf or single-use (disposable) fluid-resistant coveralls without integrated hood
- Single-use (disposable) full face shield
- Single-use (disposable) facemask
- Single-use (disposable) gloves with extended cuffs. Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs.

In this guidance, fluid-resistant means a gown that has demonstrated resistance to water or a coverall that has demonstrated resistance to water or synthetic blood. The specific test methods that assess resistance are listed in Table 1. When purchasing gowns and coveralls, facilities should follow specifications in this table to ensure they select recommended gowns and coveralls.

Table 1. Specifications for fluid-resistant gowns and coveralls

	Gown	Coverall
Fluid-resistant	Surgical or isolation* gown that passes: <ul style="list-style-type: none"> • ANSI/AAMI PB70 Level 3 requirements or • EN 13795 high performance surgical gown 	Coverall* made of fabric that passes: <ul style="list-style-type: none"> • AATCC 42 \leq 1 g and AATCC 127 \geq 50 cm H₂O or EN 20811 \geq 50 cm H₂O or • ASTM F1670 (13.8kPa) or • ISO 16603 \geq 3.5 kPa

*Testing by an ISO 17025 certified third party laboratory is recommended

For more details, refer to technical document [Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids](#), which provides a more detailed explanation of the scientific evidence and national and international standards, test methods, and specifications for fluid-resistant and impermeable protective clothing used in health care settings.

Facilities should ensure that healthcare providers are trained and able to demonstrate competency in donning and doffing recommended PPE before being allowed to care for PUIs. Facilities should also designate areas for PPE donning and doffing as specified below (for more information, refer to the [Guidance on Personal Protective Equipment \(PPE\) To Be Used By Healthcare Workers during Management of Patients with Confirmed Ebola or Persons under Investigation \(PUIs\) for Ebola who are Clinically Unstable or Have Bleeding, Vomiting, or Diarrhea in U.S. Hospitals, Including Procedures for Donning and Doffing PPE](#)).

- Ensure that areas for donning and doffing are separate from the patient care area (e.g., patient’s room) and that there is a predominantly one-way flow of movement of healthcare providers from the donning area to the patient care area or room to the doffing area.
- Confirm that the doffing area is large enough to allow freedom of movement for safe doffing, has space for [waste \(http://www.cdc.gov/vhf/ebola/hcp/medical-waste-management.html\)](http://www.cdc.gov/vhf/ebola/hcp/medical-waste-management.html) containers, a new glove supply, and alcohol-based hand rub (ABHR) for use during the doffing process.

Donning PPE

Donning PPE – This donning procedure applies to PPE recommended for evaluating and managing PUIs who

are clinically stable and do not have bleeding, vomiting, or diarrhea. There is a lower risk of splashes and contamination in these situations. An established protocol, combined with proper training of the healthcare worker (HCW), helps to facilitate compliance with PPE guidance.

- 1. Remove Personal Clothing and Items:** The HCW should wear surgical scrubs (or disposable garments) and dedicated washable (plastic or rubber) footwear. No personal items (e.g., jewelry [including rings], watches, cell phones, pagers, pens) should be worn under PPE or brought into the patient room. Long hair should be tied back. Eye glasses should be secured with a tie.
- 2. Inspect PPE Prior to Donning:** Visually inspect the PPE ensemble to ensure that it is in serviceable condition (e.g., not torn or ripped), that all required PPE and supplies are available, and that the sizes selected are correct for the HCW.
- 3. Perform Hand Hygiene:** Perform hand hygiene with alcohol-based hand rub (ABHR). When using ABHR, allow hands to dry before moving to next step.
- 4. Put on Inner Gloves:** Put on first pair of gloves.
- 5. Put on Gown or Coverall:** Put on gown or coverall. Ensure gown or coverall is large enough to allow unrestricted movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown or coverall.
- 6. Put on Facemask:** Put on facemask.
- 7. 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.
- 8. Put on Face Shield:** Put on full face shield over the surgical facemask to protect the eyes, as well as the front and sides of the face.
- 9. Verify:** After completing the donning process, the integrity of the ensemble should be verified by the HCW (e.g., there should be no cuts or tears in the PPE). The HCW 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. A mirror in the room can be useful for the HCW while donning PPE.

Doffing PPE

Doffing PPE – PPE is doffed in the designated PPE removal area in the healthcare facility. As with all PPE doffing, meticulous care should be taken to avoid self-contamination. Place all PPE waste in a leak-proof infectious waste container.

- 1. Inspect:** Inspect the PPE for visible contamination, cuts, or tears before starting to remove. If any PPE is visibly contaminated, disinfect by using an *EPA-registered disinfectant wipe (<http://www.epa.gov/oppad001/list-l-ebola-virus.html>). If the facility conditions permit and appropriate regulations are followed, an *EPA-registered disinfectant spray can be used, particularly on contaminated areas.
- 2. Disinfect and Remove Outer Gloves:** Disinfect outer-gloved hands with either an *EPA-registered disinfectant wipe or ABHR. Remove and discard outer gloves, taking care not to contaminate inner gloves when removing the outer gloves. Dispose of outer gloves into the designated leak-proof infectious waste container.
- 3. Inspect and Disinfect Inner Gloves:** Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, then disinfect the glove with either an *EPA-registered disinfectant wipe or ABHR, remove the inner gloves, perform hand hygiene with ABHR on bare hands, and don a new pair of gloves. If a cut or tear is seen on an inner glove, immediately review occupational exposure risk per hospital protocol. If there is no visible contamination and no cuts or tears on the inner gloves, then disinfect

- the inner-gloved hands with either an *EPA-registered disinfectant wipe or ABHR.
4. **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. Avoid touching the front surface of the face shield. Discard the face shield into the designated leak-proof infectious waste container.
 5. **Disinfect Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe or ABHR.
 6. **Remove Gown or Coverall:** Remove and discard.
 - a. Depending on gown design and location of fasteners, the HCW can either untie fasteners 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 while turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall. Dispose of gown or coverall into the designated leak-proof infectious waste container.
 7. **Disinfect and Change Inner Gloves:** Disinfect inner gloves with either an *EPA-registered disinfectant wipe or ABHR.
 - a. Remove and discard gloves, taking care not to contaminate bare hands during removal process.
 - b. Perform hand hygiene with ABHR.
 - c. Don a new pair of inner gloves.
 8. **Remove Surgical Facemask:** Remove the surgical facemask by tilting the head slightly forward, grasping first the bottom tie or elastic strap, then the top tie or elastic strap, and remove the front of the surgical facemask without touching it. Discard the surgical face mask into the designated leak-proof infectious waste container.
 9. **Disinfect and Remove Inner Gloves:** Disinfect inner-gloved hands with either an *EPA-registered disinfectant wipe or ABHR. Remove and discard gloves, taking care not to contaminate bare hands during removal process. Dispose of inner gloves into the designated leak-proof infectious waste container.
 10. **Perform Hand Hygiene:** Perform hand hygiene with ABHR.
 11. **Inspect:** The HCW should inspect for any contamination of the surgical scrubs or disposable garments. If there is contamination, shower immediately, and then immediately inform the infection preventionist or occupational safety and health coordinator or their designee.

*EPA-registered disinfectant wipe: Use a disposable wipe impregnated with a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus); see EPA list of Disinfectants for Use Against the Ebola Virus at <http://www.epa.gov/oppad001/list-l-ebola-virus.html> (<http://www.epa.gov/oppad001/list-l-ebola-virus.html>).

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