**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](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=12716&p_table=standards), 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 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 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. If gowns or coveralls with thumb hooks are not available, personnel may consider taping the sleeve of the gown or coverall over the inner glove to prevent potential skin exposure from separation between sleeve and inner glove during activity. However, if taping is used, care must be taken to remove tape gently. Experience in some facilities suggests that taping may increase risk by making the doffing process more difficult and cumbersome.
* 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.

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**Recommended PPE for Trained Observer during Observations of PPE Doffing**

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 wipe or ABHR immediately after contact with healthcare worker’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**: 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 brought into patient room.
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 healthcare worker. The trained observer reviews the donning sequence with the healthcare worker before the healthcare worker begins the donning process and reads it to the healthcare worker 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
	1. 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.
	2. 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
	1. 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.
	2. 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 healthcare worker 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 healthcare worker while donning PPE.
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 healthcare worker should be visible at the conclusion of the donning process.
2. **Remove Personal Clothing and Items**: 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 brought into patient room.
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 healthcare worker. The trained observer reviews the donning sequence with the healthcare worker before the healthcare worker begins and reads it to the healthcare worker 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 healthcare worker 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 healthcare worker while donning PPE.
14. **Disinfect Outer Gloves**: Disinfect outer-gloved hands with ABHR. Allow to dry prior to patient contact.

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**Preparing for Doffing**

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) any visible contamination on the PPE. As a final step, disinfect outer-gloved hands with either an \*EPA-registered disinfectant wipe 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. Place all PPE waste in a [leak-proof infectious waste container(http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html)](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 healthcare worker 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 healthcare worker or the healthcare worker’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 healthcare worker 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. If the facility conditions permit and appropriate regulations are followed, an \*EPA-registered disinfectant spray can be used, particularly on contaminated areas.
3. **Disinfect Outer Gloves**: Disinfect outer-gloved hands with either an \*EPA-registered disinfectant wipe 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.
6. **Disinfect Outer Gloves**: Disinfect outer-gloved hands with either an \*EPA-registered disinfectant wipe or ABHR.
7. **Remove Boot *or* Shoe Covers**: While sitting down, remove and discard boot *or* shoe covers.
8. **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 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 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 or ABHR.
10. **Remove Respirator (PAPR)\*\*\***:
	1. 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.
	2. If a PAPR with an external belt-mounted blower unit is used, then all components must be removed at this step.
		1. Remove and discard disposable hood.
		2. Disinfect inner gloves with either an \*EPA-registered disinfectant wipe or ABHR.
		3. Remove headpiece, blower, tubing, and the belt and battery unit. This step might require assistance from the trained observer.
		4. Disinfect inner gloves with either an \*EPA-registered disinfectant wipe or ABHR.
		5. 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.
	1. Depending on gown design and location of fasteners, the healthcare worker 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.
	2. 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 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 to wipe down every external surface of the washable shoes.
14. **Disinfect Inner Gloves**: Disinfect inner gloves with either an \*EPA-registered disinfectant wipe 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.
	1. Remove and discard disposable hood
	2. Disinfect inner gloves with either an \*EPA-registered disinfectant wipe or ABHR
	3. Remove and discard inner gloves taking care not to contaminate bare hands during removal process
	4. Perform hand hygiene with ABHR
	5. Don a new pair of inner gloves
	6. 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 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 healthcare worker for any indication of contamination of the surgical scrubs or disposable 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**: Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.
20. **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.
21. **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)](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 healthcare workers 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 healthcare workers 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 healthcare worker 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. If the facility conditions permit and appropriate regulations are followed, an \*EPA-registered disinfectant spray can be used, particularly on contaminated areas.
3. **Disinfect Outer Gloves**: Disinfect outer-gloved hands with either an \*EPA-registered disinfectant wipe 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.
6. **Disinfect Outer Gloves**: Disinfect outer-gloved hands with either an \*EPA-registered disinfectant wipe or ABHR.
7. **Remove Boot *or* Shoe Covers**: While sitting down, remove and discard boot *or* shoe covers.
8. **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 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 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 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 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 or ABHR.
14. **Remove Gown *or* Coverall**: Remove and discard.
	1. Depending on gown design and location of fasteners, the healthcare worker 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.
	2. 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 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 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 to wipe down every external surface of the washable shoes.
19. **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.
20. **Perform Hand Hygiene**: Perform hand hygiene with ABHR.
21. **Inspect**: Perform a final inspection of healthcare worker for any indication of contamination of the surgical scrubs or disposable 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**: Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.
23. **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.
24. **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.