



National Ebola Training
& Education Center

Personal Protective Equipment Breakout Session

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High Level PPE

- PPE used while evaluating and managing Persons Under Investigation (PUIs) who are clinically stable and do not have bleeding, vomiting, or diarrhea (“Dry”)
- 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

Recommended PPE



- 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.

Key Principles:

- Enter the room only when necessary
- Face the patient and minimize exposure to the back
- Maintain 3 feet from patient whenever possible
- Minimize the number of times one has to doff equipment
- Each facility should develop their own procedures based on their unique workflow and processes

Donning Guidance



- Remove personal clothing and items
- Inspect PPE prior to donning
- Perform hand hygiene
- Don inner gloves
- Don gown or coverall
- Don facemask
- Don outer gloves
- Don face shield
- Verify

Doffing Guidance



- Inspect PPE
- Disinfect and doff outer gloves
- Inspect and disinfect inner gloves
- Doff face shield
- Disinfect inner gloves
- Doff gown or coverall
- Disinfect and change inner gloves
- Doff surgical facemask
- Disinfect and doff inner gloves
- Perform hand hygiene
- Inspect

Doffing—Emory

1. Ensure qualified individual is in place to monitor doffing protocol.
2. Buddy visually inspects PPE. Clean as needed.
3. Create clean mat by placing several disinfectant wipes in front of patient's door.
4. Place one hand on hand-support device; using the other hand, remove booties then step onto chemical mat; repeat with second bootie using same hand.
5. Sanitize gloves and pump.
6. Remove outer gloves (using beak method).
7. Sanitize gloves and pump.
8. Remove gown while rolling inside out so clean side is exposed.
9. Sanitize gloves and pump.
10. Remove hair cover while bending forward and pulling away from head.

Doffing—Emory (cont.)

11. Sanitize gloves and pump.
12. Remove face shield while bending forward and pulling away from face. Do not reach behind head.
13. Sanitize gloves and pump.
14. Remove surgical mask while bending forward and pulling away from face. Do no reach behind head.
15. Sanitize gloves and pump.
16. Buddy opens patient door.
17. Exit patient room.
18. Remove inner gloves (using beak method).
19. Buddy verbalizes, “DO NOT touch your face.”
20. Wash hands with soap and water.
21. Shower for 5 minutes, shampooing hair.

The Nebraska Method for Doffing High Level PPE

Preparation:

- The Nebraska method utilizes a doffing partner as an active participant in the doffing process.
- The doffing partner cues, assists and supports the doffer.
- The doffing partner prepares the space for doffing by placing a doffing pad (surgical drape) on the floor just outside the patient room door.
- A trash receptacle is placed next to the doffing pad.
- The doffing partner has hand sanitizer, fresh gloves, bleach wipes, and standard patient care masks available.

Before exiting the patient care room

The doffer removes their outer patient care gloves and uses a bleach wipe to clean the long cuff gloves and the duct taped area. Also any visibly soiled areas of PPE.

Uses a bleach wipe to open the door to step out of the patient care room, and places the bleach wipe gently into the trash

Removing the tape

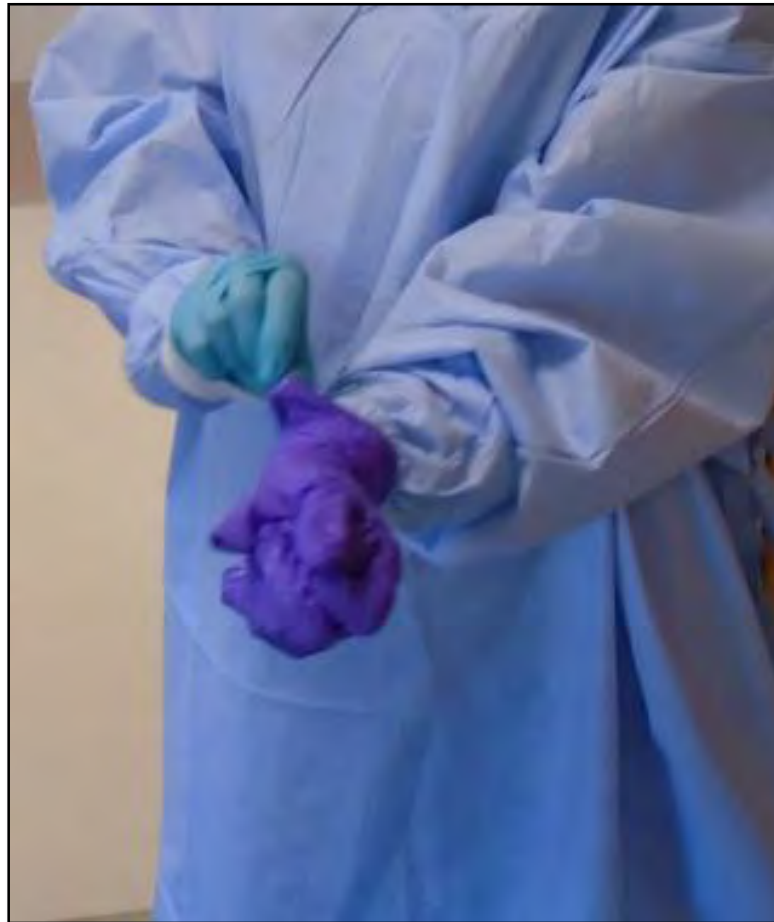
The doffing partner removes the duct tape from the wrists, placing duct tape gently into the trash

The doffing partner changes outer gloves and performs hand hygiene, dons new outer gloves



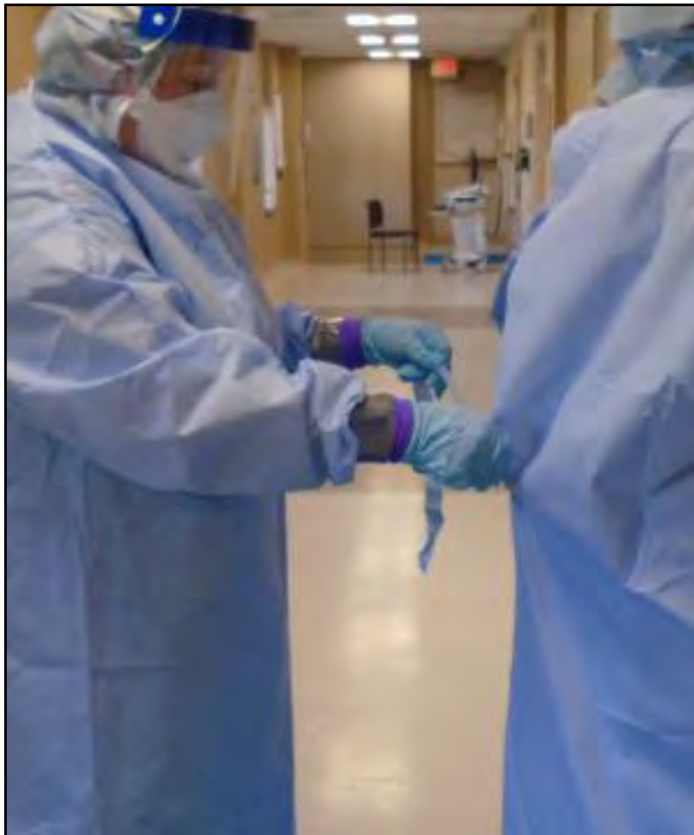
Long Cuff Gloves

The doffer removes the long cuff purple gloves using glove-in-glove technique and places them gently in the trash.



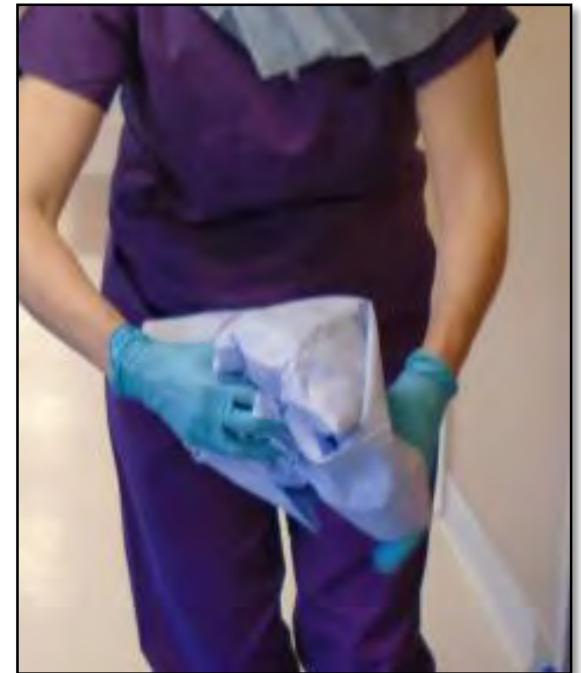
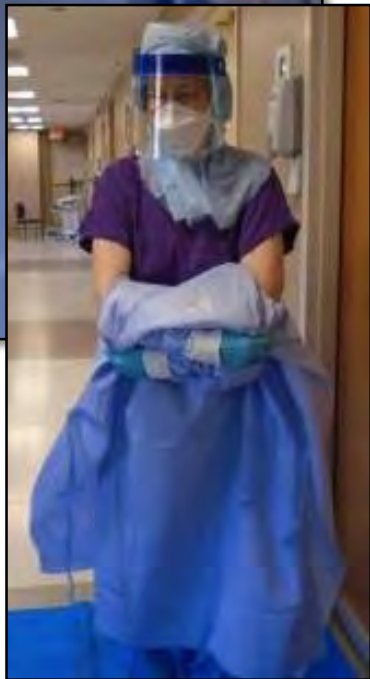
Gown

The doffing partner unties the back of the surgical hood, the side and inside bows on the gown and folds back the shoulders of the gown over towards the front.



Gown cont...

The doffer crosses their arms to grasp the gown by their shoulders and removes it by slowly rolling the gown into a ball and placing it gently into the trash.



Disposable Boots

The doffing partner unties the bow and carefully rolls down the leg covers, turning the clean side onto the dirty side. The doffer assists by taking a 'toe touch stance' as the disposable boot is removed.

As each boot is removed, the doffer steps onto a clean area of the doffing pad and the boots are placed gently into the trash.

Both doffer and doffing partner avoid stepping onto an area of the doffing pad that was stepped on with the previously removed PPE .



Face Visor/ Shield

Both doffer and doffing partner remove their gloves, perform hand hygiene and don clean gloves.



The doffer removes their face shield and places it gently into the trash.

Hood and N95 Respirator

The doffing partner unties the hood ties

The doffer firmly grasps the lower portion of the respirator below the chin. At the same time using the opposite hand, reaches behind the head to pull the straps of the respirator and the hood over their head and places it gently into the trash.



Sanitize Shoes

Both doffer removes gloves, performs hand hygiene and dons clean gloves.

The doffing partner bleach wipes each shoe top, sides and bottom. The doffer assists by taking a 'toe touch' stance.

As each shoe is cleaned, the doffer steps off the doffing pad onto the floor and walks away from the doffing area.

The doffer goes directly to the sink to washes their hands and forearms and waits in the designated area until told to proceed to the shower.



Clean-up

After the doffer leaves the doffing area, the doffing partner folds the sides of the doffing pad inwards and carefully rolls the dirty surface inward and places it gently into the trash receptacle.

The doffing partner removes the bag from the trash container, twist the neck of the bag and secures it with autoclave tape (**never squeeze the air from the bag**).

The bag is placed in the assigned staging area until it can be safely transferred to the autoclave.

The doffing partner removes their outer gloves, performs hand hygiene and puts on clean gloves.



PAPR Level PPE

- PPE used while evaluating and managing Persons Under Investigation (PUIs) who are clinically unstable or have bleeding, vomiting, or diarrhea (“Wet”) **OR** patients with confirmed Ebola virus disease
- PPE that covers the clothing and skin and completely protects mucous membranes is required when caring for patients with Ebola

Recommended PPE:

- Impermeable garment
 - Single-use impermeable gown extending to at least mid-calf OR
 - Single-use impermeable coverall preferably without the integrated hood
- Respiratory protection
 - Powered Air Purifying Respirator (PAPR)
 - N95 Respirator
- Single-use examination gloves with extended cuffs
- Single-use boot covers
- Single-use apron





Recommended PPE for Trained Observers

- Single-use fluid-resistant gown that extends to at least mid-calf **OR** single-use fluid-resistant coveralls without integrated hood
- Single-use full face shield
- Single-use facemask/surgical mask
- Single-use gloves with extended cuffs. Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs.
- Single-use ankle-high shoe covers



Donning Guidance

1. Engage trained observer
2. Remove personal clothing and items
3. Inspect PPE before donning
4. Don boot covers
5. Don inner gloves
6. Don gown or coverall
7. Don N95 Respirator
8. Don surgical hood
9. Don outer apron
10. Don outer gloves
11. Don face shield
12. Verify

Doffing Guidance

1. Engage trained observer
2. Inspect PPE
3. Disinfect outer gloves
4. Doff apron
5. Inspect PPE
6. Disinfect and doff outer gloves
7. Inspect and disinfect inner gloves
8. Doff PAPR (if external)



9. Doff gown or coverall
10. Disinfect inner gloves
11. Doff boot covers
12. Disinfect washable shoes
13. Disinfect inner gloves
14. Doff PAPR (if internal)
15. Disinfect and doff inner gloves
16. Perform hand hygiene
17. Inspect

Doffing—Nebraska

1. Before leaving the patient care room the doffer removes their outer (3rd layer) gloves and wipes the middle layer with a bleach wipe
2. Upon leaving the room the doffer steps into section 1 of the doffing pad.
3. The doffing partner removes the tape securing the middle layer gloves to the gown.
4. The doffer removes the middle layer gloves
5. The doffing partner removes the disposable (outer) boots- As the boots are removed the doffer steps into section 2 of the doffing pad.
6. The doffer releases the PAPR Belt – The motor remains switched on.
7. The doffing partner re-connects the belt buckle and hangs it on an IV pole.
8. The doffing partner then rolls up the outer cape of the hood to expose the suit.

Doffing—Nebraska (cont.)

9. The doffing partner unzips the suit and removes it by rolling it away from the doffer— as the suit is removed, the doffer steps into section 3 on the doffing pad.
10. The doffer removes their inner gloves (first layer) – preforms hand hygiene and puts on clean gloves.
11. The doffing partner prepares to assist the doffer in removing the hood.
12. The doffing partner switches off the PAPR motor and unscrews the tubing from the motor.
13. Immediately after removing the tubing from the motor, the doffing partner attaches a cap to PAPR Motor Air Outlet.
14. The doffer reaches under their hood to remove the PAPR hood using an up and over motion – the doffing partner assists by guiding the tubing to ensure it does not touch the doffer.

Doffing—Nebraska (cont.)

13. Both doffer and doffing partner remove their gloves
– do hand hygiene and put on clean gloves.
14. The doffer puts on a surgical mask.
15. The doffing partner removes the inner plastic boot covers-as they are removed the doffer steps into section 4 of the doffing pad.
16. The doffing partner bleach wipes the doffer's shoes.
17. The doffer leaves the doffing area to proceed to the shower.



Doffing—Emory

1. Ensure qualified individual is in place to monitor doffing protocol. Inspect PPE to ensure it is not visibly soiled. Clean as needed.
2. Establish chemical mats with disinfectant wipes.
3. Remove apron while rolling inside out so clean side is exposed.
4. Sanitize gloves and pump.
5. Place one hand on hand support device; using the other hand, remove one bootie then step onto chemical mat; repeat with second bootie using same hand.
6. Sanitize gloves and pump.
7. Remove outer gloves (using beak method).
8. Sanitize inner gloves and pump.



Doffing—Emory (cont.)

9. Remove tape.
10. Sanitize inner gloves and pump.
11. Unzip biohazard coverall and remove by grasping lower back of suit or shoulders and pulling down. March out of suit onto next chemical mat
12. Sanitize inner gloves and pump.
13. Exit patient room.
14. Remove PAPR Hood by untying, disconnecting snaps, and pinching the face shield to disconnect front center peg from face shield hole. Pull off disposable hood from back to forward (to release from back of helmet).
15. Sanitize inner gloves and pump.
16. Remove inner gloves (using beak method).



Doffing—Emory (cont.)

17. Buddy verbalizes, “DO NOT touch face.”
18. Wash hands with soap and water while buddy removes belt, battery, and motor and disinfects with wipes.
19. Enter shower room.
20. Remove and dispose of all clothing, including scrubs, undergarments, socks, and shoes. Do not remove over head.
21. Shower for 5 minutes, shampooing hair.



Take-a-ways

- Each facility should develop protocols to fit their own unique workflows and procedures
- Provide a safe 'clean' area for donning
- Provide a safe area for doffing
- Promote meticulous adherence to the procedures

Plan – Train - Drill



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Resources

NETEC:

<http://netec.org/>

<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

http://www.who.int/csr/resources/publications/ebola/filovirus_infection_control/en/

<https://www.youtube.com/watch?v=F2i0P-8fybQ&feature=youtu.be>

<https://www.youtube.com/watch?v=NLGPy0GmCc8&feature=youtu.be>

<http://app1.unmc.edu/nursing/heroes/mpv.cfm?updateindex=105&src=yt>

<http://app1.unmc.edu/nursing/heroes/mpv.cfm?updateindex=105&src=yt>

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