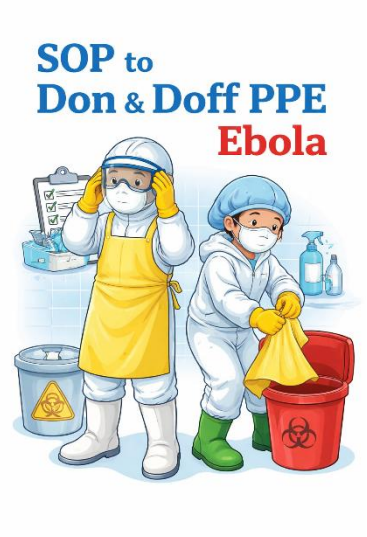
STANDARD OPERATING PROCEDURE FOR THE DONNING AND DOFFING OF PERSONAL PROTECTIVE EQUIPMENT FOR HIGH CONSEQUENCE INFECTIOUS DISEASES



Ministry of Health and Wellness
MAURITIUS

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PEER REVIEW

This document was vetted by the IPC team members of all five regions.

Date of next review: December 2029

Background

Rationale

This standard operating procedure (SOP) for the correct donning and doffing of personal protective equipment (PPE) for high-consequence infectious diseases (HCIDs) is essential to protect healthcare workers and prevent healthcare-associated transmission.

Recent global outbreaks of HCIDs highlight the persistent risk of international importation of severe pathogens into any country connected through travel and trade. In January 2026, confirmed cases of Nipah virus disease were reported in West Bengal, India, with international agencies noting that introduction into other regions could occur through infected travellers.

Similarly, Africa has experienced repeated viral haemorrhagic fever events, including a Marburg virus disease outbreak in Ethiopia in November 2025 and an Ebola virus disease outbreak in Democratic Republic Congo in September 2025, both of which recorded confirmed cases and deaths. In parallel, the Middle East continues to report cases of Middle East Respiratory Syndrome (MERS), a severe respiratory infection associated with healthcare transmission and international travel.

Mauritius is particularly vulnerable to imported infections because of its strong dependence on tourism and frequent international mobility. The country receives a high volume of inbound travellers annually, while Mauritian Hajjis regularly travel to the Middle East for religious pilgrimage, creating a bidirectional pathway for exposure to respiratory pathogens. Past global experience has demonstrated that pathogens can cross borders rapidly through air travel.

HCIDs are transmitted through direct contact with infected body fluids or via droplets or aerosols, and one of the highest risks of exposure occurs during removal of contaminated PPE. Regular training and drills based on this SOP will build muscle memory, improve compliance, and ensure rapid safe activation of isolation protocols when a suspected case is identified.

In the context of preparedness, having an established and practiced PPE donning and doffing protocol allows health facilities to immediately respond to imported cases, limits secondary transmission within hospitals, preserves workforce capacity, and strengthens national readiness for outbreaks such as Marburg and Ebola where even a single breach can trigger nosocomial and community amplification.

Purpose

This structured SOP establishes a standardized and step-by-step method for donning and doffing of PPE. It also clarifies the role of the trained observer and highlights critical areas to monitor in order to prevent mistakes and cross-contamination.

This SOP overrides the donning and doffing SOP for coveralls found in the National IPC Guidelines version 2.

Methodology

- November 2025:
    - The National Infection Prevention and Control Focal Point (NIFP) conducted a literature review using authoritative international guidance and publicly available technical resources, including documents from the World Health Organization (WHO), the United States Centers for Disease Control and Prevention (US CDC), the United Kingdom public health authorities, and other infection prevention and control agencies.
    - 19 different donning and doffing methods for PPE in the context of HCIDs were analyzed.[1-19] The review demonstrated significant variation between protocols, particularly in the sequence of donning and doffing, hand hygiene moments, supervision requirements, and environmental setup.
- December 2025:
    - In line with activity 2.2.1 of the second draft National Action Plan on IPC i.e., "Conduct tabletop exercises, simulation exercises and mock drills to test IPC SOPs in the local context", the NIFP developed a preliminary checklist outlining proposed steps for PPE donning and doffing.
    - A simulation exercise, a training-of-trainers session for IPC teams, and structured brainstorming discussions were conducted at New Souillac Hospital.
    - Powdered ultraviolet (UV) tracer was used to simulate contamination and objectively assess exposure risks during PPE removal.
    - Observations from these exercises identified contamination points, workflow constraints, and practical challenges in the clinical environment.
    - Based on these findings, recommendations were formulated and the checklist was revised.
- January 2026:
    - IPC teams were requested to consult hospital stakeholders and repeat the procedures in their respective facilities to identify further operational improvements and ensure feasibility across different settings.
- February 2026:
    - Incorporating evidence from the literature review and lessons learned from simulations and field testing, the present SOP was drafted and finalized as the nationally standardized procedure for donning and doffing PPE for HCIDs.

Controversies

1. Some authorities recommend wiping of gowns and / or boots with a disinfectant before doffing while others do not; some even spray hypochlorite or other disinfectants over their PPE.
2. Some wear respirators first, then put on goggles but this sequence may be reversed whenever face shields are worn.
3. Some organizations recommend putting on a new pair of gloves before doffing respirators while others do not recommend this step.
4. Some agencies accept wearing gowns instead of coveralls, especially in the context of a 'dry Ebola case' as opposed to a 'wet Ebola case'.
5. Some experts propose the disinfection of gloves right after donning.
6. Not everyone states that disinfection of the chair prior to doffing is necessary.
7. Boots may be removed first or last; boots may also be removed just before or just after the coverall.
8. Certain authorities prefer the use of absorbent walk-off mats / pads to remove dirt from the boots prior to doffing; some of the pads are divided into clean and dirty zones.
9. In some cases, boots are dipped into a disinfectant prior to removal (a shoe bath).
10. Tapes may be used for sealing zippers and open areas at the top of boots and outer gloves, but this practice can also tear apart the PPE during doffing.
11. Certain agencies use thick outer gloves to reduce the risk of penetration by fluids.
12. Other authorities request that the staff step into biohazard bags with their boots during doffing to prevent contaminating the floor.
13. Some IPC experts recommend cutting a hole in the hand section of the coverall to secure a space for the thumb.
14. In some cases, outer gloves are doffed first before removing goggles / face shields while in other videos, the reverse is carried out.
15. Some organizations recommend clean buddies to wear a full Hazmat suit to help with the doffing process, some propose that wearing a gown with the other usual PPE is sufficient (while following quicker doffing steps) and still others suggest not wearing any specific PPE but staying away from the contaminated person while other experts prefer staff in contaminated PPE to act as buddies.
16. Some move to a low-risk (yellow) zone after disinfection of boots while others use the 'step-over-the-line' technique.
17. Some experts prefer to don the first pair of gloves after the respirators and hood are worn while others wear the inner gloves beforehand.
18. Some also wear the inner gloves before the boots while others do the opposite.

19. Certain IPC experts recommend wearing outer gloves that are one size larger than the inner gloves for a better fit.
20. Boots may be removed last before the respirator or the reverse may also be done.
21. Boots may be donned before the coverall or vice versa.
22. Some authorities recommend hand hygiene with alcohol sanitizers at the end of donning.
23. Some agencies suggest doing both hand washing and hand sanitization with alcohol at the end of doffing; most prefer only sanitization with alcohol.
24. Some organizations suggest walking out in socks to a cleaner area after doffing boots while others suggest donning crocs immediately.
25. Certain experts don three pairs of gloves instead of two.
26. Wiping of PPE with disinfectants may be carried out by either the buddy or by the doffer.
27. Aprons are sometimes worn before or after respirators.
28. Some agencies suggest removing aprons (or coveralls) together with the outer gloves (at the same time) whilst others doff them separately.
29. Some doff overshoes and/or boots without touching them (but they still need to touch these PPE to discard them in a container) while others use their hands.
30. Some also remove the leg sections of the coverall without touching them.
31. Gloves may be removed using the glove-in-glove technique or the beaking technique.
32. Some organizations recommend taking all the vital signs and weight prior to donning.
33. Some use boot covers over boots while others don't.
34. Some experts prefer the use of sterile gloves while others don't – sterile gloves may be easier to doff and are a better fit.
35. Certain agencies require the doffer to tie off the biohazard bag and put it into a second bag after removal of PPE, while others leave this activity to the cleaner.
36. Some recommend the no-skin-exposed method i.e., Powered Air Purifying Respirators have to be used.
37. Some use long outer gloves while others do not.
38. Certain organizations, but not all, suggest writing the name and cadre of the staff on the coverall.
39. Some suggest using thick aprons instead of thin ones.
40. Certain authorities avoid using goggles in staff who wear glasses due to a purported higher risk of contamination.
41. Some propose donning both goggles and face shields instead of only one of these.
42. Depending on whether to dispose of goggles or face shields or to reuse them, some authorities suggest wearing these items inside the hood while others prefer wearing them outside.

43. Some authorities recommend using masks instead of respirators. It is noted that WHO does emphasize that respirators may provide a better fit than masks.[29]

Resolution of Controversies

Given the wide variation observed across international guidance, controversies regarding the exact sequence of PPE donning and doffing were resolved through a pragmatic, risk-reduction approach rather than strict adherence to any single external protocol.

The IPC teams acknowledged that steps must differ depending on the type of PPE available locally. Therefore, adaptations were incorporated for local situations such as the absence of PAPR, availability of coveralls with integrated hoods, and the compatibility between boot sizes and coverall leg openings.

As high-quality comparative evidence demonstrating superiority of one sequence over another is limited, decisions were guided by feasibility in real clinical settings, staff comfort, and operational convenience, while maintaining core infection prevention principles. Repetition and standardization were considered the most important safety factor — staff who consistently perform one well-practiced technique are less likely to make errors than staff exposed to multiple theoretical methods.

Local cultural practices were also taken into account: for example, staff prefer to avoid walking in socks in Mauritius and some healthcare workers wear hijabs, thus requiring respectful and safe integration into the procedure.

Cost considerations were intentionally deprioritized, as the overriding objective of the SOP is to provide maximal protection to healthcare workers managing HCIDs.

Taking the above into consideration, this SOP is based mostly on WHO recommendations (see references 18 and 19) but to improve safety, modifications were made based on references 5 and 14 from the Philippines and USA.

Considering the above, the following choices were made:

- Sterile gloves will be used since they are easier to doff.
- Walk-off pads will not be used since issues are likely to arise regarding their disposal.
- Goggles and face shields will be disposed of after doffing because during the COVID-19 pandemic, disinfection of these items was observed to be crude, despite the development of an SOP and despite training.
- Wiping of PPE with a disinfectant during doffing was considered a crucial protective step.
- Boot dipping into disinfectants would not be pragmatic since correct preparation of the hypochlorite solution is known to be a persistent challenge in Mauritius.
- To reduce risks to otherwise unexposed individuals, the buddy will be a staff member from inside the ward.

Key Points

1. The entire ward containing HCID patients (suspected or confirmed) is considered a red zone i.e., staff have to wear the right PPE to enter this area.
    a. The yellow zone is the area after the doffing station to the shower; the green zone is all areas after the shower.
    b. An appropriately coloured tape should be used to demarcate these zones.
2. The maximum duration for staff to remain inside full PPE is determined mainly by heat stress, dehydration, air supply, and human performance.
    a. Even though the Netherlands recommends a maximum of 45 minutes with a recovery period of 20 minutes[20] while Drägerwerk found that 30 minutes is the maximum bearable duration for strenuous physical work inside a full PPE[23] and WHO mentions that one to two hours has been found to be acceptable[21], Italy suggests that four to six hours was safe during the COVID-19 era.[22]
    b. PPE should be doffed if the staff is feeling unwell or if the PPE is too soiled, damaged or torn for clinical work to continue safely. Otherwise, it will be considered acceptable in Mauritius for staff to stay two to four hours in full PPE.
3. Mauritius does not have regulations to ascertain the quality of health disinfectants on its market – check the manufacturer's label for details regarding the efficacy of the disinfectant.
    a. For example, Oxivir TB (0.5% accelerated hydrogen peroxide) is tuberculocidal at five minutes but kills viruses in a minute.[24]
    b. 0.5% hypochlorite can also be considered as tuberculocidal.[25]
    c. If an agent is tuberculocidal, it does not mean that it should be used to eliminate *M. tuberculosis* in the environment – it implies that the disinfectant is sufficiently strong to be used for intermediate disinfection (provided the material is compatible and sufficient contact time is allowed).
4. The following terms can be used interchangeably in this SOP: spotter, site monitor, trained observer, doffing partner and buddy.
5. Monitoring of doffing and donning during simulation exercises using cameras can help with training. Cameras can also help detect missed steps during actual work.
6. Use of powdered UV tracer may help doffers better realize their mistakes during simulations.
7. Ensure that a proper space is available for donning and doffing before starting the exercise – this is especially important for field workers like the Rapid Response Team.
8. The time taken to don is expected to be less than 10 minutes and the time to doff should be less than 15 minutes.[26]

Techniques to be Used

1. Bare below the elbow – see annex A. Do not wear watches, rings and nail polish.
2. One wipe, wipe once technique – to be used especially when visibly soiled areas are observed on one's PPE. Use one wipe and wipe in single direction from cleaner to less clean area. Do not reuse the same wipe to rewipe the organic material.
3. Glove-in-glove technique – see annex B.[27] The beaking method may be used if the staff prefers this technique but, according to the survey done in December 2025, most healthcare workers were not comfortable with the beaking method.
4. Pinch-and-pull technique – see annex C. Do not touch the front of the coverall during doffing.
5. Straps should not criss-cross over the head when wearing respirators – see annex D. Straps are preferred over ear loops to improve fitness.
6. Step-over-the-line technique – see annex E. Contaminated boots should not touch the yellow zone.

Quality of Coverall

Concerns had previously been raised that the coveralls currently in use are certified under GB19082-2009 rather than EN14126, the latter being commonly interpreted as indicating protection against microorganisms.

While EN14126 focuses on resistance of the material to microbial penetration, GB19082 evaluates broader protective characteristics of medical protective clothing, including resistance to synthetic blood penetration and barrier integrity.

To better understand the practical performance of the available coveralls, an in-house demonstration test was conducted. Liquids representing potential contamination (hot tea, milk, water, Crest (a detergent) and alcohol-based sanitizer) were applied to one side of the GB19082-2009 coverall material and observed over a four-hour period at room temperature and atmospheric pressure. No visible penetration was detected.

Although not a standardized laboratory test, the results suggested that the material maintained an effective fluid barrier under prolonged exposure conditions. On this basis, and considering the protective requirements for HCID management, GB19082-certified coveralls may be deemed acceptable for HCID use in the local context whenever EN14126 is unavailable.

Annex F provides WHO's specifications for coveralls.[28]

Risk Assessment

The selection of personal protective equipment (PPE) must be guided by a structured risk assessment rather than a single uniform approach.

As per WHO recommendations (see annex G)[29], the level of protection depends on the stage of patient interaction and the likelihood of exposure to infectious body fluids. Lower-risk situations such as screening at a distance require only basic protection whereas closer contact during triage requires enhanced barrier protection, and direct patient care or environmental cleaning requires the highest level of PPE including coveralls, apron, double gloves, eye protection and waterproof boots.

This graduated approach ensures that healthcare workers are adequately protected while avoiding unnecessary burden, heat stress and complexity from excessive PPE. Therefore, PPE must always be chosen according to task-specific exposure risk, anticipated contact with bodily fluids, and type of procedure being performed.

Donning of Personal Protective Equipment for High-Consequence Infectious Diseases

1. Don hospital scrubs, hospital socks and a pair of crocs.
    a. Socks will facilitate the doffing of boots later.
    b. If you are wearing a hijab, you should either remove it and wear a cap OR place the bottom part of the hijab inside your scrub.
2. Get yourself ready for the next few hours of work:
    a. Rehydrate yourself and eat some food if you are hungry.
    b. Use the bathroom if needed.
    c. Tie your hair properly and in a neat fashion to facilitate donning.
    d. If you are feeling unwell, get your temperature checked and ask for assistance.
3. Remove your personal items including watches, rings, mobile phones, false nails and nail polish – the Bare Below Elbow technique applies.
4. Check that you have all the PPE that you need.
    a. Make sure they are of the right size and right quantity and that they are not expired, dirty or torn.
    b. You will need: a coverall with its hood, an apron, a pair of boots, boot covers, N95 / FFP3 respirator, face shields or goggles, a marker, two pairs of sterile gloves (one pair is as a reserve) and a pair of long-sleeved gloves.
5. Check that you have other equipment that you will need:
    a. One alcohol sanitizer or soap and water, anti-fog spray, and a chair +/- a mirror should be available.
6. Ensure a trained observer is present to help you.
    a. The buddy is expected to read the steps aloud using this checklist – you should also repeat the steps aloud to ensure communication was adequate.
    b. If the observer is unavailable, make sure a mirror is present at the donning area and a poster and / or checklist of the donning steps are accessible.
7. Perform hand hygiene with alcohol or soap and water. Wait for 1 minute.

8. Don a pair of sterile inner gloves.
    a. Check that they are not torn.
9. Don the coverall without zipping it up and without putting on the hood:
    a. The cuffs of the coverall should be over the inner gloves.
    b. If a coverall is not available, even though the coverall is preferred, you may use an impermeable disposable gown – however, make sure that you have at your disposal the corresponding surgical hood that covers the neck, hair and ears.
10. Put on an N95 or FFP3 respirator.
    a. Avoid using respirators with ties since they may be difficult to remove – use those with head straps or ear loops.
    b. If two straps are present, one should be on the crown of the head and another below the ears – do not criss-cross the straps.
    c. Do a fit test to ensure a proper seal is present – a poor fit will rapidly fog your goggles or face shield.
11. Put on the hood:
    a. Check that the forehead is well covered and hair is not visible.
12. Zip the coverall and glue the top part of the zipper of the coverall to cover the neck area properly:
    a. Do not glue the entire zipper because you may rip the coverall apart during doffing.
    b. Check that the neck and chin are well covered.
    c. Bend over to ensure the coverall does not tear during work – if it does, you will need to restart donning with a larger size coverall.
13. Put on a face shield or goggles.
    a. Ensure the plastic cover is removed or else vision will be poor.
    b. Spray anti-fogging agent if available before donning.
14. Put on the apron:
    a. Use a simple single bow tie so that you don't have to tear apart the apron during doffing.
15. Remove your crocs.

16. Put on a pair of impermeable boots.
    a. If needed, use a chair for assistance to prevent injury.
17. Pull out the bottom hems of the coverall from the boots and cover the boots.
    a. Make sure your scrub's trousers remain inside the boots.
18. Don boot covers.
    a. Tie a knot at the top of the boot covers if laces are available.
    b. If laces are not present, ensure the top of the boot cover is over your coverall.
    c. If boot covers are not available, use overshoes. However, boot covers are preferred.
19. Wear a pair of (sterile) long-sleeved outer gloves.
    a. If they are unavailable, use the usual pair of sterile gloves of the right size for your hands.
    b. Check that they are not torn.
    c. The outer gloves should cover the cuffs of the coverall.
20. Write your name, title, date and time on the coverall using the marker – it should be in a visible area e.g., on the shoulder or arm section of the coverall.
    a. This will help identify you in case you get into trouble inside the ward.
21. Have your buddy look at your PPE to ensure it has not gotten torn during donning and that most parts of the body are well covered.
    a. If a buddy is unavailable, check yourself in the mirror, especially at the side seams of the coverall to look for tears.

If the outer gloves become heavily contaminated during clinical work, you may do hand hygiene, doff the outer gloves, do hand hygiene, don semi-clean long-sleeved gloves (or the usual disposable ones) found in the red zone (or clean ones can be provided through the slider) and perform hand hygiene again.

The expected duration of time to complete the steps for donning is 10 minutes or less.

Doffing of Personal Protective Equipment for High-Consequence Infectious Diseases

1. Ensure that you have all the equipment you need at the doffing area:
    a. An alcohol sanitizer, one yellow bin, one decontamination container to place reusable items like boots, face shields or goggles, two pairs of sterile gloves of your size (one pair as a reserve), tuberculocidal wipes and a chair +/- a mirror should be present in the red zone.
    b. In the yellow zone, you should have crocs, clean scrubs of your size (both trousers and shirt), a yellow bin and a sanitizer.
    c. If some items are noted to be missing after you have started the doffing exercise, the trained observer should help you by fetching them.
2. Ensure a trained observer is present to help you.
    a. The buddy is expected to read the steps aloud using this checklist – you should also repeat the steps aloud to ensure communication was adequate.
    b. If the observer is unavailable, make sure a mirror is present at the doffing area and a poster and / or checklist of the doffing steps are accessible.
    c. The trained observer should remind you not to touch your face at any moment during the doffing process and not to make any abrupt movements.
    d. Since the buddy will be in contaminated PPE, he / she should stay 2 meters or more away from you and should not touch you.
3. Perform hand hygiene on gloved hands using alcohol.
4. Remove the apron.
    a. Break the neck part of the apron off.
    b. Untie the knot.
    c. Roll the apron downwards, inside out.
    d. Avoid rapid movements or else aerosols will be formed.
5. Perform hand hygiene on gloved hands using alcohol.

6. Inspect your coverall for any obvious areas of heavy contamination – wipe the contaminated areas with a tuberculocidal bleach like 0.5% hypochlorite, using the one wipe, wipe once technique.
    a. Your buddy should help with the inspection process – if the back of the coverall is heavily contaminated, he / she may help by decontaminating this area but he / she cannot touch your skin.
    b. The contact time is three to five minutes.*
    c. Even if there are no areas of visible contamination, wipe the front of the coverall once. Local studies have shown that clothes tend to be contaminated mostly from particles on the hood and the shoulder area – these parts should be wiped also before proceeding.
    d. Stains can be wiped several times until they have faded away as much as possible.
7. Wipe the chair with a tuberculocidal bleach like 0.5% hypochlorite.
8. Remove the boot covers (or overshoes) – sit on the chair in the red zone if you need to:
    a. Untie the knots first if present.
    b. Touch only the inner parts of the boot covers – some staff can remove them using their feet only but if this is not possible for you, use your hands.
    c. Roll the boot covers inside out.
9. Perform hand hygiene on gloved hands using alcohol.
10. Remove the outer gloves using the glove-in-glove technique.
    a. Do not snap the gloves and cause spray.
11. Inspect inner gloves to look for holes, tears or obvious stains.
    a. If inner gloves are compromised, perform hand hygiene, remove inner gloves and don a pair of sterile gloves.
12. Perform hand hygiene on gloved hands using alcohol.
13. Doff the face shields or goggles and place them in the yellow bin.
    a. Tilt your head forward when doing so.
    b. Do not touch the front surface of the goggles or face shields.
    c. Make sure your glasses do not get contaminated during this process in case you wear glasses.

14. Perform hand hygiene on gloved hands using alcohol.
15. Unzip the coverall:
    a. Look for the zip slider by moving your hands from the bottom up – do not touch your neck; lift your chin to prevent contact. Separate gently the parts that were glued together before unzipping the coverall completely down to the bottom.
    b. Make sure your gloves do not get stuck inside the zipper or else they will get torn.
16. Doff the hood:
    a. Tilt your head backwards when doing so.
17. Perform hand hygiene on gloved hands using alcohol.
18. Doff the coverall using the pinch and pull technique:
    a. Apart from the zipper, do not touch the front of the coverall with your gloved hands during the process – only touch the shoulder areas.
    b. Roll the coverall inside out.
    c. If you are unable to pull the coverall off your shoulders, your buddy will have to help you – he / she should not touch your scrubs. He / she can only touch your coverall.
    d. Some persons can remove the coverall using their boots without sitting; if this is not possible for you, use your hands and the chair found in the red zone to assist you. However, your scrubs should not touch the chair during the process i.e., with the coverall halfway down, use the chair to pull off the leg parts of the coverall over the boots, then stand up to remove the rest.
19. Perform hand hygiene on gloved hands using alcohol.
20. Remove the inner gloves using the glove-in-glove technique.
21. Perform hand hygiene using alcohol and wait for the hands to dry (usually for 1 minute*).
22. Put on a pair of sterile gloves of the right size.
23. Take a deep breath, hold your breath and remove the N95 / FFP3 respirator.
    a. Tilt your head forward while doing so.
    b. Avoid breathing while your hands are close to your face.
    c. If elastic straps are present, remove the lower strap first, then the upper strap.

24. Perform hand hygiene on gloved hands using alcohol.
25. While sitting in a clean chair in the yellow zone with your feet still in the red zone, doff the boots and using the step-over-the-line technique, pick up a pair of crocs from the shoe rack and get into the crocs inside the yellow zone.
    a. Place the boots in a corner of the doffing area (red zone) or else in the container for reusable items (if accessible).
    b. Your feet or socks should not touch the ground during this process.
    c. Some prefer to remove the first boot while standing in the red zone and the second boot while sitting in the yellow zone.
26. Perform hand hygiene on gloved hands using an alcohol sanitizer found in the yellow zone.
27. Remove the pair of gloves using the glove-in-glove technique.
    a. Dispose of them in a yellow bin inside the yellow zone.
28. Perform hand hygiene using either alcohol or soap and water found in the yellow zone.
29. The trained observer should check that you have not contaminated your scrubs.
    a. If the scrubs are contaminated, dispose of them in a yellow bag which is used for the disposal of infectious waste. Inform hospital management that you may have been contaminated.
30. Wash your hands with soap and water up to the elbows.
31. Walk to the clean linen room and pick up clean scrubs.
32. Go to the bathroom to have a shower.

If you get contaminated during doffing, wash and disinfect the contaminated part/s and follow the procedures described in the national protocol e.g., notify your supervisor; you may have to undergo active surveillance or be quarantined.

The expected duration of time to complete the steps for doffing is 15 minutes or less (excluding showering).

* A clock or a watch is unlikely to be present in the doffing area – the staff should estimate the duration of time.

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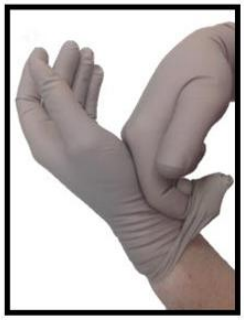
Annex A: Bare Below Elbows

Annex B: Glove-in-Glove Technique

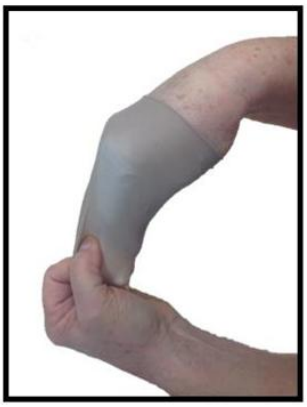
Doffing sterile gloves




Grasp the outside edge of one cuff with gloved hands, avoid touching the wrist. Pull the glove off, turning it inside out and place it in your hand.

Hold the removed glove in your gloved hand.

Doffing sterile gloves (cont'd)


Slide an ungloved finder or thumb under the cuff of the remaining glove.

Peel the glove off inside out over the previously removed glove, bagging both gloves.

Annex C: Pinch-and-Pull Method

Figure 1

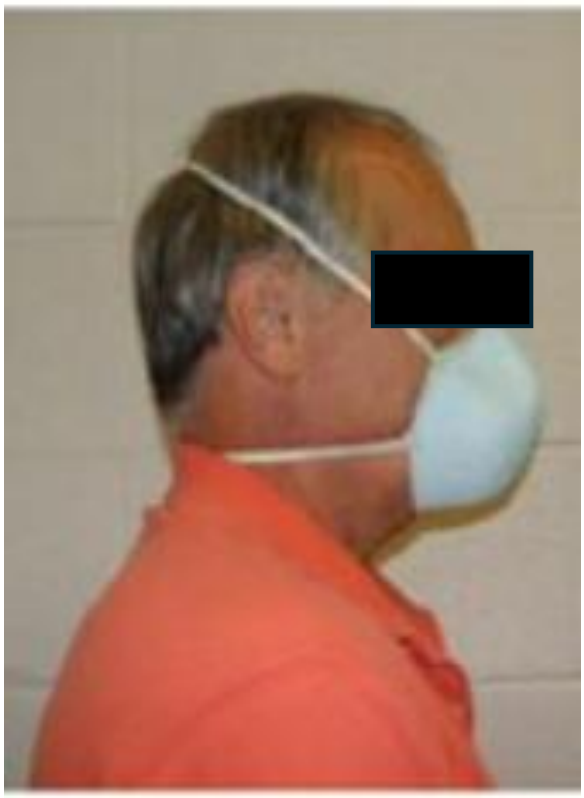
Figure 2

Figure 3

Figure 4

Figure 5

Annex D: Wearing of Respirators



Annex E: Step-Over-The-Line Technique

Annex F: Specifications for Coveralls

World Health Organization

Personal protective equipment for Ebola outbreak.
- Sample of coveralls available on the market
Last updated, 20/01/2015 (this list and the specifications will be updated as needed)

NOTES **Reference document: WHO Rapid Advice guideline for Personal Protective Equipment, published 31 October 2014**
http://apps.who.int/iris/bitstream/10665/137410/1/WHO_EVD_Guidance_PPE_14.1_eng.pdf
The information found in this document is publically available from the manufacturers.
This list is not exhaustive and is limited to coveralls tested for:
- resistance to blood penetration (ISO 16603) or blood penetration with virus (ISO 16604)
- whole suit performance of type 6, 5 or 4 (reference standards EN 14126, and EN 13034, EN ISO 13982-1-2 or EN 14605)
Other exisiting brands and models may comply with the minimum requirements of the WHO Rapid Advice guideline for Personal Protective Equipment

			COVERALLS - currently available on the market (alphabetical order), Type 6, 5 and 4 (EN 14126)							
		BRAND	3M		DuPont	Honeywell	MICROGARD			UVEX
		MODEL TYPE	4545	4565	Classic Xpert (EU)	Mutex 2	2000	2000 TS plus	2500	uvex 4B
	Test Title	WHO Rapid Advice Guideline for PPE								
Biohazard performance	Resistance to blood penetration*	Option 1: minimum ISO 16603 Class 3	3	6	3	conform/no class	6	6	6	6
	Resistance to blood penetration with virus*	Option 1: minimum ISO 16604 Class 2	0	0	no class	6	6	6	6	6
	Other performance criteria									
physical performance	Tensile strength*	ISO 13934-1 (MD/CD)	1	1	2	2	1	1	2	1
	Tear Resistance*	EN ISO 9073-4	1	1	1	2/3	1	1	2	1
	Puncture resistance*	EN 863	1	1	2	2	1	1	2	1
	Abrasion resistance*	EN 530 Method 2	1	1	2	6	2	2	2	2
	Basis weight		49 gsm	49 gsm	41 gsm	69 gsm	63 gsm	63 gsm	65 gsm	
Whole suit perform	Seam strength*	EN ISO 13935-2	2	2	3	3	3	2		2
	Whole suit performance*	EN 14126	Type 5/6 (4545 model)	Type 4 (4565 model)	Type 5B/6B (Classic Xpert mdl)	5/6	Type 5B and 6B (Standard)	Type 4B (Standard and TS Plus mdls)	Type 4B (Standard and Plus models)	4B

Green shaded cells indicate acceptable according to the WHO Rap
Yellow shaded cells inicate missing information

* higher is better
** lower is better
gsm grams per square meter
MD machine direction
CD cross direction

Annex G: Risk Assessment Before Wearing PPE