

STANDARD OPERATING PROCEDURE ON THE RATIONAL USE OF PPE IN THE CONTEXT OF THE COVID-19 OUTBREAK







Ministry of Health and Wellness
MAURITIUS

July 2023

Approval Form

Version: 3.0

Effective date: 22 July 2023

STANDARD OPERATING PROCEDURE ON THE RATIONAL USE OF PPE IN THE CONTEXT OF THE COVID-19 OUTBREAK			
	NAME	SIGNATURE	DATE
AUTHORIZED BY	Ag. Senior Chief Executive <i>Mrs. Z. B. Lallmahomed</i>		21/07/23
	Ag. Director General Health Services <i>Dr. B. S. Caussy</i>		17/07/23
APPROVED BY	National IPC Committee <i>Dr. A. Dinassing</i>		13/07/23
PREPARED BY	IPC Writing Committee <i>Dr. D. Nuckchady</i>		21/06/23

AUTHORS

Dr. D. Nuckchady. This document was vetted by the IPC Writing Committee.

PEER REVIEW

Dr. B. Azmutally (IPC doctor).

Date of next review: December 2025

Updates

February 2022

- Coveralls are no longer required. Gowns can be used instead.
- Gloves are no longer mandatory in COVID-19 zones. They should be worn in line with standard precautions.
- Emphasis has been placed on not using alcohol on gloved hands.

June 2023

- It is highlighted that gowns should be changed in between patients when taking care of COVID-19 patients co-infected with multi-drug resistant organisms.
- In situations where there is no direct contact with COVID-19 patients, medical masks need only be worn as per risk assessment and as dictated by the law of the country.
- Some changes were made to increase the clarity of the text.

Version history

Version	Date
Version 1.0: Created	4 July 2021
Version 1.0: Approved	3 August 2021
Version 2.0: Revised	21 February 2022
Version 2.0: Approved	15 March 2022
Version 3.0: Revised	21 June 2023
Version 3.0: Approved	21 July 2023

Standard Operating Procedure on the Rational Use of PPE in the Context of the COVID-19 Outbreak

Progress since the last version

Personal protective equipment (PPE) fatigue has led to a gradual worsening in compliance to donning and doffing procedures with many healthcare workers not wearing masks nor gowns as per protocol.

Despite European guidelines not being a proponent for the routine use of gowns in the context of COVID-19, protocols from the USA and the World Health Organization still highlight the need for gowns.

Purpose

The correct use of PPE requires a careful risk assessment before deciding which PPE to use. This document is meant to act as a guidance to healthcare workers (HCW) working in the public sector when choosing which PPE to use in the middle of the COVID-19 pandemic.

Key points

1. Risk assessment:

- a. Choosing the correct PPE to wear depends strictly on a risk assessment which takes into account ventilation, job role, proximity, duration of patient contact, type of care provided, type of procedure being carried out and the level of illness of the patient.¹
- b. This SOP is not meant to cover every eventuality and context. All HCW should be trained in the basic principles of IPC and must be able to carry out a risk assessment before choosing the attire to be worn before assessing a patient.

2. Additional precautions:

- a. The additional precautions that should be taken when providing direct care to suspected or confirmed COVID-19 patients are usually: (a) contact precautions (i.e., gowns or aprons and gloves), (b) droplet precautions (i.e., medical mask and goggles or face shields) and / or (c) airborne precautions (FFP2, FFP3, NIOSH-approved N95, or equivalent).
- b. While the definition of aerosol generating procedures (AGP) can vary, some of the AGPs include: endotracheal intubation, bronchoscopy, non-invasive ventilation, tracheotomy, manual ventilation before intubation, cardiopulmonary resuscitation, sputum induction, taking nasopharyngeal swabs and dentistry & autopsy procedures.^{2,3}
- c. Use of boots or shoe covers is not recommended unless a contaminated area is being cleaned or unless as part of standard attire in the operating theatre or trauma room.

3. Face masks:

- a. A respirator should be worn during an AGP. Otherwise, a medical mask suffices. Of note, a respirator is also recommended to be worn in healthcare settings where ventilation is known to be poor or cannot be assessed or the ventilation system is not properly maintained.⁴
- b. Facemasks must be changed if they are wet or are contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.

- c. N95 masks with exhalation valve are not recommended to be used in the healthcare setting, as the valve does not prevent the spread of COVID-19 if the wearer is sick.
- d. Contingency planning for periods of shortage of face masks can include the following:⁵⁻⁷
 - i. The maximum length of continuous use in non-dusty workplaces is typically dictated by hygienic concerns (e.g., the respirator was discarded because it became contaminated), or practical considerations that call for automatic removal and break in wearing the respirator (e.g., need to use the restroom, meal breaks, etc.), rather than a pre-determined number of hours.
 - ii. However, medical masks or respirators should not be used for more than 6 to 12 hours based on the risk assessment.
 - iii. Moreover, a maximum of 5 dons per device is considered acceptable. During multiple dons, the user should either keep the mask with himself or label it with his / her name and store it in a safe area; this area cannot be considered a clean zone since it contains used items.

4. *Eye protection:*

- a. Eyes must be protected from risk of splashes or droplet sprays. They must be worn during AGPs, and when it is difficult to maintain adequate physical distance (1–2 meters) when delivering care to suspected or confirmed COVID-19 patients.
- b. Eye protection devices, such as goggles, safety glasses or combination medical mask with attached visor, need to cover from the eyebrow to the cheekbone, and across from the nose to the bony area on the outside of the face and eyes. Eye protection should be fitted so that gaps between the edges of the eye protection and the face are kept to a minimum by wearing a well-fitted goggle or a face shield.
- c. Full face shields should extend below the chin to cover the face, to the ears at both sides of the head, and there should be no exposed gap between the forehead and the shield's headpiece.
- d. Face shields should be removed if they are contaminated by a splash of chemicals, infectious substances or body fluids; or if they obstruct visibility.

5. *Gowns, coveralls and aprons:*

- a. Isolation gowns should be worn when carrying out AGPs, or when there is risk of extensive splashing of blood and / or other body fluids.
- b. Gowns should be long-sleeved and fluid-resistant, so that droplets do not penetrate through them. If fluid-resistant gowns are not available, the gowns should be doubled with an apron.
- c. Coveralls do not need to be worn. However, disposable coveralls can be used as an alternative, if gowns are not available.
- d. Aprons may be safely substituted for gowns in situations where minimal person-to-person contact is envisaged and where the risk of splash injury is low.⁸
- e. When caring for patients with certain additional infections, e.g., with multi-drug resistant

organisms, gowns should be changed in between patients to avoid cross-contamination.

6. *Gloves:*

- a. Gloves are not compulsory when providing direct care to a suspected or confirmed COVID-19 patient. Gloves should be worn only if there is risk of exposure to blood, body fluids, secretions, excretions, mucus membranes or non-intact skin. Do not use gloves in settings where they are not needed e.g., administrative area, records, etc.
- b. Gloves, if worn, must be changed in between each patient. Performing hand hygiene (alcohol-based hand rub) on gloved hands is ineffective. Gloves must be removed, then hand hygiene performed.
- c. Gloves must be changed during use if torn and when heavily soiled (even during use on the same patient).
- d. Double gloving is not routinely recommended.
- e. Don't touch your face or adjust PPE with contaminated gloves. Don't touch environmental surfaces except as necessary during patient care.

7. *Donning and doffing PPE:*

- a. PPE must be donned in the correct sequence: Gown → face mask → eye protection → gloves.
- b. PPE must be doffed in the correct sequence to avoid contamination. The recommended sequence for doffing PPE is: Gloves → gown → eye protection → face mask.
- c. PPE must be removed preferably in a dedicated area (doffing station).
- d. Eye protection and face mask must be removed outside the patient's room.
- e. PPE must be disposed properly in infectious waste containers (pedal-covered bin, lined with yellow waste bag).

Standard operating procedure

Activities	PPE to wear
No direct contact with confirmed COVID-19 patients e.g., administrative areas, outpatient department, primary triage (> 1 meter away from the patient), non-COVID-19 wards including physical examination of patients without respiratory symptoms and ambulance drivers carrying COVID-19 patients, but the driver's compartment is separate from the patients' side	– Medical mask as per risk assessment and as dictated by the law of the country
In-person interview of suspected or confirmed COVID-19 patients without direct contact (> 1 meter away from the patient)	– Medical mask
Secondary triage of patients with respiratory symptoms	– Medical mask



	<ul style="list-style-type: none"> – Optional (as per risk assessment): <ul style="list-style-type: none"> ○ Gowns / aprons ○ Goggles / face shields ○ Gloves
Providing direct routine care to COVID-19 patients including physical examination of patients with respiratory symptoms, evaluating patients in flu clinics, HCW transporting suspected COVID-19 patients to the referral healthcare facility, ambulance drivers assisting with loading or unloading of patients with suspected COVID-19 or ambulance drivers of COVID-19 patients without a separation between the driver's and the patient's compartments	<ul style="list-style-type: none"> – Medical mask – Gowns / aprons – Goggles / face shields (as per risk assessment) – Gloves (as per risk assessment)
Manipulation of respiratory samples in the laboratory	<ul style="list-style-type: none"> – Medical mask – Gowns / aprons – Goggles / face shields – Gloves
Cleaning the room of COVID-19 patients	<ul style="list-style-type: none"> – Medical mask – Fluid-resistant gowns – Goggles / face shields (as per risk assessment) – Heavy-duty gloves – Boots or closed work shoes
AGP performed on COVID-19 patients including tracheal intubation / extubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, dentistry and autopsy	<ul style="list-style-type: none"> – Respirator (N95, FFP2, FFP3) – Fluid-resistant gowns – Goggles / face shields – Gloves

Increasing risk of contamination



Table 1: This table describes PPE that should be worn based on the activities being conducted.⁹ The risk of contamination increases from top to bottom.

How to put on (don) PPE gear with gown

1. Identify and gather the proper PPE to don. Ensure choice of PPE size is correct (based on training).
2. Perform hand hygiene. Alcohol-based hand rub should last for 20-30 seconds. Handwashing with water and soap should last for 40-60 seconds.
3. Put on isolation gown. Tie all the ties on the gown. Assistance may be needed by other healthcare

personnel.

4. Put on mask (N95 or medical mask). If the respirator has a nosepiece, it should be fitted to the nose with both hands, not bent or tented. Do not pinch the nosepiece with one hand. Respirator / facemask should be extended under the chin. Both your mouth and nose should be protected.
 - a. Respirator: Respirator straps should be placed on the crown of head (top strap) and base of neck (bottom strap). Respirators with ear loops may provide a slightly reduced seal. Always perform a user seal check each time you put on the respirator.
 - How to perform a user seal check: inhale → respirator should collapse; exhale → check for leakage around face.
 - b. Facemask: Mask ties should be secured on the crown of the head (top tie) and base of neck (bottom tie). If the mask has loops, hook them appropriately around your ears.
5. Put on face shield or goggles. When wearing an N95 respirator or half face piece elastomeric respirator, select the proper eye protection to ensure that the respirator does not interfere with the correct positioning of the eye protection, and the eye protection does not affect the fit or seal of the respirator. Face shields provide full face coverage. Goggles also provide excellent protection for eyes, but fogging is common.
6. Put on gloves if needed. Gloves should cover the cuff (wrist) of gown.
7. Healthcare personnel may now enter patient room.

How to take off (doff) PPE gear with gown

1. Remove gloves (if used). Ensure glove removal does not cause additional contamination of hands. Gloves can be removed using more than one technique (e.g., glove-in-glove or bird beak).
2. Perform hand hygiene.
3. Remove gown. Untie all ties (or unsnap all buttons). Some gown ties can be broken rather than untied. Do so in gentle manner, avoiding a forceful movement. Reach up to the shoulders and carefully pull gown down and away from the body. Rolling the gown down is an acceptable approach. Dispose in trash receptacle.
4. Perform hand hygiene using alcohol-based hand rub or soap and water.
5. Exit patient's area before removal of goggles / face shield and face mask.
6. Remove face shield or goggles. Carefully remove face shield or goggles by grabbing the strap and pulling upwards and away from head. Do not touch the front of the face shield or goggles. Place in a receptacle for reprocessing (if reusable) or in a waste bin (if disposable).
7. Perform hand hygiene.
8. Remove and discard the respirator (or facemask if used instead of respirator). Do not touch the front of the respirator or facemask.
 - a. Respirator: Remove the bottom strap by touching only the strap and bring it carefully over the head. Grasp the top strap and bring it carefully over the head, and then pull the respirator away from the face without touching the front of the respirator. If the respirator has ear loops, hold

both loops and remove it gently by lifting.

- b. Facemask: Carefully untie (or unhook from the ears) and pull away from face without touching the front.
9. Perform hand hygiene.

References

1. Olaru ID, Ferrand RA, Magwenzi MT, Robertson V, Musenyereki V, Kranzer K. Risk assessment for rationalizing the use of personal protective equipment for SARS-CoV2 in healthcare settings with special focus on low- and middle-income settings. *Clin Microbiol Infect.* 2021;27(2):169-171. doi:10.1016/j.cmi.2020.10.015
2. World Health Organization. Infection prevention and control during health care when coronavirus disease (COVID-19) is suspected or confirmed. 12 July 2021.
3. European Center for Disease Prevention and Control. Infection prevention and control for COVID-19 in healthcare settings - first update. 12 March 2020.
4. World Health Organization. WHO recommendations on mask use by health workers, in light of the Omicron variant of concern. WHO interim Guidelines. 22 December 2021.
5. World Health Organisation. Rational use of personal protective equipment for COVID-19 and considerations during severe shortages. 23 December 2020.
6. US CDC. Filtering out Confusion: Frequently Asked Questions about Respiratory Protection. DHHS (NIOSH) Publication No. 2018-128. DOI: <https://doi.org/10.26616/NIOSH PUB2018128>
7. Tara N Palmore, Becky A Smith. COVID-19: Infection prevention for persons with SARS-CoV-2 infection. UpToDate. 24 January 2022.
8. Africa Center for Disease Prevention and Control. Strategies for Managing Acute Shortages of PPE during the COVID-19 Pandemic. 24 Nov 2021.
9. World Health Organisation. Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19). 19 March 2020.