



HEALTH HOLDING

HAFER ALBATIN HEALTH  
CLUSTER  
MATERNITY AND  
CHILDREN HOSPITAL

<b>Department:</b>	Infection Prevention and Control Department		
<b>Document:</b>	Administrative Policy and Procedure (APP)		
<b>Title:</b>	General Guidelines for Personal Protective Equipment (PPE)		
<b>Applies To:</b>	Health Care Workers, Patients, Family, Visitors, Trainee and Volunteers		
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## 1. PURPOSE:

- 1.1 To provide information on the appropriate selection and use of Personal Protective Equipment (PPE) in healthcare settings based on the current evidence.

## 2. DEFINITONS:

- 2.1 Personal Protective Equipment (PPE): Specialized clothing or equipment, worn by an employee for protection against infectious materials" (Occupational Safety and Health Administration (OSHA)
- 2.2 Aerosol Generating Procedures (AGPS):Any medical and patient care procedure that results in the production of airborne particles (aerosols). Aerosol generating procedures (AGPs) may expose health care workers (HCWs) to pathogens causing acute respiratory infections (ARIs).

## 3. POLICY:

- 3.1 PPE is available in all patients care areas in adequate amounts and proper qualities. Quality can be assessed while HCWs are donning PPE. If PPE is NOT donned according to the required size of healthcare worker, would pose risk of acquiring infection.
  - 3.1.1 Different sizes & types of gloves. Check if good quality or loose at wrists.
  - 3.1.2 Different sizes and type of N - 95 masks
  - 3.1.3 Surgical masks
  - 3.1.4 Gowns / Aprons in different size (Small, medium , large, XL etc). Check if fluid resistant and of thick material
  - 3.1.5 Protective eye/face wear (Goggles, face shields)
  - 3.1.6 Powered air purifying respirators (PAPRs) for bearded staff etc.
- 3.2 HCWs are properly trained and demonstrate the appropriate use of PPE (i.e., careful selection in relation to indications, proper donning and doffing, correct sequence, and proper disposal)
- 3.3 Respirator fit testing is conducted for all HCWs based on the national regulations needed' frequency or when required.
- 3.4 Proper selection of Personal Protective Equipment (PPE) is based on the isolation precautions and/ or procedures needed for each patient.
- 3.5 Respirator fit testing is conducted for al HCWs every two (2) years or when required.
- 3.6 NICU staff: must clean their hands , wear disposable gown and clean gloves in case of direct contact or providing care to newborns outside their incubator.
- 3.7 PPE is indicated to be used on risk assessment as part of standard precautions and transmission based precautions. All isolations must be used together with standard precautions.
- 3.8 Personal Protective Equipment (PPE) is used to create a barrier between HCWs and patients, body substances, or surfaces. Appropriate PPE (gloves/gowns/plastic aprons/eye protection /Face Protection) should be used to prevent skin, eyes, mucous membrane, airways and clothing exposure. Components of PPE can be used alone or in combination based on the degree and risk of exposure in order to achieve desired level of protection.
- 3.9 Indication of PPE use: PPE is indicated to be used based on risk assessment as part of standard

precautions & Transmission based precautions. (All isolation precautions must be used together with Standard Precautions)

3.9.1 Contact: Appropriate PPE – Gown & Gloves

3.9.2 Droplet: Appropriate PPE - Surgical mask, Gloves, and Gown

3.9.3 Airborne: N95 mask / respirator before entering the room.

3.10 In case of epidemic or pandemic, protocols for extended use or reuse of respirators, and Universal Masking in Hospitals should be followed.

#### 4. PROCEDURE:

4.1 Factors Influencing PPE Selection :

4.1.1 Type of Anticipated Exposure: PPE selection is determined by the type of anticipated exposure, such as touch, splashes or sprays, or large volumes of blood or body fluids that might penetrate the clothing. The combination of PPE is determined by the category of isolation precautions a patient is assigned to.

4.1.2 Durability and Appropriateness of the PPE for the task: The procedure being performed will determine the type of PPE used, for example, whether a gown or an apron is selected for PPE, or if a gown is selected, whether it needs to be fluid resistant, clean, sterile & disposable, or reusable.

4.1.3 PPE for Contact Precautions: PPE needed are isolation gown and gloves.

4.1.3.1 Other PPE (if needed) depend on exposure risk assessment and the procedure being performed.

4.1.3.2 Indications of contact precautions : Care of suspected or confirmed patients with diseases transmitted by contact route. e.g. MRSA, VRE, diarrheal illnesses, scabies, C.diff, MDRO.

4.1.3.3 HCWs must: Wear the PPE while in the patient's room and then remove it before leaving the room/care area and hand hygiene should be performed before wearing and after removal of PPE.

4.1.4 PPE for Droplet Precautions: PPE needed is a surgical mask.

4.1.4.1 Other PPE (if needed) depend on exposure risk assessment and the procedure being performed.

4.1.4.2 Indications of Droplet Precautions: Care of suspected or confirmed patients with diseases transmitted by droplet route. e.g. Influenza, Meningitis, Hemophilus Influenza type b, Meningitis Neisseria meningitidis, Mumps, Pertussis, Plague, Rubella (German measles), Viral hemorrhagic fevers due to Lassa, Ebola, MERS-COV, COVID-19.

4.1.4.3 HCWs must: Wear a surgical mask while in the patient room and then remove it after leaving the patient room /care area. Hand hygiene should be performed before wearing and after removal of PPE.

4.1.5 PPE for Airborne Precautions: PPE needed is N – 95 respirator or PAPR.

4.1.5.1 Other PPE (if needed) depend on exposure risk assessment and the procedure being performed.

4.1.5.2 Indications of airborne precautions: Care of suspected or confirmed patient with airborne transmitted disease e.g. Measles (rubeola), open pulmonary TB, draining interference with extrapulmonary TB, Herpes zoster (varicella-zoster), chickenpox. Aerosol generating procedures (AGPs)

4.1.5.3 HCWs must: Wear a fit-tested approved respirator or PAPR while in the patient room, respirator must be doffed after leaving the patient room, if extended use or reuse policy is not applied. Hand hygiene should be performed before wearing and after removal of PPE.

4.2 Aerosol Generating Procedures (AGPS)

4.2.1 Any medical and patient care procedure that results in the production of airborne particles (aerosols).

4.2.2 HCW should wear a respirator or PAPRs, eye protection, gloves, and a gown when performing AGPs.

4.2.3 Procedures considered to be Aerosol Generating:

- 4.2.3.1 Endotracheal intubation and extubation.
- 4.2.3.2 Manual ventilation.
- 4.2.3.3 Open suctioning.
- 4.2.3.4 Cardiopulmonary resuscitation.
- 4.2.3.5 Bronchoscopy.
- 4.2.3.6 Surgery and post-mortem procedures involving high-speed devices.
- 4.2.3.7 Some dental procedures (e.g. Drilling)
- 4.2.3.8 Non-invasive ventilation (NIV) e.g. Bi-level Positive Airway Pressure (BiPAP).
- 4.2.3.9 Continuous Positive Airway Pressure ventilation (CPAP).
- 4.2.3.10 High-Frequency Oscillating Ventilation (HFOV).
- 4.2.3.11 Induction of sputum
- 4.2.3.12 Open suctioning of airways.
- 4.2.3.13 Tracheotomy/tracheostomy procedures (insertion / open suctioning / removal).

4.2.4 Nasopharyngeal Swabbing

- 4.2.4.1 HCW should wear a respirator or PAPR (or surgical mask if a respirator is not available), eye protection (face shield if a surgical mask was used), gloves, and an isolation gown.
- 4.2.4.2 If respirators are limited in numbers, they should be prioritized for other procedures at higher risk for producing infectious aerosols (e.g., intubation), instead of being abused in collecting nasopharyngeal swabs.

4.2.5 Type of PPE Selection Based on the Isolation Precautions. See appendices 7.1

- 4.2.5.1 Choosing whether to wear (gloves, mask, eye protection or gown) depends on the type of isolation, exposure risk assessment and the procedure being performed.
- 4.2.5.2 It is important that HCWs know what type and size of PPE necessary for the procedures they will perform.
- 4.2.5.3 PPE is available to protect HCWs from exposure to infectious agents during care provision, so they should use it correctly and follow the right technique and sequence of donning and doffing.
- 4.2.5.4 HCWs should wear their PPE before any contact with the patient, generally before entering the patient room or area.
- 4.2.5.5 Remove the PPE carefully and discard it in the dedicated container whether it is disposable or reusable before leaving the patient room or care area except for high efficacy respirator, it must be removed outside the patient room.
- 4.2.5.6 Hand hygiene should be performed before wearing and after removal of PPE.

4.3 Instructions regarding proper use & disposal of PPE

4.3.1 **Gloves: (Glove material – vinyl, latex, nitrile etc.)**

- 4.3.1.1 The type of gloves used depends on the procedure performed.
  - 4.3.1.1.1 **Sterile:** Mostly used for surgical procedures, they are disposable, sterile, and individually wrapped items.
  - 4.3.1.1.2 **Non-sterile:** Disposable single-use gloves (e.g., latex free gloves) and usually not individually wrapped. They are used to protect against direct exposure to blood or other body fluids and before contact with contaminated equipment or surfaces.

Note:

According to U.S. Food and Drug Administration 2016, Powdered medical gloves should not be used because these products present additional or increased risk including inflammation, granulomas, and respiratory allergic reactions to HCWs and patients when powder inhaled or when exposed to internal tissue during exams.

- 4.3.1.1.3 **Utility gloves / Heavy duty gloves:** Are used for handling contaminated items and waste and performing environmental

cleaning activities. They can be reused after decontamination based on the manufacturer instructions, but they should be discarded when punctured or torn.

4.3.1.2

**Indications of use:**

- 4.3.1.2.1 Sterile gloves: Before a sterile procedure use a sterile glove.
- 4.3.1.2.2 Non-sterile gloves: When anticipating contact with blood or another body fluid, regardless of the existence of sterile conditions and including contact with non-intact skin and mucous membrane. Contact with a patient (and his/her immediate surroundings) during contact precautions.

4.3.1.3

**General indications for gloves removal:**

- 4.3.1.3.1 As soon as gloves are damaged (or non-integrity suspected).
- 4.3.1.3.2 When contact with a single patient and his/her surroundings, a contaminated body site on a patient has ended.
- 4.3.1.3.3 Moving from a contaminated body site to another body site during the care of the same patient.

4.3.1.4

Wear gloves whenever in contact with blood, other body substances or contaminated items and surfaces and when in an isolation room.

4.3.1.5

Use non-sterile gloves for examinations and other clean procedures, and use sterile gloves for sterile procedures.

4.3.1.6

Avoid unnecessarily touching the environment or adjusting your PPE after you wear your gloves.

4.3.1.7

Change gloves if they become torn or heavily contaminated or after leaving the patient zone.

4.3.1.8

Remove and discard gloves after each patient, do not wear the same pair of gloves for the care of more than one patient.

4.3.1.9

Wear and change gloves between tasks/procedures on the same patient. Change gloves during patient care if the hands move from a contaminated body site (e.g., perineal area) to a clean body-site.

4.3.1.10

Remove gloves promptly after use and before touching clean items and environmental surfaces.

4.3.1.11

Perform hand hygiene immediately after removing gloves.

4.3.1.12

**Important Point:**

- 4.3.1.12.1 Medical gloves should be selected appropriate according to job tasks, patient care activities and hand size.
- 4.3.1.12.2 Medical gloves should be discarded immediately after removal.
- 4.3.1.12.3 Gloves should NOT BE washed, decontaminated, or reprocessed for any reuse purpose.
- 4.3.1.12.4 The use of gloves does not replace the need for hand hygiene.
- 4.3.1.12.5 In situations where gloves are removed because of a tear or a puncture and the HCW has had contact with blood or another body, hand washing with soap and water is necessary.

4.3.2

**Goggles/Face shields:**

4.3.2.1

Goggles: Protect only eyes from splashes of blood or body fluids

4.3.2.2

Face shields: Protect the face, nose, mouth, and eyes when there is a risk of exposure to splashes and body fluids

4.3.2.3

Instructions for the use of Goggles/Face shields:

- 4.3.2.3.1 Goggles should be removed and reprocessed after each use based on the manufacturer instructions.

- 4.3.2.3.2 Eye protection should be discarded if damaged (e.g., the face shield can no longer fasten securely to the provider, if visibility is obscured and reprocessing does not restore visibility).

- 4.3.2.3.3 HCW should take care not to touch their eye protection. If they touch or adjust it, they must immediately perform hand hygiene.

4.3.2.4 Wear protective eye/face wear if required for combined protection from eye/face contamination by aerosolized body substances.

4.3.2.5 The type of eye protection used depends on the procedure performed.

4.3.2.6 Personal eyeglasses and contact lenses are not considered as eye protection.

4.3.2.7 Reusable eye protection (e.g., goggles) must be cleaned and disinfected after every use. Disposable eye protection should be discarded after use

4.3.2.8 The front eye protection should not be touched while wearing it by the HCWs, if they touch it they must immediately perform hand hygiene.

4.3.2.9 Protocols for extended use or reuse of eye protection should be followed in case of an epidemic or pandemic.

4.3.2.10 HCW should take care not to touch their eye protection. If they touch or adjust it, they must immediately perform hand hygiene

4.3.2.11 Wash and disinfect visibly soiled reusable face shields or protective eyewear prior to reuse.

4.3.2.12 Protective eyewear / face wear are not to be worn after leaving the patient room or procedure area.

4.3.3 **Gowns** : General indications for the gown use:

4.3.3.1 Protect from the contamination of clothing with potentially infectious material.

4.3.3.2 Gowns should be worn as part of Standards Precautions or Contact Precautions

4.3.3.3 Types:

4.3.3.3.1 Clean Isolation gown: used for isolation.

4.3.3.3.2 Sterile gown: used for performing invasive procedures, such as inserting a central line or surgical procedures.

4.3.3.4 Securely fasten the tabs/ties to keep the gown/plastic apron in place while performing patient care activities in the patient room/procedure area.

4.3.3.5 Remove the gown/plastic apron by untying the tabs/ties and folding it away from you in an inside-out manner. Roll it into a ball and discard.

4.3.3.6 Gowns should be worn as part of Standards Precautions or Contact Precautions.

4.3.3.7 Types: Clean Isolation gown: used for isolation and sterile gown: used for performing invasive procedures, such as inserting a central line or surgical procedures.

4.3.3.8 Wear a clean isolation gown upon entry into the patient room or area.

4.3.3.9 Change the gown if it becomes soiled or torn. Change the gown/plastic apron for each patient and/or procedure.

4.3.3.10 Disposable gowns should be discarded after use. Gloves/aprons are not to be worn after leaving the patient room or procedure area.

4.3.3.11 The front of the gown should not be touched while wearing it by the HCWs, if they touch it or adjust it, they must immediately perform hand hygiene.

4.3.3.12 In case of epidemic or pandemic, HCWs should prioritize the procedures where gown must be used and extend the use of isolation gowns.

4.3.3.13 In case of Epidemic or Pandemic:

4.3.3.13.1 Gowns should be prioritized where splashes and sprays are anticipated e.g. AGPs, Dressing, bathing/showering, transferring, providing hygiene, changing linens, changing briefs or assisting with toileting, device care or use, wound care.

4.3.3.13.2 Surgical gowns should be prioritized for surgical and other sterile procedures.

4.3.3.13.3 Consideration can be made to extend the use of isolation gowns, such that the same gown is worn by the same HCP when interacting with more than one patient known to be infected with the same infectious disease when these patients

housed in the same location (i.e., COVID-19 patients residing in an isolation cohort).

4.3.3.13.5 Extended use of gowns can be considered only if there are no additional coinfectious diagnoses transmitted by contact, if the patients have multidrug resistant microorganisms, Clostridium difficile or any other type of disease requiring contact precautions, the gowns should be changed usually between patients.

4.3.4 **Face/Surgical Mask.** A surgical mask is a loose-fitting, disposable device that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment.

4.3.4.1 Surgical masks: protect nose and mouth from exposure to respiratory secretions and sprays of blood or body fluids.

4.3.4.2 Surgical masks should be worn as part of Standard Precautions or Droplet Precautions.

4.3.4.3 Masks should fully cover the nose and mouth and prevent fluid penetration. Masks should fit snuggly over the nose and mouth. Change mask between patients and sooner if mask becomes wet, moist or torn.

4.3.4.4 Surgical masks should be removed and discarded after exiting the patient's room or care area and closing the door unless implementing extended use or reuse and universal masking.

4.3.4.5 In respiratory triage for respiratory symptoms, the surgical mask is recommended to be worn by the triage nurse especially when there is an outbreak of MERS-CoV /COVID-19 in the facility or rush of cases at the respiratory triage station or when universal masking is applied.

4.3.4.6 All patients and visitors must always wear surgical masks or cloth face covering while in the facility (During COVID-19 pandemic).

4.3.4.7 The surgical mask never be used as a face cover by female HCWs .

4.3.4.8 The surgical mask never to be hanged around the neck or placed in pockets

**If the surgical mask is not available, the alternative is a face shield.**

4.3.4.9 The front of a mask or respirator should not be touched while removing it by the HCWs, if they touch or adjust their surgical mask, they must immediately perform hand hygiene.

4.3.4.10 If your mask is damaged, being wet or soiled, or if breathing through the mask becomes difficult, you should remove the mask, discard it safely, and replace it with a new one, hand hygiene should be practiced.

4.3.4.11 Medical/Surgical face mask is considered to be contaminated once it has been used, and should be discarded immediately. mask should be removed by the edges or the ties rather than the front panel.

4.3.4.12 Hand hygiene should be performed after touching or discarding a used mask.

4.3.5 Types of Masks:

4.3.5.1 Standard surgical masks (Protects mouth & nose): Surgical mask should be worn (with protective eye/face shields) if splashing or aerosolization of blood or body fluids is expected.

4.3.5.2 PPE for respiratory Protection: (Respirators (N- 95 masks) protects respiratory tract form airborne infectious agents e.g., mycobacterium Tuberculosis etc.)

4.3.5.3 High-efficiency particulate respirators (N- 95, N 99 etc.)

4.3.5.4 Powered Air Purifying Respirators (PAPRs)

4.3.6 **Filtering Facepiece Respirators**

4.3.6.1 Respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth. Surgical respirators are commonly used in healthcare settings.

4.3.6.2 N95 respirators reduce the wearer's exposure to airborne particles, from small

particle aerosols to large droplets. These respirators filter out at least 95% of very small (less than 0.3 micron) particles.

4.3.6.3 Respirators should be worn as part of Airborne Precautions

4.3.6.4 Instructions for N95 respirator use:

4.3.6.4.1 Fit testing must be done for all health care workers before using a respirator in the workplace.

4.3.6.4.2 Achieving an adequate seal to the face is essential. Conduct a user seal check each time the respirator is used.

4.3.6.5 User Seal Checking (formerly known as Fit Check)

4.3.6.5.1 A simple procedure intended to help the wearer verify that he/she has properly put on the respirator. To seal check a respirator, the wearer should forcefully inhale and exhale several times. The respirator should collapse slightly upon inhaling and expand upon exhaling. It should be completed each time the respirator is donned and is only applicable when a respirator has already been successfully fit tested on the individual

4.3.6.5.2 The method of seal checking varies depending on the type of respirator. For lightweight respirators, they should collapse and expand with inhaling and exhaling. For more rigid respirators, the wearer should feel for any leaks around the edges of the respirator instead.

4.3.6.6 Used as a part of personal protective equipment used while caring a patient under airborne isolation precautions or during some aerosol generating procedures to a patient diseased or suspected to be diseased with droplet transmitted disease.

4.3.6.7 Not everyone can wear a respirator due to medical conditions that may be made worse when breathing through a respirator. Before using a respirator or getting fit-tested, HCW must have a medical evaluation to make sure that they can wear a respirator safely for medical evaluation form.

4.3.6.7 Wear an N95 mask when indicated to enter an airborne isolation room and remove it only when outside of the room. High-efficacy respirator should not be used with stable MERS COV, COVID-19 cases except during aerosol-generating procedures (AGPs).

4.3.6.9 It is not allowed for hospital staff to wear High efficacy respirator out of isolation rooms and never be used in some departments e.g. CSSD, kitchen, medical files, outpatient clinics, reception.

4.3.6.10 High efficacy respirator is not allowed to be used by non- HCWs or outside the healthcare settings.

4.3.6.11 All bearded HCWs are not allowed to use high efficacy respirator they must wear a powered air-purifying respirator (PAPR) when needed.

4.3.6.12 When using PAPR (powered air-purifying respirators), they must clean and disinfect it according to the manufacturer's reprocessing.

4.3.6.13 General instructions:

4.3.6.13.1 Clean hands with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the respirator.

4.3.6.13.2 Discard N95 respirators appropriately & immediately following use.

4.3.6.13.3 Avoid extend use or reuse of the N95 respirators unless recommended as national approved regulations during special situations (epidemic or pandemic) of some infectious diseases.

4.3.7 Face cloth:

4.3.7.1 Cloth face coverings are NOT PPE and should not be worn for the care of patients with known or suspected COVID-19 or other situations where a respirator or surgical mask is indicated.

4.3.7.2 HCWs can wear face cloth if they were walking in the Corridors of the hospital or nonclinical areas e.g. administrative area, library, and cafeteria, where no care for the patient is performed.

4.3.7.3 A cloth face covering may be appropriate for visitors and patients.

4.4 **How to put on PPE (Donning) before entering a patient's room:** Don PPEs in this order: Hand hygiene, gown, surgical mask, goggles/face shield then gloves.

4.4.1 How to put on a gown

- 4.4.1.1 Select the appropriate type and size.
- 4.4.1.2 Opening at the back.
- 4.4.1.3 Secure at neck and waist.
  - 4.4.1.3.1 Gown 1# ties in front.
  - 4.4.1.3.2 Gown 2# ties in back.

4.4.2 How to put on a Mask

- 4.4.2.1 Place over nose, mouth, and chin
- 4.4.2.2 Fit flexible nosepiece over Nose Bridge.
- 4.4.2.3 Secure on the head with ties or elastic.
- 4.4.2.4 Adjust to fit.

4.4.3 How to put on a Particulate Respirator

- 4.4.3.1 Select a fit tested respirator. (Advice against) Put on respirator under the veil or disposable veil.
- 4.4.3.2 Place over nose, mouth, and chin
- 4.4.3.3 Fit flexible nose piece over the nose bridge.
- 4.4.3.4 Secure on the head with elastic. Adjust to fit.
- 4.4.3.5 Perform a user seal check:
  - 4.4.3.5.1 Inhale: respirator should collapse
  - 4.4.3.5.2 Exhale: check for leakage around face
- 4.4.3.6 For rigid respirators, the user seal check should be performed by feeling for any leaks around the edges of the respirator. The wearer should not expect to see the respirator collapse and expand with inhalation and exhalation, as is the case with lightweight respirators. Instead, the user should carefully inspect the seal around the entire perimeter of the respirator, ensuring there are no gaps that could allow unfiltered air to enter.

4.4.4 How-to Put-on Eye and Face Protection

- 4.4.4.1 Position goggles over the eyes and secure to the head using the earpieces or headband
- 4.4.4.2 Position face shield over face and secure on the brow with a headband. Adjust to fit comfortably.

4.4.5 How-to Put-on Gloves

- 4.4.5.1 Put on gloves last.
- 4.4.5.2 Select the correct type and size.
- 4.4.5.3 Insert hands into gloves.
- 4.4.5.4 Extend gloves over isolation or sterile gown cuffs.

4.5 Principles of Safe Removal of PPE:

4.5.1 Safe removal of PPE to protect health care workers, patients, and the environment from exposure to contaminated materials. To remove PPE safely, you must first be able to identify what sites are considered "clean" and what are "contaminated".

4.5.2 "Contaminated" and "Clean" Areas of PPE:

- 4.5.2.1 Contaminated – outside front: Areas of PPE that have or are likely to have been in contact with body sites, materials, or environmental surfaces where the infectious organism may reside. In general, the areas include:
  - 4.5.2.1.1 The outside front and sleeves of the isolation gown.
  - 4.5.2.1.2 The outside front of the goggles.
  - 4.5.2.1.3 Mask, respirator, and face shield are considered contaminated.
  - 4.5.2.1.4 The outside of the gloves is contaminated.

4.5.3 Clean – inside, outside back of PPE, ties on head and back:

4.5.4 Areas of PPE that are not likely to have been in contact with the infectious organisms. The areas that are considered "clean" are the parts that will be touched when removing PPE. These areas include:

- 4.5.4.1 Inside the gloves.
- 4.5.4.2 Inside and back of the gown.
- 4.5.4.3 The ties of the gown and mask.
- 4.5.4.4 Elastic of goggles and face shield.

4.6 **Sequence for Removing PPE (Doffing)**

4.6.1 **Gloves - Hand hygiene - Face shield or goggles - Hand hygiene – Gown - Hand hygiene - Mask or respirator - Hand hygiene**

4.6.2 The order for removing PPE is to limit opportunities for self-contamination. It is crucial to perform hand hygiene between each step of removing the PPE sequence. This helps prevent cross-contamination and ensures proper decontamination. The sequence is as follows:

- 4.6.2.1 Gloves: These are considered the most contaminated pieces of PPE, so they are removed first.
- 4.6.2.2 Face shield or goggles: These are removed next as they can be cumbersome and interfere with the removal of other PPE.
- 4.6.2.3 Gown: This is the third item removed in the sequence.
- 4.6.2.4 Mask or respirator: This is the final piece of PPE to be removed.

4.6.3 How to Remove Gloves

- 4.6.3.1 Grasp the outside edge near the wrist.
- 4.6.3.2 Peel away from hand, turning glove inside-out.
- 4.6.3.3 Hold in opposite gloved hand.
- 4.6.3.4 Slide the ungloved finger under the wrist of the remaining glove
- 4.6.3.5 Peel off from the inside, creating a bag for both gloves.
- 4.6.3.6 Discard based on the national approved medical waste regulations.
- 4.6.3.7 Perform hand hygiene.

4.6.4 How to Remove Goggles or Face Shield

- 4.6.4.1 Using ungloved hands, grasp the "clean" ear or headpieces and lift them away from the face.
- 4.6.4.2 If goggles or face shields are reusable, place them in a designated container for later reprocessing. Otherwise, discard them in the waste container based on the national approved medical waste regulations and perform hand hygiene.

4.6.5 How to Remove Isolation Gown

- 4.6.5.1 Unfasten ties.
- 4.6.5.2 Peel gown away from neck and shoulder.
- 4.6.5.3 Turn contaminated outside toward the inside.
- 4.6.5.4 Fold or roll into a bundle
- 4.6.5.5 Discard based on the national approved medical waste regulations.
- 4.6.5.6 Perform hand hygiene.

4.6.6 Removing a Mask

- 4.6.6.1 The front of the mask is considered contaminated and should not be touched.
- 4.6.6.2 Remove by handling only the ties starting with the bottom and then the top tie
- 4.6.6.3 Lift the mask away from the face and discard it into the designated waste container based on the national approved medical waste regulations.
- 4.6.6.4 Perform hand hygiene

4.6.7 How to Remove a Particulate Respirator

- 4.6.7.1 Lift the bottom elastic over your head-first.
- 4.6.7.2 Then lift the top elastic.
- 4.6.7.3 Discard it based on the national approved medical waste regulations.
- 4.6.7.4 Perform hand hygiene

4.7 Where & when to Remove PPE

4.7.1 At the doorway, before leaving the patient room or in the anteroom.

- 4.7.2 Remove the respirator outside the room, after the door has been closed
- 4.7.3 Make sure that hand hygiene facilities are available at the point needed, e.g., sink or alcohol-based hand rub.
- 4.7.4 Disposal of PPEs
  - 4.7.4.1 Single-use PPE disposal: All PPEs are doffed inside the patient's room except N95 respirator which is removed outside AIIR after closure of the door of patient's room in a specified waste receptacle.
  - 4.7.4.2 Reusable PPE:
    - 4.7.4.2.1 Manufacturer's instructions must be followed for safe reuse of PPE. e.g. Reuse of eye goggles etc
    - 4.7.4.2.2 Reusable heavy-duty gloves and boots (individual use) should be cleaned & disinfected after use and allowed to dry.
  - 4.7.4.3 Safety: PPE should be used with extreme safety to avoid risk of acquiring infection & contamination. e.g.:
    - 4.7.4.3.1 Keep gloved hands away from face
    - 4.7.4.3.2 Avoid touching or adjusting other PPE
    - 4.7.4.3.3 Remove gloves if they become torn; perform hand hygiene before donning new gloves
    - 4.7.4.3.4 Limit surfaces and items to be touched etc
    - 4.7.4.3.5 Before leaving the patient's room or cubicle, PPE must be removed and discarded
- 4.8 Masks with Exhalation Valves or Vents
  - 4.8.1 CDC DO NOT RECOMMEND using masks for source control if they have an exhalation valve or vent.
  - 4.8.2 It is forbidden to use masks with exhalation valves or vents in health care facilities, and it is not recommended to use it in the community as a source control.
- 4.9 Recommended PPE for health care workers according to the Hospital area and the type of activity. See appendices 7.2
  - 4.9.1 Selection of PPE is based on activity and type of exposure, additional PPE may be required according to risk assessment
- 4.10 **Universal Masking in Hospitals**
  - 4.10.1 All HCWs working in inpatient units, ambulatory unit, procedural areas (all clinical units), and administrative areas will be expected to wear surgical face masks, always, while in their respective clinical care settings. This universal mask approach will serve to:
    - 4.10.1.1 Protect patients and HCWs from exposure to infection from asymptomatic COVID-19 infected HCW (a mask achieves source control and decreases the risk of spreading infection).
    - 4.10.1.2 Protect patients and HCWs from exposure to infection from asymptomatic COVID-19 infected HCW (a mask achieves source control and decreases the risk of spreading infection).
  - 4.10.2 A single mask can be worn across different cases and between care of different patients without removing the facemask between patient encounters unless it became wet or contaminated during a case, damaged or hard to breathe through.
  - 4.10.3 HCWs should leave the patient care area if they need to remove the surgical mask.
  - 4.10.4 When providing care to a patient with known or suspected COVID-19 the mask should be removed and wear new one after hand hygiene.
  - 4.10.5 The surgical mask should be worn by all HCWs in the hospital even in areas with no patients.
  - 4.10.6 A surgical mask is not allowed to be hanged around the neck or kept in the pocket.
  - 4.10.7 Personnel working in nonclinical areas should wear a surgical mask all the time
  - 4.10.8 HCWs must take care not to touch their surgical mask. If they touch or adjust their facemask, they must immediately perform hand hygiene.
  - 4.10.9 All HCWs should practice principles of social distancing, respiratory etiquette and frequent hand hygiene.
- 4.11 The process to Use and Discard Surgical Mask:

- 4.11.1 A surgical face mask will be used at the **START OF EACH SHIFT**, for those individuals working in clinical care units
- 4.11.2 Masks will be available at each entrance to the unit and will be used throughout the shift.
- 4.11.3 If the mask becomes visibly soiled, wet, or damaged, a new mask must be used.
- 4.11.4 **AT THE END OF SHIFT**, HCWs will be asked to doff their face masks as they exit the unit.
- 4.11.5 Medical waste containers will be placed at each exit for the used masks to be discarded.
- 4.11.6 **Implementation of Guideline** These guidelines are developed to be applied in the hospitals that have patients with COVID -19 or any other infectious respiratory disease outbreaks.
- 4.12 **Guidance for Extended Use and Limited Reuse of N-95 Respirators in Healthcare Settings**
  - 4.12.1 **EXTENDED USE** refers to the practice of wearing the same respirator for repeated healthcare activities with several patients, without removing the respirator between patient healthcare activities. Extended use could be implemented when multiple patients are infected with the same respiratory pathogen and patients are placed together in dedicated waiting rooms or hospital wards.
  - 4.12.2 **REUSE** refers to the practice of using the same respirator by the same HCW for multiple encounters with patients but removing it ('doffing') after each encounter. The respirator is stored in between encounters to be put on again ('donned') prior to the next encounter with a patient.
  - 4.12.3 **Implementation:** The decision to permit extended use or limited reuse of respirators is only under the authority of MOH command and control centre .
  - 4.12.4 **RESPIRATOR EXTENDED Use Recommendations:**
    - 4.12.4.1 Wear the same N-95 respirator for repeated healthcare activities with several patients, without removing the respirator between patient encounters and between the multiple patients in one care area with the same respiratory pathogen.
    - 4.12.4.2 It is recommended to use it without removal up to the end of the procedure at the same time and same location.
    - 4.12.4.3 Extended use is favored over reuse because it is expected to involve less touching of the respirator and therefore less risk of contact transmission.
    - 4.12.4.4 Discard respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
    - 4.12.4.5 Discard respirators following close contact with, or exit from, the care area of any patient co-infected with an infectious disease requiring contact precautions.
    - 4.12.4.6 Consider using a disposable face shield over a respirator and/or other steps (e.g., masking patients, use of engineering controls) to reduce surface contamination.
    - 4.12.4.7 Perform hand hygiene with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the respirator (if necessary, for comfort or to maintain fit).
  - 4.12.5 **N95 RESPIRATOR REUSE RECOMMENDATIONS:**
    - 4.12.5.1 If reuse of respirators is decided, infection control should ensure adherence to administrative and engineering controls to limit potential respirator surface contamination (e.g., use of barriers to prevent droplet spray contamination).
    - 4.12.5.2 Consider additional training and/or reminders (e.g., posters) for staff to reinforce the need to minimize unnecessary contact with the respirator surface, strict adherence to hand hygiene practices, and proper respiratory donning and doffing technique, including physical inspection and performing a user seal check.
    - 4.12.5.3 Discard respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
    - 4.12.5.4 Discard respirators following close contact with any patient co-infected with an infectious disease requiring contact precautions.
    - 4.12.5.5 Discard any respirator that is obviously damaged or becomes hard to breathe through.

- 4.12.5.6 Use a disposable face shield over a respirator and/or other steps (e.g., masking patients, use of engineering controls), when feasible to reduce surface contamination of the respirator so that you can reuse it again.
- 4.12.5.7 A SURGICAL MASK IS NOT RECOMMENDED TO BE WORN OVER THE RESPIRATOR EXCEPT IF THERE IS RECOMMENDATION FROM MOH BY WEARING MEDICAL MASK OVER RESPIRATOR IN CERTAIN SPECIFIC SITUATION
- 4.12.5.8 Respirators must only be used by a single wearer, prevent inadvertent sharing of respirators
- 4.12.5.9 Pack or store respirators between uses so that they do not become damaged or deformed.
- 4.12.5.10 Label containers used for storing respirators or label the respirator itself between uses with the user's name to reduce accidental usage of another person's respirator
- 4.12.5.11 Respirators must only be used by a single wearer, prevent inadvertent sharing of respirators.
- 4.12.5.12 Pack or store respirators between uses so that they do not become damaged or deformed.
- 4.12.5.13 Label containers used for storing respirators or label the respirator itself between uses with the user's name to reduce accidental usage of another person's respirator.
- 4.12.5.14 Keep them in a clean, breathable container such as a paper bag between uses in the designated and identified areas.
- 4.12.5.15 Storage containers should be disposed of or cleaned regularly
- 4.12.5.16 To minimize potential cross-contamination, store respirators in a way that they do not touch each other.
- 4.12.5.17 Clean hands with soap and water or an alcohol-based hand sanitizer for the required time before and after touching or adjusting the respirator.
- 4.12.5.18 Avoid touching the outside and inside of the respirator. If inadvertent contact is made with the respirator, perform hand hygiene as described above
- 4.12.5.19 Use a pair of clean (non-sterile) gloves when donning a used N95 respirator and performing a user seal check then discard the gloves and perform hand hygiene.
- 4.12.5.20 Follow the manufacturer's instruction for a maximum number of donning and recommended inspection procedures. (or up to five if the manufacturer does not provide a recommendation)

4.13 Extended Use and Reuse of Eye Protection Equipment

- 4.13.1 Healthcare facilities should have the ability to manage a sudden, unexpected increase in patient volume that would otherwise severely challenge or exceed the present capacity of a facility.
- 4.13.2 Implement Extended Use of Eye Protection (face shields/goggles):
  - 4.13.2.1 Extended use of eye protection is the practice of wearing the same eye protection for repeated close contact encounters with several different patients, without removing eye protection between patient encounters.
  - 4.13.2.2 Extended use of eye protection can be applied to disposable and reusable devices.
  - 4.13.2.3 Eye protection should be removed and reprocessed if it becomes visibly soiled or difficult to see through.
  - 4.13.2.4 If a disposable face shield is reprocessed, it should be dedicated to one HCW and reprocessed whenever it is visibly soiled or removed (e.g., when leaving the isolation area) prior to putting it back on.
  - 4.13.2.5 Eye protection should be discarded if damaged (e.g., the face shield can no longer fasten securely to the provider, if visibility is obscured and reprocessing does not restore visibility).

- 4.13.2.6 HCW should take care not to touch their eye protection. If they touch or adjust it, they must immediately perform hand hygiene.
- 4.13.2.7 HCW should leave the patient care area if they need to remove their eye protection.
- 4.13.2.8 Prioritize eye protection for selected activities.
- 4.13.3 How to Clean Eye Protection Equipment (face shields / goggles)
  - 4.13.3.1 While wearing gloves, carefully wipe the inside, followed by the outside of the face shield or goggles using a clean cloth saturated with neutral detergent solution or cleaning wipe.
  - 4.13.3.2 Carefully wipe the outside of the face shield or goggles using a 70% alcohol wipe or clean cloth saturated with MOH approved hospital disinfectant solution (alcohol wipes / quaternary ammonium compounds).
  - 4.13.3.3 Wipe with a clean cloth or wipe using 70% alcohol or sodium hypochlorite 0.1%. - If 70% alcohol is used, allow for at least 1-minute contact time before re-use it. - If 0.1% sodium hypochlorite is used, allow a contact time of 10 min, rinse with warm water, and allow to dry before re-use it.
  - 4.13.3.4 Remove gloves and perform hand hygiene.
- 4.14 **Instructions for Proper Use of Powered Air Purifying Respirator (PAPR)**
  - 4.14.1 A powered Air Purifying Respirator (PAPR) is a battery-powered blower that provides positive airflow through a high-efficiency particulate air (HEPA) filters provide that 99.97% particulate filtration efficiency that is used for the protection of HCWs in healthcare facilities against respiratory airborne pathogens when:
    - 4.14.1.1 HCW has facial hair (e.g., beard)
    - 4.14.1.2 Facial deformity that interferes with N95 respirator use.
    - 4.14.1.3 The approved N95 respirator is unavailable or unknown fit test.
    - 4.14.1.4 HCW has failed fit testing with all available respirators.
  - 4.14.2 Powered air-purifying respirators should be reserved for those team members that cannot safely wear a tight-fitting respirator mask.
  - 4.14.3 Each PAPR includes:
    - 4.14.3.1 Hood, helmet, or headpiece.
    - 4.14.3.2 Breathing tube.
    - 4.14.3.3 PAPR blower/filtration unit.
    - 4.14.3.4 Battery pack.
    - 4.14.3.5 Belt.
  - 4.14.4 Instructions for using PAPR:
    - 4.14.4.1 Before use, confirm that:
      - 4.14.4.1.1 Maintenance of all parts.
      - 4.14.4.1.2 The battery is chargeable. All PAPRs must be charged according to the manufacturer's instructions. Many batteries require a minimum of 16 hours to attain a full charge.
      - 4.14.4.1.3 Test the battery: Press the TEST button on the pack to confirm charge is sufficient for the duration of the work period.
      - 4.14.4.1.4 Airflow is adequate (typically 6 Cubic Feet meter).
    - 4.14.4.2 How to do airflow check:
      - 4.14.4.2.1 Turn the motor/blower unit on by pushing and holding the power button. Run the TR-300 for 1 minute to allow the airflow to stabilize.
      - 4.14.4.2.2 With the airflow indicator in a vertical position, ensure that the bottom of the floating ball rests at, or above, the minimum flow mark (typically 6 CFM).
      - 4.14.4.2.3 The Airflow indicator must be in the VERTICAL POSITION for an accurate reading.
      - 4.14.4.2.4 Low flow alarm check: Check the low airflow alarm by simulating a low airflow condition. Tightly cover the outlet of the

motor/blower with the palm of your hand. TR-300+ in less than 30 seconds, the unit will sound an audible alarm and the red fan-shape LED will flash.

4.14.4.2.5 Note: DO NOT USE PAPR if any part fails inspection or is damaged and needs to be replaced.

4.14.4.3 Donning (putting on) the PAPR

4.14.4.3.1 Connect breathing tube to turbo unit: Insert the breathing tube into a plastic cover and connect properly to the air turbo unit until an audible click is heard.

4.14.4.3.2 Put turbo around the waist.

4.14.4.3.3 Switch turbo ON

4.14.4.3.4 Connect the breathing tube to the head hood.

4.14.4.3.5 Fit the head hood to the head.

4.14.4.3.6 Note: PAPR is turned on BEFORE entering exposure. Leave the patient room IMMEDIATELY if you notice that airflow is interrupted, or the equipment gives an alarm.

4.14.4.4 Doffing (taking off) the PAPR

4.14.4.4.1 Remove a PAPR only outside a contaminated room.

4.14.4.4.2 Remove the hood by bending over slightly, grasp the back of the head hood with both hands, and removing it off gently.

4.14.4.5 Cleaning and disinfection

4.14.4.5.1 Disconnect all parts of PAPR.

4.14.4.5.2 The blower unit AND all its parts (blower/filtration unit, battery, breathing tube, and hood/helmet) must be cleaned and disinfected:

4.14.4.5.3 Cleaning all parts with a clean, soft cloth dampened with warm water and mild detergent. Then disinfection with either 0.5 % chlorine solution or Alcohol 70 % after each use or based on the manufacturer instructions.

4.14.4.5.4 Disposal of single-use hood or it can be dedicated for one user with disinfection after each use based on the manufacturer instructions.

4.14.4.6 Note:

4.14.4.6.1 If the hood it is dedicated to multiple users, the inner side of the hood should be disinfected with 70% alcohol or based on the manufacturer instructions.

4.14.4.6.2 Do NOT submerge the battery, blower/filtration, or hood/helmet in liquid.

4.14.4.6.3 Do NOT clean filters/cartridges.

4.14.4.6.4 Dispose of filters/cartridges after service life has expired.

4.14.4.7 Storage: AFTER disinfection and drying, store on the shelf in a cool, dry, dark area, out of sunlight.

4.14.4.8 Change of HEPA filter:

4.14.4.8.1 The shelf life of filters: Filters will be changed **AFTER SIX MONTHS** from opening their package even if they have not been used or based on the follow manufacturer instructions.

4.14.4.9 Replace the HEPA Filters also, when:

4.14.4.9.1 It becomes difficult to breathe comfortably.

4.14.4.9.2 When the airflow test fails, consider filter change.

4.14.4.9.3 The filter becomes dirty or physical damage occurs.

4.14.4.10 Precautions during filter change:

4.14.4.10.1 This should be in a secure area to minimize the risk of transmission to others.

4.14.4.10.2 Take precautions to protect yourself and the environment.

4.14.4.10.3 Wear full personal protective equipment.

- 4.14.4.10.4 Remove the filter gently and dispose of it directly into a designated waste container.
- 4.14.4.10.5 Clean and disinfect the area after the end.
- 4.14.4.10.6 Always follow the manufacturer's instructions.
- 4.14.4.11 Sequence for putting on personal protective equipment (PPE) & PAPR:
  - 4.14.4.11.1 Preparation of the PAPR: Hand hygiene, Gloves, Clean PAPR with Wipes, Discard gloves, and Hand hygiene.
  - 4.14.4.11.2 Putting on the PAPR
  - 4.14.4.11.3 Gown
  - 4.14.4.11.4 Gloves
- 4.14.4.12 Sequence for Remove Personal Protective Equipment (PPE) &PAPR
  - 4.14.4.12.1 Inside room - Remove the dirty gloves, do hand hygiene, and remove gown do hand hygiene.
  - 4.14.4.12.2 Exit room:
    - 4.14.4.12.2.1 Do hand hygiene & put on new gloves.
    - 4.14.4.12.2.2 Clean PAPR exposed part from clean to dirty using an alcohol-based wipe or based on the manufacturer instructions.
    - 4.14.4.12.2.3 Remove gloves & do hand hygiene.
    - 4.14.4.12.2.4 Put on new gloves.
    - 4.14.4.12.2.5 Remove PAPR, disconnect & clean PAPR
    - 4.14.4.12.2.6 Remove the hood by bending over slightly, grasp the back of the head hood with both hands, and removing it off gently.
    - 4.14.4.12.2.7 Using an alcohol-based wipe, clean the PAPR beginning with the inside of the Hood to outside
    - 4.14.4.12.2.8 Discard gloves & do hand hygiene.

4.5 Use of PPE for the Care of Suspected or Confirmed Cases in Specific Hospital Settings

- 4.15.1 Intensive Care Unit (ICU):
  - 4.15.1.1 Contact and droplet precautions are the minimum protection required for routine care of patients in ICU, who are suspected or confirmed cases of COVID-19, and who:
    - 4.15.1.1.1 Are not ventilated (either invasive or non-invasive), nor on CPAP nor requiring High Flow Nasal Prong (HFNP) regular nebulizers
    - 4.15.1.1.2 Are Intubated with a closed ventilator circuit, from which the risk of airborne transmission is minimal. However, during routine care when the circuit is opened (e.g. to change a heat-moisture exchanger) or if risk assessment indicates that inadvertent disconnection of the ventilator circuit may occur, use of a particle filter respirator (PFR) should be considered.
  - 4.15.1.2 Contact and airborne precautions including a high filter respirator, should be used for care of COVID-19 patients in ICU requiring or at risk of AGPs.
    - 4.15.1.2.1 If a health care worker is required to remain in an ICU patient's room for a long period (e.g. more than one hour) to perform multiple AGPs, the use of a PAPR may be considered, as an alternative, for greater comfort and visibility.
- 4.15.2 Wards, including care of critically ill patients outside of the ICU setting, e.g. general wards, Isolation wards and emergency departments
  - 4.15.2.1 At the minimum Contact and droplet precautions should be used for the care of patients with suspected or confirmed COVID-19 in general wards, isolation wards, other in-patient settings, and emergency departments

- 4.15.2.2 Contact and airborne precautions should be considered for the care of patients with suspected or confirmed COVID-19, when one or more of the following apply:
  - 4.15.2.3 When performing an AGP:
    - 4.15.2.3.1 AGPs should be performed in a negative pressure room (or a standard isolation room with door closed and availability of HEPA filter).
    - 4.15.2.3.2 The number of persons present in the room should be minimized
    - 4.15.2.3.3 For the clinical care of patients who have cognitive impairment, are unable to cooperate, or exhibit challenging behaviors (such as shouting).
  - 4.15.3 Operating suite: Contact and airborne precautions (including the use of respirator mask) for anesthetic & surgical procedures involving AGPs for patients with suspected or confirmed COVID-19.
- 4.16 Options for temporary measures due to the shortage of Personal Protective Equipment (PPE): extended use, reprocessing, or use of alternative PPE. See appendices 7.3
- 4.17 Recommendation of PPE used according to the setting, personnel, and type of activity in the context of COVID-19 and normal situation. See appendices 7.4

## 5. MATERIALS AND EQUIPMENT:

- 5.1 **Forms and Records:**
  - 5.1.1 N/A
- 5.2 **Materials and Equipment**
  - 5.2.1 Disposable gloves: clean / sterile
  - 5.2.2 Disposable surgical mask
  - 5.2.3 Respirator Mask
  - 5.2.4 Eye protection (goggles, face shield)
  - 5.2.5 Disposable gowns/aprons

## 6. RESPONSIBILITIES:

- 6.1 Medical Store Manager and IPCD: To ensure that adequate resources are in place to allow recommended infection prevention and control measures such as PPE to be implemented.
- 6.2 Supervisors: Assure the adequacy of the PPE; proper fit protection, maintenance and sanitation. Ensure every employee knows how to use their PPE correctly.
- 6.3 Infection control staff: Provide education on staff and management on this policy.
- 6.4 Health Care Workers, Patients, Family, Visitors, Trainee and Volunteers

## 7. APPENDICES:

- 7.1 Type of PPE Selection Based on the Isolation Precautions.
- 7.2 Recommended PPE for health care workers according to the Hospital area and the type of activity.
- 7.3 Options for temporary measures due to the shortage of Personal Protective Equipment (PPE): extended use, reprocessing, or use of alternative PPE.
- 7.4 Recommendation of PPE used according to the setting, personnel, and type of activity in the context of COVID-19 and normal situation

## 8. REFERENCES:

- 8.1 General Directorate of Infection Prevention and Control in Healthcare Facilities (GDIPC). Guidelines for Rational Use of Personal Protective Equipment (PPE) in the Health Care Facilities 2 ND Edition – 2021

**Appendix 7.1 Type of PPE Selection Based on the Isolation Precautions.**

PPE	Standard Precautions	Transmission-Based Precautions		
		Contact precautions	Droplet Precautions	Airborne Precautions
<b>HAND HYGIENE</b>				
Gloves	As needed	At all times	As needed	As needed
Gown	As needed	At all times	As needed	As needed
Surgical Mask	As needed	As needed	At all times	Never
Respirator	Never	Never	AGPs only	At all times
Eye protection	As needed	As needed	As needed	As needed

**Appendix 7.2** Recommended PPE for health care workers according to the Hospital area and the type of activity. Selection of PPE is based on activity and type of exposure, additional PPE may be required according to risk assessment

Hospital Area	Activity	TYPE OF PPE FOR HEALTH CARE WORKERS					gloves			Boots or closed work shoes
		Surgical Mask	Respirator	Eye protection (goggles or face shield)	Gown	Apron	Sterile	Non Sterile	Heavy duty	
I: RESPIRATORY TRIAGE	Preliminary screening with no direct patient contact	✓	X	X	X	X	X	X	X	X
II: CONSULTATION ROOM	Physical examination of patients with respiratory symptoms	✓	X	X	✓	X	X	✓	X	X
III: PATIENT ROOM	Direct care to MERS - CoV / COVID -19 patient	✓	X	✓	✓	X	X	✓	X	X
	Aerosol generating procedures ( Isolation room)	X	✓	✓	✓	✓	X	✓	X	X
IV: AMBULANCE HCW	Transporting suspected MERS - CoV / COVID -19 patients	✓	X	✓	✓	X	X	X	X	X
V: AMBULANCE DRIVER	Transporting suspected MERS - CoV / COVID -19 patients	✓	X	X	X	X	X	X	X	X
Note: Mask is required if there is an outbreak of MERS-CoV / CoViD-19 in the facility or Rush of cases at respiratory triage station or when physical distance is not feasible, and it is a must in case of UNIVERSAL MASKING.										
VI: LABORATORY	Manipulation of respiratory samples.	✓	X	✓	✓	X	X	✓	X	X
VII: CORRIDORS	Any activity that does not involve direct patient contact	Only in Universal masking	X	X	X	X	X	X	X	X

VIII: ADMINISTRATIVE	Any activity that does not involve direct patient contact	Only in Universal masking	X	X	X	X	X	X	X	X	X
*VISITORS	Entering the room of MERS-CoV/CoV-19 patient	✓	X	X	✓	X	X	X	X	X	X
PATIENT AND VISITORS TO THE FACILITY FOR MANAGEMENT	With or without Respiratory Symptoms	Only in Universal masking	X	X	X	X	X	X	X	X	X
WATCHER OR CAREGIVER	With Respiratory Symptoms	✓	X	✓	✓	X	X	✓	X	X	X
CLEANERS	Cleaning the room of MERS-CoV /CoV-19 patients	✓	X	X	✓	X	X	X	✓	✓	

Note: All visitors must pass and take permission for visiting. PPE should be given under health care observation and training for donning and doffing.

Caregiver: Someone who provides for the needs of people who are ill or cannot provide for their own needs.  
Watcher: Person who watch or observe and siting with sick person or bedside.

### Appendix 7.3 Options for temporary measures due to the shortage of Personal Protective Equipment (PPE): extended use, reprocessing, or use of alternative PPE.

Type of PPE	Measure	Description
Medical Mask used by Health Care Workers	Extended use (for use with multiple patients)	Use without removing for up to 6 hours, when caring for a cohort of patients with COVID-19

#### Limitations / Risks/ Removal Criteria

##### Risks:

- Extended use of a medical mask may increase the risk of contamination of the mask with SARS-CoV-2 and other pathogens.
- Wearing the mask for a prolonged period may increase the chance of the health care worker touching the mask or inadvertently touching underneath the mask.
- Damage to or reactions of facial skin tissue may occur with prolonged use of medical masks.
- Filtration media of the medical mask may become clogged, thereby increasing breathing resistance and the risk of breathing unfiltered ambient air from the sides of the medical mask.
- Extended periods of time in active patient wards are required for health workers.

##### Removal Criteria and Precautions:

- Follow safe procedures for removal and do not touch the front of the mask.
- If the mask is touched/adjusted, hand hygiene must be performed immediately.
- Masks must be changed if they become wet, soiled, or damaged; difficult to breathe through; exposed to a splash of chemicals, infectious substances, or body fluids; or if they have been removed for any reason, including when drinking fluids or eating meals.
- A new medical mask should be worn when providing care outside of a designated cohort of patients with COVID-19.
- Use of the same medical mask by a health care worker between a patient with COVID-19 and a patient who does not have COVID-19 is not recommended owing to the risk of transmission

Type of PPE	Measure	Description
Respirator - N 95	Extended use (for using with multiple patients)	Use without removal for up to 6 hours, when caring for a cohort of patients with COVID-19.

#### Limitations / Risks/ Removal Criteria

##### Risks:

- Extended use of respirators may increase the risk of contamination with SARS-CoV-2 and other pathogens. because it may increase the chance of health workers touching the respirator or inadvertently touching under the respirator.
- Extended use of respirators may clog the filtration media, leading to increased breathing resistance.
- Damage to or reactions of facial skin tissue may occur with prolonged use of respirators.

##### Removal Criteria and Precautions:

- A respirator must be removed if it becomes wet, soiled, damaged, or difficult to breathe through or if it is exposed to a splash of chemicals, infectious substances or body fluids.
- If respirators are touched or adjusted or removed from the face for any reason, hand hygiene must be performed immediately.
- Follow the safe procedure for removal and do not touch the front of the respirator.
- Use of the same respirator by a health worker when caring for patients with COVID-19 and patients not suspected of having COVID-19 is not recommended owing to the risk of transmission from exterior contamination of the respirator.

Type of PPE	Measure	Description
Powered Air Purifying Respirators (PAPRs)	Extended use (for using with multiple patients)	Powered air purifying respirators (PAPRs) or elastomeric respirators designed with the capability of being reprocessed without damaging the seal and effectiveness of filtration

#### Limitations / Risks/ Removal Criteria

##### Limitations/Risks:

- Staff members may be unfamiliar with the use, operation and handling of PAPRs or elastomeric respirators and will need the training to ensure safe operation and practices.
- Most models do not ensure source control for the wearer, as exhalation valves allow unfiltered exhaled air to escape into the environment. PAPRs and elastomeric respirators that facilitate both protection and source control through filtered inhalation and exhalation should be selected where available.
- PAPRs with hood designs and/or with the irregular placement of components or cords may interfere with health worker mobility and visibility.
- The ability to hear may be reduced because of the blower noise and noise-induced by the movement of a loosehead covering, depending on the model used.
- The ability to use a stethoscope may be limited.
- Batteries and filters/cartridges must be recharged or replaced when indicated.
- PAPRs and elastomeric respirators require a significant amount of storage space in between shifts.

##### Removal Criteria and Precautions:

- Discard filters when soiled, damaged or reducing airflow below manufacturer specified levels.
- Battery capacity and cartridges should be checked before each use.
- Reprocessing should be performed per the manufacturer's instructions, and the facility must train staff to maintain and properly disinfect and clean the PAPR.
- Ideally, the PAPR or elastomeric respirator should be dedicated to a single wearer and returned to this wearer during their next clinical use after each reprocessing cycle.

Type of PPE	Measure	Description
Gown used by health workers	Extended use (for use on multiple patients)	he use without removal, when providing care of a cohort of patients with COVID19.

Note: Not applicable if the patient has multidrug resistant microorganisms or other type of disease requiring contact precautions. In such case, the gowns should be changed between patients.

#### Limitations / Risks/ Removal Criteria

##### Limitations/Risks:

- Extended use of gowns may increase the risk of self-contamination.
- The extended use of gowns may increase the risk of transmission of other pathogens between patients.

##### Removal Criteria and Precautions:

- The gown should be removed if it becomes wet, soiled or damaged or is exposed to a splash of chemicals, infectious substances or body fluids.
- The gown should be removed when providing care outside a designated cohort of patients with COVID-19.
- Follow the safe procedure for the removal of gowns to prevent contamination of the environment.

Type of PPE	Measure	Description
Face shield used by health workers	Extended use (for use on multiple patients). A face shield must be designed to cover the sides of the face and below the chin.	The use without removal during the shift when caring for a cohort of patients with COVID-19
	Reprocessing	Clean face shields with soap/detergent and water followed by disinfection using either sodium hypochlorite 0.1% (followed by rinsing with clean water) or 70% alcohol wipe

#### Limitations / Risks / Removal Criteria

##### Limitations/Risks:

- There is a risk of contaminating the exterior of the face shield.
- Extended use of a face shield may increase discomfort and fatigue due to abrasive head strap and visual distortion.
- Dermatological tissue damage may occur to the face with prolonged face shield use

##### Removal Criteria and Precautions:

- Face shields should be removed if they are contaminated by a splash of chemicals, infectious substances or body fluids; or if they obstruct visibility.

- Follow the safe procedure for removal of face shields to prevent contamination of the face and eyes. Use of the same face shield by a health worker when caring for patients with COVID-19 and patients not suspected of having COVID-19 is not recommended owing to the risk of transmission from contamination of the face shield.

#### REPROCESSING OF FACE SHIELD - Limitations / Risks/ Removal Criteria

##### Limitations/Risks:

- Plastic may become damaged, resulting in reduced visibility and integrity.
- Residual toxicity of the sodium hypochlorite can occur if the face shield is not thoroughly rinsed after disinfection.

##### Removal Criteria and Precautions:

- Face shields should be removed if they are contaminated by a splash of chemicals, infectious substances or body fluids; or if they obstruct visibility.
- Follow the safe procedure for removal of face shields to prevent contamination of the face and eyes

### Appendix 7.4 Recommendation of PPE used according to the setting, personnel, and type of activity in the context of COVID-19 and normal situation

<b>INPATIENT AND OUTPATIENT FACILITIES</b>			
<b>Setting</b>	<b>Targeted personnel</b>	<b>Activity</b>	<b>Type of PPE or procedure</b>
<b><u>SCREENING:</u></b>  Clinical triage for prioritization of care should be performed in a separate area for individuals suspected of COVID-19 infection	<b>Clinical Staff</b>	<p>Preliminary screening not involving direct contact</p> <p>This activity includes the use of no-touch thermometers, thermal imaging cameras and limited observation and questioning, all while maintaining a physical distance of at least 1 meter.</p>	<ul style="list-style-type: none"> <li>Medical mask to be worn continuously in areas of known or suspected community COVID-19 transmission.</li> <li>Maintain a physical distance of at least 1 meter</li> <li>When physical distance is not feasible use eye protection (goggles or face shield)</li> <li>Perform hand hygiene</li> </ul>
<b>Patient room/ward:</b>  In any inpatient or outpatient setting where patients cared provided	<b>Clinical Staff</b>	<p>Providing direct care to patients with COVID-19, in the absence of aerosol-generating procedures (AGPs)</p> <p>Providing direct care to patients with COVID-19 when AGPs are performed</p>	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gown</li> <li>Gloves</li> <li>Eye protection (goggles or face shield)</li> <li>Perform hand hygiene</li> </ul> <ul style="list-style-type: none"> <li>Respirator</li> <li>Fluid resistant gown or gown + apron</li> <li>Gloves</li> <li>Eye protection</li> <li>Perform hand hygiene</li> </ul>
<b>Patient room/ward:</b>  In any inpatient or outpatient setting where patients cared provided	<b>Cleaners</b>	Entering the room of patients with COVID-19	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gown (fluid-resistant gown or gown + apron if body fluid exposure is anticipated)</li> <li>Heavy-duty gloves</li> <li>Eye protection (if the risk of splash from biological material or chemicals is anticipated)</li> <li>Closed work shoes</li> <li>Perform hand hygiene</li> </ul>

SURGICAL SETTINGS (e.g. operating theatre, surgical procedure room, dental surgery)			
Setting	Targeted personnel	Activity	Type of PPE or procedure
Operating theatre	Clinical Staff	Performing surgical procedure	<ul style="list-style-type: none"> <li>Medical mask or respirator if AGP is anticipated</li> <li>Fluid resistant gown</li> <li>Gloves</li> <li>Eye protection (goggles or face shield)</li> <li>Perform hand hygiene</li> </ul>
During patient transport	Staff involved in patient transport	During transport of patients without COVID-19 to and from surgery	<ul style="list-style-type: none"> <li>Medical mask</li> </ul>
		During transportation of patient with COVID-19 to and from surgery	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Eye protection (goggles or face shield)</li> <li>Perform hand hygiene</li> </ul>
		Assisting patient with COVID-19 from bed to transport	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gown</li> <li>Gloves</li> <li>Eye protection</li> <li>Perform hand hygiene</li> </ul>

COVID-19 DEDICATED INTENSIVE / SEMI - INTENSIVE CARE UNITS / ISOLATION WARD			
Setting	Targeted personnel	Activity	Type of PPE or procedure
Patient care areas	Clinical Staff	In settings where AGPs are frequently performed, but with no direct interaction with patient	<ul style="list-style-type: none"> <li>Maintain a physical distance of at least 1 meter</li> <li>Respirator to be worn continuously</li> <li>Perform hand hygiene</li> </ul>
Patient room	Clinical Staff	Providing direct care to patients with COVID-19	<ul style="list-style-type: none"> <li>Respirator</li> <li>Gown</li> <li>Gloves</li> <li>Eye protection</li> <li>Perform hand hygiene</li> </ul>
	Cleaners	Cleaning the occupied room of patients with COVID-19 in ICU / semi-intensive ICU	<ul style="list-style-type: none"> <li>Respirator</li> <li>Gown</li> <li>Heavy-duty gloves</li> <li>Eye protection (if the risk of splash from organic material or chemicals).</li> <li>Boots or closed work shoes</li> <li>Perform hand hygiene</li> </ul>
Temporary isolation area	Clinical Staff	Entering the isolation area, but not providing direct assistance	<ul style="list-style-type: none"> <li>Maintain a physical distance of at least 1 meter</li> <li>Medical mask</li> <li>Perform hand hygiene</li> </ul>
	Clinical Staff	Assisting or caring for the patient in a suspected case of COVID-19	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gown</li> <li>Gloves</li> <li>Eye protection</li> <li>Perform hand hygiene</li> </ul>

Setting	Targeted personnel	Activity	Type of PPE or procedure
Temporary isolation area	Cleaners	Cleaning isolation area	<ul style="list-style-type: none"> <li>Maintain a physical distance of at least 1 meter</li> <li>Medical mask</li> <li>Gown</li> <li>Heavy-duty gloves</li> <li>Eye protection (if the risk of splash from organic material or chemicals)</li> <li>Closed work shoes</li> <li>Perform hand hygiene</li> </ul>

ADDITIONAL SETTINGS IN INPATIENT AND OUTPATIENT FACILITIES			
Setting	Targeted personnel	Activity	Type of PPE or procedure
Laboratory	Lab technician	<ul style="list-style-type: none"> <li>Manipulation of respiratory samples</li> <li>Specimen handling for molecular testing requires biosafety level (BSL – 2) or equivalent facilities.</li> <li>Handling and processing of specimens from cases with suspected or confirmed COVID-19 infection that is intended for additional laboratory tests, such as haematology or blood gas analysis, should apply standard precautions</li> </ul>	<ul style="list-style-type: none"> <li>Maintain a physical distance of at least 1 meter</li> <li>Medical mask</li> <li>Eye protection (ideally goggles)</li> <li>If BSL-2, gown or lab coat</li> <li>If BSL-3, fluid-resistant gown</li> <li>Gloves</li> <li>Perform hand hygiene</li> </ul>
Administrative areas	Admin Staff	Administrative tasks that are not performed inpatient occupied areas and do not involve patient contact	<ul style="list-style-type: none"> <li>Maintain a physical distance of at least 1 meter</li> <li>Medical non-medical fabric mask to be worn continuously</li> <li>Perform hand hygiene</li> </ul>

PATIENT TRANSPORTATION OUTSIDE HEALTHCARE FACILITY			
Setting	Targeted personnel	Activity	Type of PPE or procedure
Ambulance or Transfer Vehicle	Health workers	Transporting patients with suspected or confirmed COVID-19 to the referral health care facility	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gown</li> <li>Gloves</li> <li>Eye protection</li> <li>Perform hand hygiene</li> </ul>
	Driver	Involved only in driving the patient with suspected or confirmed COVID-19, and the driver's compartment is separated from the patient	<ul style="list-style-type: none"> <li>Maintain a physical distance of at least 1 meter</li> <li>Medical mask to be worn continuously</li> <li>Perform hand hygiene</li> </ul>
	Driver	No direct contact with a patient with suspected or confirmed COVID-19, but no separation between driver's and patient's compartments	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Perform hand hygiene</li> </ul>
	Cleaners	Assisting with loading or unloading patient with suspected COVID-19	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gowns</li> <li>Gloves</li> <li>Eye protection</li> <li>Perform hand hygiene</li> </ul>
	Cleaners	Cleaning after and between transport of patients with suspected or confirmed COVID-19 to the referral health care facility.	<ul style="list-style-type: none"> <li>Medical mask</li> <li>Gown</li> <li>Heavy-duty gloves</li> <li>Closed work shoes</li> <li>Eye protection (if the risk of splash from organic material or chemicals)</li> <li>Boots or closed work shoes</li> <li>Perform hand hygiene</li> </ul>

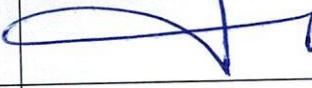
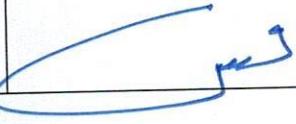
8.2 General Directorate of Infection Prevention and Control in Healthcare Facilities (GDIPC) Proper Selection and Usage of Surgical Masks & Respirators Guide. 1443 – 2021 V.1.0

8.3 General Directorate of Infection Prevention and Control in Healthcare Facilities (GDIPC). Basic Infection Control Skills License (BICSL) Manual. February 2025 Version 3.0

8.4 GCC , Infection Prevention and Control Manual .2018, 3<sup>rd</sup> edition.  
<file:///C:/Users/SPawar/Downloads/The-GCC-Infection-Prevention-and-Control-Manual-3r Edition.pdf>

8.4 Saudi Central Board for Accreditation of Healthcare Institutions (CBAHI) Standards 3rd Edition. 1436-2015. Effective 1 January 2016

## 9. APPROVALS:

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Reviewed by:	Dr. Thamer Naguib	Medical Director		March 13, 2025
Approved by:	Mr. Fahad Hazam Al Shammari	Hospital Director & IPC Committee Chairman		March 16, 2025