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Infection Prevention and Control Guidelines for the Coronavirus Disease (COVID-19)

1st Edition

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I. Introduction

Coronaviruses (CoV) are a large family of RNA viruses that cause illnesses ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). The new strain of coronavirus identified in December 2019 in Wuhan city, Hubei province of China, has been named by the International Committee on Taxonomy of Viruses (ICTV) as Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2). The ICTV have determined that SARS-CoV-2 is the same species as SARS-CoV but a different strain. The World Health Organization (WHO) has named the disease associated with SARS-CoV-2 infections as Corona "COVID-19". Since the emergence of the 2019 novel coronavirus (2019- nCoV) infection in Wuhan, China, in December 2019, it has rapidly spread across China and more than 162 other countries. According to the WHO, as of April 28, 2020, there have been more than 3.5 million confirmed cases of COVID worldwide. Most of the cases involved in the first cluster in December 2019 were linked to the large Wuhan Seafood Market. Then the infection spread worldwide and most cases reported from USA and Europe. (The daily status report of confirmed case is available in this link: http://covid19.cdc.gov.sa/).

The original source(s) of SARS-CoV-2 transmission remain unidentified. However, available genetic and epidemiological data suggests that SARS-CoV-2 is a zoonotic pathogen with possible spillover directly from wildlife or via intermediate animal hosts or their products. Sustained human to human transmission has been confirmed in China where numerous healthcare workers have been infected in clinical settings with overt clinical illness and fatalities. Most cases have been associated with fever and respiratory symptoms (coughing and shortness of breath), while other cases are mild or subclinical cases. However, there is not much information about SARS-CoV-2 to draw definitive conclusions about transmission mode, clinical presentation or the extent to which it has spread. Investigations are currently in progress.

II. Statement of purpose

This document provides guidelines on managing COVID-19 infections based on the best available scientific evidence and broad consensus. Its objective is to:

1. Provide guidance on COVID-19 surveillance activities in the healthcare setting.
2. Enhance the detection of confirmed cases/clusters of COVID-19 infection.
3. Determine clinical and epidemiological characteristics of the COVID-19 infection incubation period, disease, risk factors, secondary attack rates, and modes of transmission.
4. Determine risk (including geographic) factors for infection with the virus.
5. Provide guidance on infection prevention and control practices to be implemented when managing suspected and confirmed COVID-19 cases.
6. Standardize the clinical management of COVID-19 patients.
7. Provide guidance for rational use of resources including laboratory testing.
8. Serve as a focus for quality control, including audit.

Administrative controls:

1. Formation of a high-level committee, the COVID-19 Command and Control Center (COVID-19 CCC) chaired by CEO-HC, that meets daily to oversee the preparedness plans and facilitate actions.
2. Formation of COVID-19 task force that have daily meeting chaired by chief medical officer and involve all stake holders to systematically review needs and assure readiness
3. Formulation of a multifaceted staged organization surge plan with known triggers in space, manpower, equipment and supplies, and organized actions.
4. Establishment of sustainable IPC infrastructures and activities.
5. HCWs training; patients' care givers education.
6. Policies on early recognition of acute respiratory infection potentially due to COVID-19.
7. Access to prompt laboratory testing and reporting of COVID-19 tests.
8. Provision and use of regular supplies.
9. IPC policies and procedures for all facets of healthcare provisions with emphasis on surveillance of acute respiratory infection potentially due to COVID-19.

III. Case Definition and Surveillance Guidance

A. Suspected case

Clinical presentation	Epidemiological link
1. Patient with acute respiratory illness[1] (sudden onset of at least one of the following: fever[2] (measured or by history), cough, or shortness of breath) **AND** in the 14 days prior to symptom onset, met at least one of the following epidemiological criteria	Had a history of travel abroad **or** Has visited or being a resident of high-risk area for COVID-19 in the kingdom[3] **or** A close physical contact[4] prior to symptom onset with a confirmed COVID-19 case **or** Working in healthcare facility
2. Any admitted Adult patient with unexplained sever acute respiratory illness (SARI), either Community Acquired Pneumonia (CAP) or Hospital Acquired Pneumonia (HAP).	Not required

[1] Some patients may present with gastrointestinal symptoms like diarrhea and nausea prior to developing fever and lower respiratory tract signs and symptoms.

[2] Fever is frequently reported (77–98%) but elderly and people with sever comorbidities may not mount fever initially.

[3] As determined and announced by the Ministry of Interior and Ministry of Health. High risk area in Kingdom of Saudi Arabia will be updated regularly on the link: (https://covid19.cdc.gov.sa/). (Riyadh City, Holy City of Makkah, Madinah City, Jeddah City, Al-Hofuf City, AL-Qatif City)

[3] Close Contact" is defined as:

- Health care associated exposure, including providing direct care for COVID-19 patients, working with HCWs infected with COVID-19, visiting patients or staying in the same close environment of a COVID-19 patient.
- Working together in close proximity or sharing the same classroom environment a with COVID-19 patient.
- Traveling together with COVID-19 patient in any kind of transportation.
- Living in the same household as a COVID-19 patient

B. Confirmed case

A person who meets the suspected case definition with laboratory confirmation of COVID-19 infection.

IV. COVID-19 Testing and Re-testing

It is essential to follow collection/sampling instructions using the correct tools for the intended specimen. Perform the collection in the suitable locale for the individual patient. Follow Infection Control guidelines and recommended PPE for the health care worker performing the sampling

1. Indications for COVID-19 Testing

1.1. Patients meeting the case definition.

1.2. Patients for elective admission or high-risk procedure (e.g., endoscopy, interventional radiology).

1.2.1. Book the patient 24-48 hours earlier in "External Testing Center New Follow up".

1.2.2. If positive: to inform the patient by phone, instruct the patient to call 937, and report results as usual

1.2.3. If negative, to proceed with elective admission/procedure.

1.3. Emergency admission from EMS, to be tested in EMS, admitting team to proceed with care and transfer as indicated. Patient should be dealt with as COVID in terms of precautions and PPE.

1.4. Urgent admission from clinics, infusion bays, and Day Units: to be tested in their admission floors using ICHE Guidelines. The admitting team will proceed with care and transfer as indicated. Patient should be dealt with as COVID in terms of precautions and PPE. If positive, to be transferred to COVID floor.

1.5. Patients transferred from other hospitals for urgent care, to be tested at the referring hospital. If not available, the patient can be routed to EMS for assessment and testing, then proceed to the floor. The admitting team will proceed with care as indicated. Patient should be dealt with as COVID in terms of precautions and PPE. If positive, to be transferred to COVID floor.

1.6. Health Care workers exposed to COVID-19 case.

1.6.1. High-risk unprotected exposure: initial testing between 48-72 hours from exposure and final testing at 13th day from exposure.

1.6.2. Low-risk unprotected exposure: testing within 7 days of exposure.

1.6.3. Protected or exposure: no testing.

2. Repeat Testing

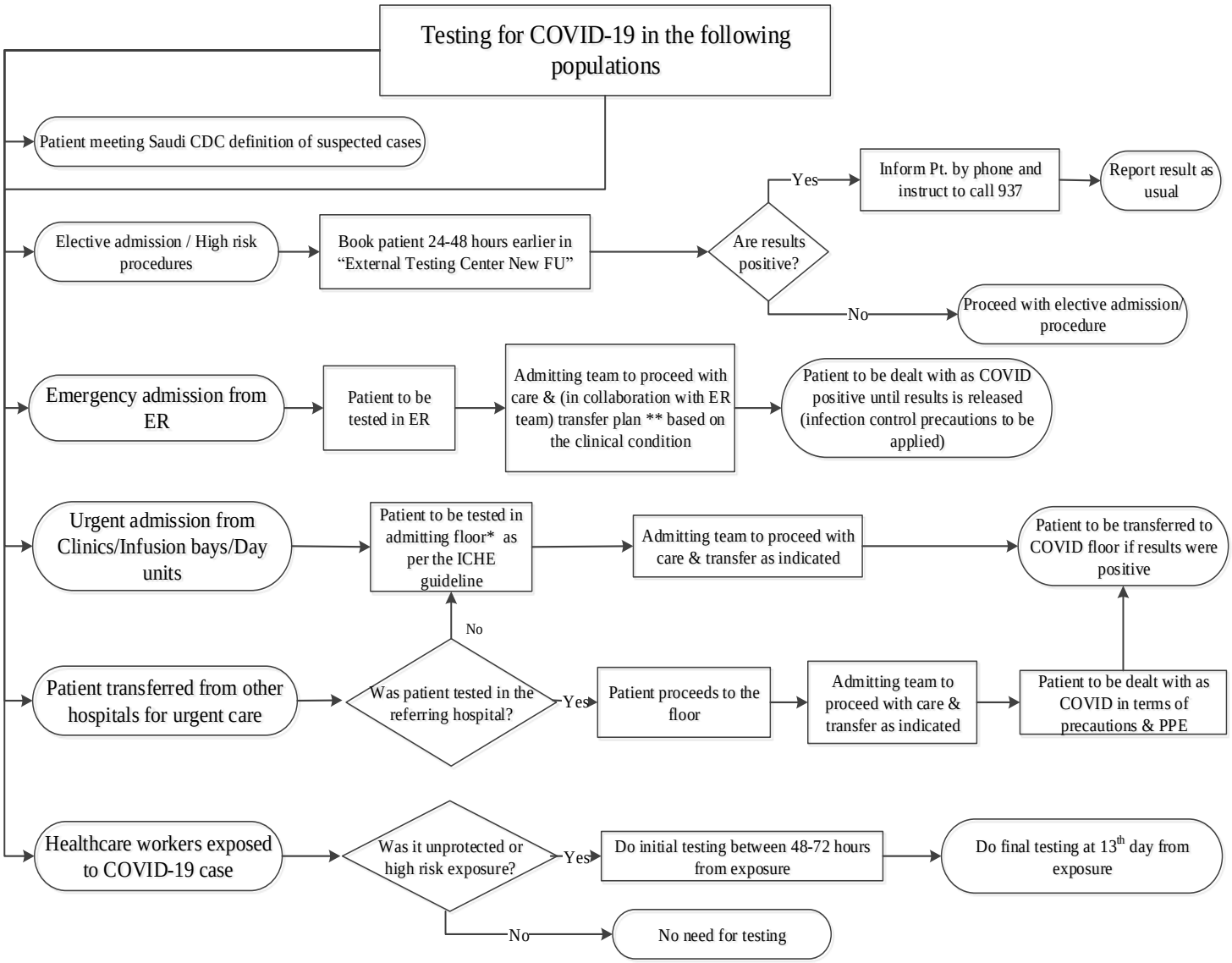
2.1. The validity of a negative COVID-19 is 7 days with no need for repeat unless indicated otherwise by ICHE.

2.2. If original test is negative

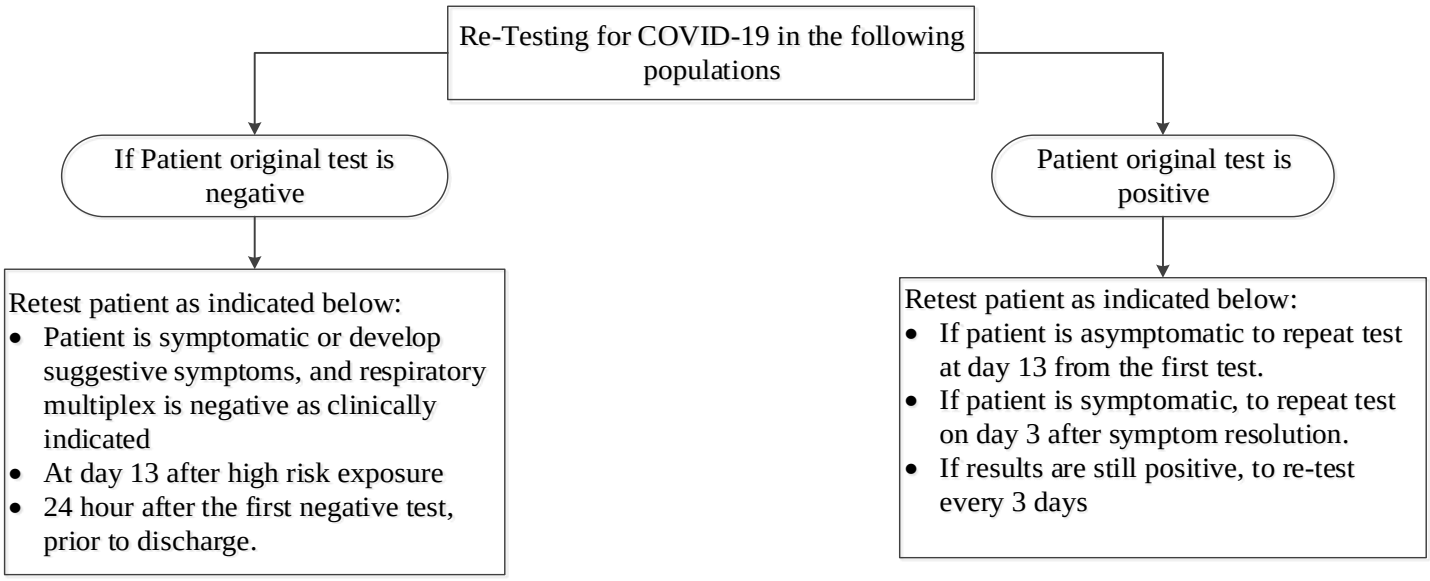
2.2.1. Symptomatic or develop suggestive symptoms, and respiratory multiplex is negative as clinically indicated.
2.2.2. After high risk exposure, at day 13 after exposure.
2.2.3. Prior to discharge: 24 h after the first negative test.

2.3. If original test is positive.
2.3.1. If asymptomatic to repeat test at day 13 from the first test.
2.3.2. If symptomatic, to repeat the test on day 3 after symptom resolution. If still positive, to re-test every 3 days.

Guideline for COVID-19 Testing and Re-Testing at KFSHRC 9 April 2020 V1.2



Guideline for COVID-19 Testing and Re-Testing at KFSHRC 9 April 2020 V1.2



* Test to be done in a negative pressure room or neutral single room (with HEPA filter if available otherwise without)
** if the transfer to the unit is decided before the result get released (depending on the crowd in ER as decided by ER leadership) and no clinical picture of COVID-19, patient to be admitted in a negative pressure room or neutral single room (with HEPA filter if available otherwise without)

V. Infection Prevention and Control Precautions

1. General guide

1.1. COVID-19 definition poster shall be displayed in all screening areas.

1.2. Posters are available from the department of ICHE.

1.3. All HCW shall comply with standard precautions. Refer to standard and Transmission Based Precautions Policy http://rnavex.internal.kfshrc.edu.sa/dotNet/documents/?docid=5196).

1.4. No special requirements for the handling of linen, dishes or cutlery.

1.5. Alcohol-based hand rub (ABHR) dispensers shall be available in public areas and all HCWs shall adhere to the WHO- 5 Moments for Hand Hygiene. Refer to CIPP-640 http://rnavex.internal.kfshrc.edu.sa/dotNet/documents/?docid=650).

1.6. Any persons entering KFSH&RC facilities, including patients, visitors, and staff who are experiencing Flu-like illness or respiratory symptoms cover their mouth and nose using tissues, and cleanse their hands with soap and water or ABHR. **Refer to CIPP-683** http://rnavex.internal.kfshrc.edu.sa/dotNet/documents/?docid=693.

1.7. All equipment/supplies shall be identified and stored in a manner that prevents contamination.

1.8. Reusable non-critical equipment (e.g. blood pressure cuffs, stethoscopes, pulse oximeters, bedpans, walkers) along with re-useable toys, electronic games, personal effects shall be dedicated to the use of the patient, and cleaned/disinfected before reuse on another patient (refer to CIPP-724& General Infection Prevention and Control Policy).

1.9. Single use devices shall be discarded in a hands-free receptacle after use.

1.10. Any equipment that requires disinfection and/or sterilization shall be placed in a designated container with a lid and placed in the disposal room as appropriate.

1.11. Disposable cleaning cloths and EPA approved hospital disinfectant shall be stored inside the isolation room for use by nursing/support staff.

1.12. Prevention of overcrowding especially in the emergency department.

1.13. Provision of dedicated waiting areas with clear signage of "Respiratory Waiting Area for symptomatic patients and appropriate placement of hospitalized patients promoting an adequate patient-to-staff ratio.

1.14. Physical separation of at least 1.2-meter distance should be maintained between each suspect patient and others.

2. Standard precautions

Standard Precautions shall be used for all patients and include:

2.1. Hand Hygiene (refer to CIPP-640).

2.1.1. ALL HCW shall follow WHO 5 moments for hand hygiene

2.1.2. If hands are visibly soiled or after contact with body fluids perform hand washing for 40 to 60 Seconds

2.1.3. If hands are visibly clean use alcohol-based hand rub as per 5 moments for 20-30 seconds

2.1 **PPE**

2.1.1 PPE shall be used for potential exposure to blood and body fluids for all patient.

2.1.2 For PPE indications for use see **Appendix 2**

2.1.3 For donning and doffing of PPE see **Appendix 3**

2.1.4 Gloves shall not replace hand hygiene

2.1.5 During patient care gloves shall be changed when moving from contaminated body site to clean body site

2.1.6 Gloves shall be removed directly after completing patient care

2.1.7 Isolation gowns are single use and shall not be reused

2.1.8 Surgical masks are single use and shall not be reused

2.1.9 Remove surgical masks before leaving patient's room

2.1.10 For patients with suspected/confirmed COVID-19 N95 masks shall be single use (refer to CIPP-5110).

2.2 **Linen Management**

2.2.1 Clean linen shall be stored in a clean covered area.

2.2.2 Linen soiled with blood, body fluids, secretions and excretions must be handled, transported and processed, in a manner that prevents skin and mucous membrane exposure, contamination of clothing; and avoids transfer of microorganisms to other patients and environment

2.3 **Equipment Cleaning** (refer to CIPP-5109)

2.3.1 Patient care equipment shall be decontaminated using EPA approved disinfectant before being used on other patients and before being sent for maintenance or repair.

2.3.2 Reusable instruments/devices that are or may be contaminated with blood or body fluids shall have gross blood/fluids rinsed or wiped off before placement in a rigid, puncture-proof container for return to CSSD.

2.3.3 PPE shall be worn based on the degree of potential contamination when handling patient care equipment and instruments/devices that are visibly soiled Single use items shall not be re-used and shall be disposed of in the appropriate waste Single use items shall not be re-used and shall be disposed of in the appropriate waste

2.4 Manage laundry, food service utensils and medical waste in accordance with safe routine procedures and prevention of needle-stick or sharps injury

3. Respiratory hygiene

3.1 Respiratory hygiene and cough etiquette posters shall be displayed in prominent locations in the DEM, inpatient and outpatient areas (e.g. clinics, Family Medicine, Dialysis Unit).

3.2 Posters are available from the department of ICHE

3.3 Patients and visitors experiencing respiratory symptoms shall be educated that they shall inform a HCW regarding flu-like symptoms immediately upon arrival to their appointments/appointed areas.

3.4 Patients and/or visitors with respiratory symptoms shall be instructed on cough etiquette and provided with supplies as needed.

3.5 Supplies of tissues, surgical masks, ABHR and hands-free waste receptacles shall be available in public areas as required.

3.6 Nursing staff shall ensure that symptomatic patients are isolated and evaluated as promptly as feasible.

4 Triage for rapid identification of patients with acute respiratory illness (SARI)

4.1 Visual triage should be used for early identification of all patients with ARI in the Emergency Room, dialysis unit, and the Clinics.

4.2 Rapid identification of patients with SARI and patients suspected of COVID-19 infection is key to prevent healthcare-associated transmission of COVID-19 or other respiratory viruses. Appropriate infection control precautions and respiratory etiquette (described above) or source control should be promptly applied.

4.3 Visual triage station should be placed at the entry point of the healthcare facility (i.e. Emergency room entrance, dialysis unit entrance) or other designated areas and attended by a nurse or nurse assistant who is trained on suspicion of COVID-19 as per a checklist form with scoring **Appendix 1.**

4.4 Identified SARI patients should be asked to wear a surgical mask. They should be evaluated immediately in an area separate from other patients

4.5 Infection control and prevention precautions should be promptly implemented

4.6 If SARI patients cannot be evaluated immediately, they should wait in a waiting area dedicated for the SARI patients with spatial separation of at least 1.2 m between each ARI patient and others.

4.7 Clinical and epidemiological aspects of the cases should be evaluated as soon as possible, and the investigation should be complemented by laboratory evaluation.

5 Transmission-based Precautions

5.1 Contact and Droplet precautions for suspected COVID-19:

5.1.1 All HCWs shall follow appropriate transmission-based precautions.

5.1.2 All suspected/confirmed COVID-19 patients shall be placed in Droplet and Contact transmission-based precautions, in addition to standard routine precautions.

5.1.3 Appropriate signage shall be visible on the door.

5.1.4 AIIR door shall be kept closed at all times while the patient is on transmission-based precautions.

5.1.5 Place patients in neutral single rooms with one portable HEPA filter.

5.1.6 When single rooms are not available, cohort patients suspected of COVID-19 infection together (Place patient beds at least 1.2 m apart, when possible, cohort HCWs to exclusively care for COVID-19 cases)

5.1.7 Use a surgical mask with an eye/facial protection (i.e. goggles or a face shield).

5.1.8 Use gloves and a clean, non-sterile, long-sleeved gown.

5.1.9 Donning your PPE, adhere to sequence of donning PPE as per the **Appendix 3.**

5.1.10 Doffing your PPE after caring for a patient in a proper way then dispose it at the exit point, adhere to sequence of doffing PPE as per the **Appendix 3.**

5.1.11 after doffing, hand hygiene must be performed.

5.1.12 All HCW shall remove the surgical mask before leaving the room.

5.1.13 All HCW shall remove gloves, gown and surgical mask inside the patient's room at exit point.

5.1.14 Hand hygiene shall be performed as per WHO 5 moments for hand hygiene.

5.1.15 Use dedicated equipment for each patient (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use (e.g. ethyl alcohol 70%).

5.1.16 Do not touch your eyes, nose or mouth with potentially contaminated hands.

5.1.17 Avoid the movement and transport of patients out of the room or area unless medically necessary.

5.1.18 Use designated portable X-ray equipment and/or other important diagnostic equipment.

5.2 Airborne precautions for aerosol-generating procedures for suspected COVID-19

The following are the list if Aerosol Generating Procedures (AGP) that is meant to trigger the use of an N95 respiratory (or PAPR) by Healthcare Workers (HCP). These procedures include but not limited to:

5.2.1 Intubation, extubation, and related procedures such as manual ventilation and open suctioning.

5.2.2 Tracheotomy/tracheostomy procedures (insertion/open suctioning/removal)

5.2.3 Bronchoscopy

5.2.4 Surgery and post-mortem procedures involving high-speed devices Some dental procedures (such as high-speed drilling)

5.2.5 Non-invasive ventilation (NIV) such as bi-level positive airway pressure (BIPAP)

5.2.6 Continuous positive airway pressure ventilation (CPAP)

5.2.7 High-frequency oscillating ventilation (HFOV) High-flow nasal oxygen (HFNO), also called high-flow nasal cannula

5.2.8 Induction of sputum Medication
5.2.9 Administration via continuous nebulizer
5.2.10 Whenever cardiopulmonary resuscitation (CPR) is performed
5.2.11 Any time ventilator circuits are broken
5.2.12 During the use of secretion clearing devices
5.2.13 During the collection of nasopharyngeal swabs and/or aspirates
5.2.14 **HCWs performing aerosol-generating procedures should note the following:**
5.2.14.1 AGPs shall be performed in an AIIR with at least 12 air changes per hour (ACH) and controlled direction of air flow when using mechanical ventilation.
5.2.14.2 Limit the number of persons present in the room to the absolute minimum required for the patient's care and support.
5.2.14.3 If not available, use neutral room and two portable HEPA filter in ICUs only.
5.2.14.4 For sample collection neutral room and one portable HEPA filter.
5.2.14.5 All HCW shall be fit tested for a high particulate respirator N95.
5.2.14.6 Always perform the seal-check when putting on a disposable particulate respirator (certified N95).
5.2.14.7 It is the HCWs responsibility to know which N95 mask they are fit tested for.
5.2.14.8 All PPEs shall be removed inside the anti-chamber/isolation room at the exit point except for the N95 mask.
5.2.14.9 N95 mask shall be removed outside the room after hand hygiene has been performed.
5.2.14.10 HCWs shall wear a fit-tested N95 mask for suspected/confirmed COVID-19 patients shall discard the mask after every single use.
5.2.14.11 HCW that all available types of (N95) are not fit to him should be avoided from aerosol-generating procedures or use PAPR (Powered Air-Purifying Respirator).
5.2.14.12 Facial hair (beard) prevents proper respirator fit; either avoid aerosol-generating procedures or use PAPR.
5.2.14.13 Use eye protection (i.e. goggles or a face shield).
5.2.14.14 Clean, non-sterile, long-sleeved gown and gloves are used, if gowns are not fluid resistant, use a waterproof apron for procedures with expected high fluid volumes that might penetrate the gown.

6 Protective Equipment (PPE) Requirements for COVID-19 Confirmed Cases Based on Type of Activity

6.1 Aerosol Generating Procedure (AGP)

The following are the list if Aerosol Generating Procedures (AGP) that is meant to trigger the use of an N95 respiratory (or PAPR) by Healthcare Workers (HCP). These procedures include but not limited to:

6.1.1 Intubation, extubation, and related procedures such as manual ventilation and open suctioning.
6.1.2 Tracheotomy/tracheostomy procedures (insertion/open suctioning/removal)
6.1.3 Bronchoscopy
6.1.4 Surgery and post-mortem procedures involving high-speed devices Some dental procedures (such as high-speed drilling)
6.1.5 Non-invasive ventilation (NIV) such as bi-level positive airway pressure (BIPAP)
6.1.6 Continuous positive airway pressure ventilation (CPAP)

6.1.7 High-frequency oscillating ventilation (HFOV) High-flow nasal oxygen (HFNO), also called high-flow nasal cannula
6.1.8 Induction of sputum Medication
6.1.9 Administration via continuous nebulizer
6.1.10 Whenever cardiopulmonary resuscitation (CPR) is performed
6.1.11 Any time ventilator circuits are broken
6.1.12 During the use of secretion clearing devices
6.1.13 During the collection of nasopharyngeal swabs and/or aspirates

6.2 Required PPE for Aerosol Generating Procedure (AGP)

6.2.1 Fit tested N95 respirator or PAPR (Powered Air Purifying Respiratory) for a person not fit tested or have facial hair
6.2.2 Long-sleeved Sterile surgical gown
6.2.3 Apron
6.2.4 Sterile Gloves
6.2.5 Eye protection (Face shield or goggles)
6.2.6 Head cover /disposable hood/Hijab
6.2.7 Shoe cover

6.3 Required PPE for Usual Care of intubated patient that did not cause in Aerosol generation

6.3.1 Surgical mask
6.3.2 Long sleeve yellow gown
6.3.3 Gloves
6.3.4 Eye protection (Goggles or face shield)

6.4 Required PPE for Transport of patient to health care facility by Ambulance or within the facility

6.4.1 Patient to put on a surgical mask
6.4.2 Surgical mask
6.4.3 Long sleeves yellow gown
6.4.4 Gloves
6.4.5 Eye protection (Goggles or face shield)

6.5 Required PPE for Surgical procedure

Postpone or non-urgent surgeries for COVID-19 patient and schedule COVID-19 cases at the end of the list, if surgery is required to be done Keep the surgical team to a minimum number PPE during OR:

6.5.1 Medical protective Sterile surgical gown
6.5.2 Double head cap
6.5.3 Shoe cover
6.5.4 Fit tested N95 mask or PAPR, if not fit tested or have facial hair
6.5.5 Gloves
6.5.6 Eye protection (Goggles or face shield) Sterile surgical

6.6 **Required PPE for Cleaning the room (Housekeeping)**

6.6.1 Surgical Mask.
6.6.2 Long sleeve yellow gown.
6.6.3 Heavy-duty gloves
6.6.4 Eye protection (Goggles or face shield)
6.6.5 Shoe cover

6.7 Required PPE for Laboratory (Manipulator of the respiratory sample)

6.7.1 Surgical mask.
6.7.2 Yellow gown
6.7.3 Gloves
6.7.4 Eye protection (if risk of splash)
6.7.5 Handle sample under safety cabinet

6.8 **Required PPE for Patient Triaging**

6.8.1 Hand Hygiene
6.8.2 Surgical Mask
6.8.3 Long sleeve yellow gown Gloves

6.9 Required PPE for Providing Direct Care

6.9.1 Hand Hygiene
6.9.2 Surgical Mask
6.9.3 Long sleeve yellow gown
6.9.4 Gloves
6.9.5 Eye Protection (Goggles or face shield)

6.10 Required PPE for All hospital premises

6.10.1 Hand Hygiene
6.10.2 Universal use of a surgical mask

7 Personal Protective Equipment (PPE) for Healthcare Workers (HCWs)

7.1 Perform hand hygiene
7.2 Keep hands away from face
7.3 Limit surfaces touched
7.4 Change gloves when torn heavily contaminated
7.5 The following PPE should be worn by HCWs upon entry into suspected /confirmed COVID-19 patient rooms or care areas in respected order.
7.6 For patients under airborne precautions, all persons entering the patient's room should wear a fit-tested, seal checked N-95 mask instead of a surgical mask. For those who failed the fit testing of N95 masks (e.g. those with beards), an alternative respirator, such as a powered air-purifying respirator (PAPR), should be used.
7.7 Upon exit from the patient room or care area, PPE should be removed and discarded.
7.8 Except for N95 masks, remove PPE at the doorway or in the anteroom. Remove N95 mask after leaving the patient room and closing the door.

7.9 For female staff who wear veils, the N95 mask should always be placed directly on the face behind the veil and not over the veil. In this instance, a face-shield should also be used along with the mask to protect the veil from droplet sprays.

7.10 Perform hand hygiene before and after contact with the patient or his/her surroundings and immediately after removal of PPE.

7.11 HCWs shall not touch their eyes, nose or mouth with potentially contaminated gloved or ungloved hands.

7.12 Sequence on Putting Personal Protective Equipment (PPE)-Donning

The type of PPE used will vary based in the level of precautions required, such as standard, contact droplet, or airborne. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

7.12.1 Perform Hand Hygiene

7.12.2 Don protective shoe cover (for AGP only)

7.12.3 Perform Hand Hygiene

7.12.4 Gown

7.12.4.1 Fully cover torso from neck and knees, arms to end of wrists, and wrap around the back

7.12.4.2 Fasten in back of neck and waist

7.12.5 Mask or Respirator

7.12.5.1 Secure ties or elastic bands at middle of head and neck

7.12.5.2 Fit flexible band to nose bridge

7.12.5.3 Fit snug to face and below chin

7.12.5.4 Fit-check respirator

7.12.6 Don Head cover (for AGP only)

7.12.6.1 HCWs shall cover all hair and ears.

7.12.7 Goggles or Face Shield

7.12.7.1 Place over face and eyes and adjust to fit

7.12.8 Gloves

7.12.8.1 Pull the gloves to cover the wrist of the isolation gown

7.13 How to Safely Remove Personal Protective Equipment (PPE)-Doffing

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials

Note:

1. Remove all PPE before existing the patient room except a respirator, if worn.
2. Remove the respiratory after leaving the patient room and closing the door.
3. If hands become visibly contaminated during PPE removal, wash hands before continuing to remove the remaining PPE

7.13.1 **Remove PPE in The Following Sequence**

Example 1:

1. Gloves

1.1 Outside of gloves are contaminated

1.2 Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove

1.3 Hold removed glove in gloved hand

1.4 Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove

1.5 Discard into waste container

1.6 If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer

2 Perform Hand Hygiene

3 Remove Goggles or Face Shield

3.1 Outside of goggles or face shield are contaminated!

3.2 If your hands get contaminated during goggle or face shield removal, immediately wash your hands, or use an alcohol-based hand sanitizer

3.3 Remove goggles or face shield from the back by lifting head band or earpieces

3.4 If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

4 Removing Isolation Gown

4.1 Gown front and sleeves are contaminated

4.2 If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer

4.3 Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties

4.4 Pull gown away from neck and shoulders, touching inside of gown only

4.5 Turn gown inside out

4.6 Fold or roll into a bundle and discard in a waste container

5 Removing Mask or Respirator

5.1 Front of mask/respirator is contaminated — Do Not Touch!

5.2 If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer

5.3 Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front

5.4 Discard in a waste container

Note:

1. Immediately after removing all PPE wash hands or use an alcohol–based hand sanitizer
2. Perform hand hygiene between steps if hands become contaminated and immediately after removing all PPE

Example 2: Recommended for AGP

1. Gown and Gloves

1.1 Gown front and sleeves and the outside of gloves are contaminated!

1.2 If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer

1.3 Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands

1.4 While removing the gown, fold or roll the gown inside-out into a bundle

1.5 As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container

2. **Perform Hand Hygiene**
3. **Goggles or Face Shield**
   3.1 Outside of goggles or face shield are contaminated!
   3.2 If your hands get contaminated during goggle or face shield removal, immediately wash your hands, or use an alcohol-based hand sanitizer
   3.3 Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
   3.4 If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container
4. **Head cover <u>(for AGP only)</u>**
   4.1 Tilt head slightly forward and pull the cover off.
   4.2 Lift away from face and head
   4.3 discard in a waste container
5. **Shoe cover <u>(for AGP only)</u>**
   5.1 Grasp outside edge near shoe
   5.2 Peel away from shoe turning shoe cover inside-out
   5.3 Discard into waste container
6. **Perform Hand Hygiene**
7. **Mask or Respirator**
   7.1 Front of mask/respirator is contaminated — Do Not Touch!
   7.2 If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
   7.3 Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
   7.4 Discard in a waste container
8. **Perform Hand Hygiene**

Note: Wash hands or use an alcohol-based hand sanitizer immediately after removing all PPE

8 Transportation of Suspected and Confirmed Covid-19 Patients

Patients, suspected or confirmed, will have to be moved safely between their homes to a health care facility as well as from health care facilities to dedicated COVID-19 units. Acknowledging the challenges vehicular transportation of such patients pose including vehicle contamination and infection transmission, safe transfer is possible if the following recommendations are followed:

8.1 Precautions during Patient assessment

8.2 Where possible, ambulance staff should carry out initial assessment keeping a distance of at least 1.8m from the patient.

8.3 For additional staff protection, the number of ambulance staff in the patient section of the ambulance should be restricted to the minimum required.

8.4 It is best to limit contact with patient contact until a patient should be asked to wear facemask (if possible) is placed on him/her, this facemask reduces the ability of the patient to contaminate the immediate working environment of the ambulance staff.

8.5 Oxygen delivery with a non-rebreather face mask may be used to provide oxygen support during transport. If needed, positive-pressure ventilation should be performed using a resuscitation bag-valve mask, preferably one equipped to provide HEPA or equivalent filtration of expired air.

8.6 Family members and other contacts of patients should not ride in the ambulance if possible. If necessary, they should be asked to wear appropriate PPE

8.7 In patients with nasal cannula in place, the facemask should be fixed over the cannula. It is also possible to use an oxygen mask when indicated.

8.8 Additional recommendations for aerosol-generating procedures.

8.9 Recommendations on Personal Protective Equipment (PPE)

Ambulance staff providing care for or accompanying suspected or confirmed COVID-19 patients in the patient section of the ambulance should adhere to standard and transmission-based precautions including required PPE (PPE: Surgical mask, Gloves, Long sleeved Gown and Eye protection face shield or google)

8.9.1 The driver that driving ambulances used to transport patients are involved in moving patients onto stretchers or other forms of direct care, it is recommended that they strictly use recommended PPE.

8.9.2 They should appropriately doff and dispose their PPE and perform hand hygiene after completing patient care and prior to re-entering the isolated driver's section. This will prevent contamination of the cubicle.

8.9.3 In situations where the ambulance/vehicle lacks an isolated driver's section, it is recommended that the driver use a respiratory/face mask during transport.

8.9.4 driver, he should remove his face shield or goggles, gown and gloves and perform hand hygiene.

8.9.5 Ambulance staff should avoid touching their faces while working.

8.9.6 Upon arrival at the health care facility and following patient hand over ambulance staff should doff and discard PPE and perform hand hygiene.

8.9.7 They should discard used PPE following the sequence of donning and doffing and perform hand hygiene.

8.10 Recommendations for Ambulance Staff During Transportation

The following recommendations apply to ambulance staff involved in the transport or transfer of a patient with an exposure history and signs and symptoms suggestive of COVID-19 infection to a healthcare facility for advanced management while transporting the patient:

8.10.1 Ambulance staff should notify the receiving healthcare facility that the patient has an exposure history and signs and symptoms suggestive of COVID-19 so that appropriate infection control precautions may be taken prior to patient arrival.

8.10.2 To the extent possible, staff should ensure patients are isolated from non-patients. This includes not allowing family members and other contacts to accompany suspected and confirmed COVID-19 infected patients in the ambulance. If they accompany the patient, they must wear a facemask

8.10.3 Ambulances with isolated driver and patient sections providing independent ventilation to each area is preferred. To assure driver isolation from the patient section, keep connecting doors and windows closed before bringing the patient into the ambulance.

8.10.4 During the transportation, ensure that ventilation in both sections are in the non-recirculated mode in order to optimize changes thereby reducing the presence of potentially infectious particles in the ambulance.

8.10.5 Ambulances with rear exhaust fans can use it to remove air from the vehicle at the back. The use of It is preferable to use an ambulance fitted a HEPA filter coupled ventilator when transporting patients on mechanical ventilators.

8.10.6 To use the ventilation in ambulances lacking a physically isolated driver section, open the outside air vents in the driver section should be opened and the rear exhaust ventilation fans turned on to the highest setting. This generates a negative pressure gradient in the patient area.

8.10.7 The ambulance staff should complete the handing over process at the destination health care facility following standard procedures.

8.11 Patients care Documentation

8.11.1 Only after the ambulance staff have completed patient hand over, PPE doffing and hand hygiene should they proceed to patient care documentation.

8.11.2 The documentation should include a listing of all the HCWs that provided care for the patient (direct or indirect) and the level of contact.

8.12 Cleaning and Disinfect Ambulances after Transporting a Patient with Suspected or Confirmed COVID-19

8.12.1 Once the patient has been handed over at the designated receiving health care facility, the ambulance should be aerated with several cycles of air changes by leaving its rear doors open. This will get rid of possibly infected particles.

8.12.2 Prior to cleaning the ambulance, staff should don disposable gowns and gloves. Eye/face protection PPE (goggles, face shields or facemasks) are recommended if the cleaning procedure will generate splashes or sprays.

8.12.3 Environmental cleaning and disinfection should be carried out following procedures consistently and correctly. This includes assuring adequate ventilation when chemicals are used by keeping doors open.

8.12.4 Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying approved disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for COVID-19 in healthcare settings, including those patient-care areas in which aerosol generating procedures are performed.

8.12.5 Following approved procedures, the ambulance must be cleaned and disinfected ensuring that all contaminated surfaces including stretcher, rails, control panels, floors, walls and work surfaces are thoroughly cleansed approved disinfectant and in according to manufacturer's instructions.

8.12.6 Clean and disinfect reusable patient-care equipment before use on another patient, according to manufacturer's instructions.

8.12.7 Ambulance staff should keep to approved procedures for the containment and disposal of used PPE and regulated medical waste as well as laundering used linen. Avoid shaking the linen

8.13 Ambulance Staff Post Care of a Suspected or Confirmed COVID-19 Patient: Follow-up/Reporting Procedures

8.13.1 Ambulance staff should carry out follow-up/reporting measures required of them post care of a patient with suspected or confirmed COVID-19 infection. Their supervisors should implement regulations requiring monitoring, excluding from work, etc. as pertains to HCWs having potential exposure to COVID-19 infected patients.

8.13.2 Ambulance staff are required to promptly inform their supervisor of exposures to a patient with suspected or confirmed COVID-19 infection who can ensure that appropriate action is taken.

8.13.3 Ambulance staff are required to report any unprotected exposure to patient with suspected or confirmed COVID-19 infection (e.g. not donning recommended PPE, compromised or inappropriate PPE, etc.) to their supervisor or infection control for appropriate evaluation and action.

8.13.4 Ambulance staff are required to monitor and report any fever or respiratory symptoms (e.g., cough, shortness of breath, sore throat). Upon developing symptoms, they should isolate themselves and inform their supervisor or infection control for appropriate evaluation and action.

8.14 Patient transportation inside the hospital

8.14.1 Limit movement/transport of the patient from the room, to essential purposes only as much as medically feasible.

8.14.2 If the patient is transported outside the room, ensure precautions are maintained and the isolation sign shall be transported with the patient to minimize the risk of transmission of pathogens to other patients, visitors and contamination of environmental surfaces and equipment.

8.14.3 If transport is necessary, the patient shall be transported in clean clothes (e.g. hospital pajamas) on clean sheets in wheelchair or stretcher with any open skin sites securely covered.

8.14.4 The patient shall not wear a yellow isolation gown

8.14.5 The patient chart shall be placed in a plastic holder/plastic or paper bag and placed on the shelf underneath the bed/trolley to prevent contamination.

8.14.6 No further precautions required for patients on contact transmission-based precautions.

8.14.7 Patients on droplet or airborne transmission-based precautions shall wear a surgical mask for suspected or confirmed infectious COVID-19 during transport and waiting areas.

8.14.8 Patients with tracheostomy: place a mask over the tracheostomy site/opening if possible.

8.14.9 N95 masks have a one-way filter system and shall Not be worn by the patient; exception, patients in PE room that are required to leave the room during periods of construction

8.14.10 Practice respiratory hygiene/cough etiquette.

8.14.11 COVID-19patients who are unable to wear a surgical mask or cooperate shall be transported in an iso-pod.

8.14.12 For coordination of transfer via iso-pod contact paramedic services.

8.14.13 The patient shall clean hands with alcohol hand gel or with antibacterial soap and water before leaving the room

8.14.14 Patients requiring transport on their own bed, with multiple pieces of equipment shall be accompanied by staff wearing gowns and gloves; and if possible, one person without PPE should be designated for contact with environmental surfaces, e.g. opening doors or pushing elevator button/s.

8.14.15 HCW shall wear surgical masks, gloves, long sleeved gown and eye protection face shield or googles during transportation of patients.

8.14.16 After transport, the stretcher or wheelchair must be cleaned with hospital approved disinfectant before use on another patient.

8.14.17 Staff in receiving departments shall wear appropriate PPE for contact and droplet precautions upon receiving the patient.

9 Cleaning and disinfection of occupied COVID-19 patient rooms

9.1 Consider designating specific, well-trained housekeeping personnel for cleaning and disinfecting of COVID-19 patient rooms/units.

9.2 Staff nurse shall clean and disinfect the surfaces of patient-care equipment (e.g.,IV pumps, ventilators, monitors., etc.).

9.3 Document the disinfection in a checklist

9.4 Housekeeping personnel should wear appropriate PPE. These staff should be trained by the infection control team in proper procedures for PPE use, including removal of PPE, and the importance of hand hygiene.

9.5 Keep cleaning supplies outside the patient room (e.g., in an anteroom or storage area).

9.6 Keep areas around the patient free of unnecessary supplies and equipment to facilitate daily cleaning.

9.7 Use Hospital approved disinfectants as the manufacturer's recommendation (i.e., concentration), contact time, and care in handling.

9.8 Clean and disinfect COVID-19 patients' rooms at least daily and more often when visible soiling/contamination occurs. Frequently disinfect high touched surfaces (e.g., bedrails, bedside and over-bed tables, TV control, call button, telephone, lavatory surfaces including safety/pull-up bars, doorknobs, commodes, ventilator and monitor surfaces) in addition to floors and other horizontal surfaces.

9.9 Wipe external surfaces of portable equipment for performing x-rays and other procedures in the patient's room with a hospital -approved disinfectant upon removal from the patient's room.

9.10 After an aerosol-generating procedure (e.g., intubation), clean and disinfect horizontal surfaces around the patient. Clean and disinfect as soon as possible after the procedure.

9.11 Clean and disinfect spills of blood and body fluids by current recommendations for spill management refer to medical disposable waste policy.

9.12 Cleaning and disinfection after COVID-19 patient discharge or transfer

9.13 Follow standard procedures for terminal cleaning of an isolation room.

9.14 Clean and disinfect all surfaces that were in contact with the patient or may have become contaminated during patient care.

9.15 Wipe down mattresses and headboards with a hospital-approved disinfectant.

9.16 Privacy curtains should be removed, placed in a bag in the room and then transported to be laundered.

9.17 No special treatment is necessary for window curtains, ceilings, and walls unless there is evidence of visible soil.

10 Environmental Cleaning and Disinfection After Suspected/Confirmed COVID-19 Case

10.1 Terminal room cleaning at the time of discharge or transfer of patients.

10.2 In-patient rooms housing COVID-19 patients should be cleaned and disinfected at least daily and at the time of patient transfer or discharge

10.3 More frequent cleaning and disinfection may be indicated for high-touch surfaces and following aerosol producing procedures (e.g. tables, hardbacked chairs, doorknobs, light switches, remotes, handles, desks, toilets, sinks)

10.4 Cleaning staff shall wear disposable gloves, surgical mask, eye protection face shield or googles, shoe cover and long-sleeved gowns for all tasks in the cleaning process, including handling of waste.

10.5 Cleaning and disinfection of the environmental surfaces should be with approved hospital disinfectant (bleach)

10.6 After patient transfer, terminal cleaning should be done using manual method and followed hydrogen peroxide vapor.
10.7 The Environmental Services Staff shall use the Hydrogen Peroxide Vapor technology after the discharge
10.8 of patients with an infection control alert from side rooms or following theatre procedures.
10.9 The ICHE team shall provide guidance as to when it is appropriate to use the Hydrogen Peroxide Vapor.
10.10 The Hydrogen Peroxide Vapor shall be used after discharge of all confirmed COVID-19.
10.11 The patient room that need Hydrogen Peroxide Vapor shall be identified and approve by ICHE.
10.12 notification shall be sent by ICHE to Nursing Affairs, Case Management, Admission and Environmental Services on a regular basis
10.13 Procedure rooms (Radiology /Operating Room theater) shall be close as per the Housekeeper and infection control guide at the end of the day shift to be disinfect by Bleach followed by Hydrogen Peroxide Vapor for 2 hrs.
10.14 If designated COVID-19 procedure room scheduled for more than one positive case routine cleaning and disinfection by bleach (30 min) shall be completed prior the following positive case

11 Medical waste

11.1 Contain and dispose of COVID-19-contaminated medical waste in biohazard waste container.
11.2 Wear disposable gloves when handling waste.
11.3 Perform hand hygiene after removal of gloves.

12 Linen and laundry

12.1 Store clean linen outside patient rooms, taking into the room only linen needed for use during the shift.
12.2 Place soiled linen directly into a laundry bag in the patient's room. Contain linen in a manner that prevents the linen bag from opening or bursting during transport and while in the soiled linen holding area
12.3 Wear gloves and gown when directly handling soiled linen and laundry (e.g., bedding, towels, personal clothing). Do not shake or otherwise handle soiled linen and laundry in a manner that might aerosolize infectious particles.

13 Patient placement at Emergency Room (EMS)

13.1 All patients with a EMS visit shall be screened for SARI at the screening desk before triage and waiting area.
13.2 HCWs performing the SARI screening shall wear a surgical mask.
13.3 Adult/pediatric SARI screening shall be completed in ICIS via ad-hoc charting.
13.4 Prompt identification and isolation of patients shall occur at the screening desk.
13.5 Escalation procedures for an influx of potential COVID-19 patients shall be adhered to (refer to epidemic plan).
13.6 Patients with a SARI score of four (4) or above OR who meet the suspected case definition shall be sent to the Respiratory designated area for prompt medical review.
13.7 The attending physician shall be informed of the patient's symptoms and the SARI score for medical evaluation.
13.8 The attending physician shall order a COVID-19 test if the patient meets the suspected case for the patient.
13.9 The COVID-19 screen shall be collected in an AIIR, if not available neutral room with portable HEPA filter with the HCW wearing appropriate PPE.
13.10 DEM shall inform ICHE of all suspected cases.

13.11 If the patient's condition does not permit the transfer to the respiratory designated area, the patient shall be placed in an AIIR room in the main DEM. if not available neutral room with portable HEPA filter.
13.12 Patients for admission with confirmed COVID-19 shall be admitted to East wing.
13.13 If an AIIR room is unavailable, the patient shall be admitted to a regular single room with a portable HEPA filter until AIIR is available.
13.14 The decision to cohort patients shall be in consultation with ICHE.
13.15 Use designated portable X-ray equipment and/or other important diagnostic equipment.

14 Infection Control Hospital Epidemiology (ICHE) Responsibilities

14.1 Be available twenty-four (24) hours includes on-call service after hours to respond to infection prevention and control issues.
14.2 Be informed of all suspected and confirmed COVID-19 cases.
14.3 Communicate identified increases in COVID-19 cases both in hospital and nationally to medical affairs as appropriate.
14.4 Assist and provide support/guidance/recommendations in activating the COVID-19 specific preparedness plan and be a member of any associated task forces, as appropriate.
14.5 Lead and mange COVID-19 related outbreaks as per CIPP-687.
14.6 Ensure contingency supplies are available and liaise with appropriate departments.
14.7 Ensure HCWs are provided with appropriate education/awareness.
14.8 Review all transmission-based precaution status for patients screened for COVID-19 in a timely manner.
14.9 Notify and liaise with MOH for positive COVID-19 cases.
14.10 Notify the MOH of any potential family members that require screening as supplied by the admitting units contact tracing log.
14.11 All suspected /confirmed cases must be reported immediately through: Through the Health Electronic Surveillance Network (HESN).
14.12 Complete all in HESN for all positive COVID-19 cases.
14.13 Complete daily follow up report for all confirmed admitted COVID-19 positive cases via HESN.
14.14 Send MOH a weekly report of all COVID-19 suspected cases.
14.15 If a negative COVID-19 test is obtained ICHE staff shall review the duration and type of isolation precautions required based upon a case-by-case evaluation.
14.16 ICHE staff is the only department that shall discontinue isolation precautions, and review suspected/confirmed COVID-19 patients in a timely manner.
14.17 Maintain an updated list of PPE and other vital disposables.
14.18 keep a record of PPE compliance and competency training for all
14.19 healthcare workers; only HCWs who have been trained in PPE usage should care for
14.20 patients with COVID-19.
14.21 Monitor, and observe, and record any breach in PPE use in the incident management
14.22 system as an occupational health and safety risk.
14.23 Ensure all HCWs have received continuous infection control training on COVID-19

15 Medical and Nursing Affairs Responsibilities

15.1 Ensure all HCWs use a fit tested N95 mask and complete a fit check each time they don the mask (refer to CIPP-5110).

15.2 If a patient with suspected or confirmed COVID-19 infection is referred to another health-care facility that facility shall be notified by the referring physician.

15.3 Patients accepted for transfer to KFSH& RC. Gen. Org. from an outside facility shall have a documented negative COVID-19 screen, if tested.

15.4 Accepting a confirmed positive COVID-19 patient shall be on a case-by-case basis; MA shall be informed and permission obtained.

15.5 If the patient is to be admitted, the Head Nurse or Charge Nurse of the receiving unit shall be notified.

15.6 All patients known or suspected with COVID-19 shall have portable x-ray examinations requested.

15.7 Maintain and complete the necessary log for contact tracing.

15.8 A log form shall be kept at the room door entrance area and documented on accordingly.

15.9 The log form shall include the patient's medical record number, unit and bed/room location and current date.

15.10 Each HCW shall document clearly the following details

15.11 Maintain an updated recommendation for the frontline HCWs in the ICU, ER an isolation unit with isolation accommodation, if possible

15.12 Conduct health monitoring for frontline HCWs in the isolation areas and immediately isolate and screen any HCW with COVID-19 associated symptoms.

15.13 Establish a dedicated roster to segregate "clean teams" from "COVID-19 team

VI. Home isolation

1. The decision to restrict the activities of persons suspected of being infected, or to separate them from others, depends on the assessment of the level of risk of transmission. For COVID-19, this is largely dependent on exposure risk categorization (page 27).

2. Isolation is defined as the separation or restriction of activities of an ill person with a contagious disease from those who are well.

3. Before the ill person is isolated at home, a health care professional should assess whether the home is suitable and appropriate for isolating the ill person You can conduct this assessment by phone.

4. The home should have a functioning bathroom. If there are multiple bathrooms, one should be designated for the ill person.

5. The ill person should have his or her bed and a private room for sleeping.

6. For close contacts including health care workers

6.1 If you have had close contact with someone who is infectious and being evaluated for COVID-19 infection, you should monitor your health for 14 days, starting from the day of exposure. Watch for symptoms of Fever (37.8° C, or higher), coughing, shortness of breath, chills, body aches, sore throat, headache, and runny nose.

6.2 If you develop symptoms, follow the prevention steps described above, and call your healthcare provider (Family Medicine clinic) as soon as possible.

3. If you do not have any of the symptoms, you can continue with your daily activities and follow instructions of ICHE.

7. If the home is suitable and appropriate for home isolation, follow these instructions

7.1 Separate yourself from other people in your home

7.2 As much as possible, you should stay in a different room from other people in your home. Also, you should use a separate dedicated bathroom, if available.

7.3 Call ahead before visiting hospital Before your medical appointment, call the hospital and tell them that you may have a COVID-19 infection. This will help the healthcare facility takes steps to keep other people from being infected.

7.4 Wear a surgical mask You should wear a surgical mask when you are in the same room with other people and when you visit a healthcare provider. If you cannot wear a surgical mask, the people who live with you should wear one while they are in the same room with you.

7.5 Cover your coughs and sneezes Cover your mouth and nose with a tissue when you cough or sneeze, or you can cough or sneeze into your sleeve. Throw used tissues in a lined trash can, and immediately wash your hands with soap and water or with alcohol-based hand sanitizer.

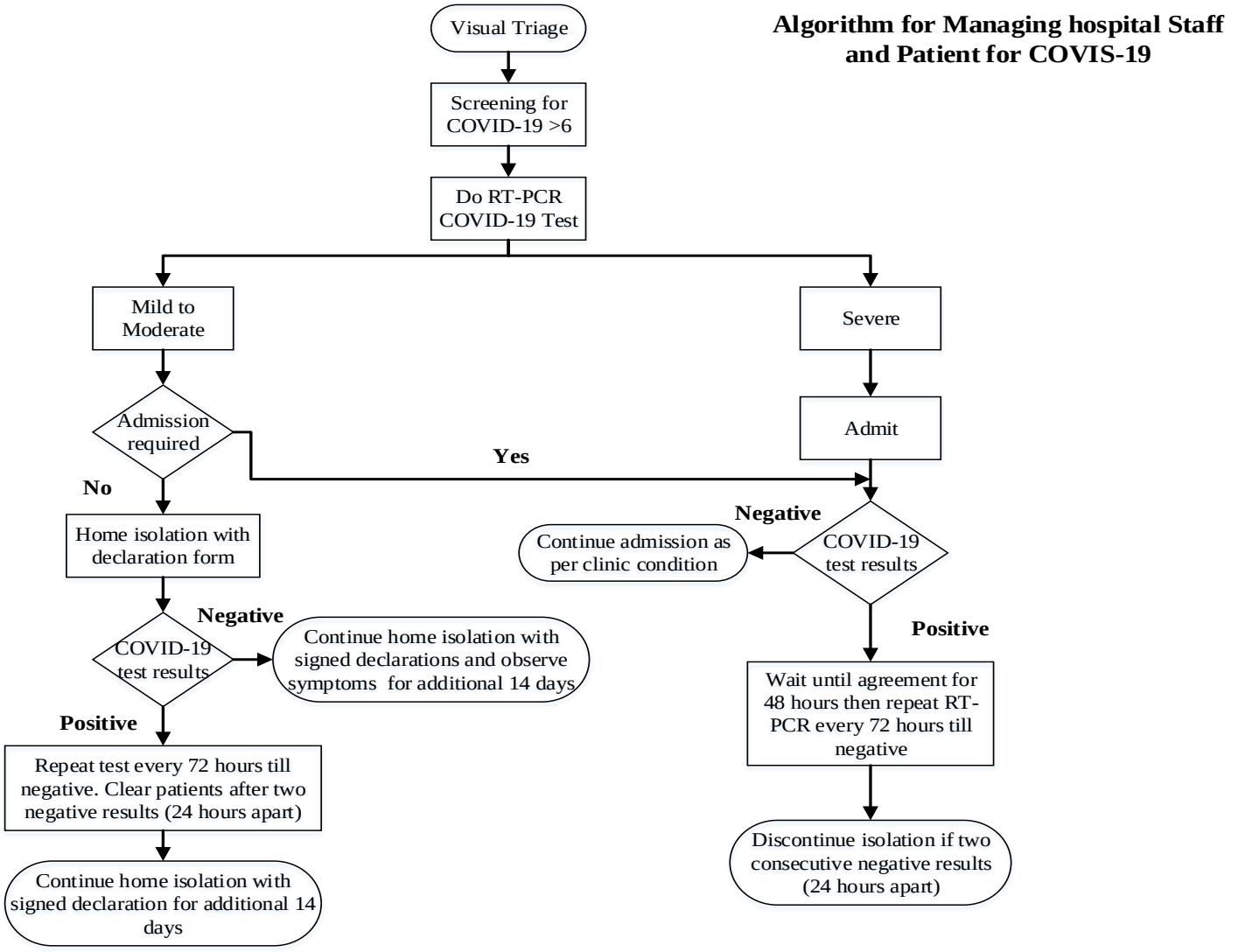
7.6 Wash your hands often and thoroughly with antiseptic soap and water. You can use an alcohol-based hand sanitizer if antiseptic soap and water are not available and if your hands are not visibly dirty.

7.7 Avoid touching your eyes, nose, and mouth with unwashed hands.

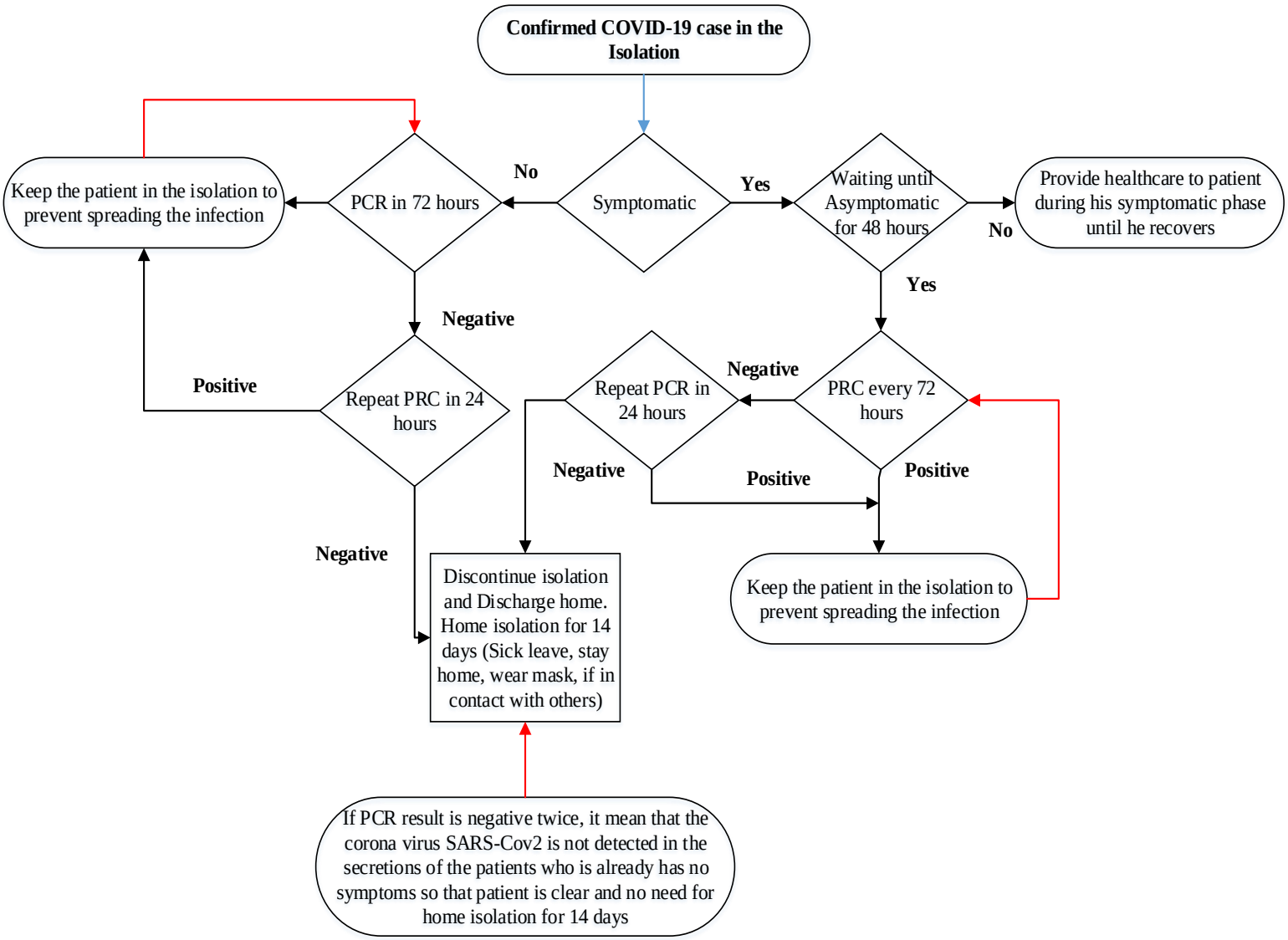
7.8 Avoid sharing household items

7.9 You should not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items with other people in your home. After using these items, you should wash them thoroughly with soap and warm water.

VII. Duration of isolation precautions for COVID-19

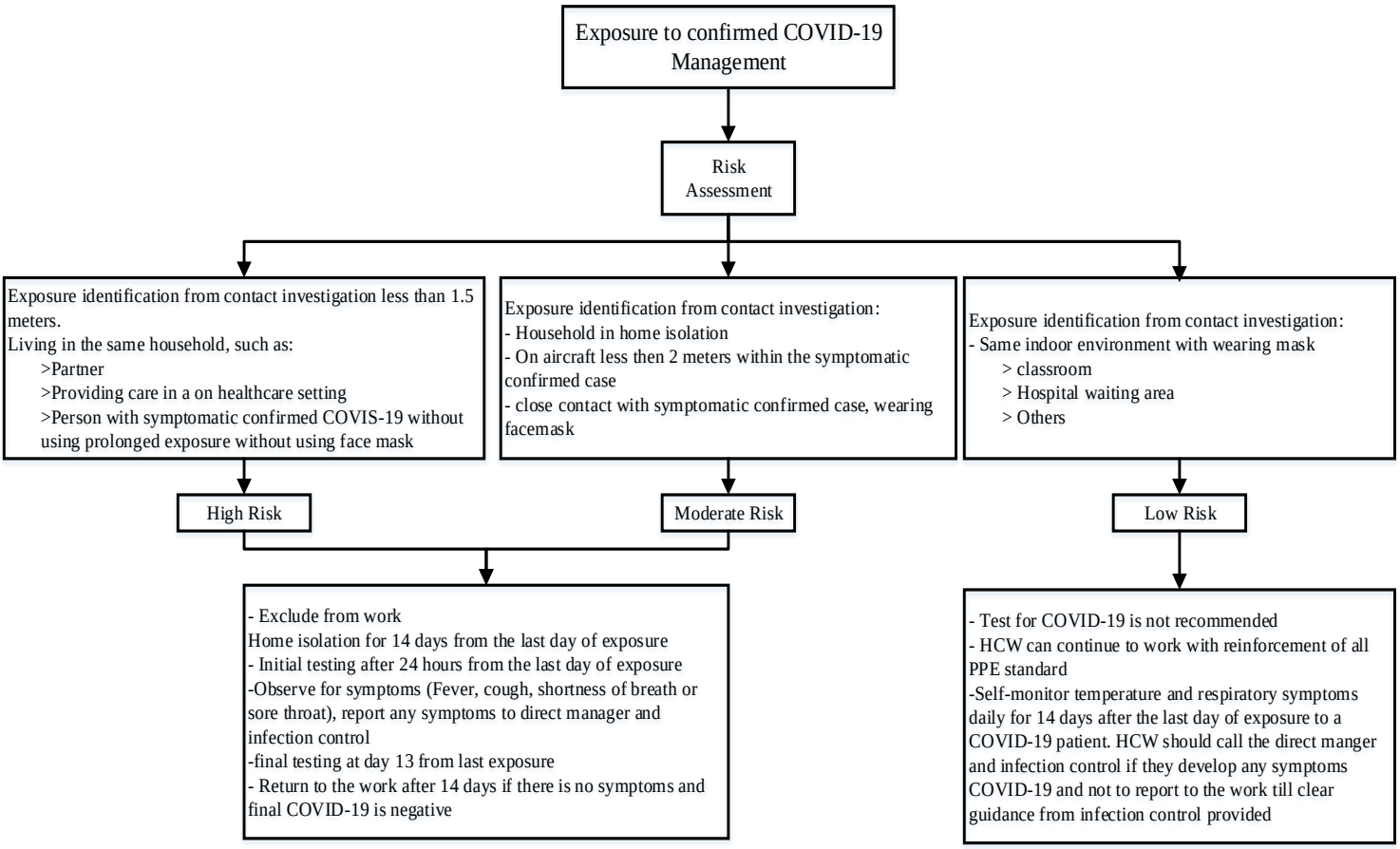


Algorithm for Managing COVID-19 Case In Isolation



VIII. Exposure Risk Categorization and Management

1. Close contact:
   1.1. Within 1.5 meters, of a person with COVID-19 for a prolonged period of time (such as caring for or visiting the patient; or sitting within 1.5 meters of the patient in a healthcare waiting area or room) duration of time that constitutes a prolonged exposure is not clear yet. However, until more is known about transmission risks, it is reasonable to consider an exposure greater than a few minutes (may be 5 - 10 minutes) as a prolonged exposure. Brief interactions are less likely to result in transmission.
   1.2. Being in household contact with a COVID-19 patient.
   1.3. Being in close proximity or sharing the same closed area (e.g. Room, kind of transportation vehicle) with a COVID-19 patient.
2. Risk Category
   2.1. High Risk:
      2.1.1. Health care worker who interact with a COVID-19 patient without wearing appropriate personal protective equipment (PPE) as per hospital guidelines (Table-1).
      2.1.2. Health care worker who had direct unprotected contact with a COVID-19 patient's fluid or respiratory secretions (e.g., splash on mucus membrane or non-intact skin, being coughed on, touching used tissues with a bare hand)
      2.1.3. Living in the same household or providing care for COVID-19 patients in non-health care settings
   2.2. Medium Risk: As per **Appendix 5**
   2.3. Low Risk: Any contact that not fitting close contact definition or health care provider exposure as per in **Appendix 5**
3. Exposure Management:



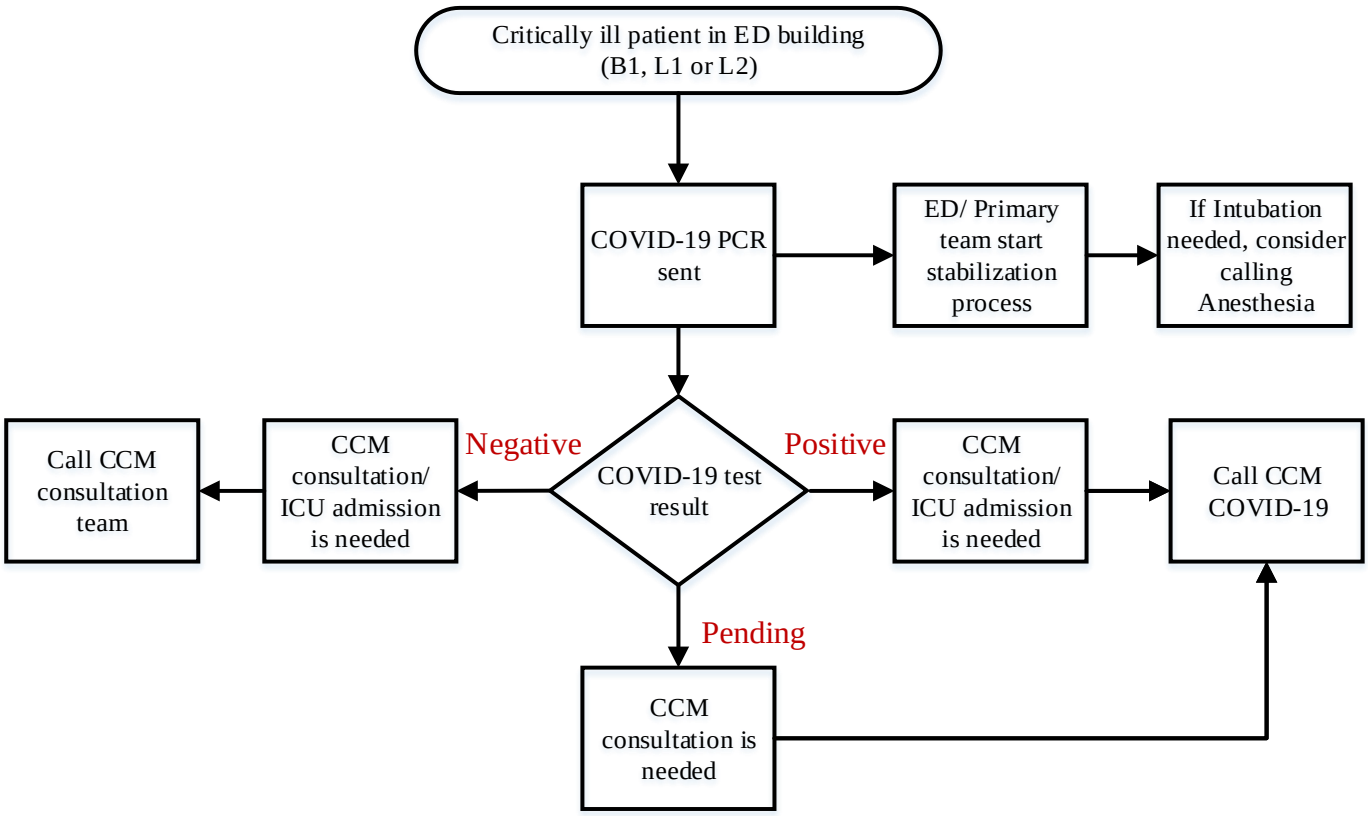
IX. Assessment of suspected or confirmed COVID-19

1. Admission from Emergency Department

1.1 All patients presenting to ED with high likelihood of COVID-19 infection should have a COVID-19 Test done / follow KFSHRC policy for COVID-19 testing.

1.2 If intubation is needed, call COVID-19 assigned anesthesia provider.

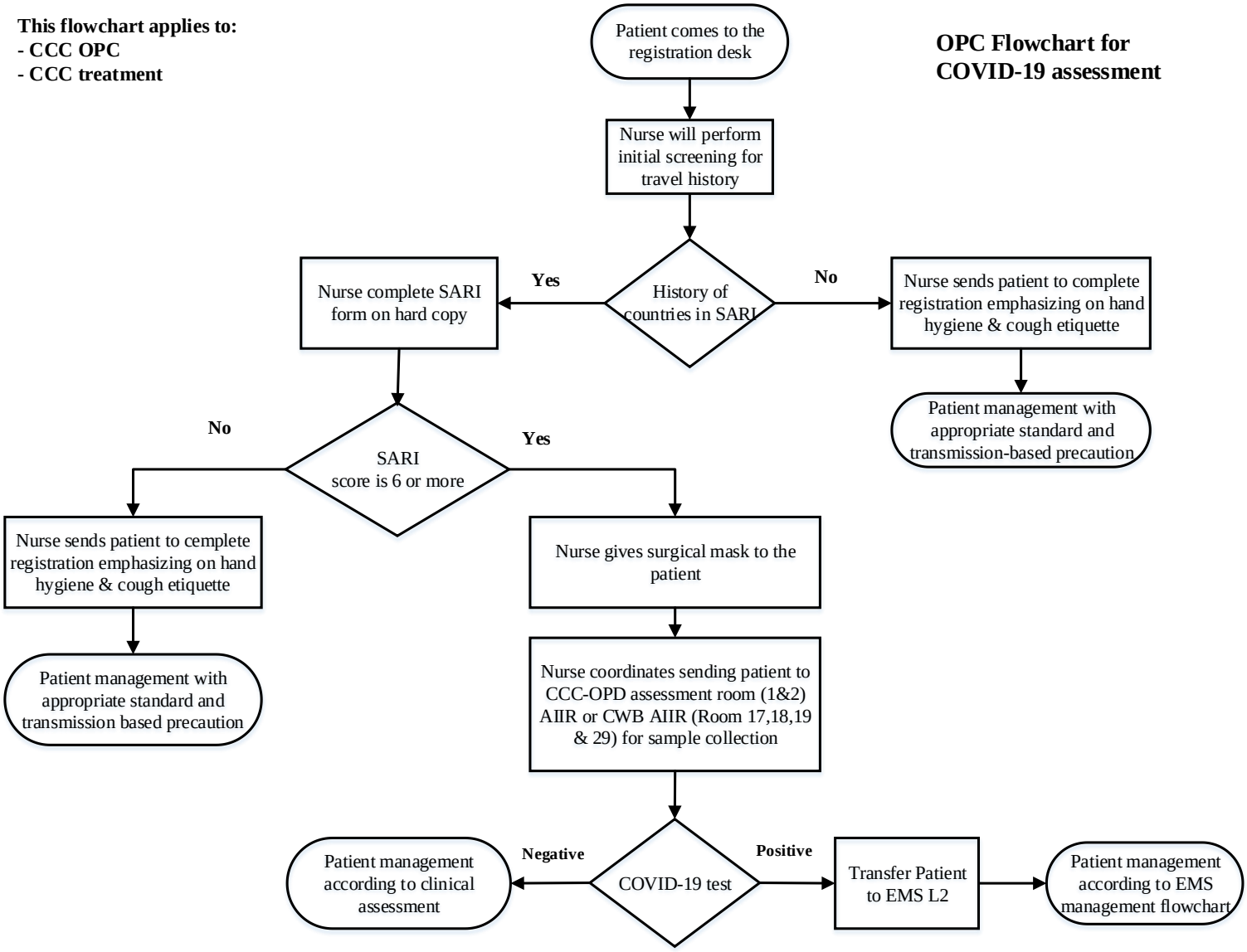
1.3 Consider placing all lines (CVC, Arterial catheter) with the intubation process



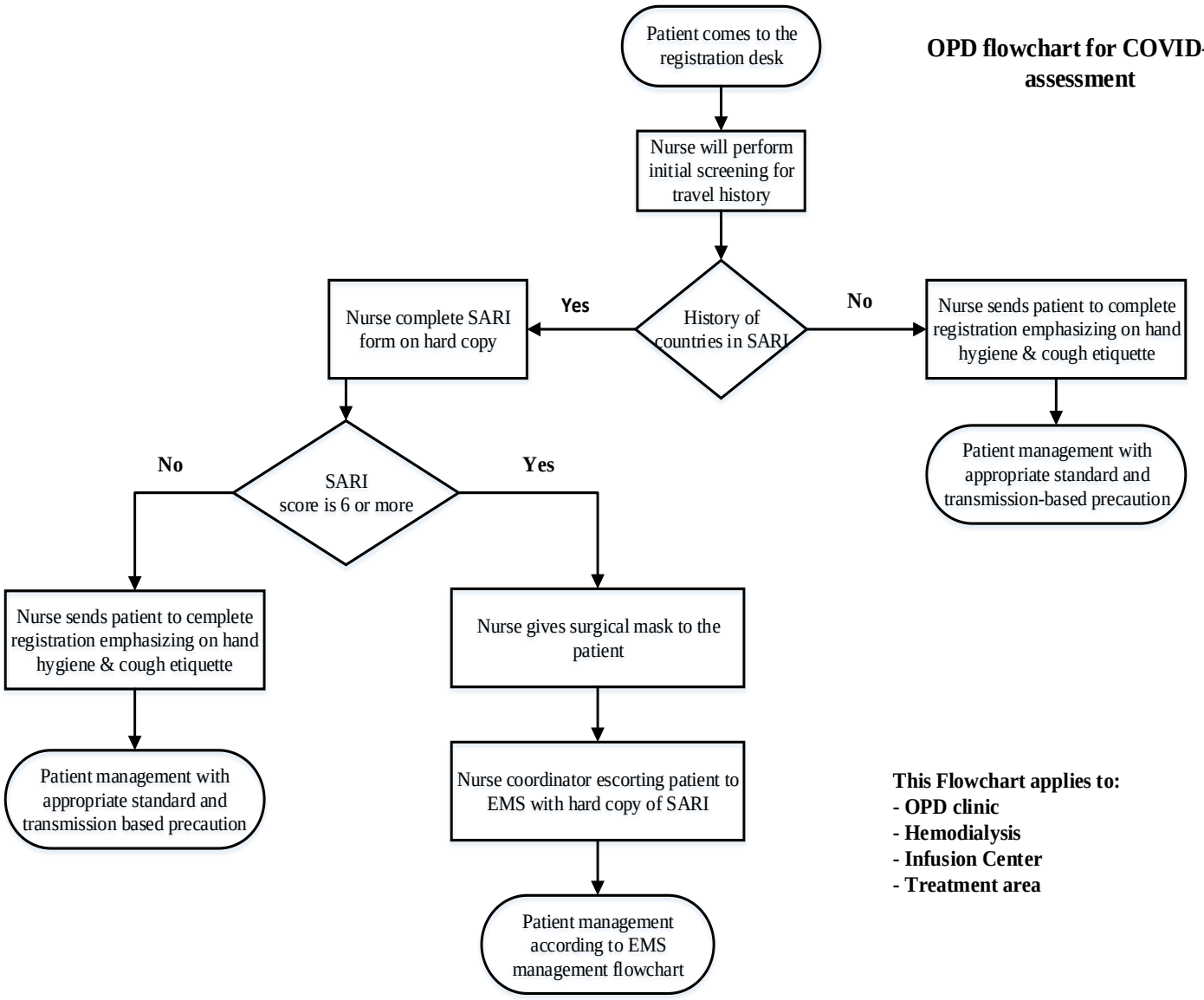
2. Outpatient clinic assessment at Children Cancer Centre

This flowchart applies to:
- CCC OPC
- CCC treatment

OPC Flowchart for COVID-19 assessment

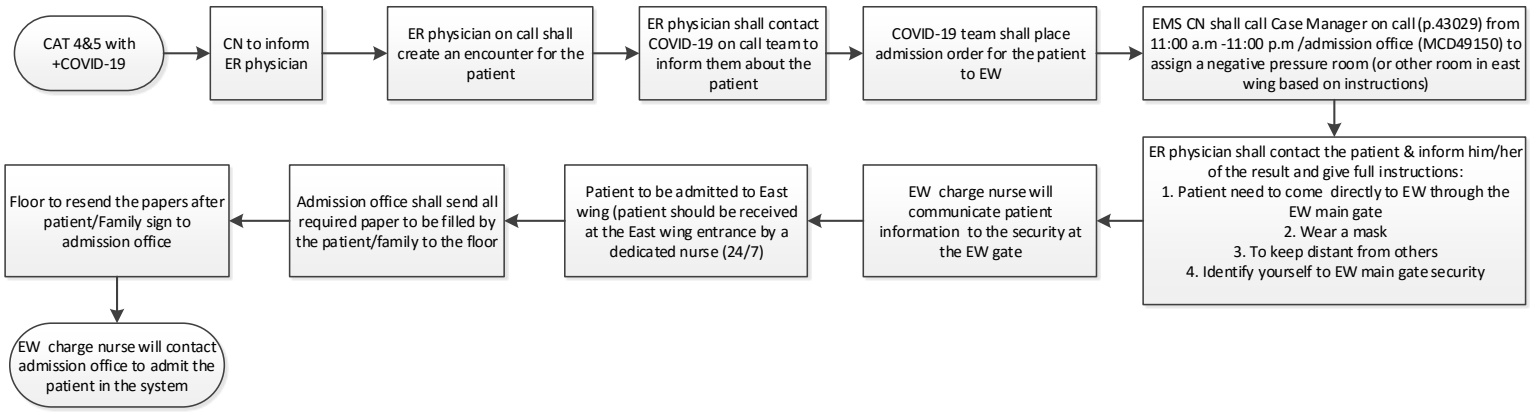


3. Outpatient, hemodialysis, infusion center and treatment area assessment

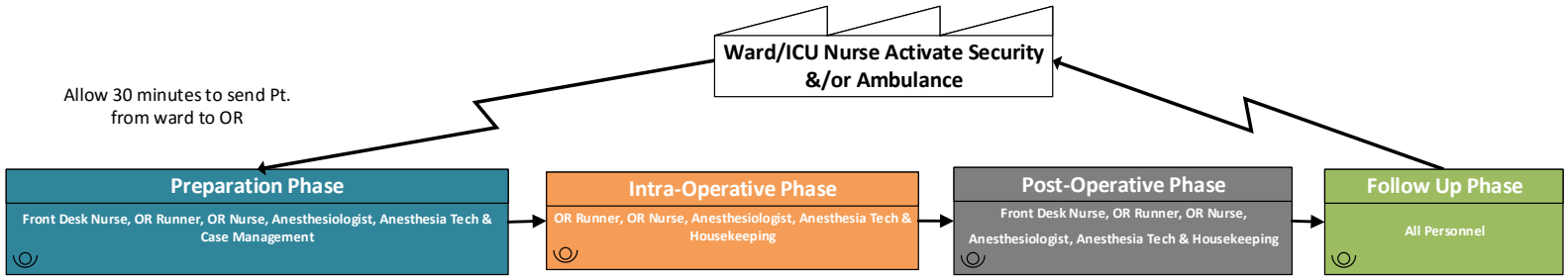


4. Admission flowchart for COVID-19 patient

ADMISSION FLOWCHART FOR COVID-19



5. Activation of OR Process from Isolation wards / ICU for COVID-19 Patient



- **Case Management:** a) review weekly list sent by OR Management and validate patient's admission & surgery c) Notify patient to book appointment a day before admission d) Call patient to come early a.m. to admission office If patient is cleared
- **Front Desk Nurse to** a) activate the team, b) communicate with pharmacy to confirm preparation of the medication kit c) handover pouch to OR Runner with the following Mobile phone, PPE cupboard key & Card access
- **OR Runner to** a) place infection control tags on doors & close corridor door, b) place equipment on PPE trolley near the room c) Open and wait at the card access door to receive the pre-op patient
- **OR Nurse to** a) Don full PPE and/or PAPR b) Prepare OR accordingly c) Scrub up and prepare trolley d) Pass all additional consumables/instruments to OR Runner before patient enters OR e) Park patient's trolley in Ante room after transfer
- **Anesthesiologist & Anesthesia Tech to** a) ensure adequate PAPR available and functioning b) Don full PPE and PAPR c) Place drug tray and airways adjuncts on respective designed trolley

OR Nurse and Anesthesiologist / Anesthesia tech to refrain from entering the induction / prep room unless absolutely necessary

- **OR Runner to** a) place any requested items on a trolley into Ante room
- **OR Nurse & Anesthesiologist & Anesthesia Tech to** a) throw away any unused consumables/drugs placed in OR intra-op b) Contact OR Runner if require any other items c) Receive requested items from Ante room
- **Housekeeping to:** a) Wipe patient's trolley especially side rails

Facilitate transfer of patient post-operatively as follows:

- Circulating nurse and Anesthesia to send patient back to **Isolation Ward** (Activate Security 30 mins prior to discharge)
- Circulating nurse and Anesthetist to send patient back to **ICU** (Activate Security 30 mins prior to transfer)

Specimen handling, Disinfection guideline & Removal of PPE & PAPR: as per MERS-COV Policy

- All specimens to be sent to Pathology with labels clearly stated **Airborne or COVID-19**
- Replenish supplies
- Prepare OR in readiness
- All personnel **MUST SHOWER** after case

§ **ICU: Intensive Care Unit OR: Operating Room PAPR: Powered Air Purifying Respiratory PC: Personal Computer PPE: Personal Protection Equipment Pre-Op: Preoperative**

X. Management of Deceased bodies

1. Deceased bodies of COVID-19 patients may pose a risk of infection transmission; transmission-based precautions shall be followed to the deceased COVID-19 cases.
2. The trolley /stretchers carrying the body must be disinfected after transporting the deceased body.
3. Only experienced morgue staff are dealing with bodies of deceased COVID-19 patients, the morgue's staff should be well trained, familiar with standard precautions and transmission-based precautions while handling dead bodies, especially hand hygiene, safe and proper use of PPE.
4. Prevents relatives from direct surface contact with the body such as touching or kissing it is allowed to view the body bag under strict instructions wearing PPE and observation for compliance.
5. Limit the number of morgue's personnel dealing with the dead body to the minimum number required.
6. All personnel performing or attending the body washing and preparation should wear PPE (surgical mask, face shield, isolation gown, clean gloves and aprons) and should perform hand hygiene after removal of the gloves.
7. If family members wish to perform the body washing, this should be under supervision must strictly adhere to standard precautions and use PP. The family shall wear gloves and gown and perform hand hygiene in the morgue.
8. Body washing of COVID-19 cases are preferably be done at hospitals. However, it can be safely performed in public washing facilities, If the dead body transmitted outside the healthcare facility to be prepared for burial the receiving facility should be informed by the disease, mode of transmission and precautions needed during body preparation, a public health worker is identified to accompany the body in order to ensure compliance with the required precautions throughout the pre-burial period**.**
9. Neither embalming nor autopsy is performed in the morgue.
10. **Notifications**
    - 10.1 Upon patient's death, the nurse shall notify the Consultant/Designee and the Head Nurse or designee (during working hours) and Nursing Supervisor (after working hours).
    - 10.2 The nurse shall notify the Morgue/Mortician on-call for any death with suspected or confirmed COVID-19.
    - 10.3 The Consultant/Designee notifies the patient's family.

11. Care of Deceased Body

- 11.1 Management of deceased body as per: Standard and Transmission-Based Precautions and meticulous hand hygiene shall be performed as per Hand Hygiene Procedure.
- 11.2 Nursing staff shall notify the morgue if confirmed or suspected of COVID-19 patient, this shall be communicated verbally, as well as to attach the Standard Precaution labels to the body and documented in the Mortuary logbook.
- 11.3 Use appropriate PPE according to the risk of exposure to bodily fluids.
- 11.4 For the Adult/Pediatric Deceased body, the Nursing staff shall obtain:
    - 11.4.1 Mortuary impermeable body bag (depending on size of patient).
    - 11.4.2 One cotton shroud/bed sheet.
    - 11.4.3 Two absorbent.
    - 11.4.4 Three identification Standard Precautions tags.
    - 11.4.5 One chin strap.
    - 11.4.6 Three ties (wrists and ankles)
    - 11.4.7 Two long gauze ties.

11.4.8 FOR ALL CASES: Complete three (3) identification tags labeled/stamped with the deceased's identification, subsequently referred to as Identification (ID) Tag #1, #2 and #3.

11.4.9 If applicable, on each ID tag, mark the box if the patient deceased from a (confirmed or suspected) COVID-19.

11.5 Remove gown, and all the tubes from body including Invasive lines and devices (intravenous catheters, endotracheal tubes, nasogastric tubes urinary catheters, electrical impulse devices) are removed and disposed of. DO NOT pack orifices, clean the body of body fluids and tape marks.

11.6 Packed wounds and natural openings with absorbent material and dressed with hermetic dressing to contain body fluids.

11.7 Wrap the body first with a bed sheet, then followed by the provided impermeable bag.

11.8 The body shall be fully sealed in two (2) impermeable body bags (double-bagging) prior to removal from the isolation room/area, and prior to transfer to the morgue.

11.9 Ensure body is completely covered.

11.10 ID Tag #3 shall be sent to the morgue with the deceased, place this tag on the outside of the morgue refrigerator.

11.11 All waste and PPE used to clean the body shall be disposed in yellow biohazard medical waste containers as per the MOH guidelines

11.12 Transfer to the morgue shall occur as soon as possible after death, ensuring completion of required documentation.

11.13 The body shall be fully sealed in an impermeable body bag prior to removal from room/area and prior to transfer to the morgue.

11.14 If impermeable body bag is not available, use double cotton shroud/bed sheet. No leaking of body fluids shall occur; the outside bag must be kept clean.

12. Transport to The Morgue and Handling in The Morgue:

1. All deceased bodies shall be taken to the morgue.
2. Maintain transmission-based precautions.
3. A Nurse/care assistant shall accompany the WC/PCA to the morgue.
4. During working hours, the mortician shall open the Morgue.
   - 4.1. After working hours, the nursing personnel shall call Safety & Security to open the morgue.
   - 4.2. Security personnel shall be physically present at the morgue and shall open the door when the deceased body are delivered.
   - 4.3. At ALL TIMES, the Nurse(s)/Care Assistant shall document in the Mortuary Log Book in the presence of the Morgue staff/Safety & Security shall sign the Mortuary Log Book confirming completion of documentation and placement of deceased body in the corresponding morgue refrigerator drawer.
   - 4.4. All required documents shall be left at the morgue registry.
5. Transport of deceased body:
   - 5.1 Day Shift:
     - 5.1.1 Ward Clerk shall notify Transportation Services and the PCA when a body is ready for transport.
     - 5.1.2 Ambulance Transportation Services shall collect the body.
   - 5.2 Night Shift or Weekends:
     - 5.2.1 Nurse / Ward Clerk shall notify transportation Services when a body is ready for transport.
     - 5.2.2 Ambulance Transportation will collect and transfer the body to the morgue.

XI. Collection and handling of laboratory specimens from patients with suspected COVID-19

All specimens collected for laboratory investigations should be regarded as potentially infectious.

1. HCWs who collect or transport clinical specimens should adhere to Standard Precautions to minimize the possibility of exposure to pathogens.
2. Ensure that HCWs who collect specimens use appropriate PPE (eye protection, medical mask, long-sleeved gown, gloves).
3. The respiratory specimen should be collected under aerosol generating procedure, personnel should wear a particulate certified N95 respirator.
4. Ensure that all personnel who transport specimens are trained in safe handling practices and spill decontamination procedures.
5. Place specimens for transport in leak-proof specimen bags (secondary container) that have a separate sealable pocket for the specimen (i.e. a plastic biohazard specimen bag), with the patient's name label on the specimen container (primary container), and a clearly written laboratory request form.
6. Ensure that health-care facility laboratories adhere to appropriate biosafety practices and transport requirements according to the type of organism being handled.
7. Deliver all specimens by hand whenever possible.
8. DO NOT use pneumatic-tube systems to transport specimens.
9. Notify the laboratory that this is a request for COVID -19 testing.

10. **Sample collection and transport**

It is advised that lower respiratory specimens such as sputum, endotracheal aspirate, or bronchoalveolar lavage be used when possible. If patients do not have signs or symptoms of lower respiratory tract infection or lower tract specimens are not possible or clinically indicated, nasopharyngeal specimens should be collected (similar to MERS sample collection).

11. **Approach to sampling**

11.1 Any patient who meets the screening criteria with appropriate SARI score will be screened for COVID-19.

11.2 The sample will be delivered and tested in the Microbiology Laboratory for COVID-19 and other respiratory pathogens according to the clinical presentation.

11.3 If the sample result came back as positive for COVID-19, the positive sample should be sent to the National Health Lab.

12. Specimen collection techniques and/or requirements

12.1 Specimens for COVID-19 shall be collected on those patients who meets the case definition for a suspected/probable or confirmed case.

12.2 All HCW collecting specimens shall wear appropriate PPE at all time.

12.3 All specimens shall be regarded as potentially infectious.

12.4 All samples shall be collected as per microbiology laboratory guidelines.

12.5 All samples for COVID-19 shall be hand delivered to the KFSH&RC microbiology laboratory.

12.6 The pneumatic tube system shall not be used for this purpose.

12.7 The positive sample shall be sent to the National Laboratory by microbiology.

12.8 Infection Control department staff shall access and complete the electronic Riyadh Regional Laboratory request form for COVID-19 On this link http:84.2235.89..114/RRL .

12.9 Refer to **Appendix 4** for specimen collection techniques.

13. Laboratory Diagnosis

All staff who will be handling the COVID-19 should be trained for appropriate collection, specimen storage, packaging and transportation. When collecting the specimen avoid contamination. Follow the appropriate precautions for safety during collection and processing of samples.

13.1 At the current time, samples which are positive for COVID-19 will be sent to the National Health Lab (NHL).

13.2 Laboratories should NOT do viral isolation and culture from samples collected from patients suspected of having COVID-19 infection.

14. Storage and Shipment of samples

Store samples at 2-8°C and ship on ice pack to NHL. Samples can be stored at 2-8°C for ≤48 hours, if longer storage is needed, samples should be stored at –70 °C. If sample is frozen at -70°C, ship on dry ice.

14.1 Samples can be shipped to NHL free of charge via the courier, SMSA, following appropriate regulations.

14.2 All specimens must be appropriately packaged and addressed to the NHL.

14.3 Courier services are provided 7 days a week.

XII. References

1. CIPP-640: Hand Hygiene Procedure
2. CIPP-654: Medical Waste Disposal Policy
3. CIPP-671: Standard and Transmission-Based Precautions
4. CIPP-687: Infection Prevention Management of a Suspected Epidemic-Outbreak
5. CIPP-683: Control and Management of Febrile Respiratory Illnesses (FRI)-Severe Acute Respiratory Illness (SARI)
6. CIPP-5110: HIGH-EFFICIENCY PARTICULATE MASK FIT TESTING
7. MOH Guideline 2019 n-CoV
8. https://www.moh.gov.sa/CCC/events/international/Pages/default.aspx
9. Guide to Novel Coronavirus Infection 2019-nCoV, Saudi Center for Disease Prevention & Control
10. https://www.moh.gov.sa/CCC/healthp/regulations/Documents/Interim%20Guide%20to%20Novel%20Coronavirus%20Infection%202019-nCoV.pdf
11. CIPP-964: Care of The Deceased Bodies, Body Parts or Surgical Tissues and Product of Conception (POC)
12. CIPP-707: Middle East Respiratory Syndrome Coronavirus (MERS-CoV).

Appendix 1

Respiratory Triage Checklist

DATE: _____ TIME: _____

NAME: _____ HOSPITAL: _____

Circle the number reflecting the patient's condition (exposure and clinical picture) and calculate the final score:

Risks for Acute Respiratory Illnesses	**Score**	
A. Exposure Risks	***Any Patient (Adult or Pediatric)***	
A history of travel abroad during the 14 days prior to symptom onset **OR** Visiting or being a resident of a high-risk area for COVID-19 in the kingdom during the 14 days prior to symptom onset*. **OR** A close physical contact with a confirmed case of COVID-19 or MERS-CoV in the past 14 days. **OR** An exposure to camel or camel's products (direct or indirect**) in the past 14 days. **OR** Working in a healthcare facility.	**3**	
B. Clinical Signs and Symptoms and Medical History	***Pediatric***	***Adult***
1. Fever or recent history of fever.	**1**	**2**
2. Cough (new or worsening).	**1**	**2**
3. Shortness of breath (new or worsening).	**1**	**2**
4. Nausea, vomiting, and/or diarrhea.	**-**	**1**
5. Chronic renal failure, CAD/heart failure, Immunocompromised patient.	**-**	**1**
Total Score		

* As determined and announced by the Ministry of Interior or Ministry of Health. Updated regularly on: www.covid19.cdc.gov.sa
** Patient or household

A score ≥ 4, ask the patient to perform hand hygiene, wear a surgical mask, direct the patient through the respiratory pathway and inform MD for assessment.
MRSE-CoV OR COVID-19 testing should be only done according to case definitions.

Staff Name: _____ **Signature:** _____

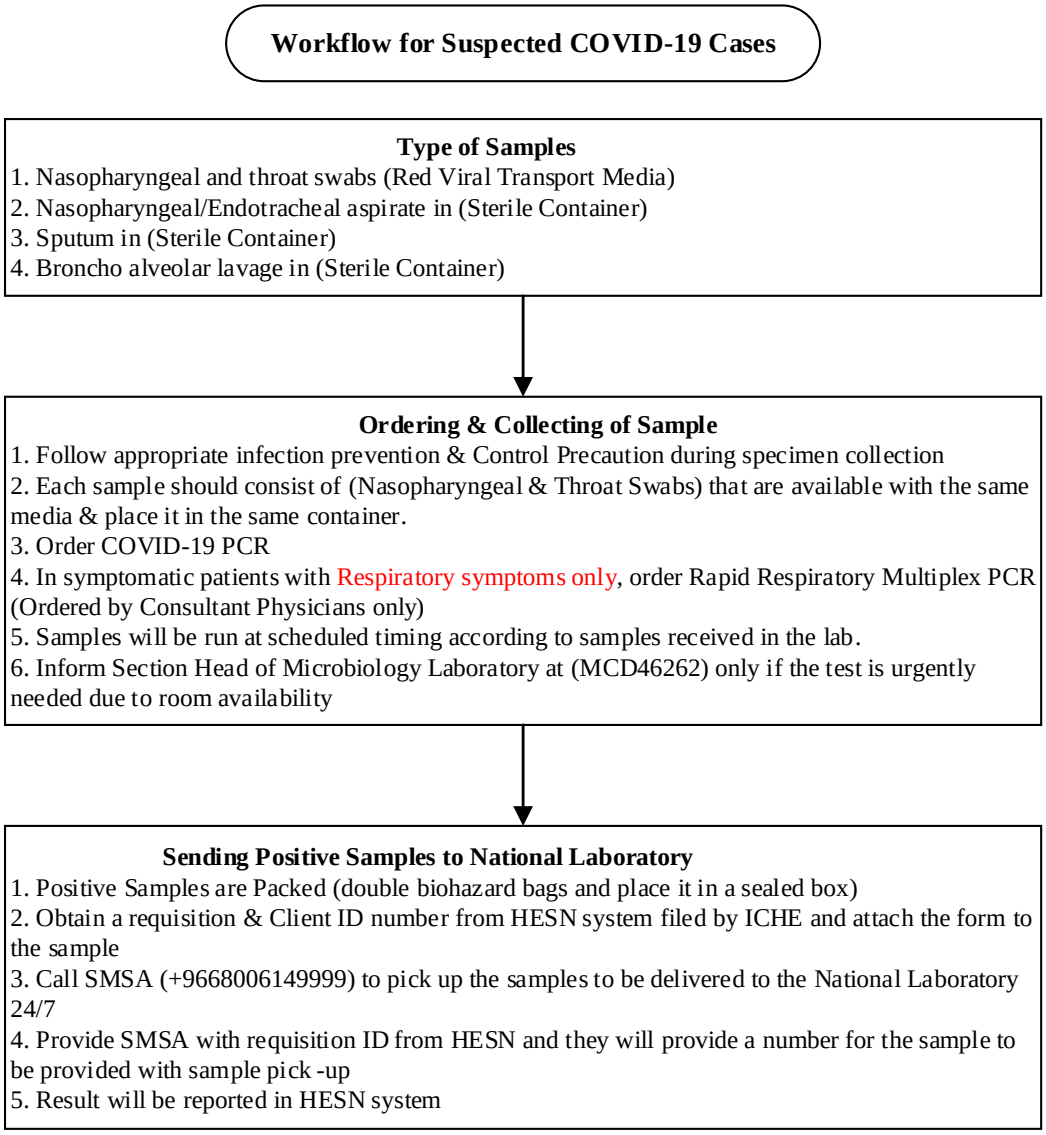
Appendix 2

Recommendations for Application of Standard Precautions for the Care of All Patients in All Healthcare Settings

COMPONENT	RECOMMENDATIONS
Hand hygiene	After touching blood, body fluids, secretions, excretions, contaminated items; immediately after removing gloves; between patient contacts.
Gloves	For touching blood, body fluids, secretions, excretions, contaminated items; for touching mucous membranes and non-intact skin
Gown	During procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated
Mask, eye protection (goggles), face shield*	During procedures and patient-care activities likely to generate splashes or sprays of blood, body fluids, secretions, especially suctioning, endotracheal intubation
Soiled patient-care equipment	Handle in a manner that prevents transfer of microorganisms to others and to the environment; wear gloves if visibly contaminated; perform hand hygiene
Environmental control	Develop procedures for routine care, cleaning, and disinfection of environmental surfaces, especially frequently touched surfaces in patient- care areas.
Textiles and laundry	Handle in a manner that prevents transfer of microorganism to others and to the environment
Needles and other sharps	Do not recap, bend, break, or hand-manipulate used needles; if recapping is required, use a one-handed scoop technique only; use safety features when available; place used sharps in puncture-resistant container
Patient resuscitation	Use mouthpiece, resuscitation bag, other ventilation devices to prevent contact with mouth and oral secretions
Patient placement	Prioritize for single-patient room if patient is at increased risk of transmission, is likely to contaminate the environment, does not maintain appropriate hygiene, or is at increased risk of acquiring infection or developing adverse outcome following infection
Respiratory hygiene/cough etiquette (source containment of infectious respiratory secretions in symptomatic patients, beginning at initial point of encounter e.g., triage and reception areas in emergency departments and physician offices)	Instruct symptomatic persons to cover mouth/nose when sneezing/coughing; use tissues and dispose in no-touch receptacle; observe hand hygiene after soiling of hands with respiratory secretions; wear surgical mask if tolerated or maintain spatial separation, >3 feet if possible.

Appendix 4

Specimen collection techniques for suspected COVID-19 Cases



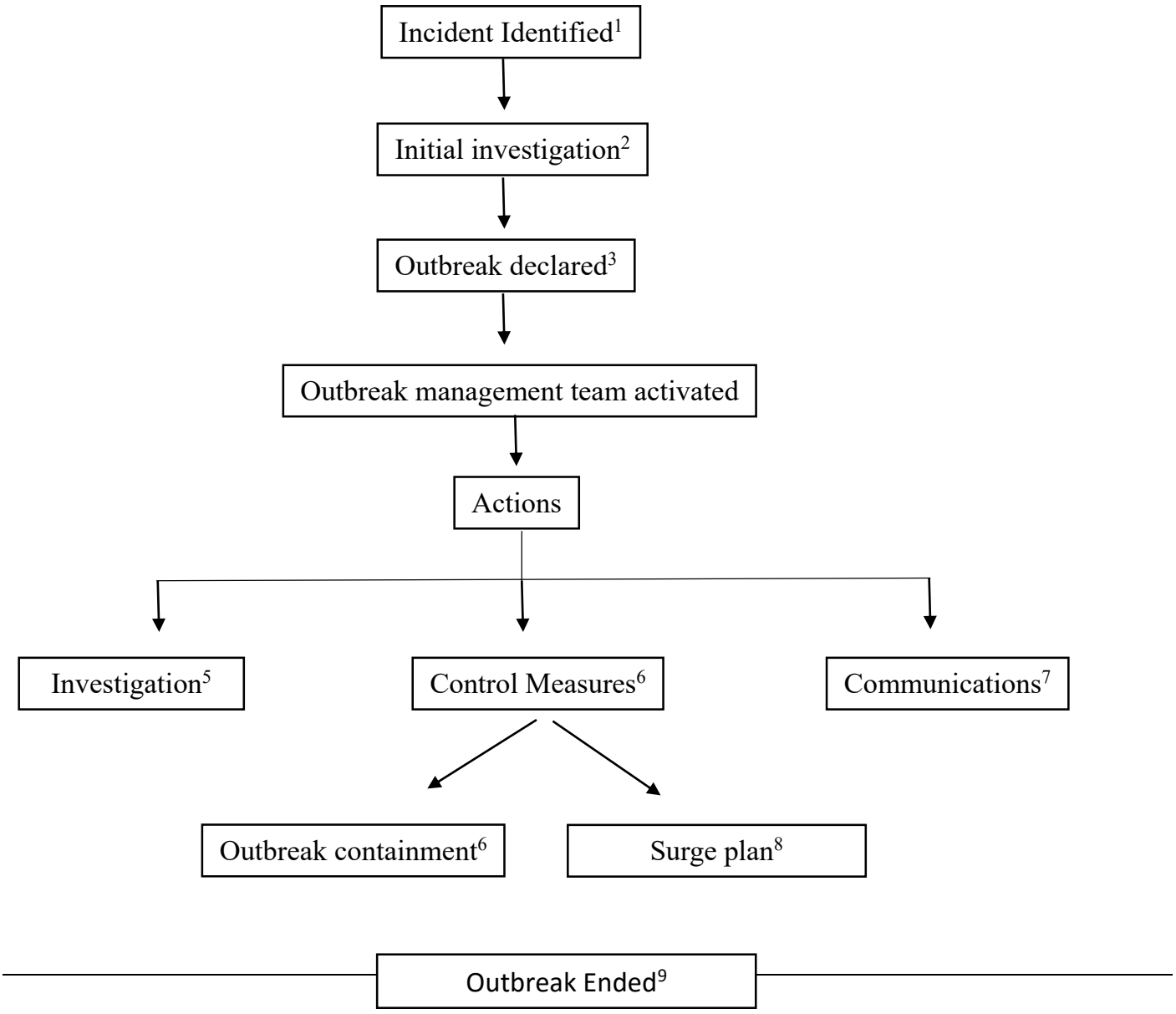
Appendix 5

Exposure management for COVID-19

Epidemiologic risk factors	Exposure category	Recommended Monitoring for COVID-19 *(until 14 days after last potential exposure)*	Work Restrictions for Asymptomatic HCP
Prolonged close contact with a COVID-19 patient who was not wearing a facemask (i.e., no source control)			
HCP PPE: None	High	Active	• Exclude from work for 14 days after last exposure. • Initial testing after 24 hours from the last day of exposure • Final testing at day 13 from last exposure
HCP exposed to patients fluids without appropriate protection (e.g. splash to mucus membrane)			
HCP PPE: Not wearing a facemask or respirator			
HCP PPE: Not wearing eye protection	Medium		
HCP PPE: Not wearing gown or gloves	Low	Self with delegated supervision	• Test for COVID-19 is not recommended • HCW can continue to work • Self-monitoring daily for 14 days for any signs and symptoms
HCP PPE: Wearing all recommended PPE (except wearing a facemask instead of a respirator)			
Prolonged close contact with a COVID-19 patient who was wearing a facemask (i.e., source control)			
HCP PPE: None	Medium	Active	• Exclude from work for 14 days after last exposure. • Initial testing after 24 hours from the last day of exposure • Final testing at day 13 from last exposure
HCP PPE: Not wearing a facemask or respirator			
HCP PPE: Not wearing eye protection	Low	Self with delegated supervision	• Test for COVID-19 is not recommended • HCW can continue to work • Self-monitoring daily for 14 days for any signs and symptoms
HCP PPE: Not wearing gown or gloves			
HCP PPE: Wearing all recommended PPE (except wearing a facemask instead of a respirator)			

Appendix 6

Outbreak Management Flowchart



1. Identified as per definition of healthcare facility outbreak
2. Confirm definition of an outbreak by the COVID-19 CCC
3. Confirm outbreak by the COVID-19 CCC
4. Investigation to clarify the nature of the outbreak is primarily done by ICHE. This should be started immediately upon identification of the outbreak and results are discussed in the daily meeting of the outbreak management team.
5. Control measures include all actions that will lead to containment of the outbreak and eventual end.

a. Identifying and closing all gaps in infection prevention and control measures
b. Environmental cleaning and disinfection
c. Contact tracing, testing, and management
d. Patient flow and restrictions
e. Units restrictions or closure
f. Implementation of surge plan in case of increase in the size of the outbreak
g. Health education for contacts of the disease symptoms, transmission, and isolation.
h. Contacts not to report to work.

6. Communication with the public is coordinated by the communication platform of the COVID-19 CCC.
7. Surge plan as outlined above.

Appendix 7

Spacing of Patients

The minimum distance that should be maintained between patients' beds in selected clinical units as recommended by the Ministry of Health (MOH), the American Institute of Architects (AIA) Academy of Architecture for Health (1), and the International Federation of Infection Control (IFIC) (2).

Unit	Distance between beds recommended by:		
	MoH	**AIA**	**IFIC***
General Ward	A minimum of 1.2 meters between	A minimum of 1.22 meters (4 feet) between beds. Minimum of 9.29 square meters (100 square feet) of clear floor per bed.	Basic: 1 meter. Standard: 2 meters. Ideal: 2 meters.
Critical Care Unit	A minimum of 2.4 meters between beds	Minimum 2.44 meters (8 feet) between beds for both pediatric and adult ICUs Minimum of 18.58 square meter (200 square feet) of clear floor area per bed.	Basic: 1.5 meters. Standard: 2 meters. Ideal: 2 meters.
Hemodialysis Unit	A minimum of 1.2 meters between beds	A minimum of 1.22 meters (4 feet) between beds and/or lounge chairs A minimum 7.43 square meters (80 square feet) of clear floor area per patient cubicle.	No recommendation published.
Emergency Unit	A minimum of 1.2 meters between beds	A minimum of 1.22 meters (4 feet) between beds/stretchers A minimum 7.43 square meters (80 square feet) of clear floor area per patient cubicle.	Standard: 1.5 meters. Ideal: 2 meters.

*IFIC recommendations are given in three levels:

- Basic – Even with severely limited resources, this is what you should do as a minimum.
- Standard – this is what you should aim for in less wealthy countries.
- Ideal – if you have the resources, this is what you could do.

1. The American Institute of Architects Academy of Architecture for Health. Health and Human Services Guidelines for Design and Construction of Hospital and Healthcare Facilities, 2001 Edition.
2. Walter Popp, Peter Hoffman, Judene Bartley. The design of a general ward (Version 3). International Federation of Infection Control (IFIC) Construction, Design and Renovation Interest Group. 1 February 2010: page 1. Available at: http://www.theific.org/pdf_files/SIGs/recommendation_design_of_ward.pd

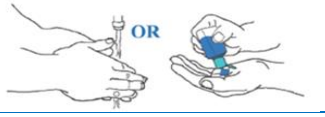
Appendix 8

Donning on PPE for AGPs

COVID-19: Sequence for Putting on (Donning) Personal Protective Equipment (PPE) for Aerosol Generating Procedures (AGPs)

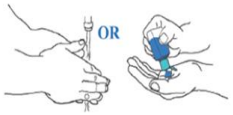
***Run donning checklist to yourself before entering the area**
***Ensure you are cross-checked by a colleague after donning your PPE**

1. Perform hand hygiene

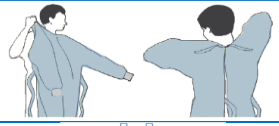


2. Shoe cover

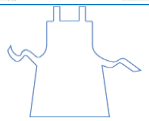
3. Perform hand hygiene



4. Gown
Don the long-sleeves fluid repellent disposable gown.
Gown to fully cover torso from neck to knees, arms to end of wrist and wrap around the back and fastened at the back



5. Apron



6. Respiratory (fit-tested, seal-checked N95 mask) or PAPR (Powered Air Purifying Respirator)

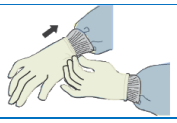
- Hold the mask with your right hand, please it on your cover to cover your mouth and nose
- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Seal-check respirator

7. Head cover

8. Googles or Face Shield

- Position googles over your eyes and secure to the head using the earpieces
- Position face shield over your face and secure on the brow with headband
- Adjust to fit comfortably

9. Gloves
Select the gloves according to your hand size. Ensure the cuff of your gown is covered by the cuff of the glove.



Infection Control: How to Safely Use PPE

- Keep gloved hand away from face • Avoid touching or adjusting other PPE • Remove gloves if they become torn
- Hand hygiene before donning new gloves • Limit surfaces and items touched

Appendix 9

Doffing on PPE for AGPs

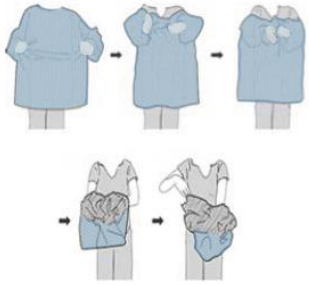
COVID-19: Sequence for Removing (Doffing) on Personal Protective Equipment (PPE) for Aerosol Generating Procedures (AGPs)

All PPE should be removed at your doorway except respirator. Remove the respirator after leaving patient room and after the closing door.

PPE should be removed in an order that minimize the potential for cross contamination.

10. Gown and gloves

- Gown front and sleeves and the outside of gloves are contaminated!
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloves hands.
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container.
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer.

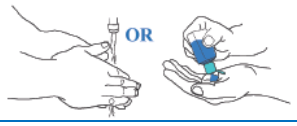


11. Goggles or face shield

- Outside of goggles or face shields are contaminated!
- Remove goggles or face shield from the back by lifting headband and without touching the front of the goggles or face shield and then discard in a waste container.
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer.

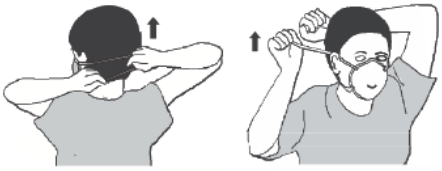
12. Remove your head cover and shoe cover

13. Perform hand hygiene

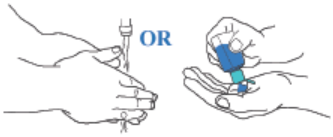


14. Remove your Respirator (Fitted N95 mask)

- Front of respirator is contaminated – DO NOT TOUCH!
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front.
- Disc in a waste container (follow your hospital policy)
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer



15. Perform hand hygiene



Appendix 10

Donning and Doffing PPE

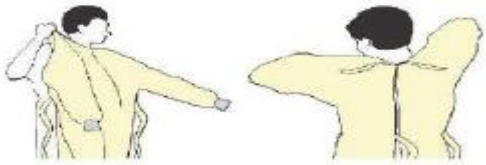
Sequence on Putting Personal Protective Equipment (PPE)

The type of PPE used will vary based in the level of precautions required, such as standard, contact droplet, or airborne. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

16. PERFORM HAND HYGIENE

17. GOWN

- Fully cover torso from neck and knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist

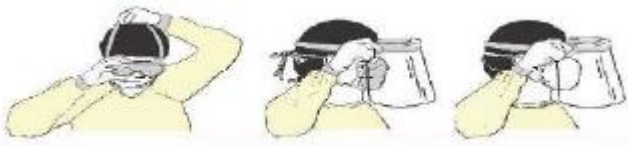


18. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

19. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



20. GLOVES

- Pull the gloves to cover the wrist of the isolation gown

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD PF CONTAMINATION

- Perform hand hygiene
- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn heavily contaminated

How to Safely Remove Personal Protective Equipment (PPE)

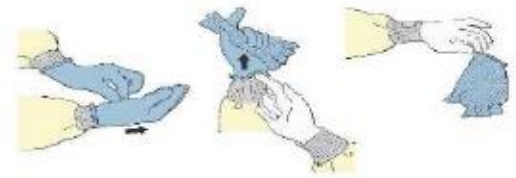
There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials

NOTE:

4. Remove all PPE before existing the patient room except a respirator, if worn.
5. Remove the respiratory after leaving the patient room and closing the door.
6. If hands become visibly contaminated during PPE removal, wash hands before continuing to remove the remaining PPE

REMOVE PPE IN THE FOLLOWING SEQUENCE:

1. **GLOVES**
   - Grasp outside edge near wrist
   - Peel away from hand, turning glove inside-out
   - Hold in opposite gloved hand
   - Slide ungloved finger under the wrist of the remaining glove
   - Peel off from inside, creating a bag for both gloves
   - Discard into waste container



2. **PERFORM HAND HYGIENE**

3. **REMOVE GOGGLES OR FACE SHIELD**
   - Grasp ear or head places with ungloved hands
   - Lift away from face
   - Place in designated receptacle for reprocessing or disposal
   - Discard into waste container

4. **REMOVING ISOLATION GOWN**
   - Unfasten ties
   - Peel gown away from neck and shoulders
   - Turn contaminated outside toward the inside
   - Fold or roll into a bundle
   - Discard into waste container

5. **REMOVING MASK OR RESPIRATOR**
   - Font of the mask/respirator is contaminated – DO NOT TOUCH
   - Grasp bottom, than top ties or elastics and remove
   - Discard in a waste container

6. **IMMEDIATELY AFTER REMOVING ALL PPE WASH HANDS OR USE AN ALCOHOL–BASED HAND SANITIZER**

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATEL AFTER REMOVING ALL PPE

Appendix 11

Guidance on optimizing the supply of personal protective equipment (PPE)and the use of PPE when in short supply

Due to the COVID-19 pandemic, high consumption of PPE worldwide may result in an acute shortage of PPE supplies. In order to meet the demand, alternative measures may be needed to optimize the supply of PPE that based on scientific evidence, the principles of safe care delivery and more importantly health-care worker safety, in addition to workload minimization for health care workers, and avoiding a false sense of security. These measures are strictly on temporary basis during periods of PPE shortages.

Purpose and scope
This document aims to describe two approaches to PPE use optimization: Extended Use and Reuse of PPE.

General Measures:

1. limit contact of patients to urgent or emergency situations.
2. Maximizing the use of telemedicine
3. limit the admission of COVID-19 to symptomatic patients only if possible.
4. Reduce the number of patients going to the hospital or outpatient settings
5. Reduce face-to-face HCP encounters with patients

Definitions:

Extended use: refers to the practice of wearing the same N95 respirator for repeated close contact encounters with several patients, without removing the respirator between patient encounters. Extended use may be implemented when multiple patients are infected with the same respiratory pathogen and patients are placed together in dedicated waiting rooms or hospital wards. Extended use has been recommended as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics. Entails the use of PPE by one health-care worker during one shift for no longer than 6 hours.

Reuse: refers to the practice of using the same N95 respirator 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. For pathogens in which contact transmission (e.g., fomites) is not a concern, non-emergency reuse has been practiced for decades. For example, for tuberculosis prevention, CDC recommends that a respirator classified as disposable can be reused by the same worker as long as it remains functional[2] and is used in accordance with local infection control procedures.(9) Even when N95 respirator reuse is practiced or recommended, restrictions are in place which limit the number of times the same FFR is reused. Thus, N95 respirator reuse is often referred to as "limited reuse". Limited reuse has been recommended and widely used as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics. May be reused up to 5 times using the procedures detailed below.

- **EXTENDED USE IS PREFERRED OVER RE-USE**
- **ALWAYS USE PROPER HAND HYGIENE AND DON AND DOFF TECHNIQUE (Attached below)**

TYPE OF PPE	MEASURE	DESCRIPTION	PRECAUTIONS AND REMOVAL CRITERIA
Medical/Surgical mask	1) Extended use	The use without removing for up to 6h, when caring for a cohort of COVID-19 patients	• Follow the safe procedure for removal and do not touch the front of the mask (Attached) • The mask needs to be changed whenever providing care outside a designated cohort of COVID-19 patients • If the mask becomes wet, soiled, or damaged, or if it becomes difficult to breathe through • If the mask is exposed to splash of chemicals, infectious substances, or body fluids • If the mask is displaced from face for any reason. • If the front of the mask is touched to adjust it • 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 allowed owing to the risk of transmission to another patient who would be susceptible to COVID-19
	2) Re-use	Not recommended	
Respirators (FFP2, FFP3 or N95)	1) Extended Use	The use without removing for up to 6h, when caring for a cohort of COVID-19 patients	• Needs to be changed If respirator becomes wet, soiled, damaged, or difficult to breathe through, or loses its fit. • If exposed to splash of chemicals, infectious substances, or body fluids • If displaced from the face for any reason.

			• If the front of the respirator is touched to adjust it • Use of the same respirator 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 to another patient who would be susceptible to COVID-19 • Discard N95 respirators following use during aerosol generating procedures • Discard N95 respirators contaminated with blood, respiratory to nasal secretions, or other bodily fluids from patients • Discard N95 respirators following close contact with, or exit from, the care area of any patient infected with an infectious disease requiring contact precautions • Consider use of a face shield or a surgical mask over an N95 respirator and/or other steps (e.g., masking patients) to reduce surface contamination

	2) Re-use	Using the same N95 respirator for multiple encounters with patients but removing it ('doffing') after each encounter with proper storage as described.	• May be used with surgical mask or face shield over the respirator • Discard N95 respirators following use during aerosol generating procedures. • Discard N95 respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients. • Discard N95 respirators following close contact with any patient co-infected with an infectious disease requiring contact precautions. • Hang used respirators in a designated storage area and keep them in a clean, breathable container between uses. • To minimize potential cross-contamination, store respirators so that they do not touch each other and the person using the respirator is clearly identified. Storage containers should be disposed of or cleaned regularly. • Clean hands 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). • Avoid touching the inside of the respirator. If inadvertent contact is made with the inside of the respirator, discard the respirator and perform hand hygiene as described above. • Use a pair of clean (non-sterile) gloves when donning a used N95 respirator and performing a user seal check. Discard gloves after the N95 respirator is donned and any adjustments are made to ensure the respirator is sitting comfortably on your face with a good seal.
Disposable Gowns used by health workers	1) Extended use	The use without removing, when providing care of a cohort of patients with COVID-19. Not	Removal criteria and precautions: • If gown becomes wet, soiled, or damaged

		applicable if the patient has multidrug resistant microorganisms or other type of disease requiring contact precautions such as *Clostridioides difficile*. In such case, the gowns should be changed between patients.	• If gown is exposed to splash of chemicals, infectious substances, or body fluids • When providing care outside designated cohort of COVID-19 patients • Use of the same gown by a health care worker between a patient with COVID19 and a patient who does not have COVID-19 is not recommended due to the risk of transmission to another patient who would be susceptible to COVID-19
	2) Re-use	Not recommended	
Cloth Gowns used by health workers	1) Extended use	Consideration can be made to extend the use of isolation gowns (cloth) 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). This can be considered only if there are no additional co-infectious diagnoses transmitted by contact (such as *Clostridioides difficile*) among patients. If the gown becomes visibly soiled, it must be removed immediately.	• Cloth gown are reusable after laundering. • Cloth gowns could be considered for reuse without washing if there was minimal to no direct physical contact with the patient or nearby surfaces (wear apron in the top of the reusable cloth gown)
Goggles or safety glasses used by health workers	1) Extended use Extended use of eye protection can be	The use without removing during the shift period, when caring for a cohort of COVID-19 patients.	Removal criteria and precautions: • Eye protection should be removed and reprocessed if it becomes visibly soiled or difficult to see through. • If a disposable face shield is reprocessed, it should be dedicated to

	applied to disposable and reusable devices		one HCW and reprocessed whenever it is visibly soiled or removed (e.g., when leaving the isolation area) prior to putting it back on. • Eye protection should be discarded if damaged (e.g., face shield can no longer fasten securely to the provider, if visibility is obscured and reprocessing does not restore visibility). • HCW should take care not to touch their eye protection. If they touch or adjust their eye protection, they must immediately perform hand hygiene. • HCW should leave patient care area if they need to remove their eye protection. • If goggles are contaminated by splash of chemicals, infectious substances, or body fluids • If goggles obstruct health care worker safety or visibility of health care environment or become loose • Use of the same goggles by a health care worker between a patient with COVID19 and a patient who does not have COVID-19 is not recommended due to the risk of transmission to another patient who would be susceptible to COVID-19 **How to Clean Eye Protection Equipment (face shields / goggles)** 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. 2. Carefully wipe the outside of the face shield or goggles using a wipe or clean cloth saturated with MOH approved hospital disinfectant solution (alcohol wipes / quaternary ammonium compounds).

			3. Wipe the outside of face shield or goggles with clean water or alcohol to remove residue. 4. Fully dry (air dry or use clean absorbent towels). 5. Remove gloves and perform hand hygiene.

References:

1. Strategies for Optimizing the Supply of Eye Protection, CDC, Coronavirus Disease 2019 (COVID-19). https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html. https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/eye-protection.html
2. Rational use of personal protective equipment for coronavirus disease (COVID-19) and considerations during severe shortages Interim guidance 6 April 2020. file:///C:/Users/f26654/AppData/Local/Microsoft/Windows/INetCache/IE/0U9VA9TO/WHO-2019-nCov-IPC_PPE_use-2020.3-eng.pdf. https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html
3. How to Reuse PPE, registered nursing, Eye Protection, How to Clean Eye Protection Equipment , https://www.registerednursing.org/how-reuse-ppe/
4. MOH Guidelines