THE INFECTION PREVENTION AND CONTROL (IPC) MEASURES WHEN CORONA VIRUS DISEASE (COVID-19) INFECTION IS SUSPECTED OR CONFIRMED

THE INFECTION AND PREVENTION CONTROL GUIDING PRINCIPLES

The principles of IPC for acute respiratory infection patient care include:

a) Early and rapid recognition AND source control that includes promotion of respiratory hygiene
   - Early recognition and investigation, prompt implementation of IPC precautions, reporting and surveillance, and supportive treatment to make patients non-infectious by strictly adhering to Interim definitions of the epidemiological AND Clinical Criteria in the case definition
   - Post visual alerts (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency departments, physicians' offices, outpatient clinics) instructing patient and the persons who accompany them to inform healthcare personnel of symptoms of a respiratory infection when they first register for care, and practice respiratory hygiene/cough etiquette

a) Application of routine IPC precautions (Standard Precautions) for all patients;

b) Additional precautions in selected patients (i.e. contact, droplet, airborne) based on the presumptive diagnosis;

c) Establishment of an IPC infrastructure for the healthcare facility, to support IPC activities.

d) Provision of adequate and regular supply of PPE and appropriate training of Staff using the PPE serves to further reduce the risks of transmission of respiratory pathogens to health-care workers and other people interacting with the patients in the health-care facility

STANDARD PRECAUTIONS

Standards Precautions are routine IPC precautions that should apply to **ALL** patients, in **ALL** healthcare settings. The precautions, described in detail within Chapter 3 of the 'Policies and Procedures on Infection Prevention and Control – Ministry of Health Malaysia; 2018' are:

a) Hand hygiene before touching a patient; before any clean or aseptic procedure; after body fluid exposure risk; after touching a patient; and after touching a patient's surroundings, including contaminated items or surfaces

b) Use of personal protective equipment (PPE) guided by risk assessment concerning anticipated contact with blood, body fluids, secretions and non-intact skin for routine patient care.

c) Respiratory hygiene in anyone with respiratory symptoms

d) Environmental control (cleaning and disinfection) procedures according to standard procedures

e) Waste management according to safe routine practices

f) Packing and transporting patient-care equipment, linen, laundry and waste from the isolation areas

g) Prevention of needle-stick or sharps injuries

INFECTION PREVENTION AND CONTROL MEASURES IN MANAGING PATIENT UNDER INVESTIGATION (PUI) OR CONFIRMED CORONA VIRUS DISEASE (COVID-19)

This guideline is based on limited information available regarding disease severity, transmission efficacy and shedding duration. This document will be updated as more information is made available.

A. <u>UPON ARRIVAL TO HEALTHCARE FACILITY AT VARIOUS POINTS OF ENTRY</u>
(Applies to hospital emergency departments, health clinics/ private GP clinics/ fever centres/ ambulatory care units and travellers screening points)

- Clinical triage - rapid case identification of patients at risk by using visual aid, and proper travel history taking in patient presenting with fever and cough.

- Rapid triage of patients with acute febrile respiratory diseases is recommended.

- Must offer **surgical mask** (not N95 mask) if patient is able to tolerate (not tachypnoeic, not hypoxic).
  If patient is unable to tolerate, advise the patient to cover nose and mouth during coughing or sneezing with tissue or flexed elbow.

- Separate PUI to a dedicated waiting area which is well ventilated with spatial separation of at least 1 - 2m between patients in the waiting rooms.

- Provide tissues/ surgical mask and no-touch bins or biohazard bag for disposal of tissues/ surgical mask.

- Provide resources for performing hand hygiene (alcohol-based hand rub made available).

- Cleaning of high touch areas (i.e. chair, table, couch) at waiting and triage areas after patient leaves the area or as required (i.e. spillage, soiling).

B. FOR HEALTHCARE WORKERS AT FIRST ENCOUNTERS

PPE recommendation will be based on exposure risk.

a) General triage counter/ travellers screening points

(Casual contact i.e. defined as a person who has less than 15 minutes face to face contact and more than 1m distance).

i. Surgical mask
ii. Frequent hand hygiene/ strict hand hygiene adherence, preferably with alcohol-based hand rub.

** However, if there is a possibility of increased risk of prolonged contact or aerosolization it is recommended that Health Care Worker (HCW) uses full PPE (N95 mask, eye protection, isolation gown/apron and gloves).*
** Ensure these PPE are available on site.*
** Avoid touching the face, surfaces and objects with contaminated gloves.*

b) Examination Room

- Ensure patient maintains surgical mask and cough etiquette

- HCW should wear:

i. N95 mask (should be fit checked)
ii. Face shield/goggle
iii. Standard isolation gown (fluid-repellent long-sleeved gown).
iv. Gloves
v. Frequent hand hygiene/ strict hand hygiene adherence

- Examination/ isolation room should be in descending order of preference:

i. Airborne Infection Isolation Room (AIIR)
ii. Single room (nursed with door closed) and en-suite bath
iii. Single room

C. FOR HEALTHCARE WORKERS WHEN DEALING WITH PUI/ CONFIRMED CASES ON ADMISSION.

Patient placement

In descending order of preference:

i. Airborne Infection Isolation Room (AIIR)
ii. Single room (nursed with door closed) and en-suite bath
iii. Single room

Cohorting is not recommended at this moment. If need arises, it should be done after consulting respective ID physician/Microbiologist/ managing physicians.

Recommended PPE

In addition to Standard Precautions, all healthcare workers/support staff, when in close contact (within 1 metre) or upon entering the room or cubicle of patients, should always have

- N95 mask
    - Appropriate fit check must be performed before each encounter.
    - Avoid touching the mask
    - Change if soiled / or failed fit check.
- Eye protection (goggles or a face shield). Do not use conventional eye glasses as eye protection, because they are not designed to protect against splashes to the eye mucosa.
- A clean, non-sterile, standard isolation gown (fluid-repellent long-sleeved gown). Optional to wear a plastic apron over the gown especially in case of excessive spillage is anticipated.
- Gloves that cover over the cufflinks of the gown.
- Hand Hygiene before and after wearing gloves and according to doffing protocols.
- Dedicate the use of non-critical patient-care equipment to avoid sharing between clients/patients/residents
    - E.g. stethoscope, sphygmomanometer, thermometer or bedside commode
    - If unavoidable, then adequately clean and disinfect them between use for each individual patient with hospital recommended disinfectant.

D. FOR HEALTHCARE WORKERS WHEN PERFORMING AEROSOL-GENERATING PROCEDURES

An aerosol-generating procedure (AGP) is defined as any medical procedure that can induce the production of aerosols of various sizes, including small (< 5μm) particles. The aerosol-generating procedures include:

- Intubation with or without cardiopulmonary resuscitation- the strongest evidence for needing airborne precaution
- Manual ventilation
- Non-invasive ventilation (e.g., BiPAP, BPAP) – avoid if possible
- Tracheostomy insertion
- Bronchoscopy
- Sputum induction
- Nebulization
- Airborne precaution also recommended when taking oropharyngeal/ nasopharyngeal swab

Patient placement

In descending order of preference:

i. Negative pressure rooms/AIIR room
ii. Adequately ventilated single room with at least natural ventilation with at least 160 l/s/patient air flow, with closed doors.

Recommended PPE

- Powered Air Purifying Respirator (PAPR*) or at least a particulate respirator i.e. fit tested N95 mask (always check the seal).

- Eye protection (goggles or a face shield). Do not use conventional eyeglasses as eye protection, because they are not designed to protect against splashes to the eye mucosa.

- A clean, non-sterile, standard isolation gown (fluid-repellent long-sleeved gown) and gloves (some of these procedures require sterile gloves. Limit the number of persons present to the bare minimum.

- Perform hand hygiene before and after contact with the patient and surroundings and after PPE removal.

* if available and staff have been trained to use it

In routine care of ventilated patients with closed circuit, where no aerosolization is expected (i.e. suctioning/ nebulization/ tracheal aspiration), the use of PAPR is not required. N95 mask use is sufficient.

E. TRANSPORTING PATIENTS

- Avoid the movement of patients unless medically necessary.

- If movement of patient is required, use pre planned routes that minimize exposure to other staff, patients and visitors. Notify the receiving area before sending the patient.

- Clean and disinfect patient-contact surfaces (e.g. bed, wheelchair, incubators) after use.

- HCWs transporting patients must wear appropriate PPE. (surgical mask, eye protection, fluid-repellent long-sleeved isolation gown and gloves).

- When outside of the airborne isolation room, patient should wear a surgical mask (not N95 mask) if not in respiratory distress. Oxygen supplement using nasal prong can be safely used under a surgical mask. If patient is unable to tolerate surgical mask, advise the patient to cover nose and mouth during coughing or sneezing with tissue or flexed elbow during transport.

F. SPECIMEN COLLECTION AND TRANSPORT

All specimens should be regarded as potentially infectious, and health-care workers who collect or transport clinical specimens should adhere rigorously to Standard Precautions, to minimize the possibility of exposure to pathogens.

- Deliver all specimens by hand whenever possible. Do not use pneumatic-tube systems to transport specimens.

- State the name of the infection that the patient is a PUI clearly on the accompanying request form State the name of the PUI suspect of potential concern clearly on the accompanying request form. Notify the laboratory as soon as possible that the specimen is being transported.

- Ensure that health-care workers who collect respiratory specimens from PUI / Confirmed patients wear appropriate PPE.

- Place specimens for transport in leak-proof specimen bags (please refer to Annex 5c for instructions on specimen packaging).

- Ensure that personnel who transport specimens are trained in safe handling practices and spill decontamination procedures. There are no special

requirements for transport of samples to the lab and they can be transported as routine samples for testing. However, personnel may wear gloves ± plastic apron during transfer.

G. DISINFECTION AND STERILIZATION

- Ensure environmental cleaning and disinfection procedures are followed consistently and correctly as per hospital recommendation.

- Clean and disinfect surfaces that are likely to be contaminated with pathogens, including those that are in close proximity to the patient (e.g., bed rails, over bed tables) and frequently-touched surfaces in the patient care environment (e.g., door knobs, surfaces in and surrounding toilets in patients' rooms):

    - The Minimum requirement of cleaning and disinfection recommended is at least once a day and more frequently if visibly soiled using standard hospital registered disinfectants, such as sodium hypochlorite 1000 ppm.
    - If visible contamination or spills, it is recommended to use a higher dilution of EPA registered disinfection such as sodium hypochlorite at 10000ppm

- If equipment is reused, follow general protocols for disinfection and sterilization:

    - If not visibly soiled, wipe external surfaces of large portable equipment (e.g. X-ray machines and ultrasound machines) that has been used in the isolation room or area with an approved hospital disinfectant upon removal from the patient's room or area.
    - Proper cleaning and disinfection of reusable respiratory equipment is essential in-patient care.
    - Follow the manufacturer's recommendations for use or dilution, contact time and handling of disinfectants.

Recommended PPE For Cleaning Personnel

- N95 mask
    - Appropriate fit check must be performed before each encounter.
    - Avoid touching the mask
    - Change if soiled / or failed fit check.

- Eye protection (goggles or a face shield). Do not use conventional eye glasses as eye protection, because they are not designed to protect against splashes to the eye mucosa.

- A clean, non-sterile, standard isolation gown (fluid-repellent long-sleeved gown). Optional to wear a plastic apron over the gown especially in case of excessive spillage is anticipated.

- Gloves that cover over the cufflinks of the gown

- Hand hygiene before and after wearing gloves and according to doffing protocols.

H. TERMINAL CLEANING OF AN ISOLATION ROOM

A terminal cleaning and disinfection should be done following discharge/transfer of a patient as per hospital guideline.

- Before entering the room, cleaning equipment should be assembled before applying PPE.

- PPE must be removed, placed in an appropriate receptacle and hands cleaned before moving to another room or task.

- PPE must not be worn or taken outside the patient room or bed space.

- Protocols for cleaning must include cleaning of portable carts or built-in holders for equipment.

- The room should be decontaminated from the highest to the lowest point and from the least contaminated to the most contaminated.

- Remove curtains and place in red linen bag with alginate plastic after patient is discharged

- Use disinfectants such as sodium hypochlorite. The surface being decontaminated must be free from organic soil. A neutral detergent solution should be used to clean the environment prior to disinfection or a combined detergent /disinfectant may be used.

- In addition to the above measures, the following additional measures must be taken when performing terminal cleaning for Airborne Infection Isolation Rooms (AIIR).

- The cleaner should wait for sufficient air changes to clear the air before cleaning the room.

- After patient/resident transfer or discharge, the door must be kept closed and the Airborne Precautions sign must remain on the door until sufficient time has elapsed to allow removal of airborne microorganisms. Duration depends on ACHR.

    - With ACHR of 12 or 15, the recommended duration is 23 to 35 minutes and 18 to 28 minutes with 99%-99.9% efficiency respectively

- When the ACHR cannot be determined it is recommended that the room is left for time interval of 45 mins before the cleaning and disinfectant is commenced.

- PPE recommended for cleaners are surgical mask, eye protection, gloves, isolation gown and plastic apron.

- If the room is urgently needed before the air has been sufficiently cleared, an N95 respirator must be worn during cleaning.

- Remove N95 respirator only after leaving room and door has been closed.

I. DISHES AND EATING UTENSILS

- Use disposable utensils as much as possible

- Wash reusable dishes and utensils in a dishwasher with recommended water temperature.

J. LINEN MANAGEMENT

- Contaminated linen should be handled as little as possible to prevent gross microbial contamination of the air. Washing / disinfecting linen should be handled according to hospital protocol.

K. HEALTHCARE WORKER (HCW)

- Healthcare worker with high risk condition / immune-compromised should not be allowed managing and providing routine care for PUI/ confirmed cases.

- Ensure all health care workers who are managing these patients are up to date with their vaccination schedules.

- Healthcare worker who are managing and providing routine care for PUI cases with Acute Respiratory Infections need to be trained on proper use of PPE.

- Keep a register of health-care workers who have provided care for patients with ARIs of potential concern, for contact tracing.

- The creation of a dedicated team consisting of nurses, medical officers and specialist and other supportive staff from other areas are recommended.

- The HCWs/ support staff who are managing and providing routine care for PUI/ confirmed cases should be monitored for symptoms minimum daily. If HCWs become symptomatic, he / she needs to report to the supervisor in the team and managed accordingly.

L. VISITORS

- No visitor should be allowed.
- If absolutely necessary, discuss with the managing team.
    - All visitors should be screened for acute respiratory illness before allowing to enter.
    - Document and limit the number of visitors at scheduled time
    - Appropriate instruction on use of PPE and other precautions (e.g., hand hygiene, limiting surfaces touched) should be given while in the patient's room
    - Visitors should be advised to limit their movement in the healthcare facility.
    - Exposed visitors should report any signs of symptoms to their healthcare providers.
- Staff must instruct and supervise all visitors on the donning and doffing of PPE (gown, glove, N95 mask) before entering the room.
- The visit time must be limited and avoid close contact (< 1m).
- Perform hand hygiene on entering and leaving the room.
- Visitors who have been in contact with the patient before and during hospitalization (i.e. parents taking care of their children) are a possible source/ contact of the infection.
- PPE recommend for these long-term carers may be limited to surgical mask. The use of plastic aprons and gloves are recommended when anticipating exposure to bodily fluids.

References

1. Policies and Procedures on Infection Prevention and Control – Ministry of Health Malaysia; 2018
2. Interim infection prevention and control recommendation for patients with confirmed 2019- Novel coronavirus or patient under investigation for COVID-19 in healthcare setting. Updated Feb 3 2020. CDC
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6. Infection prevention and control during health care when novel coronavirus (COVID-19) infection is suspected, Interim Guidance. WHO Jan 2020