



COVID-19

Infection Prevention and Control in Private Healthcare Facilities (General Practitioners)

Dr. Suraya Amir Husin

Head of Infection Control Unit
Medical Care Quality Section
Medical Development Division, MOH

Disclaimers

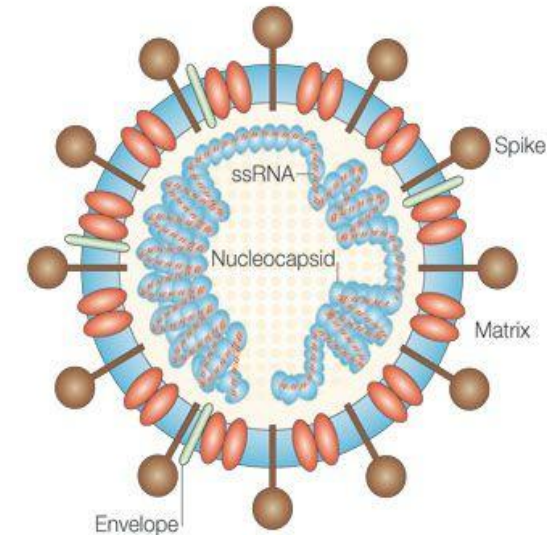
- This slide was prepared for the Webinar Session with General Practitioners on COVID-19 session on 22/3/2020, by Dr. Suraya Amir Husin, Head of Infection Control Unit, Medical Care Quality Section, Medical Development Division, MOH.
- The session is intended for General Practitioners working in Malaysia.
- Medical Development Division, MOH in collaboration with Malaysian Medical Association (MMA) and National Institute of Health hosted this webinar session with the aim to provide General Practitioners with the current information and Infection Control Practice related to COVID-19 pandemic.
- This is intended to share within healthcare professionals, not for public. Kindly acknowledge "Clinical Updates in COVID-19 https://twitter.com/clinUp_covid" should you plan to share the information obtained from this slide with your colleagues.

Outline

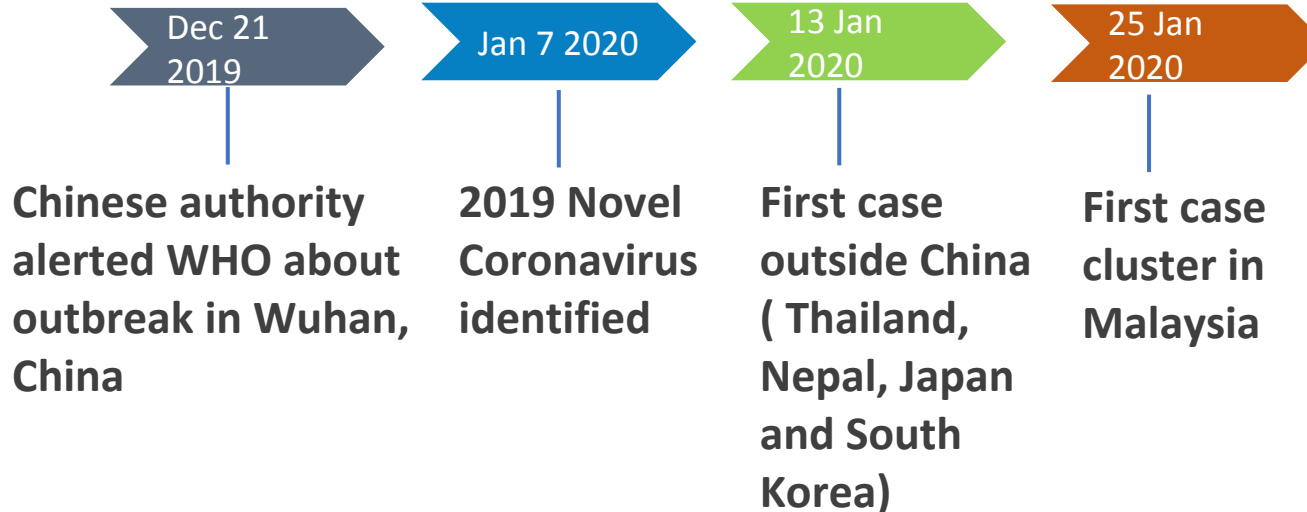
1. Introduction COVID-19
2. Case Definition of COVID-19
3. Definition of Contact
4. Admission Criteria
5. Infection Control:
 - i. Hierarchy of Control
 - ii. Principles of Infection Prevention and Control for acute respiratory infection
 - iii. Standard and transmission based precaution
 - iv. PPE Recommendation
 - v. Disinfection

Introduction of COVID-19

- Coronavirus disease 2019 (COVID-19) is defined as illness caused by a novel (new) coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV), which was first detected amid outbreak of respiratory illness in Wuhan City, Hubei Province , China.
- Coronaviruses is an enveloped , positive sense, single-stranded RNA viruses that are round and sometimes pleomorphic with 80-120nm diameter and belongs to the family Coronaviridae.



Short Evolution of COVID-19



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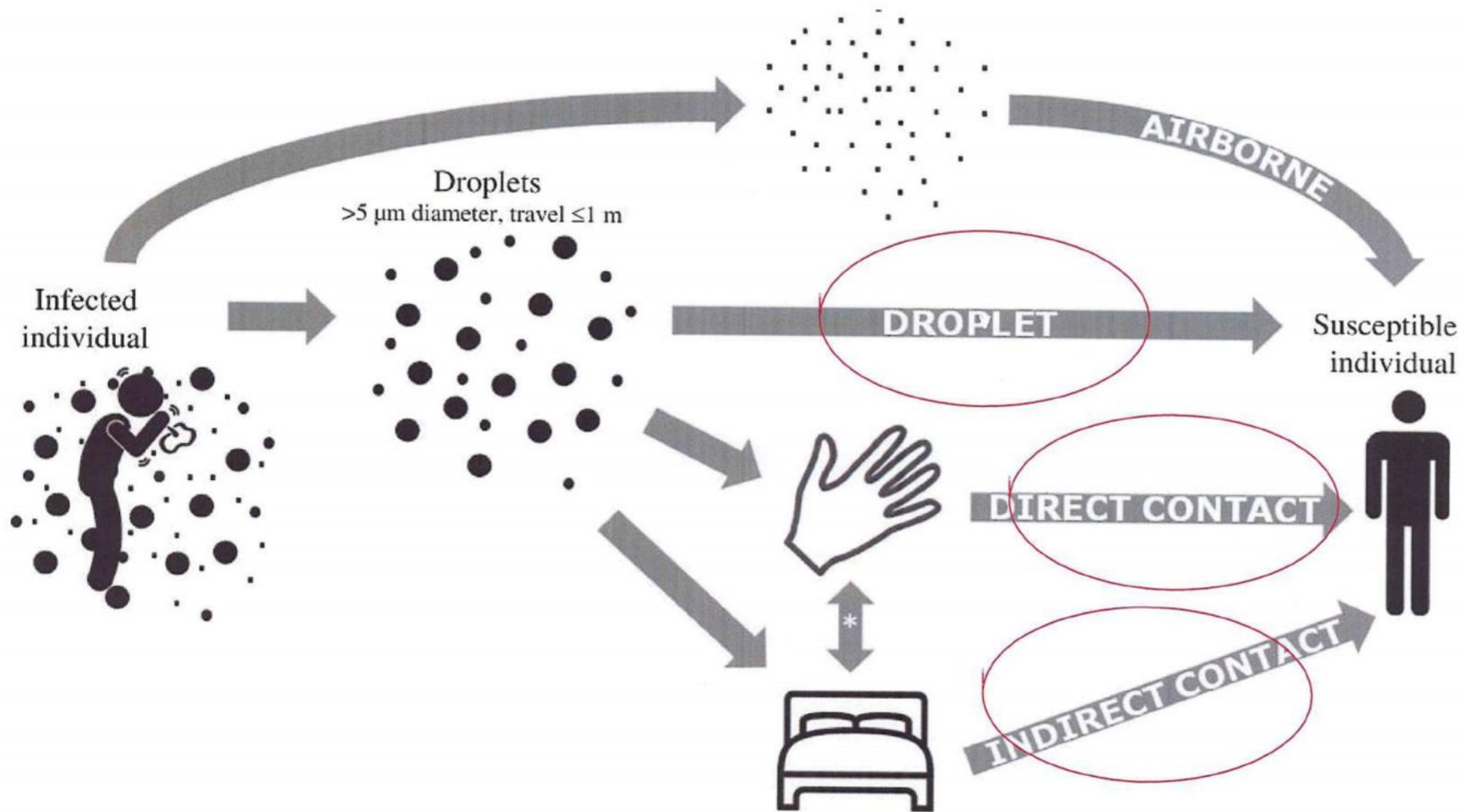
Transmission

Person-to-person spread

- The virus is thought to spread mainly from person-to-person.
- Between people who are in close contact with one another (within about 6 feet).
 - Through respiratory droplets produced when an infected person coughs or sneezes.
 - These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

Spread from contact with contaminated surfaces or objects

- It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes.



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Case Definition (Guidelines COVID-19 Management In Malaysia No. 4/2020)

PUI of COVID -19

- Fever **OR** acute respiratory infection (sudden onset of respiratory infection with at least one of : shortness of breath, cough or sore throat) **AND**
- Travel to or reside in affected countries in the 14 days before the onset of illness **OR**
- **Close contact** in 14 days before illness onset with a confirmed case of COVID-19

Confirmed Case of COVID-19

- A person with **laboratory confirmation** of infection with the COVID-19

Definition of Contact

A contact of a COVID-19 case is a person not currently presenting symptoms, who has, or may have been in contact with a COVID-19 case

Close Contacts

- I. Health care associated exposure **without** appropriate PPE (including providing direct care for COVID-19 patients, working with health care workers infected with COVID-19, visiting patients or staying in the same close environment of a COVID-19 patient
- II. Working together in close proximity or sharing same classroom environment with a COVID-19 patient
- III. Traveling together with COVID-19 patient in any kind of conveyance
- IV. Living in the same household as COVID-19 patient

****Note:** Transit in an airport located in affecting countries is not considered as having travelled to that country.

Casual Contact

- I. A person who was in a closed environment with a COVID-19 case for less than 15 mins or at a distance of more than 2 metres
- II. A person having face-to-face contact with a COVID-19 case for less than 15 mins and at a distance of less than 2 metres.

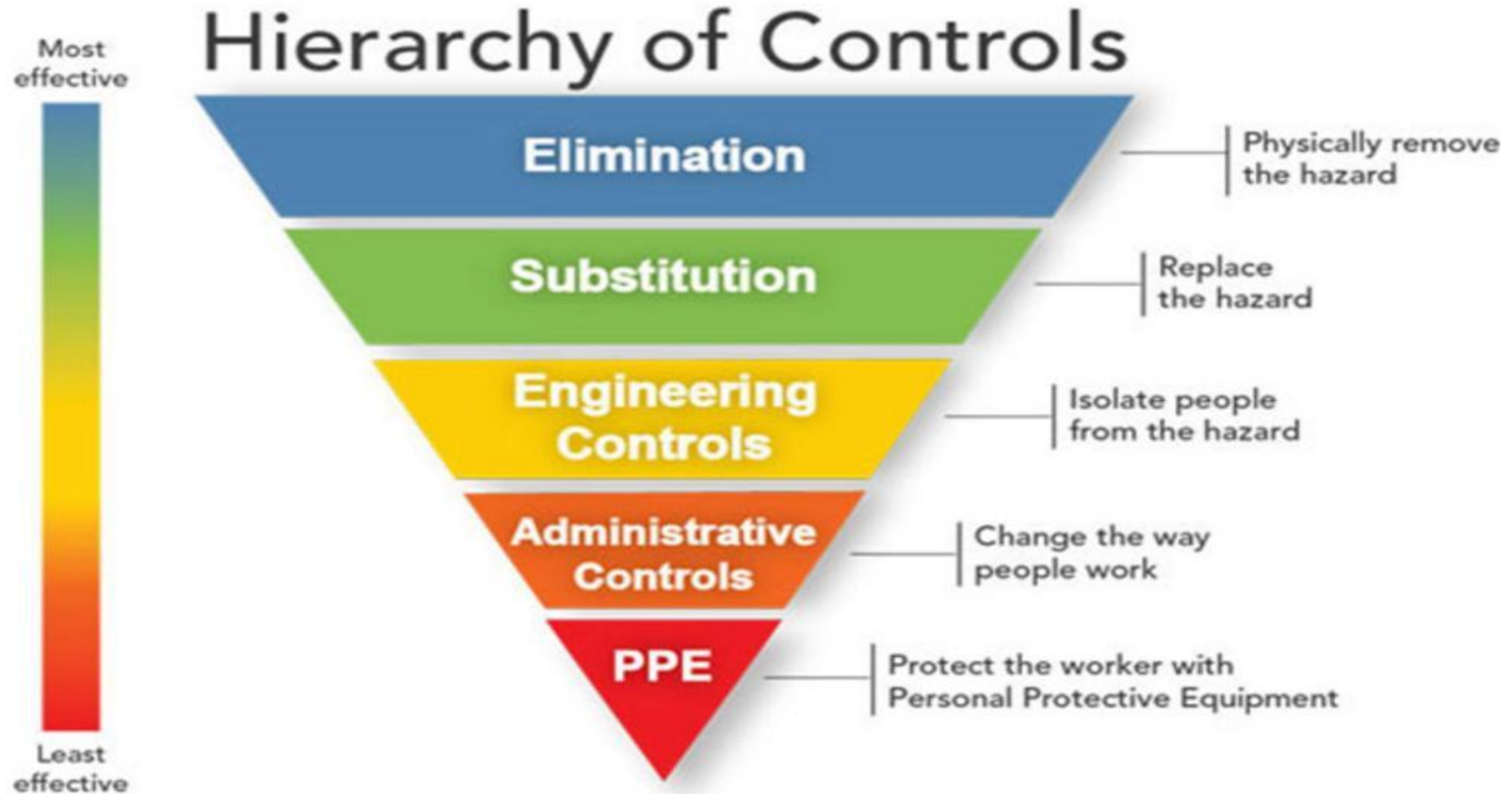
Source : Guidelines COVID-19 Management and ECDC Public Health Management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union

Admission Criteria

(Guidelines COVID-19 Management In Malaysia No. 4/2020)

1. PUI COVID-19 who is critically ill
2. PUI COVID-19 with uncontrolled medical conditions, immunosuppressed status, pregnant women, extremes of age (< 2 or > 65 years old)
3. Symptomatic close contact of a confirmed case regardless of severity of illness
4. Laboratory confirmed case (asymptomatic or symptomatic)
5. Not suitable for home surveillance * (i.e no carer, stay at hotel/hostel/no private transport)

Hierarchy of Controls in Infection



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Principles of Infection Prevention and Control for acute respiratory infection (ARI)

The principles of IPC for **acute respiratory infection (ARI)** patient care include:

- a) **Early and rapid recognition** AND **source control** that includes promotion of respiratory hygiene
- b) Application of **Standard Precautions** for all patients;
- c) **Additional precautions** in selected patients (i.e. contact, droplet, airborne) based on the presumptive diagnosis;
- d) Establishment of an **IPC infrastructure** for the healthcare facility, to support IPC activities.
- e) 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 Precaution

What is standard
precaution ?

The **minimum**
infection prevention
practices that should
be used in the care of
ALL patients,
ALL the time.

Standard precautions are **a set of infection control practices** used to prevent transmission of diseases that can be acquired by contact with blood, body fluids, non-intact skin and mucous membranes.

Standard Precaution

Element of Standard Precaution



1. Hand hygiene



2. Personal Protective Equipment (PPE)



3. Disinfectant & Sterilisation



4. Environmental Hygiene

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Standard Precaution

Element of Standard Precaution



5. Linen Management



6. Waste Management



7. Spillage Management



8. Injection safety & Sharps management



9. Respiratory Hygiene & Cough Etiquette

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Transmission Based Precautions



CDC Transmission-Based Precautions



When treating patients who are known or suspected of being infected or colonized with infectious agents.

Applied according to the clinical syndrome and the likely etiologic agents, and then modified based on test results.

These precautions are to be implemented **in conjunction with STANDARD PRECAUTION.**

Transmission Based Precautions

Three types :
Contact
Droplet
Airborne

May be combined for diseases that have multiple routes of transmission.



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- Herpes Simplex
- Herpes Zoster
- Multidrug Resistance Organisms (MDRO)
 - Methycillin Resistance Staphylococcus Aureus (MRSA)
 - Extended Spectrum Beta Lactamase (ESBL)
 - Carbapenem Resistance Enterobacteriaceae (CRE)
- Streptococcal Disease – skin, wound, burns
- Typhoid (Salmonella Typhii)
- Varicella Zoster



Visitors: Report to nurse before entry



Handwashing after all patient / environmental contact and glove removal.

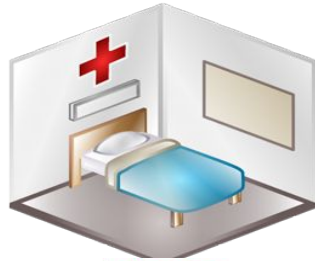


Gloves required for all patient / environmental contact.



Long sleeved gown required for all patient / environmental contact

Contact Precautions



Infection



Isolation Area
Please Speak to
Nurse Before Entering

Isolate the patient in a single room , if single room is not available, cohort the patient (with same organism) at a designated area

Strict hand hygiene before entering and upon exiting the patient room / area



All patient need to be tag for easy identification e.g. medical records, bedside area



Appropriate Personal Protective Equipment (PPE)
Dedicated medical equipment



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- Diphtheria – Pharyngeal
- Epiglottitis – Haemophilus Influenza
- Meningitis (Haemophilus Influenza, Meningococcal)
- Severe Acute Respiratory Infection (SARI)
- Mumps
- Influenza
- Mers-CoV
- **SARS-CoV-2 (COVID-19)**

Note: To apply Airborne Precaution in Aerosol Generating Procedure (AGP)



Visitors: Report to nurse before entry



Handwashing after all patient / environmental contact and glove removal.



Surgical mask and eye protection required when within 3 feet of the patient.



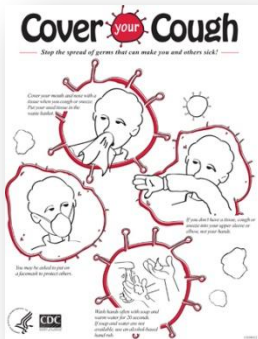
Gloves required for all patient / environmental contact.

Droplet Precautions

Health-care facilities (Outpatient and Emergency Department) should :



Place acute febrile respiratory symptomatic patients at least 1 meter (3 feet) away from others in common waiting areas, if possible.



Place visual alerts at the entrance to health-care facilities instructing persons with respiratory symptoms to practice respiratory hygiene/cough etiquette.



Provide hand hygiene resources, tissues and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.

IPC Measures When Dealing with PUI for COVID-19

- 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.

IPC Measures When Dealing with PUI for COVID-19

- Place in pre-designated waiting area
- Patient information's
- Notify District Health Office
- Refer to screening hospital (public transport not allowed)
- Disinfect waiting area

Pre-designated area:

- > 1 meter away from other patients & staff
- Minimal surrounding items

Personal Protective Equipment (PPE) recommendation based on exposure of risk

SETTING	TARGET PERSONNEL	ACITVITY	TYPE OF PPE
Triage	HCW	Maintained 1-2m spatial distance at all time	<ul style="list-style-type: none">• Surgical mask• Frequent Hand hygiene *Full PPE set must be made availabe at the site in case of emergency
Patient Waiting Area	Patients	Patient with respiratory symptoms	<ul style="list-style-type: none">• Patient to wear a face mask. Should be seated at the designated area and to sit at least 1m apart

Personal Protective Equipment (PPE) recommendation based on exposure of risk

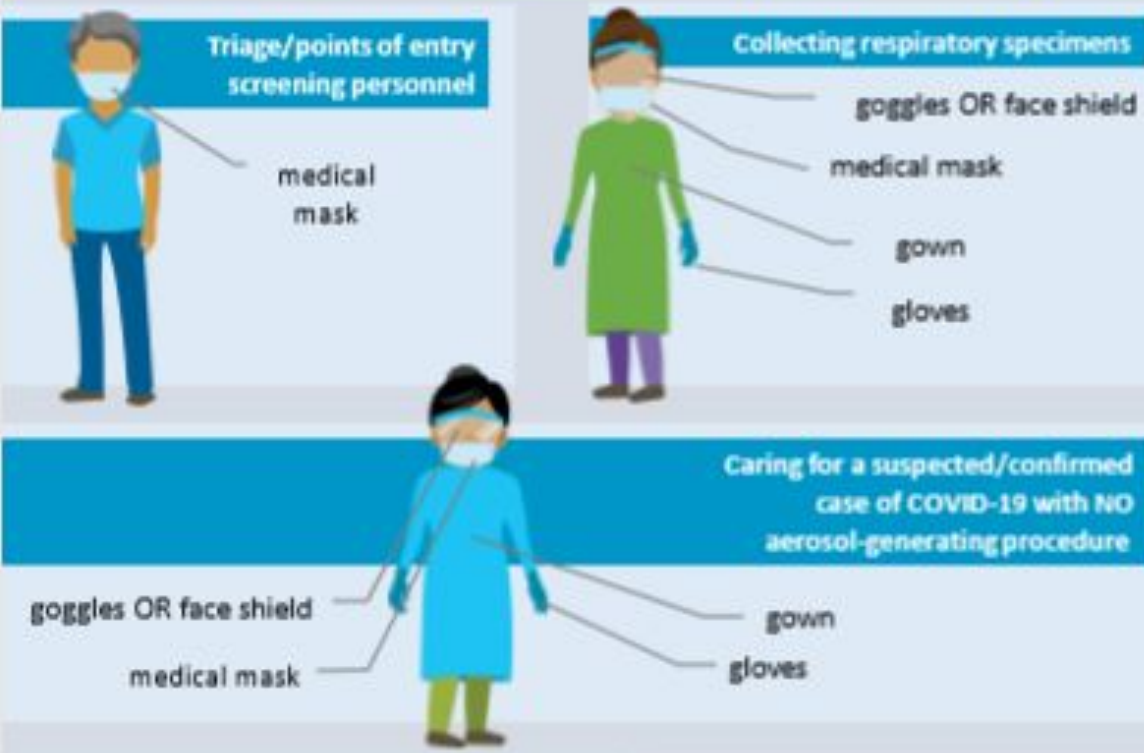
SETTING	TARGET PERSONNEL	ACITVITY	TYPE OF PPE
Examination Room / Consultation Room	HCWs	History taking/ Physical examination/ providing care * patient should be reminded to wear a surgical mask(if tolerarable). If not, advise patient to cover nose and mouth when the HCW enters the room	<ul style="list-style-type: none"> Surgical mask
	Cleaners	Cleaning in the outpatient consultation rooms *increase frequency of cleaning at areas with higher environmental contamination rates	<ul style="list-style-type: none"> Surgical mask Long sleeved plastic gown/ apron Gloves Eye Protection (goggles / face shield) Boots or closed shoes

Novel Coronavirus COVID-19

FOR HEALTHCARE WORKERS

Personal Protective Equipment (PPE) According to Healthcare Activities

Remember Hand hygiene is always important. Clean hands before putting on, and after taking off, PPE.



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Recommended PPE To Be Used When Attending Or Treating Acute Respiratory Infection (ARI) Patient

SETTING	TARGET PERSONNEL	ACITVITY	TYPE OF PPE
Examination Room / Consultation Room	HCWs	History taking / physical examination / providing care *patient should be reminded to wear a Surgical mask (if tolerable) If not tolerable, advise the patient to cover nose and mouth during coughing or sneezing with tissue or flexed elbow.	<ul style="list-style-type: none"> • Surgical mask • Hand Hygiene
		Performing Aerosol Generating Procedures (AGP) in out-patient setting e.g, <ul style="list-style-type: none"> • Manual ventilation • Nebulization 	<ul style="list-style-type: none"> • N95 • Gloves • long-sleeved gown • Eye protection (goggles / face shield) • Head cover

Disinfection

- Clean and disinfect surfaces likely to be contaminated and frequently touched surfaces in the patient care environment (e.g examination bed), frequently-touched surfaces in patient care environment (e.g., door knobs, surfaces in and surrounding toilets)
- Minimum requirement of cleaning and disinfection at least once a day and more frequently if visibly soiled.

Disinfectant :

- I. Sodium hypochlorite at 1000ppm
- II. Visible contamination or spills – higher dilution of EPA registered disinfection (e.g. Sodium hypochlorite 10,000ppm)

Reused equipment:

- Not visibly soiled, wipe external surfaces of large portable equipment (e.g. X-Ray and ultrasound machines)

Recommendations for Methods of Disinfection (Reused Equipment)

Items	Recommendation	Minimum Frequency/ Cleaning Process
Blood pressure cuffs	Wipe with low-level disinfectant e.g 70% alcohol or hypochlorite solution or QUAD wipes	In between patients
Stethoscope	<ul style="list-style-type: none"> • Wipe with 70% alcohol • Option: disposable stethoscope cover 	In between patients or use designated stethoscope for infectious or high-risk patient
Thermometer	Use sheath cover or wipe with 70% alcohol	After every use
Otoscope Handle	Wipe with low-level disinfectant e.g 70% alcohol or hydrogen peroxide 0.5% wipes	In between patients

Terminal Cleaning

- After patient discharged/transferred
- Before entering the room, cleaning equipment should be assembled before applying PPE.
- PPE must not be worn or taken outside the patient room or bed space.
- Remove curtains and placed in red linen bag with alginate plastic.
- Ensure locker/drawer/wardrobe/under bed storage etc, are empty.
- Cleaning must include 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**.
- Use disinfectants such as sodium hypochlorite.
- Surface must be free from organic soil.
- Neutral detergent solution can be used to clean the environment prior to disinfection or a combined detergent /disinfectant may be used.

Terminal Cleaning

PPE for Cleaner

1. Surgical mask
2. Long-sleeved gown
3. Gloves
4. Eye Protection (goggles / face shield)
5. Boots or closed shoes

Active Ingredients and Their Working Concentrations Effective Against Coronaviruses

Active Ingredient (A.I.)
Accelerated hydrogen peroxide (0.5%) ^a
Benzalkonium chloride* (0.05%) ^b
Chloroxynol (0.12%) ^c
Ethyl alcohol (70%) ^d
Iodine in iodophor (50 ppm) ^b
Isopropanol (50%) ^b
Povidone-iodine (1% iodine) ^d
Sodium hypochlorite (0.05 – 0.5%) ^{d, e}
Sodium chlorite (0.23%) ^b

Preparation of Disinfectants

Concentration of Disinfectant		Total 2.5gm Disinfectant Tablets to be used	Water Volume (ml)	Usage
10,000ppm	1%	7	1,000ml	<ul style="list-style-type: none"> • Spillage management • Wiping and cleaning of blood/body fluids on surfaces of non-critical items
5,000ppm	0.5%	4	1,200ml	<ul style="list-style-type: none"> • Wiping of external surface of soiled linen bag
1,000ppm	0.1%	1	1,000ml	<ul style="list-style-type: none"> • General cleaning

List of Household Disinfectants / Cleaning Products Effective Against Coronaviruses

Product Name	Active Ingredients
CIF Power & Shine Multipurpose Anti-Bac Spray 700ml	Benzalkonium chloride (0.75%)
CIF Professional All Purpose Cleaner	Benzalkonium chloride (0.75%)
CIF Professional Disinfectant Floor Cleaner 5L	Benzalkonium chloride (1.2-1.4%)
Clorox Disinfectant Wipes	Benzalkonium chloride (0.184%)
Clorox Scentiva Disinfecting Multi-Surface Cleaner (Various Scents)	Benzalkonium chloride (0.3%)
Dettol Anti-bacterial Surface Cleanser Trigger Spray	Benzalkonium chloride (0.096%)
Magiclean Floor Cleaner (Various Scent)	Benzalkonium chloride (0.7%)
Magiclean Wiper Wet Sheets	Benzalkonium chloride (0.05%)
Mr Muscle Multi-Purpose Cleaner (Various Scents)	Benzalkonium chloride (0.1-0.5%)
Dettol Antiseptic Disinfectant Liquid	Chloroxylenol (4.8%)
Dettol Antiseptic Germicide	Chloroxylenol (4.8%)
Clorox All Purpose Cleaner with Bleach	Sodium hypochlorite (2.4%)
Clorox Bleach Original	Sodium hypochlorite (5.25%)
Clorox Clean-Up All-Purpose Cleaner with Bleach (Various Scents)	Sodium hypochlorite (2.4%)
Clorox Clean-Up Cleaner + Bleach	Sodium hypochlorite (1.84%)

Exposure Risk Assessment for Healthcare Workers

Category of risk exposure	Circumstances
High-risk exposures	<ul style="list-style-type: none">• HCW who performed or were present in the room for procedures that generate aerosols or during which respiratory secretions are likely to be poorly controlled* on patients with COVID-19 AND• when the healthcare providers' eyes, nose, or mouth were not protected.
Medium-risk exposures	<ul style="list-style-type: none">• HCW who had prolonged close contact with patients with COVID-19• where HCW mucous membranes or hands were exposed to potentially infectious materials for COVID-19 <p>These exposures could place the exposed HCW at risk of developing disease.</p>
Low-risk exposures	To account for any inconsistencies in use or adherence that could result in unrecognized exposures in a fully PPE gown HCW.

No identifiable risk

- HCW with no direct patient contact and
- no entry into active patient management areas
- who adhere to routine safety precautions

These HCWs are not considered to have a risk of exposure to COVID-19

Exposure Risk Assessment for Healthcare Workers

Epidemiologic risk factor		Exposure category	Recommended monitoring	Work restrictions for asymptomatic HCW
HCW's PPE	Circumstances			
Unprotected eyes, nose, or mouth ¹	Who perform <u>or</u> are present in the room for a procedure likely to generate higher concentrations of respiratory secretions or aerosols *	High	Active [#]	Exclude from work and put on home surveillance for 14 days after last exposure
Not using a gown and gloves.	Who perform or are present in the room for a procedure likely to generate higher concentrations of respiratory secretions or aerosols *	Medium Note: If the HCP's eyes, nose, <u>or</u> mouth were also unprotected they would fall into the high-risk category	Active [#]	Exclude from work and put on home surveillance for 14 days after last exposure

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Exposure Risk Assessment for Healthcare Workers

Epidemiologic risk factor		Exposure category	Recommended monitoring	Work restrictions for asymptomatic HCW
HCW's PPE	Circumstances			
Wearing a face mask or respirator only	Who have prolonged close contact with a patient who was wearing a facemask	Low <i>Note: A respirator (eg N95 mask) confers a higher level of protection than a facemask. However, they are grouped together in this scenario and classified as low-risk because the patient was wearing a facemask for source control.</i>	Active [#]	No work restrictions
Using all recommended PPE (i.e., a respirator, eye protection, gloves and a gown)	While caring for or having contact with the secretions / excretions of a patient	Low	Active [#]	No work restrictions

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Exposure risk Assessment for Healthcare Workers

Epidemiologic risk factor		Exposure category	Recommended monitoring	Work restrictions for asymptomatic HCW
HCW's PPE	Circumstances			
Not using all recommended PPE	<p>Who have brief interactions with a confirmed CoVID-19 patient regardless of whether patient was wearing a facemask</p> <p><i>(e.g., brief conversation at a triage desk; briefly entering a patient room but not having direct contact with the</i></p>	Low	Active [#]	No work restrictions
No PPE	Who walk by a patient or who have no direct contact with the patient or their secretions / excretions and no entry into the patient room.	No identifiable risk	None	No work restrictions

□

THANK YOU

Infection Control Unit
Medical Care Quality Section
Medical Development Division
Ministry of Health Malaysia



Reference

1. Guidelines COVID-19 Management In Malaysia No. 4/2020
2. Policies & Procedures on Infection Control 3rd edition, 2018
3. Disinfection Guidelines 2nd Edition 2018
4. Interim List of Household Products and Active Ingredients for Disinfection of the COVID-19 Virus, The National Environment Agency, Singapore
5. ECDC Public Health Management of persons, including healthcare workers, having had contact with COVID-19 cases in the European Union
6. Centre for Disease Control and Prevention, CDC
7. The COVID-19 Risk Communication Package For Healthcare Facilities, WPRO

Webinar Session with General Practitioners on COVID-19



LIVE

Sunday, 22nd March 2020 | 10.00 am – 12.00 noon (MY)

Moderator:



Dr. Fazilah Shaik Allaudin
Senior Deputy Director
Medical Care Quality Section
Medical Development
Division, MOH.

Presenters:



Dr. Suresh Chidambaram
Senior Consultant Infectious
Disease Physician
Head of Medical Department
Hospital Sg. Buloh



Dr. Suraya Amir Husin
Head of Infection Control Unit
Medical Care Quality Section
Medical Development Division,
MOH

Panelists:

Dr.Thirunavukarasu Rajoo (MMA), Dr.Norazah Ahmad (IMR), Dr.Ravindran Thayan (IMR), Dr.Priya Ragunath (MOH), Dr Nazrila Hairizan Nasir (MOH)



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