

Rational use of PPE and Infection Prevention and Control of COVID-19

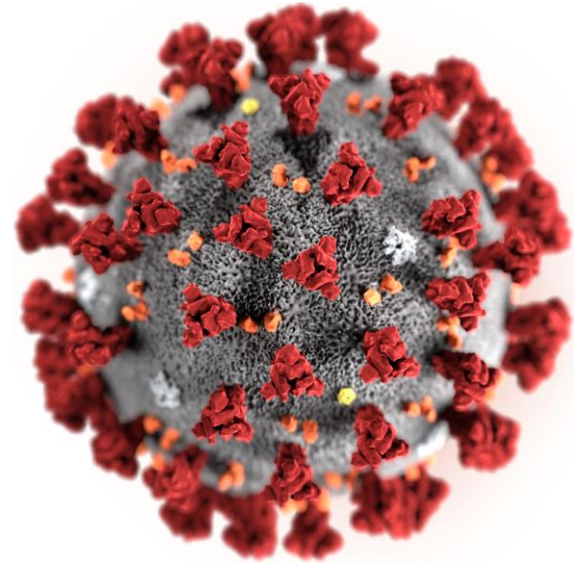
Health care settings in Sri Lanka

**Sri Lanka College of Microbiologists
Epidemiology Unit, Ministry of Health
and Indigenous Medical Services
World Health Organization, Sri Lanka**



Introduction

- Coronaviruses (CoV) are a large family of viruses that cause a wide range of illness from the common cold to more severe diseases
i.e., Middle East Respiratory Syndrome [MERS] and Severe Acute Respiratory Syndrome [SARS]
- A novel coronavirus (nCoV) is a new strain that has not been previously identified in humans.
- COVID-19 or Sars-CoV-2 was identified in Wuhan, China in 2019.



Modes of Transmission of COVID-19

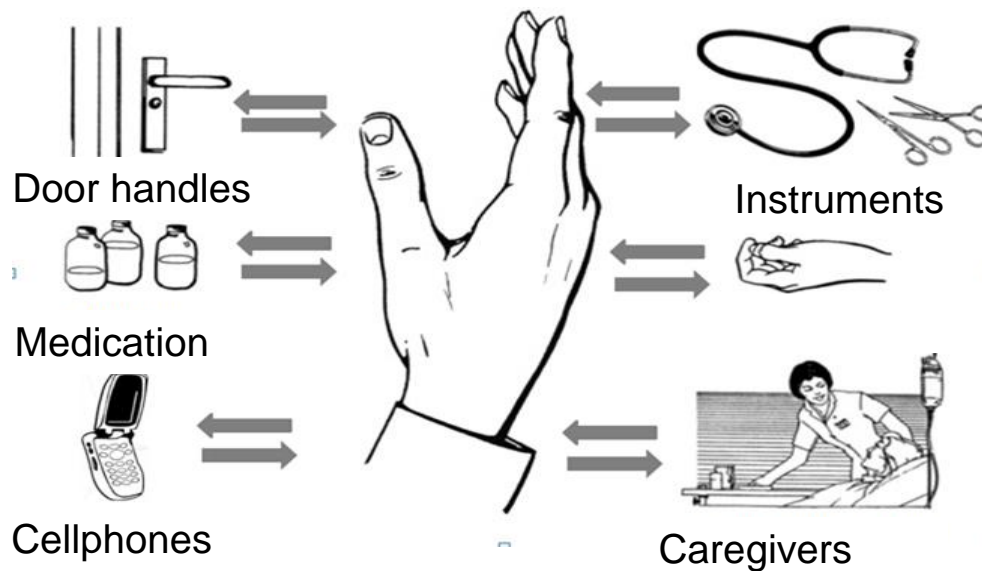
- **Droplets** sprayed by affected individuals through coughing or sneezing
- **Contact** with person's respiratory secretions, or contaminated surfaces and equipment
- There is no current evidence of airborne transmission – unless medically induced aerosol generating procedures (intubation, resuscitation etc). Thus, we recommend airborne precautions for these procedures.



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Hand Hygiene

- **Hand hygiene is the single most effective action** you could do to reduce the spread of pathogens and prevent infections, including the COVID-19 virus.
- Our hands are our main tool for work as health care workers - and they are the key link in the chain of transmission



Hand Hygiene – How to?

- Regularly and thoroughly wash them with soap and water or clean them with alcohol-based hand rub according to the WHO 6 steps: rub the palms, back of palms, interlace fingers, interlock and cup fingers, thumbs and fingertips.
- This proper hand hygiene technique allows all the surfaces of hands being covered and will eliminate the germs in your hands.

1 Perform hand hygiene

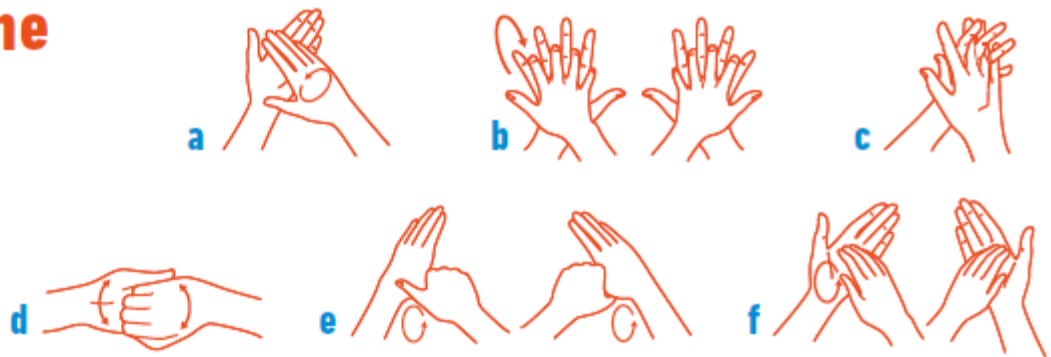
Water and soap

Wash hands for 40–60 seconds.

or

Alcohol based handrub

Rub hands for 20–30 seconds.



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1 Perform hand hygiene

- 1** **Alcohol based handrub** or **Water and soap**
Rub hands for 20–30 seconds. Wash hands for 40–60 seconds.



2 Put on the gown



3 Eye protection

Put on goggles or face shield.



4 Put on the mask

- 4** **Surgical Mask** or **Respirator mask** (N95, FFP2, FFP3, or equivalent).



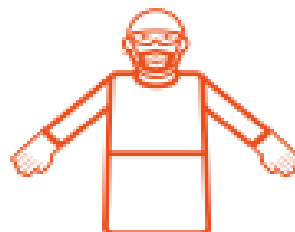
5 Put on gloves

Ensure gloves are placed over the cuff of the gown



Full PPE

Gloves, gown, mask (medical or N95), goggles.



PPE – How to?



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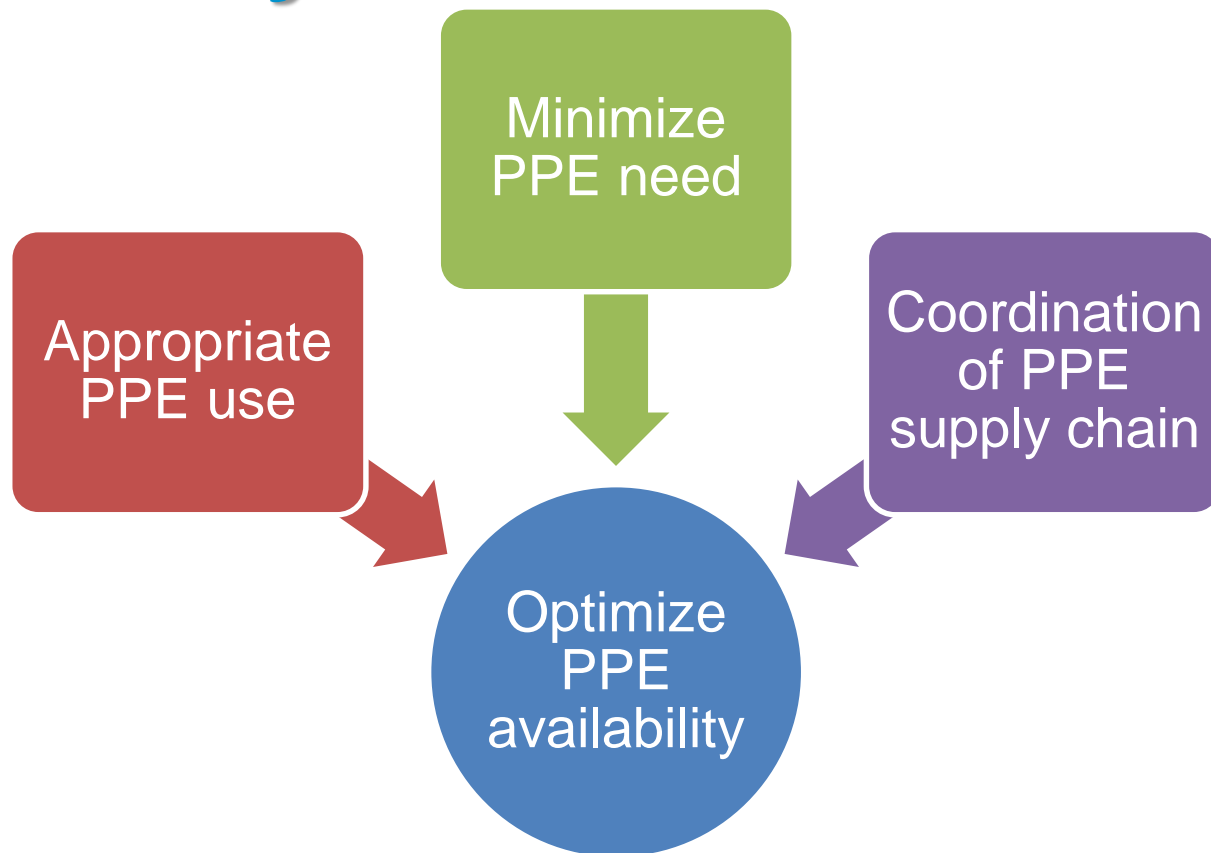
Rational Use of PPE

- **PPEs are in critical shortage globally**
- **Use PPEs only when they are indicated**
- **For the community, WHO recommend ONLY contact and droplet precautions and does not recommend the use of any PPE**
- **This presentation is based on the recommended PPE for health care workers in Sri Lanka at various settings/activities performed**



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Strategies to Optimize PPE Availability



Minimizing the Need for PPE

- Implement **physical barriers** (glass/plastic windows), to reduce exposure to COVID-19 virus, where patients first present: triage areas, registration desk, pharmacy window
- **Limit** number of healthcare **workers/others entering** COVID-19 patients' **rooms**.
- **Plan ahead** what activities will be performed at bedside to avoid multiple entries and exits. Consider **bundle** activities (e.g. check vital signs when administering medication; have health workers deliver food when performing other care).
- Do not allow **visitors** where COVID-19 patients are isolated, or restrict their number and time allowed, and provide clear instructions on how to put on and remove PPE to avoid self-contamination.



Examples of PPE for Use in Health Care Settings for COVID-19

Gown



Body

Gloves



Hands

Face Mask



**Nose +
mouth**

N95 Mask



Nose + mouth

Face shield



Eyes + nose + mouth

Goggle



Eyes

Appropriate PPE Use: Risk Assessment and Standard Precautions

Risk assessment: assessing the risk of exposure and extent of contact anticipated with respiratory droplets, blood, body fluids and/or open skin

- Select which PPE items to wear based on this assessment
- Perform hand hygiene according to the WHO “5 Moments”
- Should be done for each patient, each time!

Make this routine!



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General guidelines on use of PPE

- In addition to using the appropriate PPE, frequent hand hygiene and respiratory hygiene should always be performed.

Healthcare workers should discard PPE in an appropriate waste container (closed bin with a yellow bag) after use and perform hand hygiene before donning (putting on) and after doffing (taking off) of PPE.

- PPE should be removed immediately after the procedure is completed. Extended use beyond the clinical area will contaminate other settings.
- Having the mask beyond the recommended activity will lead to higher chances of mishandling, which in turn will lead to contamination of hands and face.



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Recommended PPE for Various Settings (1)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Triage	Health care workers	Preliminary screening not involving direct contact	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • Surgical mask
	Patients with respiratory symptoms	Any	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • Provide a surgical mask
	Patients without respiratory symptoms	Any	<ul style="list-style-type: none"> • No PPE required



Recommended PPE for Various Settings (2)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Emergency Treatment Unit	Health care workers	Providing care for patients with respiratory symptoms- within one-meter distance	<ul style="list-style-type: none"> • Surgical mask • Gown • Gloves • Apron • Eye Protection (goggles or face shield)
	Health care workers	Emergency procedures such as intubation where there is a possibility of aerosol generation	<ul style="list-style-type: none"> • NIOSH approved N-95 or FFP2 standard or equal mask • Impermeable gown • Gloves • Eye protection (goggles or face shield) • Surgical hood or cap • Covered shoes and fluid resistant shoe cover or boots



Recommended PPE for Various Settings (3)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Emergency Treatment Unit	Cleaners	Cleaning after an aerosol generating procedure	<ul style="list-style-type: none"> • Surgical masks • Fluid resistant gown • Heavy duty gloves • Eye protection (if risk of splash from organic material or chemicals) • Boots or closed work shoes and shoe covers • Surgical cap or surgical hood (Masks and eye protection can be shared between rooms of confirmed cases or between rooms of suspected cases)



Recommended PPE for Various Settings (4)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Waiting room	Patients with respiratory symptoms	Any	<ul style="list-style-type: none"> • Provide surgical mask • Immediately move the patient to an isolation room or separate area away from others. If this is not feasible, ensure spatial distance of at least 1 meter from other patients
	Patients without respiratory symptoms	Any	<ul style="list-style-type: none"> • No PPE required • Maintain spatial distance of at least 1 meter
Patient transit (e.g. to the ward or in-between departments/wards)	Health care workers	Any	<ul style="list-style-type: none"> • Surgical mask • Gloves

Recommended PPE for various settings (5)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Entrance/corridors/ all areas	Security personal	When performing security related checking etc.	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • Surgical mask when 1 meter distance cannot be maintained • Gloves if body checks are needed (avoid as much as possible during this emergency situation)



Recommended PPE for various settings (6)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Inpatient facilities			
Patient room/ward (COVID-19 patients)	Health care workers	Providing direct care to COVID-19 patients	<ul style="list-style-type: none"> • NIOSH approved N95 mask or FFP2 standard, or equivalent • Impermeable gown • Gloves • Eye protection (goggles or face shield) • Surgical hood or cap • Covered shoes and fluid resistant shoe cover or boots
		Aerosol generating procedures performed on COVID -19 patients	<ul style="list-style-type: none"> • NIOSH approved N95 mask or FFP2 standard, or equivalent • Impermeable gown • Gloves • Eye Protection (goggles or face shield) • Apron • Surgical hood or cap • Covered shoes and fluid resistant shoe cover or boots
		Transporting specimens to laboratories	<ul style="list-style-type: none"> • Surgical mask • Gloves



Recommended PPE for Various Settings (7)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Inpatient facilities			
Patient room/ward (COVID-19 patients)	Cleaners	Entering the room of COVID-19 patients	<ul style="list-style-type: none"> • NIOSH approved N-95 or FFP2 standard or equal mask • Fluid resistant gown • Heavy duty gloves • Eye protection • Boots or closed work shoes and shoe covers • Surgical cap or surgical Hood (Masks and eye protection can be shared between rooms of confirmed cases or between rooms of suspected cases)
	Visitors (limit visitors)	Entering the room of COVID-19 patients	<ul style="list-style-type: none"> • Surgical mask • Gown • Gloves



Recommended PPE for Various Settings (8)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Inpatient facilities			
Patient room/ward (non- COVID-19 patients)	Healthcare workers	Providing care for patients with respiratory symptoms (not suspected or confirmed COVID-19 patients) - Not within one-meter distance	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • No PPE required
		Providing care for patients with respiratory symptoms not suspected nor confirmed COVID-19 patients)- Within one-meter distance	<ul style="list-style-type: none"> • Surgical mask • Gown • Gloves • Apron • Eye Protection (goggles or face shield) (if risk of splash from organic material or chemicals)
		Aerosol generating procedures performed	<ul style="list-style-type: none"> • NIOSH approved N95 mask or FFP2 standard, or equivalent. • Impermeable gown • gloves • Eye Protection (goggles or face shield) • Surgical hood or cap • Covered shoes and fluid resistant shoe cover or boots

Recommended PPE for various settings (9)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Inpatient facilities			
Laboratory	Lab technician	Manipulation of respiratory samples (while working inside the safety cabinet)	<ul style="list-style-type: none"> • Surgical mask • Gown • Gloves • Eye protection (if risk of splash)
	Lab technician	Handling specimens other than respiratory samples	<ul style="list-style-type: none"> • Follow guidelines as before • No special precautions needed for COVID 19
Administrative areas	All staff, including health care workers	Administrative tasks that do not involve contact with patients	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • No PPE required
Other areas (Eg: corridors and tea rooms)	All staff including health care workers	Any activity that does not involve contact with patients with respiratory symptoms	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • No PPE required

Recommended PPE for Various Settings (10)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Outpatient facilities			
Consultation rooms	Health care worker	Physical examination of patients with respiratory symptoms	<ul style="list-style-type: none"> • Surgical mask • Gown • Gloves • Eye protection
	Health care workers	Physical examination of patients without respiratory symptoms	<ul style="list-style-type: none"> • Surgical mask
	Patients with respiratory symptoms	Any	<ul style="list-style-type: none"> • Provide surgical mask
	Patients without respiratory symptoms	any	<ul style="list-style-type: none"> • No PPE required
	Cleaners	After and between consultations with patients with respiratory symptoms	<ul style="list-style-type: none"> • Surgical mask • Fluid resistant gown • Heavy duty gloves • Eye protection (if risk of splash from organic material or chemicals) • Boots or closed work shoes

Recommended PPE for Various Settings (11)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Outpatient facilities			
Administrative areas	All staff, including health care workers	Administrative tasks	<ul style="list-style-type: none">• Maintain spatial distance of at least 1 meter• No PPE required



Recommended PPE for Various Settings (12)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Points of entry / transfers between health care facilities			
Ambulance or transit vehicle	Health care workers	Transporting suspected COVID-19 patients to the referral health care facility in the same compartment of the ambulance to the referral healthcare facility.	<ul style="list-style-type: none"> • NIOSH approved N-95 or FFP2 standard or equal mask • Fluid resistant gowns • Gloves • Eye protection
	Driver	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment is separated from the COVID-19 patient	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter • No PPE required
		Assisting with loading or unloading patient with suspected COVID-19	<ul style="list-style-type: none"> • Surgical mask • Impermeable gown • Gloves • Eye protection
		No direct contact with patient suspected of COVID-19, but no separator between driver's and patient's compartments	<ul style="list-style-type: none"> • Surgical mask

Recommended PPE for Various Settings (13)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Points of entry / transfers between health care facilities			
Ambulance or transit vehicle	Patient with suspected COVID-19 and any accompanying person e.g. mother of a paediatric patient	Transport to the referral health care facility	<ul style="list-style-type: none"> • Surgical mask
	Cleaners	Cleaning after and between transport of patients with suspected COVID-19 to the referral health care facility	<ul style="list-style-type: none"> • Surgical mask • Fluid resistant gown • Heavy duty gloves • Eye protection (if risk of splash from organic material or chemicals) • Boots or closed work shoes



Recommended PPE for Various Settings (14)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Community			
Public areas (e.g. schools, shopping malls, train stations)	Individuals without respiratory symptoms	Any	<ul style="list-style-type: none"> • Maintain spatial distance of at least 1 meter from each other • No PPE required
	Individuals with respiratory symptoms	Any	<ul style="list-style-type: none"> • Advise to use a surgical mask



Recommended PPE for Various Settings (15)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Special considerations for rapid-response teams assisting with public health investigations community			
Anywhere	Rapid-response team investigations	In-person interview of suspected COVID-19 patients or contacts of COVID-19 patients	<ul style="list-style-type: none"> • Surgical mask • Maintain spatial distance of at least 1 meter • The interview should be conducted outside the house or outdoors, and suspected COVID-19 patients should wear a surgical mask



HOW TO GUIDE - PUTTING ON PPE FOR CONTACT/DROPLET PRECAUTIONS

1 Perform hand hygiene

Alcohol based handrub
Rub hands for 20–30 seconds.
or
Water and soap
Wash hands for 40–60 seconds.



2 Put on the gown



3 Put on the mask

Medical mask.



4 Put on eye protection

Put on goggles or face shield.



5 Put on gloves

Ensure glove is placed over the cuff of the gown.



Full PPE



HOW TO GUIDE - TAKING OFF PPE FOR CONTACT/DROPLET PRECAUTIONS

Order is important

1 Remove gloves



2 Remove the gown

Ensure gown is taken off in a manner in which it does not spread anything off of the gown



3 Perform hand hygiene

Alcohol based handrub
Rub hands for 20–30 seconds.
or
Water and soap
Wash hands for 40–60 seconds.



4 Remove eye protection

Remove goggles or face shield.



5 Remove the mask

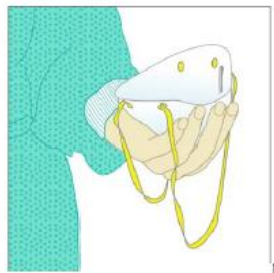


6 Perform hand hygiene

Alcohol based handrub
Rub hands for 20–30 seconds.
or
Water and soap
Wash hands for 40–60 seconds.



N95 Mask Fitting – Do a seal check before you enter the room!



5A Positive seal check

- Exhale sharply. A positive pressure inside the respirator = no leakage. If leakage, adjust position and/or tension straps. Retest the seal.
- Repeat the steps until respirator is sealed properly.

5B Negative seal check

- Inhale deeply. If no leakage, negative pressure will make respirator cling to your face.
- Leakage will result in loss of negative pressure in the respirator due to air entering through gaps in the seal.



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Coordination of PPE supply chain management mechanism

- Heads of institutions perform PPE forecasts based on rational quantification models and also monitoring and control of PPE requests
- An institutionalized (preferably IT-based) request management approach to be in place to avoid wastage or stock-out, with strict adherence to essential stock management rules, including: monitoring end-to-end distribution, and monitoring & controlling consumption in medical facilities storage



Summary - Rational Use of PPE

- Always practice hand hygiene
- Always follow above guidelines according to the health care setting and activity performed
- PPE are in global shortage, be responsible for rational use
- Assess the risk of exposure and use PPEs **only when** they are really **necessary**



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Resources for COVID-19

WHO Coronavirus Homepage

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

All coronavirus (COVID-19) technical guidance documents

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance>

IPC documents

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control>

<https://www.who.int/infection-prevention/publications/en/>

Questions and Answers

<https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>



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