

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

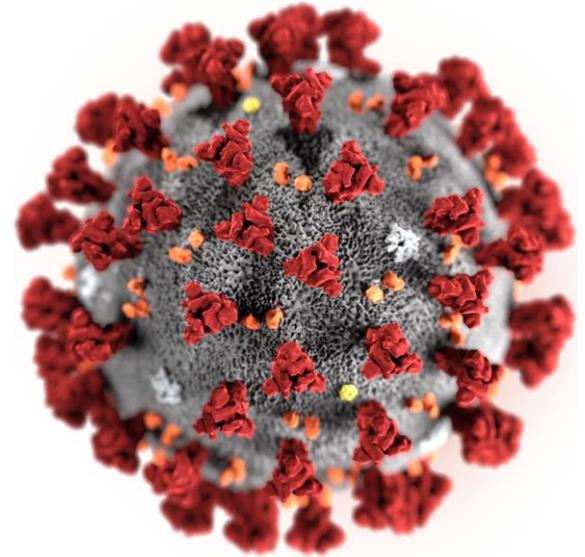
## Health care settings in Sri Lanka

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# 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.



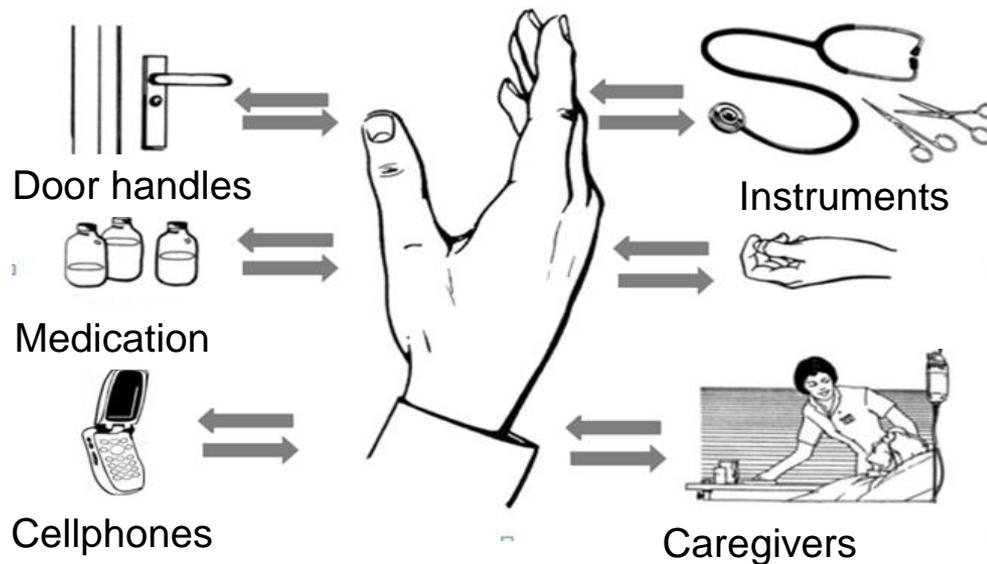
# Modes of Transmission of COVID-19

- **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.



# 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

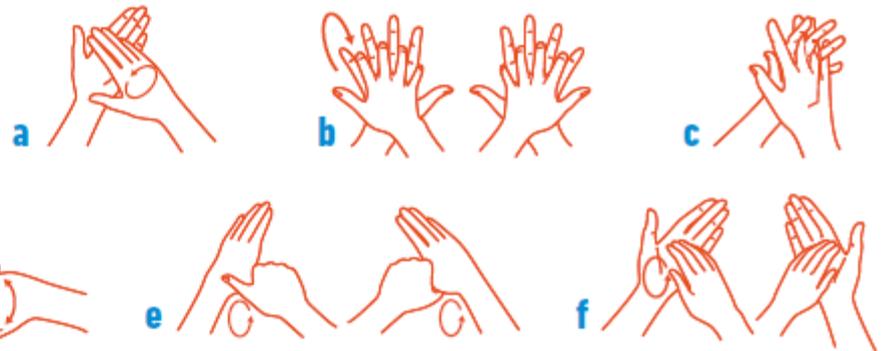
### Water and soap

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.



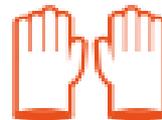
# 4 Put on the mask

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



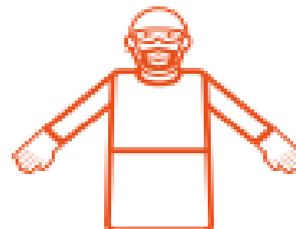
# 5 Put on gloves

Ensure gloves are placed over the cuff of the gown



# Full PPE

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



# PPE – How to?

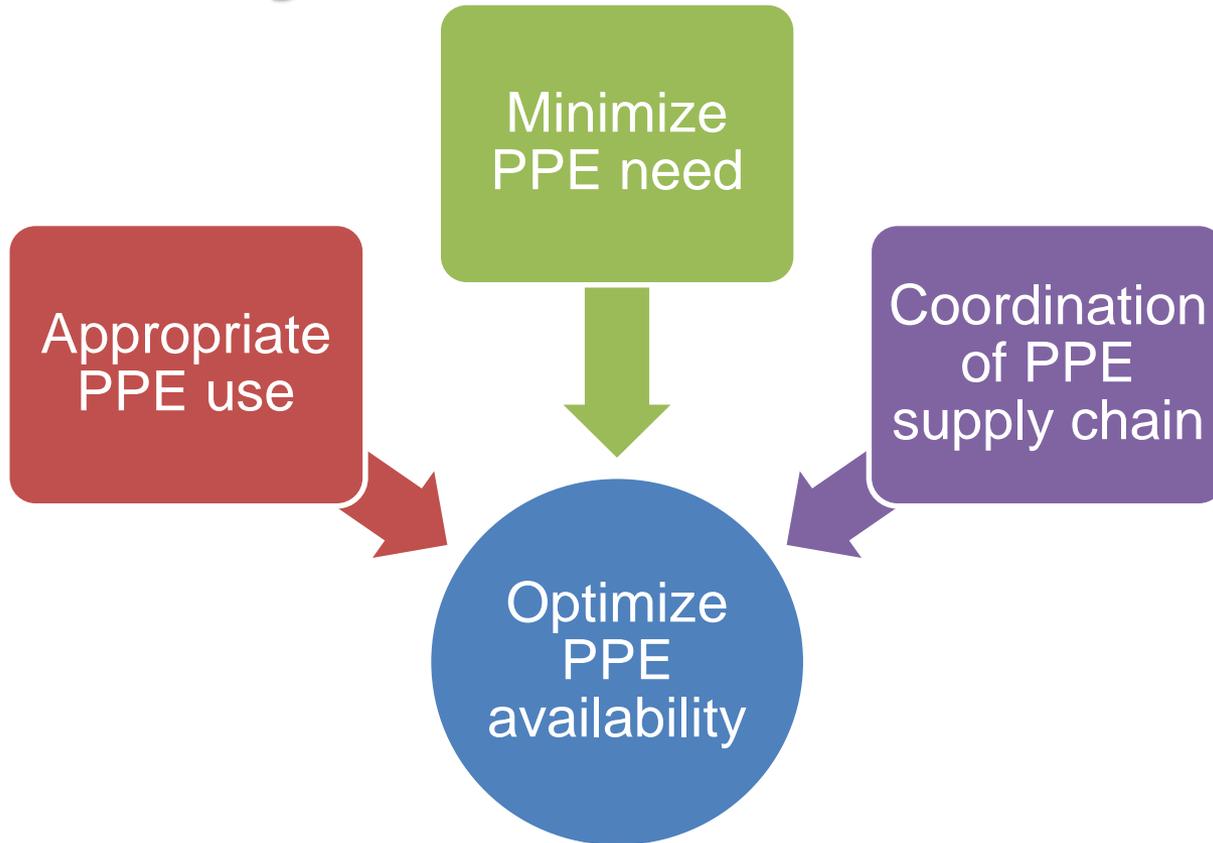


# Rational Use of PPE

- **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**



# 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.



# Recommended PPE for Various Settings (1)

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



# Recommended PPE for Various Settings (2)

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



# Recommended PPE for Various Settings (3)

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



# Recommended PPE for Various Settings (4)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
<b>Health care facilities</b>			
Waiting room	Patients with respiratory symptoms	Any	<ul style="list-style-type: none"> <li>• Provide surgical mask</li> <li>• 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</li> </ul>
	Patients without respiratory symptoms	Any	<ul style="list-style-type: none"> <li>• No PPE required</li> <li>• Maintain spatial distance of at least 1 meter</li> </ul>
Patient transit (e.g. to the ward or in-between departments/wards)	Health care workers	Any	<ul style="list-style-type: none"> <li>• Surgical mask</li> <li>• Gloves</li> </ul>

# Recommended PPE for various settings (5)

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



# Recommended PPE for various settings (6)

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



# Recommended PPE for Various Settings (7)

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



# Recommended PPE for Various Settings (8)

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

# Recommended PPE for various settings (9)

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

# Recommended PPE for Various Settings (10)

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

# Recommended PPE for Various Settings (11)

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



# Recommended PPE for Various Settings (12)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
<b>Points of entry / transfers between health care facilities</b>			
Ambulance or transit vehicle	Health care workers	Transporting suspected COVID-19 patients to the referral health care facility <b>in the same compartment</b> of the ambulance to the referral healthcare facility.	<ul style="list-style-type: none"> <li>• NIOSH approved N-95 or FFP2 standard or equal mask</li> <li>• Fluid resistant gowns</li> <li>• Gloves</li> <li>• Eye protection</li> </ul>
	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"> <li>• Maintain spatial distance of at least 1 meter</li> <li>• No PPE required</li> </ul>
		Assisting with loading or unloading patient with suspected COVID-19	<ul style="list-style-type: none"> <li>• Surgical mask</li> <li>• Impermeable gown</li> <li>• Gloves</li> <li>• Eye protection</li> </ul>
		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"> <li>• Surgical mask</li> </ul>

# Recommended PPE for Various Settings (13)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
<b>Points of entry / transfers between health care facilities</b>			
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"> <li>• Surgical mask</li> </ul>
	Cleaners	Cleaning after and between transport of patients with suspected COVID-19 to the referral health care facility	<ul style="list-style-type: none"> <li>• Surgical mask</li> <li>• Fluid resistant gown</li> <li>• Heavy duty gloves</li> <li>• Eye protection (if risk of splash from organic material or chemicals)</li> <li>• Boots or closed work shoes</li> </ul>



# Recommended PPE for Various Settings (14)

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



# Recommended PPE for Various Settings (15)

Setting	Target personnel or patients	Activity	Type of PPE or procedure
<b>Special considerations for rapid-response teams assisting with public health investigations community</b>			
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"> <li>• Surgical mask</li> <li>• Maintain spatial distance of at least 1 meter</li> <li>• The interview should be conducted outside the house or outdoors, and suspected COVID-19 patients should wear a surgical mask</li> </ul>



# 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

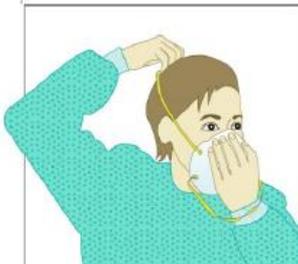
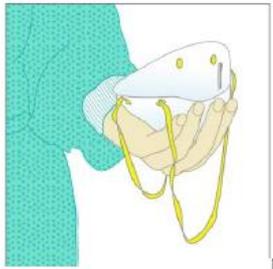


## 6 Perform hand hygiene

**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.



# 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**



# 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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