

CARIBBEAN SHELTER GUIDE COVID-19 CONSIDERATIONS

Preparatory measures to be taken in Emergency Shelters during hurricane season inclusive of Basic Infection Control, Hygiene, Space Management and COVID-19 Precautions

Interim guidance
for Caribbean
countries in light
of COVID-19



Acknowledgement of contributors to this document

We would like to acknowledge and thank those who have contributed to the development of this technical document:

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Hurricane season in the Caribbean

Most shelters in the Caribbean are community centres, schools or churches that are limited in size. The novel coronavirus disease (COVID-19) distancing requirements subsequently reduced the number of persons a shelter can accommodate during the hurricane season. This document reinforces some measures to follow per international Emergency Shelter protocols factoring in conditions for spacing between beds/cots, recreation areas and ventilation according to The Sphere Handbook, FEMA and Australian Red Cross. Physical distancing and hygienic standards were modified highlighting that ideal requirements are not always feasible therefore we may choose realistic recommendations for practical purposes and suspected cases of COVID-19.

Preferred Sheltering Practices

(1) Shelter and Space Management

- Immediate sheltering
- Temporary sheltering
- Sleeping/ living arrangements
- Recreation/ common area
- Ventilation
- Room Temperature

(2) Infection Control and Prevention

- Screening area
- Isolation of ill persons
- Cleaning intervals of designated areas
- Disinfection of areas
- Standard Personal Protective Equipment (PPE)

(3) Shelter Hygiene Standards

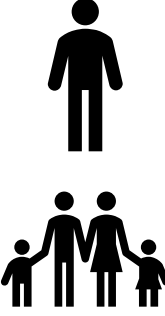

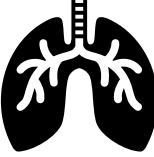
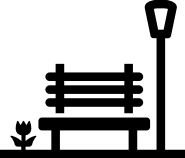


- Bathrooms
- Showers
- Handwashing Stations
- Kitchen
- Waste Disposal




(4) COVID-19 Precautions

- Referral to closest testing center
- Social distancing
- Early detection of suspected cases-
Temperature Checks
- Waste Disposal

Shelter and Space Management

Table 1:

Type	Description	
Immediate Sheltering- person is staying up to 18 hours		<p>A (4.5 ft) physical distance from other persons</p> <p>This rule does not apply to members of the same family, e.g. a mother with children</p>
Temporary sheltering- staying longer than 18 hours		<p>A (6ft) physical distance from other persons</p> <p>Wheelchair-bound individual approximately (7ft) physical distance from other persons</p> <p>This rule does not apply to members of the same family, e.g. a mother with children</p>
Patient with respiratory illness (Suspected COVID-19 patient, not yet tested)		<p>Individual showing signs of COVID-19 or respiratory illness and has not been tested must observe a social distance of (6ft) or as close to 40 sq. ft. as possible until placed in a temporary isolation room/area</p>
Recreation/Commons area		<p>As much as feasible, observe a (4.5 ft) physical distance per person or family</p> <p>If the recreation area is indoors, create a shift system to limit the number of persons in the room adhering to the stipulated physical distance</p>
Ventilation* (indoor air quality)		<p>Minimum of 15 cubic feet of air exchange per minute per person required</p> <p>or 20-30 cubic meters of airflow/exchange per person <i>per hour</i></p>
Temperature inside shelter		<p>Between 20-25 °C if AC units are available</p>

<p>Sleeping arrangements</p>	 <hr/>  <hr/>  <hr/>	<p>Arrange cots/beds in alternating 'head-to-toe' arrangement to reduce transmission of any communicable diseases</p> <p>Allot additional space between cots and aisle for wheelchair-bound persons</p> <p><i>Single cot</i>- Distance of 2- 2.5 ft between head and sides of the cot and 1.5 to 2 ft between aisles.</p> <p><i>Bunk cot</i>- Same distance between head and sides of the cot with 65 to 95 cm vertical spacing between cots and 2 to 3ft between aisles</p> <p>This rule does not apply to members of the same family, e.g. a mother with children</p>
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Note: Due to the physical distancing and sleeping arrangements, some countries may have to allocate additional shelter approved buildings to house additional people

Table 1: Ventilation

1. Natural ventilation is the best method of circulating fresh air and potentially removing COVID-19 virus.
2. Split AC does not refresh air; therefore, it is suggested that persons with or showing signs of respiratory illness should be placed in a room with natural ventilation.
3. Central AC should have an open-air refreshing vent to allow fresh air to be mixed with the re-circulated air.
4. Natural ventilation can be achieved by leaving windows/ doors open to harness natural cross ventilation or use fans with windows/doors open if the shelter does not have access to natural cross breezes.

Infection control and prevention

Table 2:

Type	Description	
*Check-in/ Screening area		Refer to Appendix A ' <i>Daily epidemiologic surveillance form</i> ' <i>Note:</i> contact tracing of an individual showing signs of respiratory illness should be conducted at this stage
Isolation of ill persons		Separate ill individuals in a location previously identified until transfer to the nearest hospital/polyclinic COVID-19 testing centre
Cleaning intervals of designated areas		Clean heavy traffic areas and surfaces every 6 hours
Disinfection of areas		Surface disinfection Recreation areas Sleeping/Living area Doorknobs and handles Refer to Appendix B
PPE for shelter use		A Standard PPE kit should contain apron, gowns, gloves, surgical masks, safety glasses, biosafety bags. Refer to Appendix D ' <i>PPE Sequence</i> '

**Note- Upon entry to the shelter please adhere to the appropriate Government entity on the use of face mask in public spaces.*

Table 2: Isolation

1. Surface disinfection- refer to [Appendix B](#) for a breakdown of the chemical cleaning solution.
2. Syndromic surveillance- sheltered individual assessment should occur at admission to the shelter, daily if suspected of COVID-19 symptoms. Shelter staff should be assessed every 24 hours.
3. A sheltered person in contact with a person showing signs of respiratory illness should be isolated, follow protocol in [Table 4](#).
4. If the shelter does not have adequate space for a temporary isolation room, create makeshift walls (tarp, plastic, whatever can make a non-permeable barrier) that are floor to ceiling or as close as possible to the ceiling.
5. Observe the distance recommended in [Table 1](#) for individuals suspected to have a respiratory illness (Suspected COVID-19 patient) in a predetermined temporary isolation room/area.
6. Limit the amount of staff and staff crossover working in the isolation area. Holding areas for persons with COVID-19 should only be entered by medical staff with fully protected PPE (gowns, gloves, mask, goggles) Refer to Appendix D '*PPE Sequence*'.
7. Perform hand hygiene before entering and exiting the isolation area.
8. Posters of signs and symptoms of COVID-19 should be placed strategically throughout the shelter.

- Patients should be referred out of the temporary isolation room to the nearest hospital/polyclinic COVID-19 testing centre as soon as possible.

Shelter Hygiene standards

Table 3:







Type	Description	
Bathrooms		1 toilet per 20 females 1 toilet per 40 men 1 urinal per 40 men
Showers		1 per 30 people Must be gender-segregated (male and female)
Handwashing station		Handwashing stations must be in key areas e.g. common area/recreation, entrance of facility, bathrooms, dining area Must have soap and paper towel per 1/30 people
Kitchen/ Dining area		Kitchen should be cleaned on 3-hour intervals during use and dining area per shift Refer to Table 5 for cleaning solution As much as feasibly possible, dining should be done in shifts to maintain a physical distance of (4.5 ft) from others, per person or family
Waste disposal		1 (48 or 64-gallon) garbage bin per 30 people a day Garbage bags per family
Wall-mounted hand sanitizers		Place dispensers of alcohol-based sanitizer in visible places E.g. entrance of facility, common area/recreation, sleeping area, isolation area

Table 3: Environmental Cleaning and Disinfection (*Refer to Appendix B*)

- There should be designated bathrooms and showers for male, female and handicapped/disabled persons. If possible, designate a separate bathroom for COVID-19 persons who tested positive.

2. Wear a disposable mask, goggles, fluid-resistant apron, shoe covers and disposable gloves (PPE) while cleaning toilets and showers. Refer to Appendix D *'PPE Sequence'*
3. The toilet (when possible) should be flushed with the lid down to avoid drip splashes and spray clouds.
4. The cleaning of waste containers such as trash cans should be strengthened and disinfection of trash cans should be done after garbage collection, cleaning with water and soap and then spraying or wiping with 0.5% chlorine-based disinfectant.
5. Common and high-touch surfaces (such as door handles, light switches, handrails, tabletops, chairs, bed/cot frames) should be cleaned at least twice daily with 70% alcohol solution.
6. Floors should be cleaned daily or more frequently if a spill occurs with 0.1% chlorine solution. Air dry for 10 minutes.
7. Bathrooms should be cleaned and disinfected at least once a day (0.1% chlorine solution). Regular household soap or detergent should be used for cleaning first and then, after rinsing, regular household disinfectant containing 0.5% sodium hypochlorite, leave for 10 minutes then rinse.
8. Any form of bedding (sleeping bags, blanket, sheet, pillows) should not be shaken out within the shelter, but outside downwind of the shelter and away from people. Bed linen should be washed twice weekly, with chlorine solution added to the detergent.

COVID-19 Precautions

Table 4:





Type	Description	
Referral to closest testing centre and quarantine facility		<p>The shelter manager should inform relevant Infection Control Specialist of the suspected individual status and contact tracing information to the receiving facility.</p> <p>The shelter should have a coordinated process that enables the communication between the shelter and the receiving facility to reduce infection transmission in the shelter.</p>
Social distancing		Observe the distance mentioned in Table 1 . To reduce contact of respiratory droplets.
Early detection/suspected cases		Refer to Appendix A ' Daily epidemiologic surveillance form '
Medical waste disposal		Use a puncture-resistant container for needles and contaminated sharps.

Table 4: Suspected cases of COVID-19

1. Regularly and frequently clean the surfaces touched in the entire care area of the family member with symptoms.
2. Use soap or household detergent to clean surfaces first then after rinsing use a disinfectant solution with 0.1% concentration or a 70% alcohol solution.
3. Bathrooms should be cleaned and disinfected at least once a day (0.1% chlorine solution). Regular household soap or detergent should be used for cleaning first and then, after rinsing, regular household disinfectant containing 0.5% sodium hypochlorite, leave for 10 minutes then rinse.
4. The kitchen (floors, counters, equipment and appliances) and dining area should be cleaned and sanitised on 3-hour intervals and as needed (0.1% chlorine solution). Regular household soap should be used for cleaning first and then, after rinsing, regular household disinfectant containing 0.5% sodium hypochlorite, leave for 10 minutes then rinse.
5. Wear disposable mask, goggles, fluid-resistant apron, and disposable gloves (PPE) while cleaning contaminated areas. Appendix D '[PPE Sequence](#)'

6. Wear disposable mask, goggles, fluid-resistant apron, and disposable gloves (PPE) while handling sick person until transfer to testing or quarantine facility.
7. Wash hands with soap and water for 40 seconds or use a 70% alcohol-based hand sanitizer after removing PPE.
8. The toilet (when possible) should be flushed with the lid down to avoid drip splashes and spray clouds.
9. Be sure to dispose of nose, mouth, eye tissues in designated biohazard waste bag.

APPENDIX A

Daily epidemiologic surveillance form (symptomatic) ^{(*)a}

Name of hospital, health care facility, shelter: <div style="display: flex; justify-content: space-between;"> _____ _____ </div> <div style="display: flex; justify-content: space-between; font-size: small;"> Name Location (town/district) </div>										
Person completing form: _____										
Date: _____										
Health status/symptoms										
Signs, symptoms, or conditions	Age group									
	<5		5 - 14		15 - 54		55+		Total	Comments
	M	F	M	F	M	F	M	F		
Fever										
Fever and cough										
Fever and urticaria (skin rash)										
Fever and petechiae (hemorrhagic spots on skin)										
Diarrhea										
Jaundice										
Other conditions (name them)										
Injured ^{(*)b}										
Deaths ^{(*)b}										
Patients with disabilities ^{(*)b}										
Patients with chronic illness ^{(*)b}										
Other important health information ^{(*)c}										

(*) a In shelters, this form is designed for use by non-health personnel with some medical knowledge. The aim is to gather information on a daily basis from shelters and to inform and alert medical personnel responsible for the area about health conditions in the disaster-affected population, and to assist in decision making.

(*) b Write the condition and name of person affected.

(*) c Record only new cases occurring for the day.

APPENDIX B

Environmental cleaning and disinfection of the shelter is a high priority and should be frequently conducted.

Table 5: How to dilute chlorine stock solution (approximate volumes)

Stock solution of (unscented) household bleach (5.25% say 5%) Sodium hypochlorite Commercially Available	250 mg/L	500 mg/L	1,000 mg/L	2,000 mg/L	5000 mg/L	10,000 mg/L	
5%	0.025%	0.05	0.10%	0.20%	0.50%	1.0%	
	5	10	20	40	110	240	ml of stock solution per litre of water
cap of bleach bottle is 10 ml	teaspoon	1 cap	2 caps	4 caps	4 Oz	9 Oz	per litre

Table 5: How to make a 0.05% chlorine solution

1. Use ordinary unscented household bleach of 5.25%. The cap of a one-gallon bottle is 10 ml.
2. Add 10 ml (1 cap) of bleach in a litre of water or 100 ml (10 caps; 2/5 of cup) in a 10-litre bucket

APPENDIX C

Active Monitoring Form for Asymptomatic Workers

Instructions: Healthcare workers (HCWs) should communicate with the healthcare facility or public health authority at least daily and report on subjective or measured temperature and the following symptoms. This form should be completed by the healthcare facility or public health authority by checking the appropriate boxes. HCWs without fever (subjective or temperature below 38.0°C/100.0°F) or any of the following symptoms can report to work.

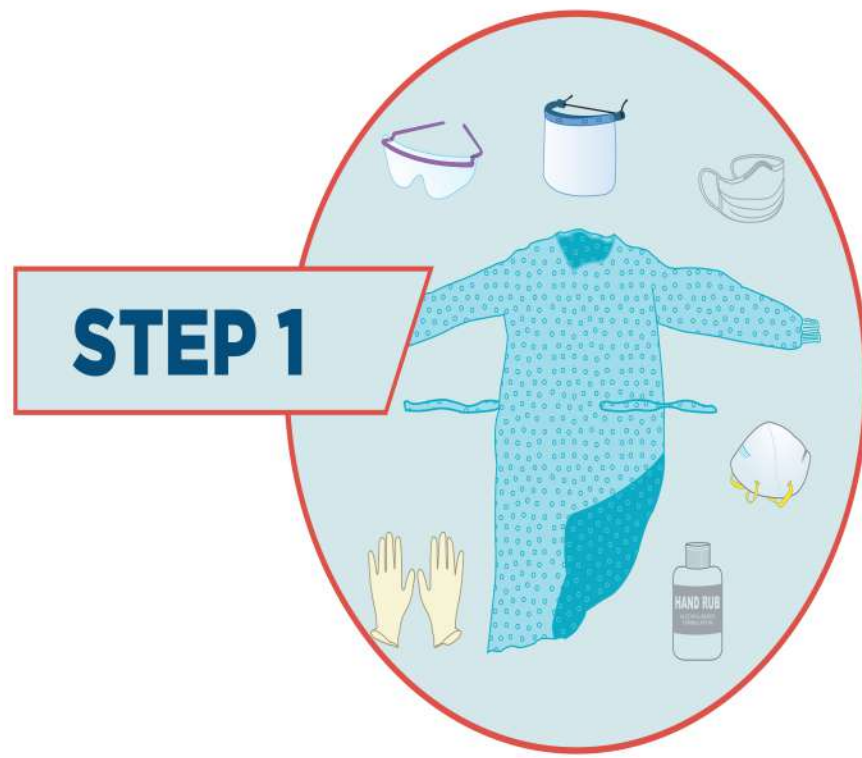
HCW Name		Phone	Email	Facility	Job Title	Supervisor	Date of last exposure	Monitoring Personnel Name											
Day # After Exposure ¹	Date	Time	Temp	Symptoms (check all that apply)														Monitoring Personnel Signature	
				Subjective fever	Cough	Sore	Shortness of breath	Runny	Chills	Muscle	Headache	Fatigue	Abdominal pain	Nausea or vomiting	Diarrhoea	None	Other		
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¹ Complete form beginning on the day it is determined that monitoring is necessary.

COVID-19

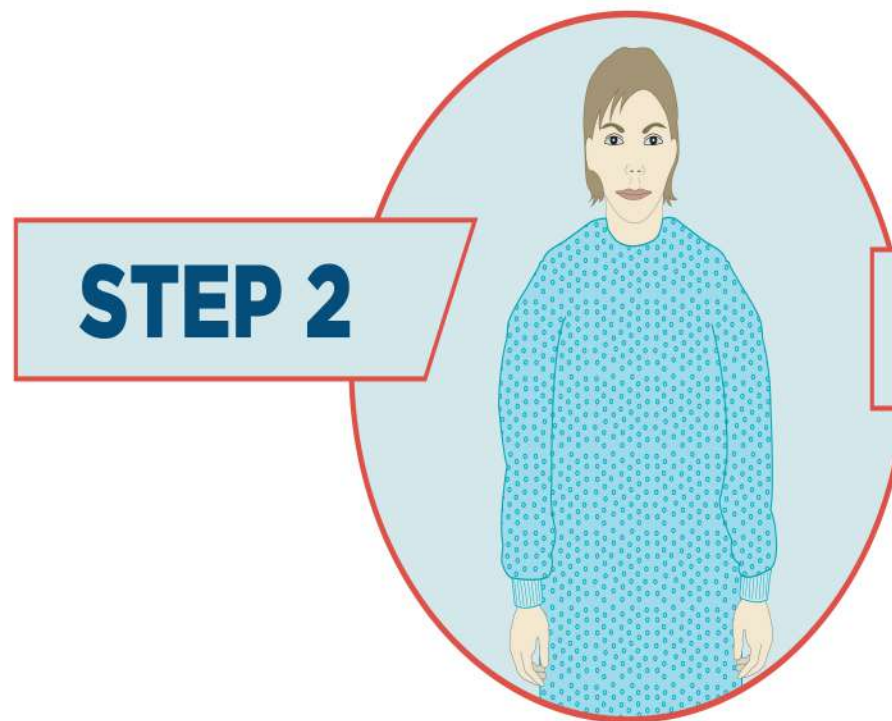
Coronavirus Disease 2019

HOW TO PUT ON PERSONAL PROTECTIVE EQUIPMENT (PPE)



STEP 1

- Identify hazards & manage risk. Gather the necessary PPE
- Plan where to put on & take off PPE
- Ask a friend to help or put on in front of a mirror
- Discard all PPE in an appropriate waste bin



STEP 2

Put on a gown



STEP 3

**Put on surgical mask
or respirator***



STEP 4

**Put on eye (goggles)
or facial protection
(face shield)****



STEP 5

**Put on gloves
(over cuff)**

*Surgical mask or respirator (N95 or similar), depending on the level of care. For aerosol generating procedures (AGP), wear a respirator (N95 or similar)

**e.g. visor, face shield, goggles (consider anti-fog drops or fog-resistant goggles)

COVID-19

Coronavirus Disease 2019

HOW TO TAKE OFF PPE

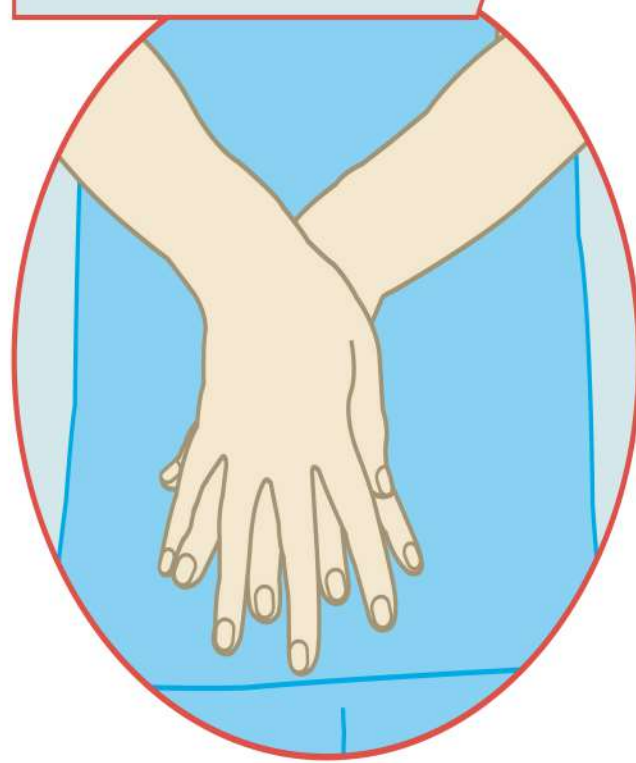
- Avoid contamination of self, others and environment
- Remove the most heavily contaminated items first

STEP 1



Remove gloves
then remove gowns

STEP 2



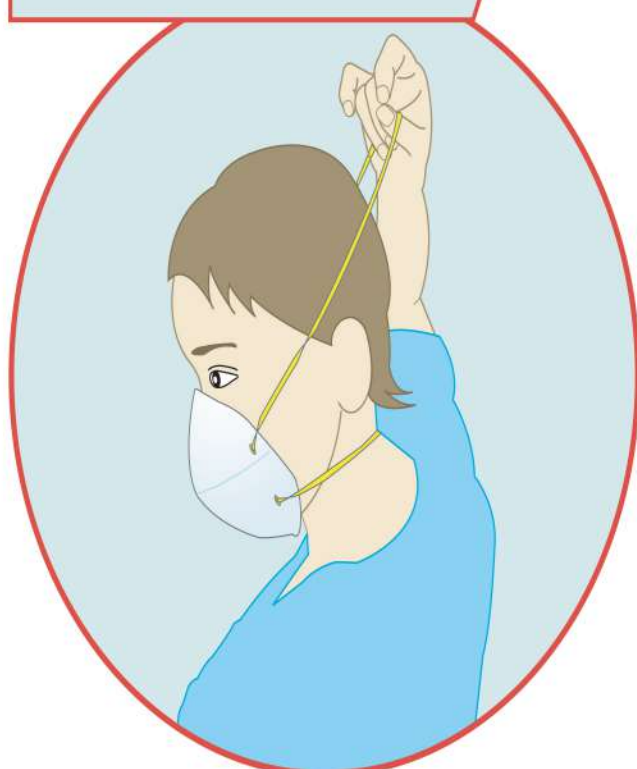
Perform hand
hygiene

STEP 3



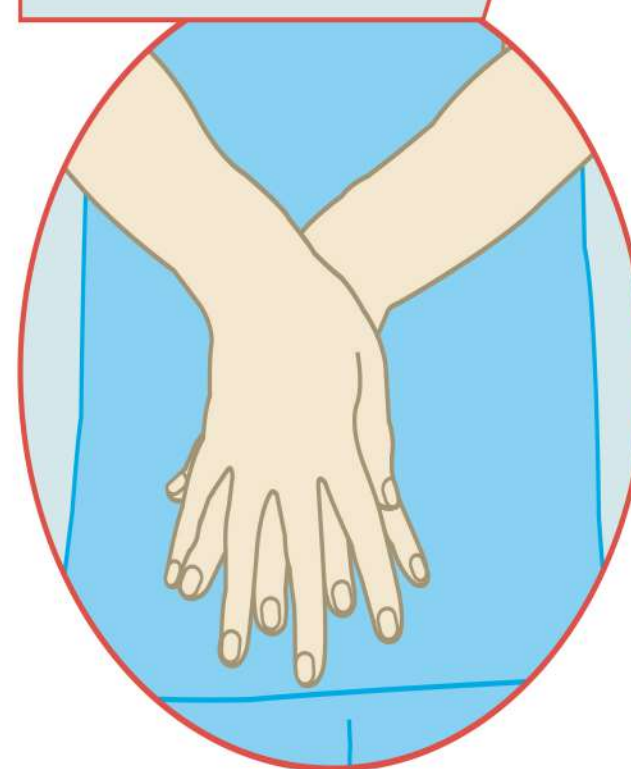
Remove eye or
facial protection
from behind

STEP 4



Remove surgical
mask or respirator
from behind

STEP 5



Perform hand
hygiene

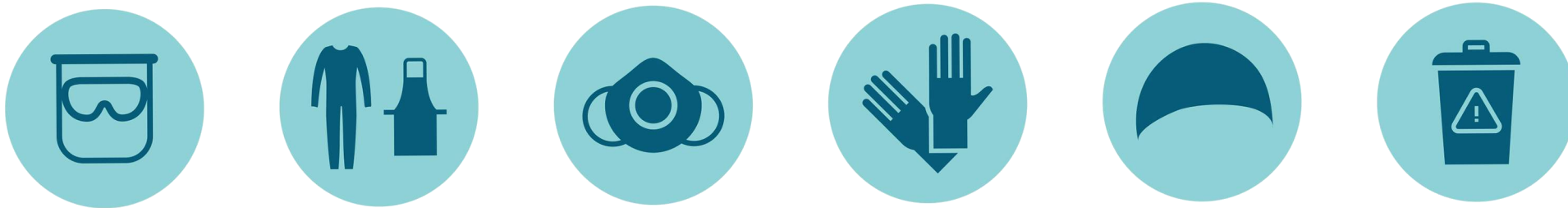
COVID-19

Coronavirus Disease 2019

HOW TO PUT ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

When all the PPE items I need it

STEP 1



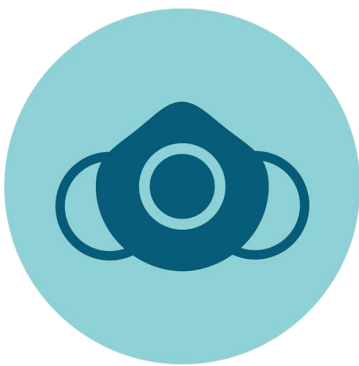
- Identify hazards and manage risk. Gather the necessary PPE
- Plan to where to put on and take off PPE
- Do you have a friend? Mirror?
- Do you know how you will deal with waste?

STEP 2



Put on a gown

STEP 3



Put on a mask

STEP 4



Put on eye protection•

STEP 5

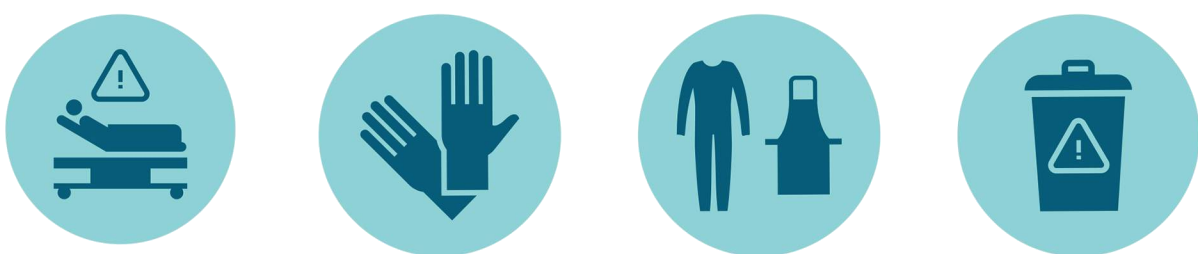


Put on gloves (over cuff)

*e.g. visor, Face shield, goggles (consider anti-fog drops or fog-resistant goggles). Caps are optional: if worn put on after eye protection

HOW TO TAKE OFF PPE

STEP 1



- Avoid contamination of self, others and environment
- Remove the most heavily contaminated items first
- Remove gloves and gown
- Peel off gown and gloves and roll inside-out
- Dispose of gloves and gown safely

STEP 2



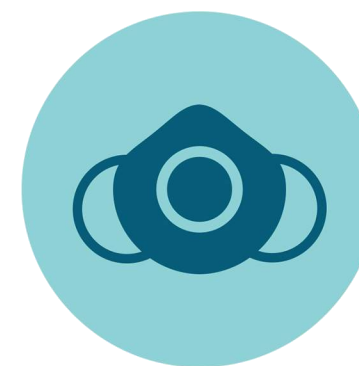
Perform hand hygiene

STEP 3



Remove cap if worn*

STEP 4



Remove mask from behind

STEP 5



Perform hand hygiene

* Remove eye protection from behind. Put eye protection in a separate container for reprocessing



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