

COVID 19
Infection Control and Prevention Measures, PGIMER

POSTGRADUATE INSTITUTE OF MEDICAL EDUCATION AND RESEARCH,
CHANDIGARH



Infection Control and Prevention Guidelines for 2019-nCoV (COVID 19)

Prepared by
Hospital Infection control Committee, PGI

25 MARCH 2020

COVID 19

Infection Control and Prevention Measures, PGIMER

Introduction

COVID-19 infection is spread through respiratory route i.e. respiratory droplets and direct human contact. Healthcare personnel (HCP) are at risk of infection through respiratory routes and direct contact with infectious patients.

In view of the current situation regarding COVID -19 disease in India, we need to be prepared for the handling of suspect and confirmed cases, who might present to PGIMER.

General points:

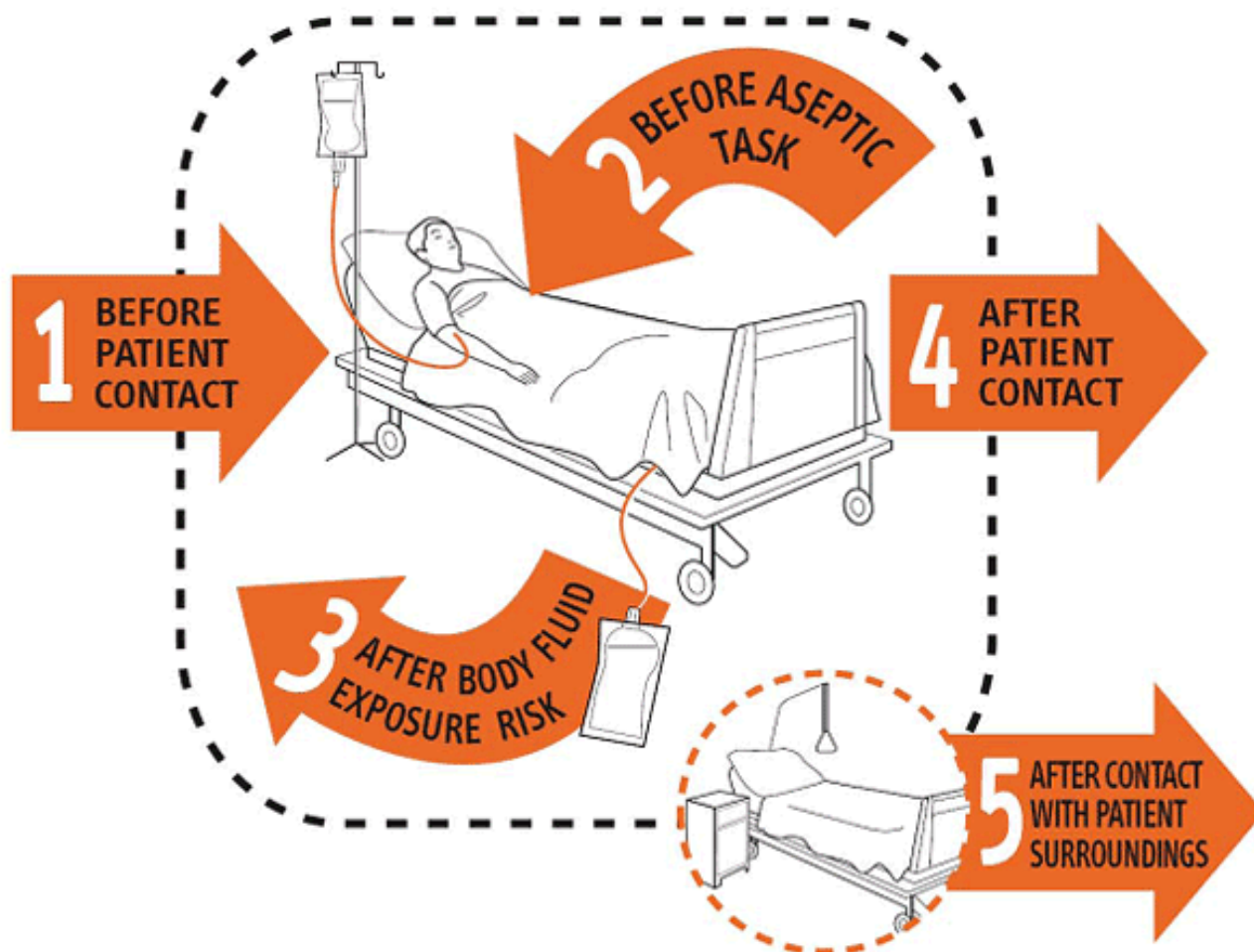
1. Only essential personnel should enter areas housing suspected or confirmed COVID 19 patients.
2. Minimize the number of HCP who enter the room.
3. Facilities should keep a log of all persons who care for or enter the rooms or care area of these patients.
4. Use dedicated or disposable non-critical patient-care equipment (e.g., blood pressure cuffs, thermometers, stethoscopes). If equipment is to be used for more than one patient, clean and disinfect such equipment before use on another patient according to manufacturer's instructions.

Patients suspected of having COVID-19 infection should be shifted to the isolation facility from the triage/screening area as soon as possible. Dedicated HA should do this after donning appropriate PPE. The patient should wear mask/respirator.

Standard precautions

- **Hand hygiene** – HCP should perform hand hygiene using alcohol-based hand rub for 20 seconds or by washing with soap and water for at least 40 seconds. If hands are visibly soiled, use soap and water for hand wash. Hand washing should be done before and after using bathroom, before, during and after preparing food, before and after eating /drinking, after coughing, blowing or sneezing, after touching garbage.

Your 5 moments for HAND HYGIENE



1 BEFORE PATIENT CONTACT	WHEN? Clean your hands before touching a patient when approaching him or her WHY? To protect the patient against harmful germs carried on your hands
2 BEFORE AN ASEPTIC TASK	WHEN? Clean your hands immediately before any aseptic task WHY? To protect the patient against harmful germs, including the patient's own germs, entering his or her body
3 AFTER BODY FLUID EXPOSURE RISK	WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal) WHY? To protect yourself and the health-care environment from harmful patient germs
4 AFTER PATIENT CONTACT	WHEN? Clean your hands after touching a patient and his or her immediate surroundings when leaving WHY? To protect yourself and the health-care environment from harmful patient germs
5 AFTER CONTACT WITH PATIENT SURROUNDINGS	WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving - even without touching the patient WHY? To protect yourself and the health-care environment from harmful patient germs

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

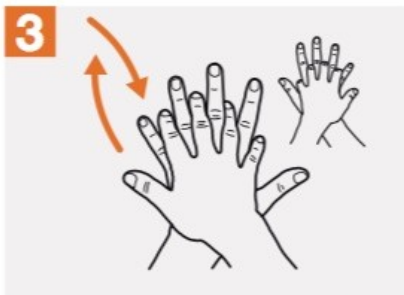
 **Duration of the entire procedure: 20-30 seconds**



1a Apply a palmful of the product in a cupped hand, covering all surfaces;



2 Rub hands palm to palm;



3 Right palm over left dorsum with interlaced fingers and vice versa;



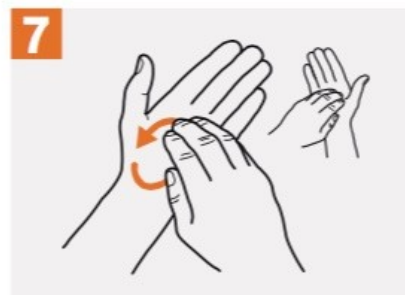
4 Palm to palm with fingers interlaced;



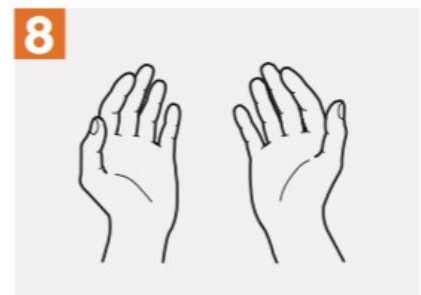
5 Backs of fingers to opposing palms with fingers interlocked;



6 Rotational rubbing of left thumb clasped in right palm and vice versa;



7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



8 Once dry, your hands are safe.



World Health Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES

Clean Your Hands

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this document. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.

May 2009

COVID 19
Infection Control and Prevention Measures, PGIMER

Guidelines on Use of PPE in PGIMER, Chandigarh

In accordance with the Novel Coronavirus Disease 2019 (COVID-19): Guidelines on rational use of Personal Protective Equipment issued by the Ministry of Health and Family Welfare Directorate General of Health Services guidelines, the following guidelines are being recommended for PGIMER.

PPE includes gloves, medical masks, goggles or a face shield, and gowns, as well as for specific procedures, respirators (i.e., N95) and aprons. This guideline is for health care workers and others working in different settings of PGIMER. **It is important to note that these guidelines are ideal when all recommended PPE items are available. In case there is a shortage or non-availability of PPE (e.g., N 95 masks), a suitable alternative may need to be used. In case of shortage of PPE, reuse of PPE may be needed after adequate sterilization.**

Setting	Activity	Risk	Recommended PPE	Remarks
Health desk/ reception counters	Provide information to travellers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
Triage area (Screening OPDs)	Triaging patients Provide triple layer mask to patient	Moderate Risk	N 95 masks Gloves	Patients get masked.
Individual isolation rooms/ cohorted isolation rooms	Clinical management (doctors, nurses)	Moderate risk	N 95 mask Gloves	Patient masked. Patients stable. No aerosol generating activity.
ICU/ Critical care	Critical care management	High risk	Full complement of PPE	When aerosol generating procedures are anticipated <ul style="list-style-type: none"> • endotracheal intubation • non-invasive ventilation • tracheotomy • cardiopulmonary resuscitation • manual ventilation before intubation and • bronchoscopy

COVID 19
Infection Control and Prevention Measures, PGIMER

Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate Risk	N 95 masks Gloves	
ICU /critical care	Dead body packing	High risk	Full complement of PPE	
ICU/ Critical care	Dead body transport to mortuary	Low Risk	Triple Layer medical mask Gloves	
Visitors accompanying young children and elderlies	Support in navigating various service areas	Low risk	Triple layer medical mask	No other visitors should be allowed to accompany patients in OPD settings. The visitors thus allowed should practice hand hygiene
Other Non COVID treatment areas of hospital	Attending to non-COVID infectious and non-infectious patients	Risk as per assessed profile of patients	PPE as per hospital infection prevention control practices	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas
Caretaker accompanying the admitted patient	Taking care of the admitted patient	Low risk	Triple layer medical mask	The caretaker thus allowed should practice hand hygiene, maintain a distance of 1 meter
Ambulance Transfer to designated hospital	Healthcare worker	Moderate risk	N 95 mask Gloves	Transport and management of patient
	Ambulance driver	Low risk	Triple layer medical mask Gloves	Driver helps in shifting patients to the emergency
Virology Laboratory	Sample testing	High risk	Full complement of PPE	
Other laboratories	Working with respiratory samples, procedures generating aerosols	Moderate risk	N 95 mask Gloves	
	Other samples	Low risk	Triple layer medical mask Gloves	

COVID 19
Infection Control and Prevention Measures, PGIMER

Mortuary	Dead body handling	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed. No embalming.
	While performing autopsy	High risk	Full complement of PPE	No post-mortem unless until specified
CSSD/Laundry	Handling linen of COVID patients	Moderate risk	N 95 mask Gloves	
Other supportive services	Administrative Financial Engineering Security, etc.	No risk	No PPE	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas.

Note:

1. PPEs are not alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes which must be followed at all times.
2. Always (if possible) maintain a distance of at least 1 meter from contacts/suspect/confirmed COVID-19 cases
3. Always follow the laid down protocol for disposing off PPEs as detailed in infection prevention and control guideline available on website of MoHFW.

Do's and Dont's while wearing masks

- a. Place mask carefully to cover mouth and nose and tie securely to minimize any gaps between the face and the mask
- b. While in use, avoid touching the mask
- c. Remove the mask by using appropriate technique (i.e. do not touch the front but remove the lace from behind)
- d. After removal or whenever you inadvertently touch a used mask, clean hands by using an alcohol-based hand rub or soap and water if visibly soiled
- e. Replace masks with a new clean, dry mask as soon as they become damp/humid
- f. Do not re-use single-use masks
- g. Discard single-use masks after each use and dispose-off them immediately upon removal

COVID 19
Infection Control and Prevention Measures, PGIMER

Donning (putting on) PPE:

Steps of donning PPE:

1. Remove home clothes, jewellery, watches, electronic etc. and wear clean hospital scrubs
2. Wash hands with soap and water
3. Wear shoe covers – tie lace in front of the shin
4. Wear first place of gloves- smaller than 2nd pair, comfortable size, could be sterile or unsterile
5. Wearing gown-
Gowns- Put on a clean disposable non-permeable gown prior to entry into the patient room or are, do not remove paper strip attached at end of lace (will be required while tying lace at the end), wear by holding at shoulder end of gown, arm sleeves of gown should cover the gloves at wrist. Identify the ends of lace by attached paper card, remove the paper card and tie the lace at back snugly without wrapping all around the waist. Decontaminate the gown if it becomes soiled. Remove gown only in designated doffing area and discard the gown before leaving patient care area
6. Wear the mask - N95 mask with respirator is preferable, hold the opened mask in right hand with straps facing towards face, put on mask by placing lower strap behind the neck passing below ears. (strap should be in contact with skin), then place the upper strap over back of head. On the sides, straps should be above ear, check for snug fit of mask. There should be no more than minimal air leak from sides
7. Wear eye piece- Adjust the strap according to required size, open the ports at upper end to prevent fogging while wearing, upper end N95 mask should be covered by eye piece
8. Wear the hood- Hood should lay over the gown without leaving any open space.
9. Wear 2nd pair of the gloves-Should be of larger size than 1st pair, should cover free end of arms of gown. Change gloves if they become torn or heavily contaminated. Remove and discard gloves when leaving the patient room or care area, and immediately perform hand hygiene
10. Gown fitness check: Take help of companion for fitness check.
11. Label gown with name after wearing for identification

COVID 19
Infection Control and Prevention Measures, PGIMER

Doffing of PPE

Steps of doffing: To be performed only in the designated area, check for any leak or soiling in PPE before doffing. If any, disinfect the area before doffing. Doffing room should have 2 chairs. One labelled “dirty” and the other “clean”. All the PPE must be discarded in the yellow bin

1. Disinfect the hands wearing gloves like hand hygiene procedure
2. Remove shoe covers only by touching the outer surface, and perform hand hygiene
3. Remove outer gloves. Again, perform hand hygiene
4. Remove hood and again perform hand hygiene
5. Remove gown slowly. hold the gown at the waist and pull. Without touching the outer surface, remove by with a rolling inside out technique. Perform hand hygiene again
6. Remove eye piece by holding the straps, and perform hand hygiene
7. Remove inner gloves and perform hand hygiene
8. Wear another pair of sterile /unsterile gloves
9. Remove mask- Do not touch exposed surface of mask. First remove lower strap of mask, remove mask holding upper strap in a slow and steady pace (as to not generate aerosols)
10. Perform hand hygiene
11. Sit over clean chair and clean your shoes with alcohol swabs
12. Remove last pair of gloves and perform hand hygiene

Guidelines on the use of cloth masks by healthcare workers

Cloth masks may be given to administrative staff or personnel with no contact with patients. The following recommendations should be followed for the safe use of cloth masks:

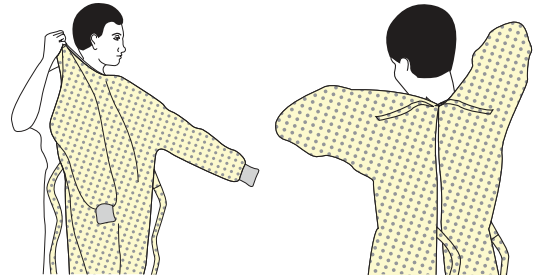
1. Wear a mask only if required.
2. Practice hand hygiene before and after mask use.
3. Follow guidelines of proper way to don and doff mask.
4. After use, put mask in a separate bag, wash with detergent and dry.
5. DO NOT share mask with other people.
6. If suffering from cold and cough, change masks frequently as the cloth is likely to become damp.

SEQUENCE FOR **PUTTING ON** PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

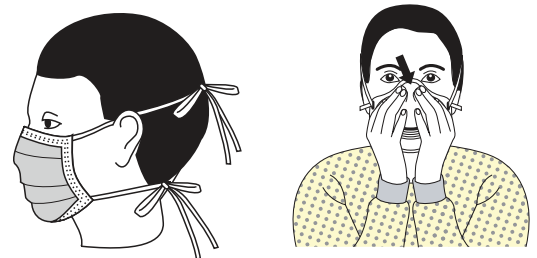
1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



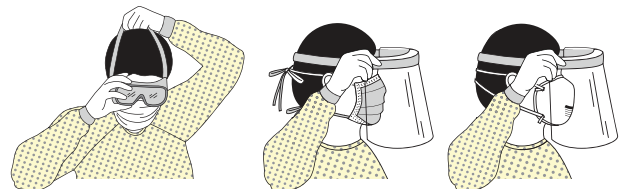
2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



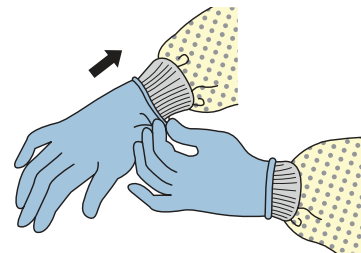
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene



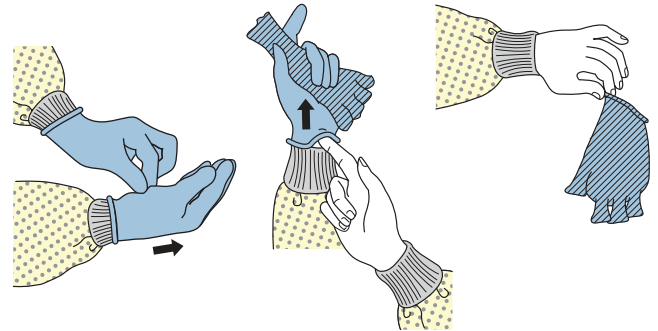
HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE)

EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



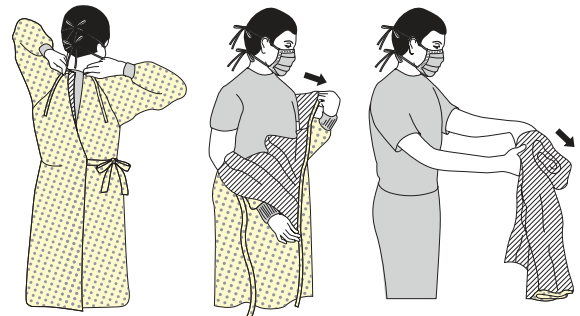
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container



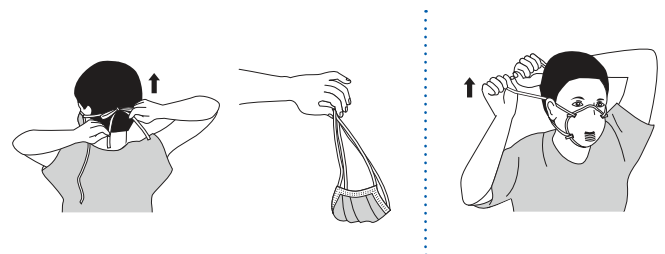
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

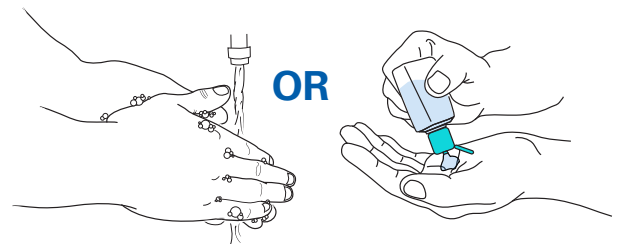


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — **DO NOT TOUCH!**
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

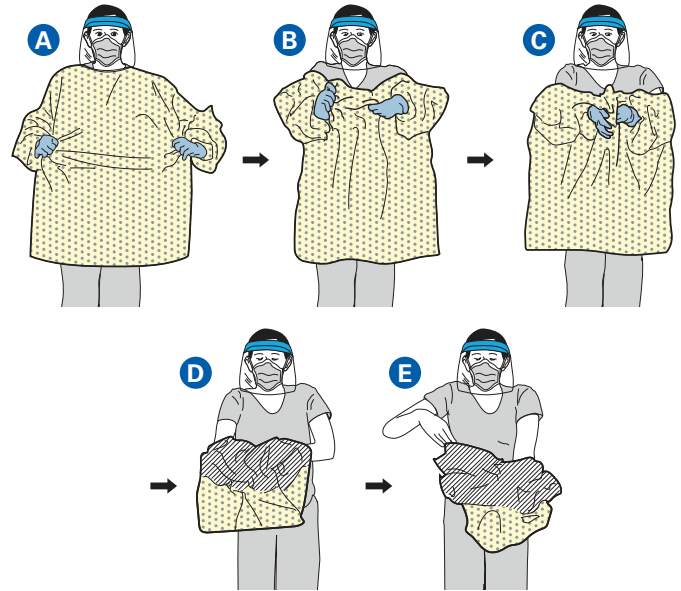


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container



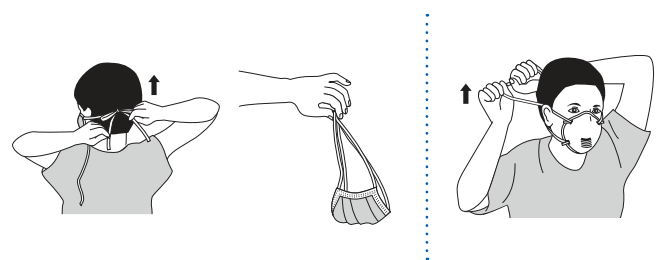
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

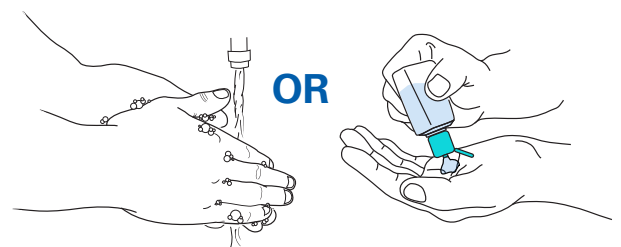


3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



COVID 19
Infection Control and Prevention Measures, PGIMER

Cleaning and disinfection of the environment in COVID 19 units

Environmental cleaning is part of Standard Precautions, which should be applied to all patients in all healthcare facilities. Ensure that cleaning and disinfection procedures are followed consistently and correctly.

Cleaning environmental surfaces with water and detergent and applying commonly used hospital disinfectants (such as sodium hypochlorite) is an effective and sufficient procedure.

Cleaning agents and disinfectants

Area/ surface/equipment	Agent	Contact time
High touch surfaces (see Figures 1 and 2)	1% hypochlorite (2 tsp sodium hypochlorite in 1 liter of water) can be used as a disinfectant for cleaning and disinfection. The solution should be prepared fresh.	20 minutes
Surfaces where bleach is not suitable (eg metals)	Alcohol (e.g. isopropyl 70% or ethyl alcohol 70%)	Till alcohol evaporates
Large blood spill	10% hypochlorite (20 tsp sodium hypochlorite in 1 liter of water) can be used as a disinfectant for cleaning and disinfection. The solution should be prepared fresh	20 minutes
Surface cleaning, Patient care equipment, less accessible place of cot, wheels	Bacillol spray	5 minutes
Floor	Soap and water	5 minutes
Floor of toilet	Phenol/lysol	5 minutes

Ecoshield and other commercially available disinfectants can also be used for surface disinfection, following manufacturers' recommendations.

Personal Protective Equipment to wear while cleaning and disinfection

1. Wear heavy duty/disposable gloves, disposable long-sleeved gowns, eye goggles or a face shield, and a medical mask (please see the PPE document for details)
2. Avoid touching the nose and mouth (goggles may help as they will prevent hands from touching eyes)
3. Disposable gloves should be removed and discarded if they become soiled or damaged, and a new pair worn

COVID 19
Infection Control and Prevention Measures, PGIMER

4. All other disposable PPE should be removed and discarded after cleaning activities are completed. Eye goggles, if used, should be disinfected after each use, according to the manufacturer's instructions.
5. Hands should be washed with soap and water/alcohol-based hand rub immediately after each piece of PPE is removed, following completion of cleaning.

Cleaning guidelines

1. Cleaning staff should be informed to avoid touching their face, especially their mouth, nose, and eyes when cleaning.
2. Where possible, seal off areas where the confirmed case has visited, before carrying out cleaning and disinfection of the contaminated environmental surfaces. This is to prevent unsuspecting persons from being exposed to those surfaces
3. Cleaning staff should be attired in suitable PPE. Disposable gloves should be removed and discarded if they become soiled or damaged, and a new pair worn. All other disposable PPE should be removed and discarded, after cleaning activities are completed. Goggles, if used, should be disinfected after each use, according to manufacturer's instructions. Hands should be washed with soap and water immediately after the PPE is removed.
4. Mop floor with routinely available disinfectant.
5. Wipe all frequently touched areas (e.g. lift buttons, hand rails, doorknobs, arm rests, tables, air/ light controls, keyboards, switches, etc.) and toilet surfaces with chemical disinfectants and allow to air dry. 1% sodium hypochlorite solution can be used. Alcohol can be used for surfaces, where the use of bleach is not suitable.
6. Clean toilets, including the toilet bowl and accessible surfaces in the toilet with disinfectant or 1% sodium hypochlorite solution.
7. Wipe down all accessible surfaces of walls as well as blinds with disinfectant or bleach solution.
8. Remove curtains/ fabrics/ quilts for washing, preferably using the hot water cycle. For hot-water laundry cycles, wash with detergent or disinfectant in water at 70°C for at least 25 minutes.
9. Discard cleaning items made of cloth and absorbent materials, e.g. mop head and wiping cloths, into biohazard bags after cleaning and disinfecting each area. Wear a new pair of gloves and fasten the double-bagged biohazard bag with a cable tie.
10. Disinfect buckets by soaking in disinfectant or bleach solution, or rinse in hot water before filling.
11. Disinfectant or 1% sodium hypochlorite solution should be applied to surfaces using a damp cloth. They should not be applied to surfaces using a spray pack, as coverage is uncertain and spraying may promote the production of aerosols. The creation of aerosols caused by splashing liquid during cleaning should be avoided. A steady sweeping motion should be used when cleaning either floors or horizontal surfaces, to

COVID 19
Infection Control and Prevention Measures, PGIMER

prevent the creation of aerosols or splashing. Cleaning methods that might aerosolize infectious material, such as the use of compressed air, must not be used.

12. Biohazard bags should be properly disposed-off, upon completion of the disinfection work.

Frequency of cleaning of surfaces:

1. High touch surfaces: Disinfection of high touch surfaces like (door handles and knobs, telephone, bedrails, ventilator knobs, drip stands, nursing counters, medicine trolleys, stair rails, light switches, wall areas around the toilet) should be done every 3-4 hours.
2. Low-touch surfaces: For low-touch surfaces (walls, mirrors, etc.) mopping should be done at least once daily.

Precautions to take after completing the clean-up and disinfection

1. Staff should wash their hands with soap and water immediately after removing the PPE, and when cleaning and disinfection work is completed.
2. Discard all used PPE in a double-bagged biohazard bag, which should then be securely sealed and labelled.
3. The staff should be aware of the symptoms and should report to concerned person (Dr Ashish Bhalla, Dr Vikas Suri, Dr Jayshree M, Dr Sanjay Verma) if they develop symptoms.

Recommendations for containment of COVID-19 in OPD areas

1. There should be restricted entry into OPD premises for patient and attendants.
2. All HCW posted in OPD should be trained in IPC practices
3. A separate “Fever clinic” at the OPD entrance has been set up to tackle all cases of URI.
4. Adequate supply of masks and hand rubs should be provided in this screening area. Patients with cold, cough and fever should be advised to wear a mask.
5. Healthcare workers, especially residents should wear mask at all times.
6. OPD rooms, chairs, high touch surfaces should be sanitized before and after OPD finishes
7. A distance of at least 1 metre between persons in waiting area should be maintained
8. All steps of respiratory hygiene in waiting area should be followed
9. Handshakes should be avoided

COVID 19
Infection Control and Prevention Measures, PGIMER

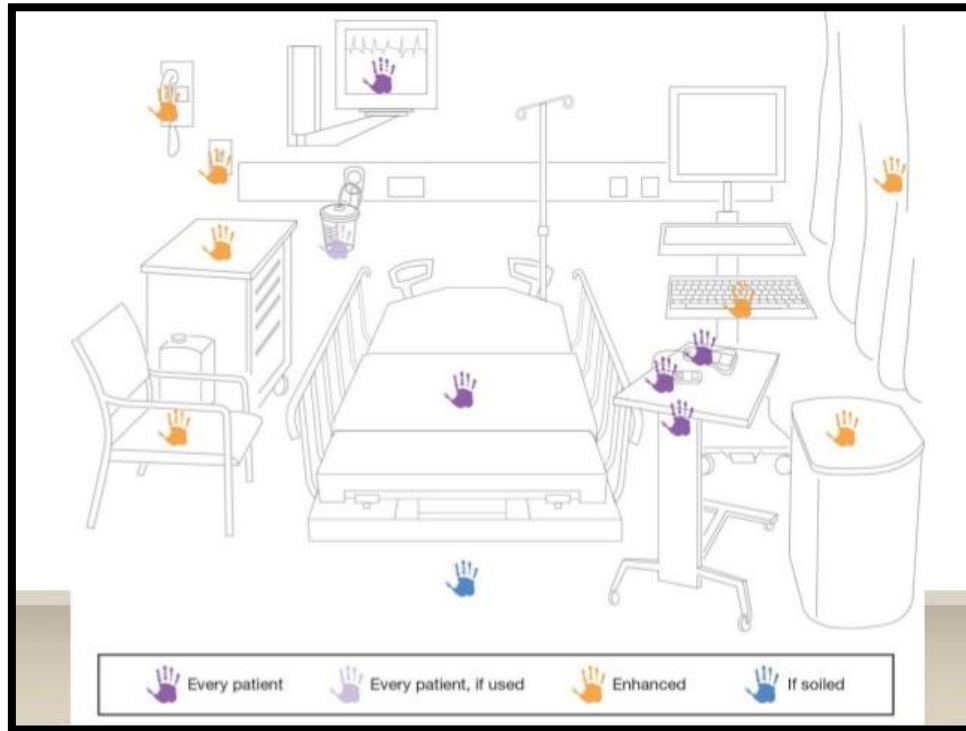


Figure 1: High touch surfaces in ICU (yellow hands)

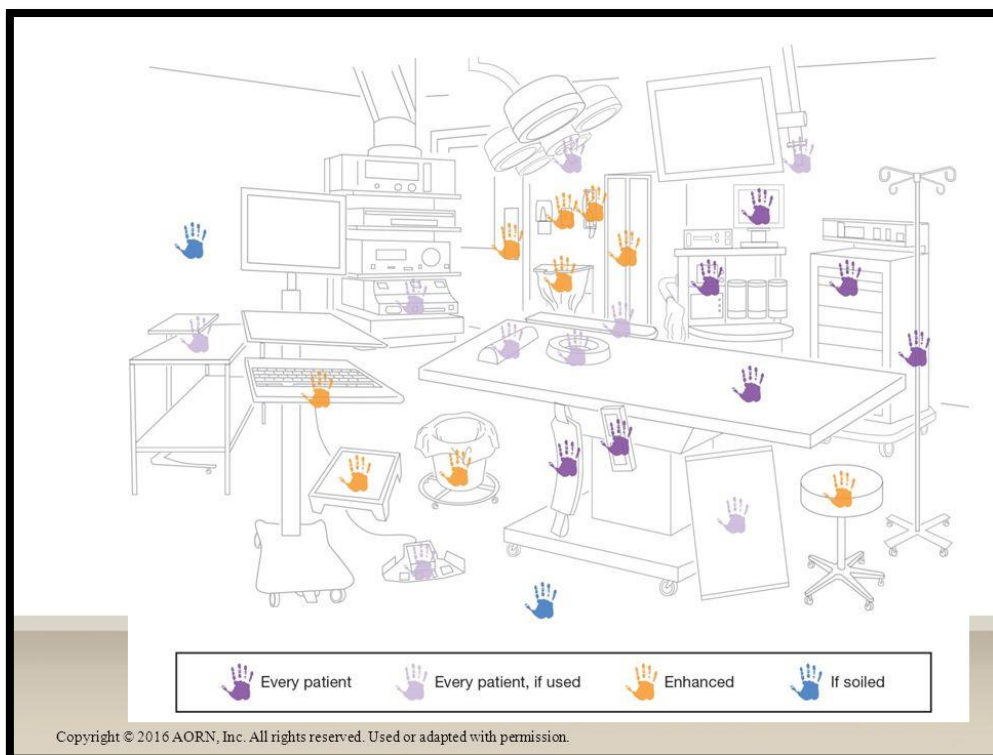


Figure 2: High touch surfaces in OT (yellow hands)

**Cleaning and disinfection of ambulance used to transport suspected/confirmed COVID
19 patients**

For shifting any suspected or confirmed COVID-19 patients, ambulance may be used. Prefer ambulance with separate driver and patient compartments.

A. Decontaminate hands (alcohol-based sanitiser/soap)

B. Don Personal Protective Equipment (PPE)

Driver- Medical/triple layer mask and gloves

Doctor/nurse accompanying patient- N 95 mask, gloves

C. In ambulance

- Use single use or single patient use medical equipment where possible
- Use disposable linen if available
- During transport, keep windows open to increase ventilation and air exchange
- Monitor and document vitals and medical management done in ambulance

D. Arrival and transfer at PGI

- Transfer patient to the care of hospital staff
- After transfer of patient remove PPE
- Perform hand hygiene

F. Before ambulance is used again

- Cleaning and disinfecting (PPE as outlined above should be worn while cleaning)
- Surfaces (stretcher, chair, door handles etc) should be cleaned with a freshly prepared 0.5-1% hypochlorite solution or equivalent

G. Medical equipment

- As per hospital infection control protocol

Guideline on handling dead bodies of COVID 19 patients

Key Facts

The main mode of transmission of COVID-19 is through droplets. There is unlikely to be an increased risk of COVID infection from a dead body to health workers or family members who follow standard precautions while handling body. Only the lungs of dead COVID patients, if handled during an autopsy, can be infectious.

Standard infection prevention control practices should be followed at all times. These include:

- 1. Hand hygiene.**
- 2. Use of personal protective equipment** (e.g., water resistant apron, gloves, masks, eyewear).
- 3. Safe handling of sharps.**
- 4. Training in infection and prevention control practices** - All staff identified to handle dead bodies in the isolation area, mortuary, ambulance and those workers in the crematorium / burial ground should be trained in the infection prevention control practices.
- 5. Removal of the body from the isolation room or area**
 - The health worker attending to the dead body should perform hand hygiene, ensure proper use of PPE (water resistant apron, goggles, N95 mask, gloves).
 - All tubes, drains and catheters on the dead body should be removed.
 - Any puncture holes or wounds (resulting from removal of catheter, drains, tubes, or otherwise) should be disinfected with 1% hypochlorite and dressed with impermeable material.
 - Apply caution while handling sharps such as intravenous catheters and other sharp devices. They should be disposed into a sharps container.
 - Plug oral, nasal orifices of the dead body to prevent leakage of body fluids.
 - If the family of the patient wishes to view the body at the time of removal from the isolation room or area, they may be allowed to do so with the application of Standard Precautions.
 - Place the dead body in leak-proof plastic body bag. The exterior of the body bag can be decontaminated with 1% hypochlorite. The body bag can be wrapped with a mortuary sheet or sheet provided by the family members. The body will be either handed over to the relatives or taken to mortuary.
 - All used/ soiled linen should be handled with standard precautions, put in bio-hazard bag and the outer surface of the bag disinfected with hypochlorite solution.

COVID 19
Infection Control and Prevention Measures, PGIMER

- Used equipment should be autoclaved or decontaminated with disinfectant solutions in accordance with established infection prevention control practices.
- All medical waste must be handled and disposed of in accordance with Bio-medical waste management rules.
- The health staff who handled the body will remove personal protective equipment and will perform hand hygiene.
- Provide counseling to the family members and respect their sentiments.
- cleaning and disinfection
- All surfaces of the isolation area (floors, bed, railings, side tables, IV stand, etc.) should be wiped with 1% Sodium Hypochlorite solution; allow a contact time of 30 minutes, and then allowed to air dry.

6. Handling of dead body in mortuary

- Mortuary staff handling COVID dead body should observe standard precautions.
- Dead bodies should be stored in cold chambers maintained at approximately 4°C.
- The mortuary must be kept clean. Environmental surfaces, instruments and transport trolleys should be properly disinfected with 1% hypochlorite solution.
- After removing the body, the chamber door, handles and floor should be cleaned with sodium hypochlorite 1% solution.
- Embalming of dead body should not be allowed.

7. Autopsies on COVID-19 dead bodies - Autopsies should be avoided. If autopsy is to be performed for special reasons, the following infection prevention control practices should be adopted:

- The team should be well trained in infection prevention control practices.
- The number of forensic experts and support staff in the autopsy room should be limited.
- The team should use full complement of PPE (coveralls, head cover, shoe cover, N 95 mask, goggles / face shield).
- Round ended scissors should be used
- PM40 or any other heavy-duty blades with blunted points to be used to reduce prick injuries
- Only one body cavity at a time should be dissected
- Unfixed organs must be held firm on the table and sliced with a sponge – care should be taken to protect the hand
- Negative pressure to be maintained in mortuary. An oscillator saw with suction extraction of the bone aerosol into a removable chamber should be used for sawing skull, otherwise a hand saw with a chain-mail glove may be used
- Needles should not be re-sheathed after fluid sampling – needles and syringes should be placed in a sharps bucket.

COVID 19
Infection Control and Prevention Measures, PGIMER

- Reduce aerosol generation during autopsy using appropriate techniques especially while handling lung tissue.
- After the procedure, body should be disinfected with 1% sodium hypochlorite and placed in a body bag, the exterior of which will again be decontaminated with 1% sodium hypochlorite solution.
- The body thereafter can be handed over to the relatives.
- Autopsy table to be disinfected as per standard protocol.

8. Transportation

- The body, secured in a body bag, exterior of which is decontaminated poses no additional risk to the staff transporting the dead body.
- The personnel handling the body may follow standard precautions (surgical mask, gloves).
- The vehicle, after the transfer of the body to cremation/ burial staff, will be decontaminated with 1% Sodium Hypochlorite.
- At the crematorium/ Burial Ground
- The Crematorium/ burial Ground staff should be sensitized that COVID 19 does not pose additional risk.
- The staff will practice standard precautions of hand hygiene, use of masks and gloves.
- Viewing of the dead body by unzipping the face end of the body bag (by the staff using standard precautions) may be allowed, for the relatives to see the body for one last time.
- Religious rituals such as reading from religious scripts, sprinkling holy water and any other last rites that does not require touching of the body can be allowed.
- Bathing, kissing, hugging, etc. of the dead body should not be allowed.
- The funeral/ burial staff and family members should perform hand hygiene after cremation/ burial.
- The ash does not pose any risk and can be collected to perform the last rites.
- Large gathering at the crematorium/ burial ground should be avoided as a social distancing measure as it is possible that close family contacts may be symptomatic and/ or shedding the virus.

COVID 19
Infection Control and Prevention Measures, PGIMER

Guidelines for handling, treatment and disposal of waste generated during treatment, diagnosis and quarantine of COVID 19 patients

1. Keep separate colour coded bins/bags/containers in wards and maintain proper segregation of waste as per BWWM Rules, 2016 as amended and CPCB guidelines for implementation of BMW Management rules.
2. As precaution double layered bags (two bags) should be used for collection of waste from COVID 19 isolation wards so as to ensure adequate strength and no leaks
3. Collect waste in a dedicated collection bin labelled COVID 19 and hand over to authorized staff of Common biomedical waste treatment facility (CBWDF). and store.
4. General waste not having contamination should be disposed as solid waste as per SWM rules.

References-

1. Best Practices for Environmental Cleaning in Healthcare Facilities in Resource-Limited Settings. CDC. November, 2019
2. World Health Organization. (2019). Infection Prevention and Control during Health Care when Novel Coronavirus (nCoV) Infection is Suspected. WHO/2019-nCoV/IPC/v2020.1)
3. Government of India Ministry of Health & Family Welfare Directorate General of Health Services (EMR Division) COVID-19: Guidelines on dead body management
4. Guidelines for handling, treatment and disposal of waste generated during treatment, diagnosis and quarantine of COVID 19 patients. Central Pollution Control Board. March 2020