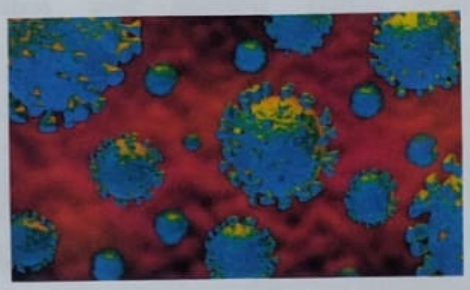


COVID-19

Infection prevention and control (IPC) precautions for COVID-19

Standard operating procedures (SOPs)

Version 1, September, 2020

IGMC , SHIMLA

Prepared by Hospital Infection Control Committee (HICC)

IGMC, Shimla

Prepared by Member secretary HICC, IGMC, Shimla	Contributed by Hospital administrator, IGMC, Shimla	Approved by Medical Superintendent, IGMC, Shimla	Approved by Principal cum Chairman, HICC, IGMC, Shimla

Infection prevention and control (IPC) SOPs for COVID-19, IGMC, Shimla

Abbreviations Used

HICC	Hospital Infection Control Committee
SOP	Standard Operating Procedure
HCW	Health Care Worker
COVID	Corona Virus Disease
SAR-CoV	Severe Acute Respiratory Corona Virus
WHO	World Health Organisation
CDC	Centre for Disease Control and Prevention
PPE	Personal Protection Equipment
PAPR	Powered Air Purifying Respirator
CT	Computerised Tomography
MRI	Magnetic Resonance Imaging
ICU	Intensive Care Unit
HDU	High Dependence Unit
BiPAP	Bilevel Positive Airway Pressure
CPAP	Continuous Positive Airway Pressure
MOH&FW	Ministry Of Health And Family Welfare
ABHR	Alcohol Based Hand Rub
BMWM	Biomedical Waste Management
SWM	Solid Waste Management
IPC	Infection Prevention And Control
AGP	Aerosol Generating Procedure
ACH	Air Changes per Hour
RNA	Ribonucleic Acid
RT-PCR	Reverse Transcriptase Polymerase Chain Reaction
RAT	Rapid Antigen Test
NAAT	Nucleic Acid Amplification Test
CBNAAT	Cartridge Based Nucleic Acid Amplification Test

INTRODUCTION

COVID-19: Coronavirus disease 2019 is an acute respiratory viral infection caused by Severe acute respiratory syndrome corona virus 2 (SARS CoV-2). The disease started as an outbreak of pneumonia of unknown cause in Wuhan city of Hubei Province of China, in December 2019. The disease gradually spread to most of countries of the world and on March 11, 2020 WHO formally declared the COVID-19 outbreak a pandemic. This is the first pandemic caused by corona virus. COVID-19 is a respiratory infection with severity of infection ranging from mild common cold like illness to a severe viral pneumonia leading to acute respiratory distress that can be potentially fatal. The disease is highly transmissible with mortality around 2-3%, higher in older people and patients with co-morbid conditions. The disease is diagnosed by laboratory tests based on detection of viral RNA (RT-PCR, Truenat/ CBNAAT), and viral antigens by rapid card tests. Antibody detection is mainly done for sero-surveillance.

The vaccine for mass use is still not available, though a large number of candidate vaccines are in different phases of clinical trial. No specific antiviral therapy has been shown completely effective to date. In the back ground of this scenario infection prevention and control stands most effective method of containing COVID-19 pandemic. COVID-19 is a new disease and knowledge about it is evolving fast. This is a dynamic document and shall be revised as per new national and international guidelines.

Transmission dynamics of COVID-19

COVID-19 spreads from person to person predominantly via respiratory droplets and contact with contaminated surfaces.

Route of transmission	Conditions	Prevented by
Droplets transmission	Coughing/sneezing/speaking by infected person generates droplets (>/=5µm)that can infect other persons (directly infecting mouth/ nose/eyes) who are within 1 meter distance.	Triple layer Surgical mask
Contact transmission	Droplets fall on different surfaces(floor/articles/furniture ,door handles etc) and virus survives there for a variable period of time(hrs-days), when someone touches such contaminated surfaces in later stage and then touches T area of face (eyes/nose/mouth), infection can easily spread	Hand Hygiene
Airborne transmission	Occurs during aerosol generating procedures(AGPs). Aerosols, fine particles(<5µm) may go beyond 1 meter & remain suspended in air. AGPs: endotracheal Intubation, extubation, tracheostomy procedures, bronchoscopy, surgery, respiratory sample collection, respiratory sample processing, manual ventilation before intubation, airway suction, nebulizer treatment, sputum induction, centrifugation, chest physiotherapy, autopsy etc.	N95 Mask

Prevention of COVID-19

1 Administrative control

Ensure availability of resources for management of COVID-19 cases and infection prevention and control measures.

Designated COVID-19 management areas with appropriate infrastructure

Appropriate triage & placement of patients

Adequate trained staff

Training of staff in IPC measures (including continuing need based trainings in small batches observing social distancing & Webinars)

2. Environmental & Engineering Control

Availability of well-ventilated rooms for patients/suspects

Maintaining distance between beds at least 1meter

3. Specific infection prevention & control (IPC) practices

A. Standard Precautions

B. Transmission based/specific precautions

i. Droplet precautions

ii. Contact Precautions

iii. Airborne precautions (in specific situations such as AGPs)

Based on the mode of transmission and type of activity standard precautions, contact precautions & droplet precautions are always observed.

A. Standard precautions

1.Hand hygiene

2. Respiratory hygiene/etiquette

3. Personal protective equipment (PPE)

4.Cleaning & disinfection/sterilization of:

- Environmental surfaces
- Equipment
- Linen

5. Handling of sharps

6. Biomedical Waste management (BMWM)

7. Spill management

Hand Hygiene

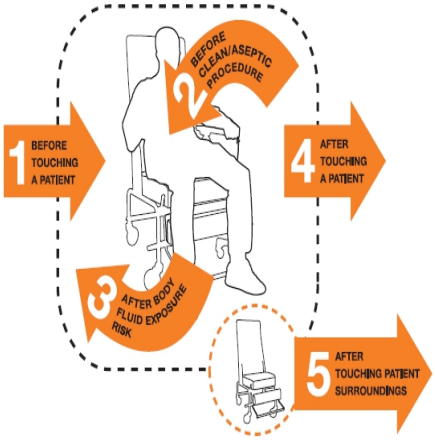
Frequent hand hygiene, most important measure for COVID-19 infection prevention and control. WHO 5 moments and 6 steps of hand hygiene must be followed.
Hand hygiene is done with soap & water (Hand Wash) or with alcohol based hand sanitizer (Hand Rub).

	Alcohol based hand Rub	**Hand wash with soap and water**
Duration	20-30 seconds	40-60 seconds
Amount, (approx.)	3-5ml (Palm full)	3-5ml (Palm full)

Alcohol based hand rub (ABHR) should have ethanol >60% or isopropyl alcohol> 70%.
Liquid soap with soap dispenser should be preferred over solid soap.

Remember:
Hand wash is the most important measure for COVID-19 prevention.
Hand wash should be preferred where ever feasible.
Hand wash should be done instead hand rub when hands are visibly soiled, after using toilet and before having meals.

Your 5 Moments for Hand Hygiene



How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the entire procedure: 40-60 seconds

World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

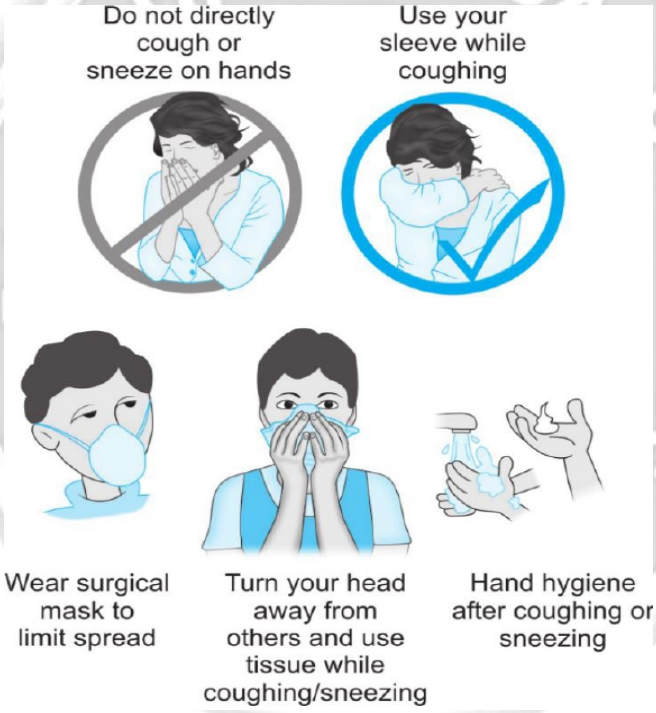
Duration of the entire procedure: 20-30 seconds

World Health Organization | Patient Safety | SAVE LIVES Clean Your Hands

Respiratory Hygiene

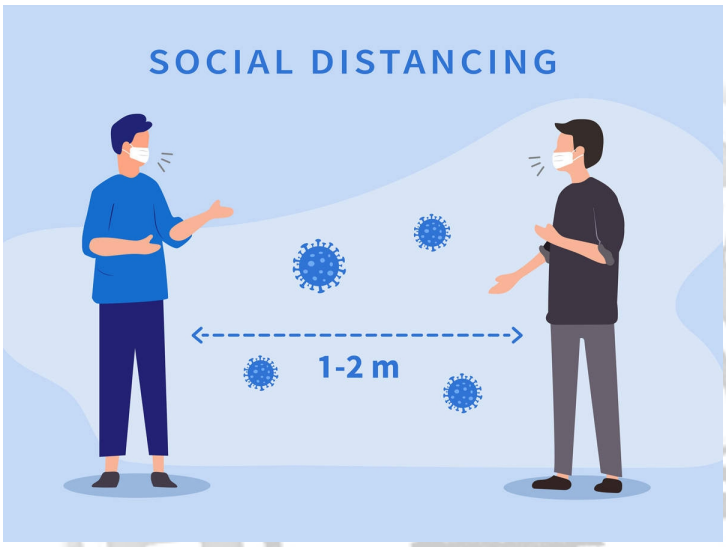
Reduces transmission of infection.

- Cough/sneeze into tissue/elbow
- Discard used tissue in the trash, do not reuse tissue
- Clean hands with soap and water
- Do not spit here & there
- Cover mouth and nose (use of mask)



Social distancing

The disease spreads mainly by respiratory droplets which are known travel up to 1meter, sometimes may be up to 2 meters. Hence a physical distance of >1 meters (preferably 2 meters) should be maintained at all places. Any kind of social gatherings/congregations must be avoided. Social distancing should be maintained in all areas of hospitals (OPDs, wards, waiting areas, elevators etc.) Measures like markings on the floor, in the lifts and placing chairs at appropriate distance in the patient waiting areas should be done to ensure adequate social distancing. Hospital administration should monitor that these measures are being followed always.



Social distancing in waiting areas in hospitals

Personal protective equipment (PPE)

Personal protective equipment are protective gears designed to safeguard the health of workers by minimizing the exposure to a biological agent.

Commonly used PPE

1. Masks (surgical masks / N95 Respirator/PAPR)
2. Gloves
3. Coverall/gowns (with/without apron)
4. Goggles/eye shield
5. Cap
6. Shoe cover

Risk of exposure should decide the selection of PPE
Rational use of PPE is desired to make it available for the HCWs in direct patient care, in view of shortage of PPE

PPE used	Risk covered
Gloves	Contact with patient, surrounding environment, blood & body fluids Use Single pair of gloves. In isolation wards or PCR labs & procedures involving sharp , 2 pairs may be used (depending upon availability). During cleaning, laundry, biomedical waste handling heavy duty gloves are used
Gowns, Plastic aprons	Contact with patient/patient surroundings Splashes of blood/body fluids/any other contaminated fluid
Goggles/ eye shield, face shield	Respiratory droplets, aerosols, splashes of blood/body fluids. Flexible frame provide a good seal over skin protecting eyes with surrounding area and even accommodating prescription glasses Face shield in addition protect the mask from contamination & prolong its life
Cap/head cover	Prevent contamination of hair/& neck
Mask: • Surgical mask o N95 respirator	• Protects direct exposure of mucus membranes of mouth & nose to droplets(>/=5 µm) o Provide protection to aerosols/droplet nuclei(<5 µm) during AGPs
Shoe cover, dedicated footwear	In isolation area. Protect shoes from splashes/droplet contamination

Remember:

Correct technique of PPE donning & doffing is most important to prevent self-contamination.
Hand hygiene is the single most effective and proven method of infection control in health care setting and community.
Gloves are not substitute to hand hygiene.

Transmission based precautions:

These precautions are to be taken in case of confirmed or suspected COVID 19 cases.

Person to person transmission of COVID-19 virus has been proven to occur via respiratory droplets and contact transmission. Aerosol transmission of COVID-19 may occur during aerosol generating procedures and also possible in closed environments.

Droplet transmission is prevented by wearing masks (surgical/N95), maintaining social distance >1meter and hand hygiene.

Contact transmission is prevented by performing hand hygiene, regular cleaning and disinfection of surfaces and wearing gloves and gown.

Aerosol transmission is prevented by N95 respirator or equivalent in addition to droplet and contact transmission

PPE use in the context of COVID-19

Location	PPE	Remarks
Screening area (Questionnaire based, thermal scanning)	Surgical mask/ N95 mask, face shield	Standard precautions, Hand hygiene, patients surgical/cloth masks
Flu clinic	Gloves, N95mask, gown (linen/disposable), goggles/face shield, cap	Patients surgical mask/cloth mask
Triage ward (COVID suspects)	Hospital scrub, gloves, N95 mask, gown , eye shield/goggles, head cover/cap, shoe covers Cleaners: in addition wear heavy duty gloves	Patient triple layer surgical mask
Isolation ward (COVID-19 positive patients)	Full PPE: Hospital scrub Double gloves, N95 mask, Gown /coverall Face shield/goggles or both, head cover/cap, dedicated closed washable shoes, shoe covers Cleaners: in addition should wear heavy duty gloves	During AGPs use of N95 Mask is mandatory
PCR lab	Full PPE: Hospital scrub Double gloves, N95 mask, Gown /coverall face shield/goggles, head cover/cap, dedicated closed washable shoes, shoe covers	Till extraction of RNA full PPE is worn, then after doffing of PPE, N95 mask and new pair of gloves worn
Laundry (HCWs transporting &washing COVID-19 linen)	Water proof gown/apron, heavy duty gloves, N95 mask, Cap, face shield/goggles closed washable shoes	Minimal agitation of linen
Laboratories & blood bank (directly processing non respiratory samples)	Gloves, gown/apron, cap, face shield/goggles, triple layer surgical mask/N95 mask	Sample received in zip lock/leakproof container. The outer surface of tubes disinfected
Radiology (X-rays/CT	Gloves, gown/apron, cap,	HCWs in other areas

scan/MRI of COVID patients) HCW directly involved in procedure	Eye shield/goggles, N95 mask	Eg. corridors, nursing stations,(dealing with non COVID patients) – wear triple layer surgical mask
Emergency/casualty	Gloves, gown/coverall, cap, face shield/goggles, N95 mask	Patient using surgical mask/cloth mask
Non COVID wards/OPDs	Triple layer surgical mask / N95 mask. Face shield,	Frequent and strict hand hygiene, avoid touching face. Patient wearing surgical mask/cloth mask
OPD slip counters/payment counters/ front office	Triple layer surgical mask/N95 mask, face shield	Frequent and strict hand hygiene, avoid touching face, ensure patient wearing mask.
Non COVID ICU/HDUs	N95 mask, face shield/ goggles, gown/coverall,	During AGPs use of N95 Mask is mandatory
COVID -19 surgery& COVID-19 Patient/suspect-delivery/caesarean section	Full PPE (sterile): Hospital scrub, double gloves N95 mask, Gown /coverall face shield/goggles, head cover/cap, dedicated closed washable shoes, shoe covers	Surgeries to be done in dedicated COVID OTs, preferably with negative pressure.
Non- COVID surgery & delivery/caesarean section	Full PPE (sterile): Hospital scrub, double gloves N95 mask, Gown /coverall face shield/goggles, head cover/cap, dedicated closed washable shoes, shoe covers	Emergency surgeries should be done during pandemic period All patients considered potential COVID patients Minimal people in OT.
Staff of hospital mess/canteen Staff of hostel mess	Triple layer surgical mask/ N95 mask	Frequent and strict hand hygiene Canteens should remain closed if feasible
Administrative area & medical college except labs,	Surgical mask/N95	Hand hygiene, respiratory Etiquette, social distancing
Security staff	N95 mask/triple layer surgical mask, face shield	Hand hygiene, respiratory etiquette, social distancing
Dead body management	Full PPE: Double gloves, N95 mask, Gown & apron /coverall face shield/goggles, head cover/cap, dedicated closed washable shoes, shoe covers	Embalming not to be done Aerosol generating procedures to be avoided. No rituals allowed
Mortuary	Gloves, apron/coverall, N95 mask, goggles/face shield,	Minimal handling of body Temperature maintained at 4^{o}C/less
Autopsy	Full PPE: Hospital scrub Double gloves, N95 mask, Gown & apron /coverall face shield/goggles,	Autopsy should be avoided except for specific reasons

	head cover/cap, dedicated closed washable shoes, shoe covers	

PPE selection depends on the setting of health care facility and type of activity performed by the HCWs.

Full PPE: includes mask (triple layer surgical/N95), 2 pairs of gloves, coverall or gown & cap/head cover, eye protection, shoe covers.
Minimum level of protection is mandatory for all HCWs and the level of protection may be increased subject to availability of PPE.

Judicious use of Personal protective equipment (PPE)

The following strategies should be adopted to facilitate optimal use of PPE, particularly during the shortage of PPE.

A. Minimise the need for PPE
   1. Restrict visitors to COVID ward
   2. Restrict the HCWs entering COVID ward if they are not involved in direct patient care. Bundling of activities may be considered to minimise the number of times the ward is entered e.g. check the vitals during medication administration. The activities to be planned which can be completed in one entry to the ward.
   3. Physical barriers such as glass or plastic windows may be installed to reduce direct exposure. This approach may be implemented in settings where patient first presents such as registration counter, emergency registration desk, triage areas, flu OPD registration desk, or the pharmacy window where medicines are dispensed.

B. Rationalise the use of PPE
   PPE use should be based on risk assessment. It shall vary according to the setting, type of personnel and type of activity. The misuse or overuse of PPE shall adversely impact already short supplies.
   1. Direct contact without aerosol generating procedures of COVID patients (confirmed/suspect) should use the following PPE: N95 mask, gowns, gloves, eye protection (goggles/face shield)
   2. Aerosol generating procedures (endotracheal Intubation & extubation, tracheostomy procedures, bronchoscopy, non- invasive positive pressures (BiPAP & CPAP), respiratory sample collection, respiratory sample processing, manual ventilation before intubation, airway suction, nebulizer treatment, sputum induction, centrifugation, chest physiotherapy, dental procedures,) autopsy etc. the HCWs should use full PPE including N95 mask.

Consideration during severe shortages of PPE

The following recommendations of CDC, WHO, MOH &FW and the State Government shall be endorsed to combat the short supply of N95 mask.

1. **Extended use of N95 mask**
   Implies the use of same N95 mask for repeated close contact encounters with several patients, without removing the mask between different patient encounters (up to 8 hrs).
   Also consider the following during extended use of N95 mask:
   Discard the N95 mask when contaminated with blood/body fluids/ nasal secretions etc.
   Use face shield over N95 mask
   Ensure patients also wear mask unless medically contraindicated.

Perform hand hygiene before & after touching or adjusting the N 95 mask

3. **Limited Reuse of N95 mask**
   It implies the use of the same mask for multiple encounters with patients but doffing it after each encounter. There is a potential risk of transmission of infection due to contact transmission, therefore this option should be exercised with great caution. Limited reuse should not be used if:
   Following use during aerosol generating procedures
   If N95 mask grossly contaminated with blood, respiratory or nasal secretions

5 days reuse strategy

Days →

1	6	11	16	21
2	7	12	17	22
3	8	13	18	23
4	9	14	19	24
5	10	15	20	25

Day 1:Write your name & date on the N95 mask
Use the N95 mask with face shield
STORE: end of the day/duty, put in the PAPER bag, labeled "bag 1".
Store in well aerated place, preferably in desiccant. Perform hand hygiene

Day 2: Write your name & date on the N95 mask
Use the N95 mask with face shield
STORE: end of the day/duty, put in the PAPER bag, labeled "bag 2".
Store in well aerated place, preferably in desiccant. Perform hand hygiene

Day 3: Write your name & date on the N95 mask
Use the N95 mask with face shield
STORE: end of the day/duty, put in the PAPER bag, labeled "bag 3".
Store in well aerated place, preferably in desiccant. Perform hand hygiene

Day 4: Write your name & date on the N95 mask
Use the N95 mask , with face shield
STORE: end of the day/duty, put in the PAPER bag, labeled "bag 4".
Store in well aerated place, preferably in desiccant. Perform hand hygiene

Day 5: Write your name & date on the N95 mask
Use the N95 mask with face shield
STORE: end of the day/duty, put in the PAPER bag, labeled "bag 5".
Store in well aerated place, preferably in desiccant. Perform hand hygiene

The HCW shall wear one N95 mask each day (shift) and store in a breathable paper bag at the end of each day/shift. The order of N95 mask use should be repeated after minimum of five days gap before reusing the same mask. Single mask should not be used for more than 5 turns.

Repeat same cycle on days 6,11,16, & 21. This will result in each HCW requiring a minimum of five masks for 25 working days. All N95 masks would be discarded by day 25. Re issue 5 more masks on day 25 itself. If N95 gets soiled, get a new one.

*Bags (1-5): Paper bags, to be kept in separate cardboard boxes labelled 1-5, should not be kept in plastic boxes.
This practice is not free from danger, when not properly used. It should only be considered during severe shortage of PPE.

Reprocessing of N95 masks

Due to severe shortage of N95 masks WHO has recommended reprocessing of N95 followed by reuse by certain methods as plasma sterilisation. At present we do not recommend it due to lack of facility.

Reprocessing of goggles and face shield:

To combat the short supplies goggles and face shields can be cleaned by soap/detergent and water followed by disinfection using 1% hypochlorite (which needs to be rinsed with clean water) or 70% alcohol wipes. If visibility is compromised, should not be reused further.

Dos and Don'ts of masks :

HCWs should always wear mask.
Select mask based on risk assessment
Cover mouth and nose adequately.
Compress the mask to ensure a seal across nose bridge, face and cheeks
Always hold mask by strings.
Do not touch/hold mask from front as it is the most contaminated part.
Do not allow mask slide below nose or tangling around neck
Do not use mask for longer time than recommended (6 hrs surgical mask, 8 hours N95 mask) except limited reuse of N95 mask in certain situations.
Discard mask in yellow bag after use
Do hand hygiene after removal of mask.
Correct technique of wearing and removing of mask is very important

Seal check of N95 mask:

The seal check of N95 mask should be performed every time the mask is donned to ensure if it is properly fitted and functional.
The mask is properly compressed over nose bridge and along the edges.
If mask collapse during inspiration and balloons out during expiration and there is minimal air leak from the edges, would ensure adequate face seal.
If air escapes from the edges, the N95 mask needs to be adjusted and process is repeated.
If still not proper, then respirator should be checked for any defect or damage.

Facemask Do's and Don'ts

For Healthcare Personnel

When putting on a facemask

Clean your hands and put on your facemask so it fully covers your mouth and nose.

DO secure the elastic bands around your ears.

DO secure the ties at the middle of your head and the base of your head.

When wearing a facemask, don't do the following:

DON'T wear your facemask under your nose or mouth.

DON'T allow a strap to hang down. DON'T cross the straps.

DON'T touch or adjust your facemask without cleaning your hands before and after.

DON'T wear your facemask on your head.

DON'T wear your facemask around your neck.

DON'T wear your facemask around your arm.

When removing a facemask

Clean your hands and remove your facemask touching only the straps or ties.

DO leave the patient care area, then clean your hands with alcohol-based hand sanitizer or soap and water.

DO remove your facemask touching ONLY the straps or ties, throw it away*, and clean your hands again.

*If implementing limited-reuse: Facemasks should be carefully folded so that the outer surface is held inward and against itself to reduce contact with the outer surface during storage. Folded facemasks can be stored between uses in a clean, sealable paper bag or breathable container.

Additional information is available about how to safely put on and remove personal protective equipment, including facemasks:
https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html.

cdc.gov/coronavirus

Respirator On / Respirator Off

When you put on a disposable respirator

Position your respirator correctly and check the seal to protect yourself from COVID-19.

Cup the respirator in your hand. Hold the respirator under your chin with the nose piece up. The top strap (on single or double strap respirators) goes over and rests at the top back of your head. The bottom strap is positioned around the neck and below the ears.

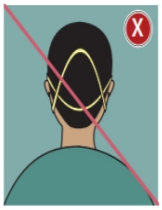
Place your fingertips from both hands at the top of the metal nose clip (if present). Slide fingertips down both sides of the metal strip to mold the nose area to the shape of your nose.

Place both hands over the respirator, take a quick breath in to check the seal. Breathe out. If you feel a leak when breathing in or breathing out, there is not a proper seal.

Select other PPE items that do not interfere with the fit or performance of your respirator.

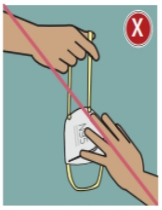
Do not use a respirator that appears damaged or deformed, no longer forms an effective seal to the face, becomes wet or visibly dirty, or if breathing becomes difficult.

Do not allow facial hair, jewelry, glasses, clothing, or anything else to prevent proper placement or to come between your face and the respirator.



Do not crisscross the straps.

Do not wear a respirator that does not have a proper seal. If air leaks in or out, ask for help or try a different size or model.



Do not touch the front of the respirator during or after use! It may be contaminated.

When you take off a disposable respirator

Remove by pulling the bottom strap over back of head, followed by the top strap, without touching the respirator.

Discard in a waste container.

Clean your hands with alcohol-based hand sanitizer or soap and water.

Employers must comply with the OSHA Respiratory Protection Standard, 29 CFR 1910.134, which includes medical evaluations, training, and fit testing.

Additional information is available about how to safely put on and remove personal protective equipment, including respirators:
https://www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html

CDC

cdc.gov/coronavirus

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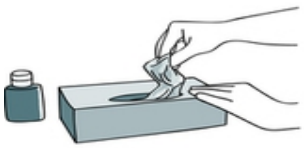
Dos and Don'ts of Gloves

Wear gloves only when there is an indication (anticipated exposure to blood/body fluids)
Do not wear when there is no indication (e.g. measuring BP, pulse etc.)
Remove gloves after single use and do not reuse.
Do not keep wearing same gloves for long time particularly when not involved in patient care (as it creates a false sense of security and may have more risk of self -contamination).
Do hand hygiene before and after use of gloves.
Dispose used gloves in red biohazard bag after use. Do not discard in yellow bags
Proper technique of donning and doffing of gloves is important.

When the hand hygiene indication occurs before a contact requiring glove use, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.

I. How to don gloves:

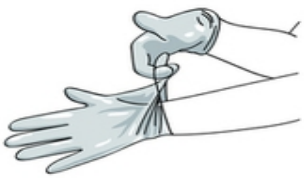


1. Take out a glove from its original box

2. Touch only a restricted surface of the glove corresponding to the wrist (at the top edge of the cuff)

3. Don the first glove

4. Take the second glove with the bare hand and touch only a restricted surface of glove corresponding to the wrist

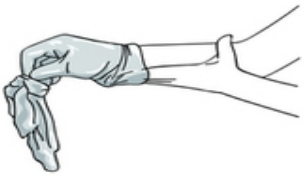


5. To avoid touching the skin of the forearm with the gloved hand, turn the external surface of the glove to be donned on the folded fingers of the gloved hand, thus permitting to glove the second hand

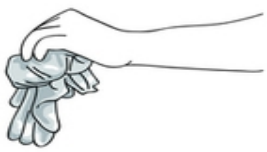
6. Once gloved, hands should not touch anything else that is not defined by indications and conditions for glove use

II. How to remove gloves:

1. Pinch one glove at the wrist level to remove it, without touching the skin of the forearm, and peel away from the hand, thus allowing the glove to turn inside out



2. Hold the removed glove in the gloved hand and slide the fingers of the ungloved hand inside between the glove and the wrist. Remove the second glove by rolling it down the hand and fold into the first glove



3. Discard the removed gloves

4. Then, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.

PPE donning and doffing sequence

General measure before donning :

One should be mentally and physically prepared to work with the PPE in a COVID area

Performed in designated donning room/area

HCW should be prepared for shift duty by taking meal, drinking water and using wash room.

Remove all accessories, jewellery etc

Preferably shave off beard as mask may not fit properly

Change into hospital scrub

Wear closed washable shoes

Perform hand wash with soap and water

Put PPE under supervision of a trained observer/ a buddy

Inspect PPE according to checklist provided.

Follow the donning sequence as per flow chart provided in the donning room/area

General measures before doffing:

Doffing must be done in a designated doffing room. The room should be well ventilated.

It should have two chairs, foot operated sanitiser dispensers, wall-mounted body-length mirror, colour coded BMW bins, preferably foot operated.

Doffing is most crucial part in the use of PPE . It should be done slowly and carefully, to prevent

self -contamination. It should be monitored by CCTV cameras.

Remove the N95 mask in the last, just before leaving the doffing room.

Discard goggles/face shield, gloves, plastic apron into covered red coloured bin.

Discard gown, cap, shoe cover, mask (surgical mask & N95mask) into yellow coloured bin.

Hand hygiene to be performed after every step.

After doffing is complete take a shower.

Follow the doffing sequence as per flow chart provided in the doffing room.

PPE Donning Sequence

1. Inspect PPE

2. Hand Hygiene 

3. Gown/coverall 

4. Inner pair of gloves 

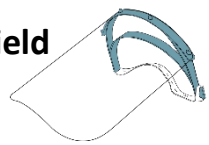
5. Shoe Cover 

6. Hand Hygiene 

7. Mask 

8. Goggles 

9. Outer pair of gloves 

10. Face Shield 

After wearing coverall up to shoulder, wear the mask and goggles, then pull the hood overhead and zip up the cover all completely.

Performed in designated donning room/area

HCW should be prepared for shift duty by:

- Taking meal
- Drinking water
- Using wash room

Remove all accessories, jewellery etc

Preferably shave off beard as mask may not fit properly

Change into hospital scrub

Wear closed washable shoes

Perform hand wash with soap and water

Put PPE under supervision of an observer/ a buddy

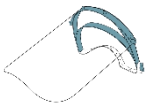
PPE doffing Sequence

Hand hygiene

1. Outer Gloves

Hand hygiene

2. Face Shield



Hand hygiene

3. Shoe covers

Hand hygiene

4. Gown/coverall

Hand hygiene

5. Goggles

Hand hygiene

6. N-95 MASK

Hand hygiene

7. Remove Inner pair of gloves

Wipe bottom of shoes on a mat soaked in 1%hypochlorite solution.

Exit doffing area

Go to take shower.

Doffing must be done in a designated Doffing room/area

Doffing should be done slowly and carefully, to prevent self - contamination

Discard goggles/face shield, gloves, plastic apron into covered red coloured bin

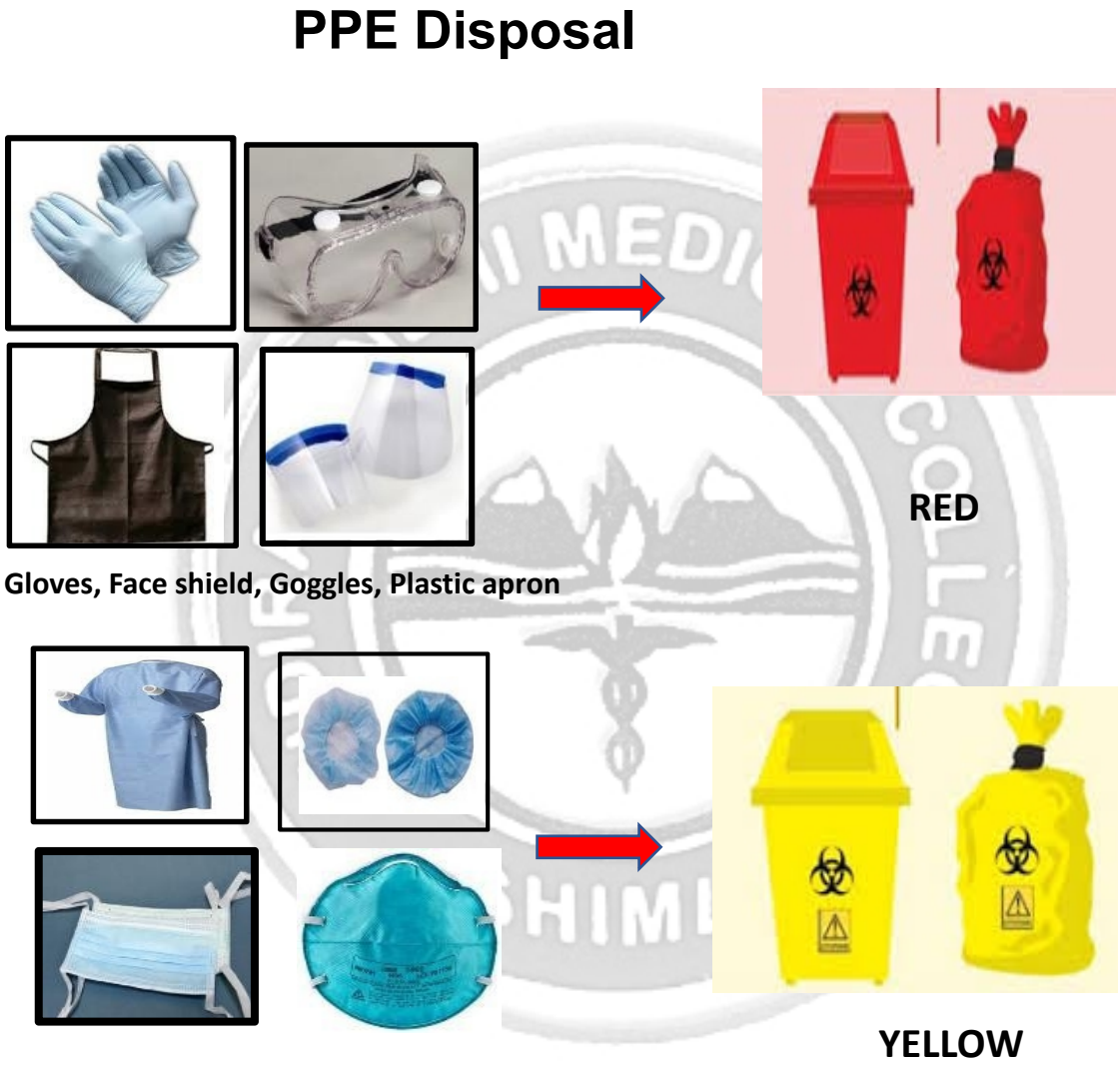
Discard gown, cap, shoe cover, Mask (surgical mask&N95mask) into yellow coloured bin

Hand hygiene to be performed after every step. If gown is worn before shoe-cover, it should be removed, before shoe-cover.

After doffing is complete take shower

Disposal of personal protective equipment (PPE)

The PPE should be disposed off as per BMW management rules and CPCB guidelines for handling of waste generated during treatment, diagnosis or quarantine of COVID-19 patients.



Environment cleaning and disinfection SOPs for COVID-19

COVID-19 virus (SARS COV-2) can potentially survive in environment for hours/days depending upon the type of surface. Hospital premises, areas and surfaces potentially contaminated with virus should be cleaned and disinfected regularly.

Transfer of microorganisms from the contaminated surfaces to patients/HCWs occurs mostly via hand contact with the surface. Hand hygiene is the most important measure to prevent this transfer of infection.

Environmental cleaning and disinfection is fundamental in decreasing the health care associated infections (HAIs)

1. Cleaning and disinfection agents

Cleaning is done with commonly available detergents and water.

Disinfectants:

1. Sodium hypochlorite solution (0.5%-1%). The desired concentration is freshly prepared daily from stock solution available (5% or 10% concentration). Freshly prepared solution should be kept in a plastic closed container. It should not be used for metallic surfaces. Contact period of 10-30 minutes is recommended (depending on the nature of surface/article)

2.Alcoholic preparations: 70% ethyl alcohol, preferred for metallic surfaces.

Wipes/wet dusting are recommended over sprays for all reachable surfaces. Spraying to be avoided in general, only recommended for not reachable surfaces.

Wet mopping recommended for floors. Three bucket system is recommended. Detergent solution should be made with warm water. The mop used should be cleaned with hot water and detergent and then treated with1% hypochlorite solution. Then kept for drying upside down, preferably in sun.

PPE: The cleaning staff shall wear appropriate PPE (heavy duty gloves, N95mask/surgical mask, apron, eye shield/goggles, boot) based on risk assessment. He/she should wash hands properly immediately after removing PPE.

Preparation of 1% hypochlorite solution

% of hypochlorite solution	Dilution	Preparation	Chlorine (ppm)
From 5% stock solution			
0.5% hypo. Sol.	1:10	1 vol. stock +9 vol water	5000
1% hypo.sol.	1:5	1 vol.stock +4 vol. water	10,000
From 10% stock solution			
0.5% hypo.sol	1:20	1vol.stock+19 vol.water	5000
1% hypo.sol.	1:10	1vol.stock+9vol.water	10,000

High touch surfaces

Bed rails, bed frame, tray table, bedside tables, door handles/knobs with adjoining area, handles of almirah, IV stand, BP cuffs, reachable surfaces of walls around beds, lift buttons, switches, chair arms, wall area around toilet in patient room, side rails of stairs, stretchers, wheel chairs, stethoscopes, mobile phones/telephones, computer, mouse, keyboards etc. they should be cleaned and disinfected frequently (3 hourly or earlier).

2.Frequency of cleaning & disinfection

Disinfection protocol for COVID areas (Flu clinic/ward/ICU/COVID laboratories)			
Area	**Disinfectant**	**Contact time**	**Frequency**
Floor	1% hypochlorite sol (after cleaning with (S&W)	10 min	3hrly, and as and when required
Mops	1% hypo.sol.(after cleaning withS&W)		Change after every 240 square feet
High touch surfaces: Metallic Non metallic	70% alcohol 1% hypochlorite sol.	Till it dries 10 min	2-3 hrly
Low touch surfaces (walls/ceiling)	1% hypo.sol.(after cleaning with S&W,if required)	10 min	Twice a week
Toilet (floor/pots/bed pans)	1% hypo.sol. (after cleaning with S&W)	10 min	After every use
BMW bins	Inner& outer surface , 1% hypo.sol.	10 min	After every use
BMW bags	Outer surface	10 min	Before discarding, each time
Article: telephone, computer, keyboard, mouse, bed side monitors, ECG probes, USG machine, pulse oximeter, infusion pumps, ventilator exterior etc	70 % alcohol, wipes	Till dries	After each use/as frequently as 2hrs,depending on nature of article
Stethoscope	70% alcohol wipes	Till it dries	After each use
BP apparatus cuff	Detergent and warm water		After each use
Thermometer(dedicated to one patient only)	Clean withS&W, 70% alcohol	Till it dries	After each use, store in dry individual holder
Injection/dressing trolley	70% alcohol(after cleaning with S&W)		Cleaned daily (soap and water), disinfected after each use
Wheel chair	70% alcohol	Till it dries	Cleaned daily (s&w), disinfected after each use
Stretchers	70% alcohol	Till it dries	Cleaned daily(S&W), or when soiled,

			disinfect after each use.
Clinical Sample containers(outer surface)	1% hypo.sol	10 min	Before sending to laboratory
Ice packs	1% hypo.sol.	10 min	After each use
Liquid waste	1% hypo.sol.	30 min	After treatment, drained
Discarded linen	1% hypo. Sol.	30 min	If soiled, to be discarded

Contact period with 1% hypochlorite should always be at least more than one minute.

Metallic surfaces: 70% alcohol based rub

Non-metallic surfaces: 0.5%-1% sodium hypochlorite solution

3. Cleaning and disinfection of non COVID areas during COVID -19 period: The cleaning and disinfecting agents would be same as used in COVID areas. Cleaning of floors and disinfection should be at least 2-3 times per day.

Measures during mopping:

Before cleaning:

Gather required materials for cleaning before entering the room

The cleaning staff must wear appropriate PPE.

Place a cautionary 'Wet Floor' sign at the entrance of the room.

If possible seal off areas, before carrying out cleaning and disinfection.

Follow the manufactures instructions for proper dilution and contact time for cleaning and disinfecting solutions.

During cleaning:

Do not use brooms. Dust control mops should be used prior to wet mopping

The floors should be cleaned by wet mopping.

Gross soiling (visible to naked eye) should be removed before cleaning and disinfection.

Wash the mop under running water before doing wet mopping.

Do not double dip the mop in cleaning solution as dipping it multiple times lead to re contamination of mop.

An area of 120 square feet to be mopped before re dipping the mop in the solution.

Cleaning solution and mop to be changed after cleaning an area of 240 square feet i.e. change solution for every room.

Minimise turbulence to prevent the dispersion of dust which may contain pathogens. Hence, never shake mops.

Cleaning sequence: It should progress from least soiled area to the most soiled areas and from high surfaces to low surfaces .i.e. top to down, ceiling based equipment first, walls, then floor based equipment and finally floor. When cleaning individual equipment: clean from top to bottom.

When cleaning the floor begin at the end farthest from the door and move towards the door.

The cleaning staff should always move from clean to unclean areas and not vice versa

Eight stroke technique of mopping:

In open and wide spaces use figure of eight stroke,

overlapping each stroke , turn mop head after every 5-6 strokes

In small spaces, starting in the farthest corner of the room ,

drag the mop toward you, then push it away from you,

working in straight, slightly overlapping lines

and keeping the mop head in full contact with the floor. Repeat until entire floor is cleaned.

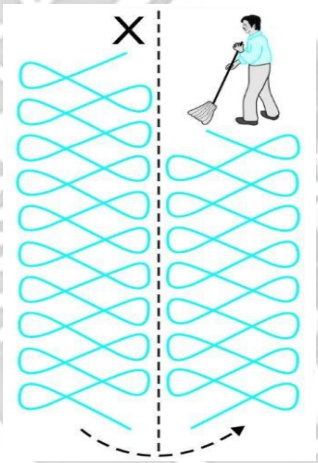


Figure of 8 stroke technique for mopping.

Triple bucket mopping method: use of 3 bucket system is a preferred method

a. 1st bucket: detergent solution
b. 2nd bucket: clean water
c. 3rd bucket: disinfectants (1% hypochlorite solution)

Triple bucket mopping method

Cleaning and disinfection of mops:

The used mop should be washed in running water followed by dipping in 0.5- 1% hypochlorite solution for 30 minutes and then dried preferably in sun light before re using.

All equipment used for cleaning , wash with soap/detergent and hot water, followed by decontamination with 0.5- 1% hypochlorite solution for 10 minutes and then dry preferably in sunlight.

Change the mop when heavily soiled or at the end of the day.

Report adverse event to the supervisor.

Do hand washing at the end of cleaning.

4.Terminal cleaning and disinfection:

When COVID patient/suspect is discharged/shifted from the ward, it needs a thorough cleaning and disinfection.

a. The cleaning person shall wear full PPE (heavy duty gloves, N95 mask, aprons, eye shield/goggles, cap, boot) and follow all standard precautions.
b. Cleaning with detergent and water followed by disinfection with 1% hypochlorite solution: working from clean to dirty area and high to low area with a fresh mop . Clean all high touch areas of room which are potentially contaminated.
c. Clean all furnishings and surfaces of the room as window sills, chair, over bed table, computer, television etc
d. All reusable linen material should be placed in blue bags without agitation, bags tied at top and labelled as COVID linen, outer surface wiped with 1% hypochlorite before sending to laundry.
e. Mattresses and pillows treated with 1% hypochlorite solution and preferably kept in sunlight to dry for 2-3 hours.
f. Mattresses, pillows and linen soiled with blood/body fluids treated with1% hypochlorite solution for 30 minutes and then put in double yellow bag/suitable packing material before final discard.
g. Clean the immediate surroundings of the bed and remake the bed
h. Toilet & bathroom: clean floor , bucket, mugs, sinks, tap knobs and nozzles, pots, bed pans etc with detergent and water followed by disinfection with 1% hypochlorite
i. Clean and disinfect BMW bins (inner & outer surface)
j. Inspect for pest control

k. Clean ,disinfect and store the cleaning equipment
l. Remove PPE carefully in doffing area and wash hands before leaving the patient care area.
m. Fogging of the room is usually not recommended (no added/proven benefit). It may be optional depending on availability and department policy.

5. Cleaning and disinfection in OT:

Proper cleaning and disinfection is essential to prevent infections in patients and HCWs (HAIs). It shall be done in 3 phases:

a .Initial cleaning:

Performed every morning.
Wear appropriate PPE (gloves, gown/apron, surgical mask/N95, goggles/eye shield) based on risk assessment.
No one should enter OT before it is cleaned.
All the surfaces disinfected with 1% hypochlorite solution following principle of clean to dirty, top to down and in to out.
If any surface is dirty first cleaned with detergent and water.
Disinfect all antiseptic bottles, trays, sterile containers.
Wash the scrub basin and taps with detergent and water.
Keep OT closed for 15-20 minutes with ventilation (exhaust) on.
Remove all the PPE carefully and discard appropriately.

b. In between cases cleaning:

A signage of 'wet floor' placed.
Door of OTs should be kept closed and air handling unit (if present) should be kept on.
If surfaces are dirty, first clean with detergent and water, followed by disinfection with 1% sodium hypochlorite/70 % alcohol depending on nature of the surface.
The surfaces that might have come in contact with blood/body fluids as tops of surgical lights, BP cuffs, tourniquets, suction canister, OT table etc need cleaning and disinfection in between cases.
Wet mopping of floor with detergent and water followed by 1% hypochlorite sol. in the area approximately 3-4 feet area around the OT table is done.

c. Terminal cleaning:

It is done at the end of the day.
Thorough cleaning and disinfection of OT table, surfaces and floor to be done.
Appropriate PPE should be donned every time cleaning is done.
Clean and disinfect lights, ceiling mounted tracks, high touch surfaces, furniture.
Spot check walls for cleanliness.
Clean scrub sinks and surrounding walls.
Mop all the floor including underneath the OT table.
Use separate mop for different rooms.
Use disinfectant in sufficient quantity that the floor remains wet for at least for 5 minutes.
Slippers should be washed with detergent and water followed by disinfection with 1% sod. Hypochlorite sol. for 10 minutes.
Alcohol wipes are used for equipment surfaces that do not tolerate sodium hypochlorite.
Detailed wash down of OT: It should be done weekly in the OTs used daily and once a month in OTs used less frequently.
All moveable equipment and materials are shifted out of the OT
Any pending minor civil work/electrical work can be performed at this stage.

Wipe all surfaces of the OT, ceiling, wall fixtures, ceiling mounted fixtures e.g. OT lights and all fixed floor based equipment.
Scrub the floor with soap/detergent and water followed by disinfection with with 0.5-1% sodium hypochlorite. Allow the disinfectant dry naturally.
Keep the OT closed for at least 2 hours.

6.Cleaning & disinfection in COVID ICUs:

a. Cleaning and disinfection to be done every 3-4 hourly.
b. No washing and brooming shall be done inside the ICU
c. Different buckets and mops (with labels) are used for different areas of ICU e.g. nursing station, doffing area, patient beds, rest of the ICU.
d. First surface disinfection has to be done ,then the floor cleaning and finally washrooms are cleaned.
e. **Sequence of cleaning in ICUs**:
1. Nursing station: Chair, nursing counter table, crash cart, injection/medicine trolly, dressing trolly, computer, keyboard, mouse, telephone/mobile followed by floor cleaning.
2. Patient area: There should be minimum 1 meter distance between adjacent beds and from the wall. I/V stand, SPO2 monitor, infusion pumps, ventilator screen, switch board (only alcohol wipes, do not spray), bed side table.
Patient cot cleaning:
First headend rails, then
Side rails,
Foot end rails
Foot wheels
Finally floor around the patient bed.
Rest of the ICU: cleaning of the floor of remining part of the ICU is then followed.
3. Washroom: floors, sinks, high touch surfaces are cleaned
4. Doffing area: being the dirtiest place shall be cleaned last.
Doffing area preferably should have full length mirror to check proper doffing procedure. Hand hygiene should be done after each step of doffing sequence
It should be equipped with Yellow and Red BMW bins lined with double bags, glove box, hand rub stand with hand rub , doffing sequence chart.
Near the door foot operated bin is placed to discard N95 mask, as it has to be removed just before leaving doffing area. A fresh surgical mask to be put on immediately after doing hand hygiene.
After removal of PPE hand washing with soap and water to be done. Hand hygiene posters to be placed on the wall.

7.Cleaning and disinfection of Hospital campus:

a. The patient entry regulated.
b. Signages to direct patients to different areas of hospital.
c. Social distancing(>1meters) should be maintained in all areas.
d. Prohibition of spitting in hospital premises
e. Cleaning and disinfection (detergent and water , 1% hypochlorite) to be done twice daily, preferably during less busy hours of the day.
f. Designated routes for the transportation of waste & laundry articles. Transported preferably at fixed time of the day.
g. The BMW temporary storage area: ensure proper segregation areas based on type of waste. It is to be cleaned and disinfected twice daily.
h. Cleaning and disinfection at canteens and tug shops :

Should be done regularly.
The chairs, tables, front desks, cabins to be cleaned with detergent and water followed by disinfection with 1% hypochlorite/70% alcohol.
Floor mopping at least twice daily (earlier if needed) with detergent and water followed by disinfection with 1% hypochlorite.
The persons working there should do frequent hand washing and wear surgical mask.

Infection prevention & control practices in laundry for COVID-19

1. Ensure adequate space for laundry.
2. Restrict people in laundry area.
3. All linen should be handled by HCWs with standard precautions.
4. Used linen should be handled as little as possible with minimum agitation to prevent possible self-contamination and generation of aerosols in the area.
5. Never carry soiled linen against body .
6. Used linen of COVID patient/suspect to be collected in a dedicated labelled container lined with leakproof blue bags (double bags).
7. The bags would be labelled as COVID-19 linen (HCW/patient) and tied properly when ¾ full and outer surface wiped with 1% sod. Hypochlorite solution.
8. Transport the bags to the laundry in a dedicated trolley/van through a dedicated path.
9. HCW transporting the linen would wear N95 mask, heavy duty gloves, plastic apron, eye shield/goggles.
10. HCWs to observe standard precautions such as frequent hand hygiene, avoid touching face, nose and mouth with hands.
11. In the laundry, treat the linen with 0.5% sod. Hypochlorite solution for 30 minutes in a dedicated container labelled as COVID-19.
12. A dedicated laundry person involved in washing of COVID linen should follow hand hygiene and wear N95 mask, Heavy duty gloves, plastic apron and boots, goggles/eye shield, cap.
13. A dedicated machine would be used ,clearly reflecting as COVID-19 machine. Wash at 60-90^{o}C with laundry detergent and follow normal cycles.
14. In case hand wash is to be done:
    a. Treat with hypochlorite as mentioned above.
    b. Soak in hot water (70^{o}C) with detergent in a large container for 30 minutes.
    c. Stir it with a stick, avoiding splashing.
    d. Rinse with clean water and dry in sunlight.
15. Linen (gowns/dresses) of HCWs working in isolation wards : collect used linen in a labelled containers- lined with double blue bags, labelled as ‘COVID linen (HCW) isolation / triage/OT. Tie the bags properly and wipe outer surface with 1% hypochlorite solution. Transport to the laundry . The linen of HCWs should not be mixed with patient linen at any point.

16. The trolley should be washed with detergent and water and then disinfected (1% sod hypochlorite/70% alcohol)
17. The used PPE discarded properly into red and yellow BMW bins with double bags labelled as COVID- 19 waste, it would be transported separately daily to CBMWTF . Daily record of the COVID waste maintained separately in laundry.
18. Any accident/breach in PPE should be immediately informed to the supervisor.
19. Any HCWs having symptoms suggestive of COVID should report immediately to the supervisor.

Infection prevention & control practices in triage ward (COVID suspect ward)

1. Ensure adequate space.
2. Prevent Overcrowding.
3. Conduct rapid triage.
4. HCW to adhere to infection control precautions:
   Perform frequent hand hygiene
   Wear triple layer N95, goggles/face shield, gown. Use full PPE while attending patient in triage ward.
   Avoid touching face, nose and eyes.
   Ensure at least 1 meter distance from others.
5. Environmental surfaces to be disinfected every 3-4 hourly with 1% sod. Hypochlorite or 70% ethyl alcohol.
6. Bio medical waste to be handled as COVID -19 waste and general waste shall handled as per BMW rules 2016 as amended.
7. For patients in triage area:
   i. Ensure adequate space for patients in a well ventilated waiting area.
   ii. Maintain at least 1 meter distance between patients in waiting area.
   iii. Ask patients to wear a mask, observe cough/sneezing etiquettes.
   iv. Patients requested not to touch surfaces.

8.Patients preferably placed in single rooms with attached toilets or maintain at least 1 meter distance between beds.

9. Keep the wards well ventilated.

10. Maintain one way flow for patients (consider having signages).

11. Frequent cleaning of toilets and high touch areas with soap and water followed by disinfection with 1% hypochlorite (2-3 hourly).

12.Wet mopping of floors with detergent and water, followed by 1% sod. Hypochlorite (3-4 times a day).

13. The triage ward should have designated donning and doffing areas with shower facility.

Infection prevention & control practices (IPC) in flu OPD

1 Prevent overcrowding.
2 Ensure adequate well ventilated space.
3 HCW shall wear N95 mask, cap, gown, face shield/ goggles
4 Ensure designated donning and doffing rooms/area.
5 Follow proper sequence and correct technique of donning and doffing of PPE(charts displayed).
6 Maintain at least 1 meter distance between patients and between the chairs in waiting area.
7 Ensure that all patients and attendants wearing masks.
8 Restrict entry to single patient inside OPD.
9 Maintain 1-2 meter distance between doctor and patient.
10 Maintain one way flow of patients (consider having signages).
11 Respiratory samples (oropharyngeal& nasopharyngeal swabs) shall be collected wearing appropriate PPE (sample collection & transportation SOPs) in a designated place (KIOSK).
12 Perform the rapid antigen tests only in a designated room/area observing all infection control practices.
13 The rapid card shall be discarded in red coloured bags (double) labelled as COVID-19 waste and shall be treated as COVID-19 waste.
14 Remove the PPE slowly and carefully in doffing room following the proper sequence.
15 Dispose of PPE properly in BMW bins (yellow and red) placed in doffing room.
16 Floor mopping should be done with soap/detergent and water followed by disinfection with 1% hypochlorite 3-4 times a day.
17 Disinfection of frequently touched surfaces should be done every 2-3 hours.
18 The sample collection area in front of KIOSK should be cleaned and disinfected every hour, may be earlier when patient load is more.
19 The gloves of the kiosk used for collecting patient sample should be disinfected with alcohol based disinfectant before taking each sample to reduce cross infection.
20 Patients are made to wear the mask after giving sample and sanitize the hands before leaving the area.
21 The outer surface of vaccine carriers should be wiped or sprayed with 1% hypochlorite before transporting to the laboratory.
22 On receiving the vaccine carriers back from laboratory again disinfect outer and inner surfaces with sodium hypochlorite before using again. The ice packs are disinfected with sodium hypochlorite by keeping in 1% hypochlorite for 30 minutes.
23 Bio medical waste to be handled as per BMW rules 2016 amendment 2018 with additional precautions and treated as COVID waste (BMWM SOPs to be followed)
24 HCWs linen would be sent to laundry in blue bags labelled as ‘Linen (HCW) Flu OPD’.
25 Hand hygiene and social distancing shall be observed by all, all the time and at all places.

Infection prevention & control practices (IPC) in emergency OPD

1. Prevent overcrowding.
2. Ensure adequate well ventilated space.
3. HCW to adhere to infection control precautions:
    a. Perform frequent hand hygiene(hand wash with soap and water/hand hygiene with ABHR, ensuring 70% alcohol)
    b. Wear N95 mask, gown, gloves, goggles.
    c. While in use, avoid touching front of mask, do not hang mask around the neck
    d. Avoid touching face, nose and eyes
    e. Ensure more than 1 meter distance from others.
4. Bio medical waste to be handled as per BMW rules 2016 & 2018.
5. For patients :
    i. Ensure adequate space for patients.
    ii. Maintain at least 1 meter distance between patients.
    iii. All the patients and attendants must wear masks properly.
    iv. Patients requested not to touch surfaces, walls, doors etc.
6. Maintain one way flow for patients (consider having signages)
7. Wet dusting of frequently touched surfaces with detergent and water followed by 1% Sod Hypochlorite and 70% alcohol for metallic surfaces, 3-4 times a day
8. Wet mopping of floors with detergent and water, followed by 1% sod. Hypochlorite 3-4 times a day.
9. Ensure proper disposal of PPE.
10. Biomedical waste and general waste shall be handled as per BMWM SOPs of the institution.
11. The rapid antigen tests if being done in emergency department, should be done only in a designated room/area following all recommended infection control practices.
12. The rapid card shall be discarded in red coloured bags (double) labelled as COVID-19 waste and shall be treated as COVID-19 waste and transported separately as COVID waste .

Infection prevention and control (IPC) practices in isolation wards for confirmed COVID-19

1. Patient placed in a well ventilated single room (natural ventilation at least 160 L/Second/patient or negative pressure rooms with 12ACH)
2. Cohort: all patients with COVID-19 confirmed. Maintain 1 meter distance between beds
3. Dedicated and trained HCWs to be posted
4. Equipment should be single use or dedicated to the patient and disinfected between use.
5. Limit the number of HCWs and visitors.
6. All persons entering patient room should wear full PPE.
7. A record of persons entering patient room must be maintained.
8. HCWs to follow contact and droplet precautions with all patients, in corridors, nursing stations.
9. HCW entering patient room for patient examination/sample collection should wear: N95 Mask , gloves, gown, face shield/goggles, cap, shoe cover.
10. Airborne precautions (N95 and full PPE) by HCWs must be observed during aerosol generating procedures (AGPs) such as tracheal intubation & extubation, manual respiration, tracheostomy, bronchoscopy, CPR, sample collection, nebulization etc.
11. Donning and doffing of PPE should be done in designated rooms and follow the directions given in PPE donning and doffing sequence posters.
12. Avoid transporting confirmed patients, if necessary, make sure patient wears triple layer surgical mask and the HCW appropriate PPE (gloves, N95 mask, coverall/gown, face shield, cap etc.)
13. Dedicated trolleys to be used, and disinfected with 1% hypochlorite after each use.
14. Wet dusting of frequently touched surfaces should be done with detergent and water, followed by 1 % sod. Hypochlorite solution/ 70% alcohol every 2-3 hrs.
15. The bathrooms and toilets should be cleaned with detergent and water followed by disinfection with 1% sodium hypochlorite, every1-2 hours or earlier.
16. Cleaning of floors with detergent and water followed by 1% hypochlorite solution should be done 3-4 times a day.
17. Biomedical waste management: handled as per BMWM rules, 2016 as amended, and CPCB guidelines (July, 2020)
    a. Keep separate color coded bins and bags.
    b. Double layer collection bags (2 bags) should be used to ensure strength and no leaks.
    c. Label the bags as COVID-19 Waste.
    d. Tie the bags properly when 2/3rd full, and either autoclave or disinfect the outer surface with 1% hypochlorite (if autoclave facility not available)
    e. Use dedicated trolleys for isolation ward.(label as COVID-19 Waste)
    f. The inner and outer surface of the bins/containers should be disinfected with 1% hypochlorite solution.

g. General waste not having contamination should be disposed as solid waste as per SWM rules 2016 as amended.
h. Depute dedicated sanitation workers separately for BMW and general solid waste so that waste can be collected and transferred safely and timely.
i. Use a dedicated collection bin labelled as COVID-19 for temporary storage at the temporary storage room before handing over to authorized staff of CBWTF or biomedical waste from isolation wards can be lifted directly from wards into CBWTF collection van.
j. The covid-19 waste should be transported through a designated route and preferably there should be fixed timings.
k. Maintain separate record of waste generated from COVID -19 isolation ward.

16.Terminal cleaning: thorough cleaning of floors and surfaces with detergent and water followed by 1% Hypochlorite solution.

COVID-19 : Infection prevention and control practices (IPC) in radiology department

1. Prevent overcrowding
2. Ensure adequate well ventilated space
3. Preferably dedicated equipment to COVID-19 suspect/confirmed.
4. HCW (involved in COVID-19 suspect/patient care) to adhere to infection control precautions:
    a. Perform frequent hand hygiene (hand wash with soap and water/hand rub with ABHR, ensuring 70% alcohol)
    b. Wear appropriate PPE (N95 mask, gloves, gown, eye shield, cap) if direct contact with COVID suspect/confirmed patient.
    c. Wear mask properly and avoid touching front of the mask
    d. Avoid touching face, nose and eyes
    e. Ensure more than1 meter distance from others.(Patient/staff) wherever feasible.
5. Ensure that all the staff involved in COVID care is trained in infection control practices.
6. Follow institutional policy for quarantine of HCWs.
7. Bio medical waste to be handled as per BMW rules 2016 as amended(SOPs of BMWM).
8. For Patients :
    i. Ensure adequate space for patients.
    ii. Maintain at least 1 meter distance between patients.
    iii. Ensure that all the patients and attendants wear triple layer surgical masks.
    iv. Patients requested not to touch surfaces, walls, doors etc.
    v. Restrict entry to a single patient
9. Maintain one way flow for patients (consider having signages)
10. Wet dusting of frequently touched surfaces with detergent and water followed by 1% sod. hypochlorite or 70% alcohol depending on the material, 2-3hourly.
11. Wet mopping of floors with detergent and water, followed by 1% sod. hypochlorite , 3-4 times a day.
12. Use safe operating practices to clean and disinfect accessories:
    a. After every patient, use a damp cloth with suitable disinfectant, 1% sod. Hypochlorite or 70% alcohol (considering manufactures instructions also) to clean all surfaces of the machine that are likely to be in contact with the patient.
    b. Use damp cloth with disinfectant (70% alcohol, considering manufactures instructions also) to wipe console, key board, mouse, monitors every 3-4 hrs.

COVID-19: Infection prevention and control (IPC) SOP of dead body management

Standard infection prevention and control practices should be followed by HCW while handling dead bodies of COVID-19 patient/suspect (hand hygiene, appropriate PPE, safe handling of sharps, disinfect bag housing dead body, disinfect instruments, linen and environmental surfaces)

1. All staff involved to handle dead bodies in isolation/mortuary/ambulance should be trained in IPC practices
2. HCWs attending dead body shall wear full PPE (gloves, gown/plastic apron, eye shield/ goggles, N95 mask, cap, shoe covers)
3. All tubes/drains/catheters on dead body should be removed.
4. Any puncture/ wound should be disinfected with 1% hypochlorite solution and dressed with impermeable material.
5. Sharps such as IV catheters handled with care and discarded in sharp container.
6. Plug oral and nasal orifices of the dead body to prevent leakage of body fluids.
7. If the family member wants to view the body, may be allowed to do so with wearing masks, gown, gloves, goggles.
8. Wrap the body with a single layer cloth sheet and place the dead body in leak proof plastic bag and seal properly. The exterior of bag is disinfected with1% hypochlorite.
9. Transport the body to the dedicated mortuary.
10. The health care workers transporting/carrying body need to wear gloves, N95 mask, plastic apron/coverall and follow standard precautions (strict hand hygiene)
11. All used/soiled linen put in double yellow bag and outer surface of bag disinfected and labelled as COVID linen.
12. Used equipment should be autoclaved or decontaminated with disinfectant solutions.
13. BMW treated as COVID-19 waste handled as per BMW management rules. (BMWM SOPs)
14. Doffing of PPE should be done with correct technique.(donning& doffing sequence charts)
15. Terminal cleaning of the isolation room/area including floor, wall, bed, railings, side tables, IV stands and high touch areas, done with thorough cleaning with detergent and water followed by 1% hypochlorite solution. Cleaning staff shall wear appropriate PPE (heavy duty gloves, N95 mask, apron, goggles, cap, washable closed shoes/ gum boots)
16. Fogging or spraying of isolation room usually not recommended and is optional.
17. Respect the sentiments of family and advise not to do rituals such as bathing, kissing, hugging of dead body.
18. Dead body should be transferred to the specified vehicle or mortuary with minimum movement.
19. Handling of body in mortuary:
    I. Body stored at cold temperature (4^{o}C)
    II. Standard precautions to be followed
    III. Environmental surfaces, trolleys disinfected with 1% hypochlorite solution.
    IV. Chamber door, handles and floor should be cleaned with 1% hypochlorite solution after removing the body

Infection prevention & control (IPC) practices while doing autopsies on COVID-19 dead bodies

1. Autopsies should be avoided if possible.
2. If autopsies performed for special reasons, the following IPC practices should be adopted:
    a) The team should be well trained in standard infection control practices.
    b) There should be limited number of forensic experts and supporting staff in the autopsy room.
    c) The team should wear full PPE (Coveralls/water resistant gowns or aprons, shoe cover, gloves, cap, goggles/face shield, N 95 mask or equivalent.
    d) Round ended scissors should be used.
    e) PM 40 or other heavy duty blades with blunted points to be used to reduce prick injuries.
    f) Only one body cavity at a time should be dissected.
    g) Preferably negative pressure to be maintained in mortuary.
    h) 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.
    i) Needles should not be re sheathed
    j) Reduce aerosol generation during autopsy using appropriate techniques especially while handling lung tissue.
    k) After the procedure, body should be disinfected with 1% sod. hypochlorite and placed in a body bag, exterior of the bag disinfected with 1% hypochlorite solution.
    l) The body thereafter can be handed over to the relatives
    m) Autopsy table to be disinfected as per standard protocol
3. BMW management as per BMWM rules 2016 amended 2018. In addition ensure double bags, and labeling on the bags as COVID-19 waste. The exterior of bags to be disinfected with 1% hypochlorite solution. The interior and exterior of bins to be disinfected with 1% hypochlorite solution.

Infection prevention & control practices during sample management for COVID-19 testing.

1. The clinician should decide the necessity for collection of clinical samples following available national/state guidelines.
2. Trained HCW would collect the samples
3. Sample should be collected in a designated room.(KIOSKs in flu OPD or surgical KIOSK)
4. Prepare a checklist of things required for sample collection
5. Wear the full PPE (including N95 respirator, gloves, face shield/goggles, cap, gown, shoe covers) in the designated donning area following the proper sequence.(PPE donning sequence chart)
6. Follow all biosafety precautions while carrying out sample collection and packaging.
7. Collect samples (oropharyngeal & nasopharyngeal swabs) and put both these samples in a single VTM tube (as guided by laboratory from time to time).
8. Do not contaminate the outer surface of tube
9. Do not handle the laboratory requisition forms with gloves.
10. After triple packaging, disinfect the outer container with 1% hypochlorite solution and send the samples to PCR laboratory through a dedicated HCW and also inform laboratory personnel about it. A cold chain needs to be maintained while transportation of respiratory samples.
11. Requisition forms should be sent separately in an envelope, should not be put in the vaccine container.
12. The PPE should be removed in the designated doffing area following proper technique (doffing sequence chart) to prevent self-contamination.
13. Put all PPE in the designated BMW bins (BMWM SOPs)
14. The sample container received in the laboratory should be placed in a dedicated area
15. The samples should only be opened in biosafety cabinet wearing full PPE (including N95 respirator, gloves, face shield/goggles, cap, gown, shoe covers)
16. The outer and inner surfaces of the outer container/ vaccine carrier should be wiped with 1% sod. hypochlorite solution.
17. Follow all biosafety precautions while carrying out sample testing.
18. The biomedical waste generated would be treated as COVID-19 waste and should be handled as per BMWM rules 2016 as amended. In addition ensure double bags, label as COVID-19 Waste, properly tie the bags and pretreat the waste by autoclaving at source. (BMW SOPs)
19. The record of COVID-19 waste should be maintained separately in the laboratory.
20. The BMW waste would be transported to temporary storage area marked as COVID-19 waste before handing over to CBMWTF.
21. Following infection prevention and control practices should be followed in walk in sample collection Kiosks installed by the institution:
22. Installed in a well ventilated and open space.

a. All the persons in waiting area should wear surgical mask and there should be 1-2 meter distance between them.
b. The built in gloves and sitting chair of patient should be disinfected with (70% alcohol) after each patient. The surfaces, shelves, front glass etc. shall be disinfected every 2-3 hours.
c. The patient and attendant (if patient needs attendant) should disinfect their hands before leaving the area.
d. The inside of Kiosk should be disinfected at least twice daily. It should have provision for fresh air inside.

e. The HCW collecting the sample shall wear appropriate PPE (N95 mask, gloves, face shield/goggle, gown & cap depending on the risk assessment and follow all standard precautions.
f. Donning and doffing of PPE should be done in designated area and ensure proper disposal of PPE (SOPs)
g. Collect oropharyngeal & nasopharyngeal swab samples and put both these swabs into a single VTM tube (as guided by laboratory from time to time, SOPs). Ensure triple packing.
h. Ensure the outer and inner surface of vaccine carrier and icepacks are disinfected (each time when a fresh vaccine carrier used) by 1% hypochlorite/70% alcohol before putting sample tubes into it.
i. The vaccine carrier should be disinfected with 1% hypochlorite/70% alcohol before the transportation to laboratory.
j. Staff/HCW guiding patients at Kiosk shall wear N95 mask, gloves, goggles and follow all standard precautions.
k. The HCW transporting samples shall wear triple layer surgical mask/N95 mask, gloves, face shield, gown and follow all standard precautions.
l. Sanitation and cleaning staff shall wear heavy duty gloves, N95 mask, face shield, cap, apron, boot and follow all standard precautions.
m. The BMW (e.g. remaining parts of swab stick) generated at the site should be put in the yellow bins placed appropriately and shall be treated as COVID waste.

Infection prevention and control (IPC) practices during dialysis of COVID-19 confirmed or suspect

General guidelines for dialysis unit:

1. All dialysis units should educate their HCWs about COVID-19 and IPC practices to be observed during dialysis.
2. All patients undergoing maintenance haemodialysis along with the care givers should also educated about COVID-19
3. All standard precautions must be strictly followed.
4. All staff should be trained in cough etiquettes, hand hygiene, proper use of PPE and its disposal (SOPs). They should be adequately trained in donning and doffing of PPE (follow SOPs & charts).
5. All staff to be trained in BMW management (BMWM SOPs).
6. All HCWs should strictly follow WHO hand hygiene, with soap and water (40-60seconds) or hand rub with hand sanitizer containing 70% alcohol (20-30 seconds).
7. Avoid touching your eyes, nose and mouth.
8. Medical and support staff should be monitored and documented daily for COVID infection, a health record of HCWs may be maintained in the department on daily basis.
9. All patients and attendants are required to wear triple layer surgical mask

Guidelines for Haemodialysis

I. For patients:

a. Before arrival to dialysis unit

Dialysis staff informed about the patient and its COVID status. Patient and the attendant should be wearing mask when sent to the dialysis unit

b. Screening area

The screening area should have adequate space for patient and accompanying attendant, to ensure social distancing.

Ensure that patient and the attendant are wearing mask.

c. Inside dialysis unit

Patient should wear triple layer surgical mask throughout dialysis duration.

Patient should perform hand hygiene (hand wash/hand sanitization) with correct technique before start of dialysis.

Patient should follow cough etiquettes. A yellow bin with double bag is placed near patient bed for disposal of used tissues.

II. For Dialysis staff: A dedicated staff trained in IPC practices should perform dialysis.

a. Screening area.

HCW screening the patient for symptoms, history of travel and history of contact should follow standard precautions and wear appropriate PPE

b. During dialysis

All HCWs involved in dialysis wear appropriate PPE, in a designated donning area/room. (gloves, N95 mask, gown, goggles/face shield, cap, shoe covers)

Ensure that patient is wearing mask properly.

All COVID-19 positive patients preferably dialysed on a dedicated dialysis machine in the isolation ward.

Dedicated equipment are used e.g. stethoscopes, BP apparatus, O2 saturation probes. Ensure proper disinfection of these equipment with 70% alcohol after each use.

After completion of dialysis, the PPE should be removed in a designated doffing room. Doffing of PPE is done carefully and slowly following proper technique, to prevent self-contamination.

PPE disposal should be done in appropriate colour coded bins, and considered as COVID-19 waste and handled as per guidelines (BMWM SOPs)

Biomedical waste management: Handled as per BMWM rules, 2016 as amended , and CPCB guidelines, July 2020.

l. Keep separate foot operated /closed color coded bins and bags.
m. Double layer collection bags (2 bags) should be used to ensure strength and no leaks.
n. Label the outer bags as COVID-19 Waste.
o. Tie the bags properly(2/3 full), and disinfect the outer surface with 1% hypochlorite (if autoclave facility available, no need for disinfection)
p. Use dedicated trolleys (label as COVID-19 waste)
q. The inner and outer surface of the bins/containers should be disinfected with 1% hypochlorite solution.
r. General waste not contaminated shall be disposed as solid waste in black bins (dry) and green bins (wet).
s. Contaminated general waste shall be treated as COVID-19 waste and disposed accordingly.
t. Depute dedicated sanitation workers separately for COVID waste who shall wear appropriate PPE (heavy duty gloves, plastic aprons,N95 mask, face shield, cap) while handling waste
u. Use a dedicated collection bin labelled as COVID-19 for temporary storage at the temporary storage room before handling over to authorized staff of CBWTF or biomedical waste from ward/facility can be lifted directly into CBWTF collection van(to be coordinated with the sanitary inspector).
v. Maintain separate record of COVID waste generated from the ward/facility

Management of Linen:

Linen of patients and HCWs handled separately. Linen shall be put in the double blue bags , outer bag labelled as COVID linen (HCW/patient) and put in blue bins also labelled as COVID linen. Top of the bag tied before transport. Wipe outer surface of bags with 1% sod. hypochlorite sol. before transportation. Disinfect bins (outer & inner surface) with1% sod. hypochlorite sol.

Temporary storage of Linen bags (if required): After proper tying, and disinfection of outer surface of bags, put the bags in a large container/bin/drum labelled as COVID Linen, all bags together, bags should not lie on the floors in any circumstance.

Transport of linen: Through a dedicated van and dedicated route. A dedicated person, trained in IPC measures should be engaged in transport of the linen to laundry. After each use the van is to be disinfected (1% hypochlorite sol./ 70% alcohol). HCWs involved in transporting linen shall wear appropriate PPE (gloves, N95 mask, gown, goggles, washable closed shoes/boot)

Terminal cleaning:

Thorough cleaning of floors and surfaces with detergent and water, and then 1% Hypochlorite solution (minimum 10 minute contact time). HCWs involved in cleaning shall wear appropriate PPE (heavy duty gloves, gown/plastic apron, face shield, cap, washable closed shoes/boot) and follow all IPC practices. Fogging/fumigation with suitable method is optional.

Spill management: should be managed properly as per spill management SOPs.

Quarantine of HCWs: follow institutional quarantine policy

Dead body management : as per specific SOPs.

IPC in lift as per SOPs.

Infection prevention & control practices during sample collection & transportation from COVID-19 patient or suspect

1. The clinician should decide the necessity for collection of clinical samples following relevant guidelines.
2. Trained HCW would collect the samples
3. Sample should be collected in a well-lit and ventilated separate designated room/area .
4. Prepare a checklist of things required for sample collection
5. Wear full PPE (including N95 respirator, gloves, face shield/goggles, cap, gown, shoe covers) in the designated donning area following the proper sequence (SOP)
6. Follow all biosafety precautions while carrying out sample collection and packaging.
7. **Respiratory specimen for RT-PCR**
   a. Collect oropharyngeal & nasopharyngeal swab samples and put both these swabs into a single VTM tube (as guided by laboratory from time to time)
   b. Ensure the outer and inner surface of vaccine carrier and icepacks are disinfected by 1% hypochlorite/70% alcohol before putting sample tubes into it.
   c. Do not contaminate outer surface of tubes and do not handle the laboratory requisition forms with gloved hands
   d. Disinfect the tertiary container/vaccine carrier with 1% hypochlorite solution/70 % alcohol and send the sample to PCR laboratory through a dedicated HCW wearing appropriate PPE (triple layer surgical mask/N 95, gloves, gown, face shield/goggles), and also inform concerned laboratory beforehand.
   e. The requisition forms are to be sent separately in an envelope, not in the vaccine carrier.
   f. The PPE should be removed slowly & carefully in the designated doffing area following doffing sequence to prevent self-contamination. Doffing is the most crucial step.
   g. PPE should be properly disposed. Put all PPE in the designated BMW bins (BMWM rules 2016 as amended, follow the SOPs, charts displayed)
8. **Other specimens for different laboratories** (Biochemistry, Serology, emergency lab, haematology, blood bank, virology, bacteriology etc.) for testing other than PCR. HCWs shall wear full PPE while collecting clinical samples from COVID patient/suspect.
   a. Specimens like sputum, BAL, stool for routine ,urine routine, cytology etc. may be avoided if not affecting treatment protocols or some alternative method of diagnosis available. Sterile body fluids should be sent in automated blood culture bottles system (issued from microbiology dept.)
   b. Blood sample : serum separator vacutainer (yellow cap) may be preferred for serum (obviates need for centrifugation). Rest of the specimen containers would be according to the need of the test ordered.
   c. Ensure proper labelling of containers, disinfect the outer surface (1% hypochlorite/70% alcohol), put the tube into secondary container (zip lock pouch/leak proof container), disinfect outer surface as described. Put the secondary container in a tertiary container which would enable easy transportation to laboratory. (plastic box/vaccine carrier). The outer container is also disinfected before transportation to laboratories.
   d. The requisition forms may be communicated through mail/or any other electronic media if feasible. Reports can be generated in a similar way. If not possible, requisition forms completely filled in, and put in a paper envelope.
   e. Transport the samples to the respective laboratories through a dedicated HCW (may not through attendants).
   f. All other clinical samples would be collected and transported on the similar lines.
   g. Clinical samples sent for histopathology must be sent in 10% formalin in a leak proof container. Ensure triple packing. Histopathology samples should not be sent in saline.
   h. Frozen section to be avoided.

9. BMW management and environmental cleaning would be as per institutional policy (SOPs)
10. The HODs/ ward/facility in charge may ensure that all HCWs are adequately trained in infection control practices.
11. The clinical samples from non- COVID areas (wards/OPDs) should preferably be sent in leak proof container after proper disinfection of outer surface of the container through a dedicated health care worker. These samples shall be processed in the routine laboratory with all standard precautions and good laboratory practices and wearing appropriate PPE (mask & gloves, face shield/goggles, gown, hand hygiene) depending on the risk assessment.

Infection prevention and control (IPC) practices in the laboratories during COVID-19.

The laboratories(Biochemistry, microbiology, emergency laboratory, pathology) and blood bank shall be dealing with various clinical samples from COVID-19 patient/suspect and non COVID patients**.**

The treating physician shall decide the type of clinical samples from COVID-19 patient/suspect(as per guidelines)

Laboratory processing of samples should follow standard guidelines as recommended by Govt. of India or competent authorities

All the samples from COVID patient/suspect may be processed in a dedicated laboratory preferably with provision of biosafety cabinet (required for certain procedures). Alternatively samples may be processed in the laboratory with additional precautions and measures.

Donning and doffing should be done in a designated area and follow proper donning& doffing technique (PPE donning & doffing sequence charts)

1.Non respiratory samples from COVID patient or Suspect

Mainly received from COVID ward and triage ward.

Blood sample :

Received in biochemistry, serology, emergency, haematology laboratory and blood bank.

a. Serum separator vacutainer (yellow cap), should be preferred for serum (obviating need for centrifuge).
b. Receive sample in a zip lock/leak proof container
c. Requisition forms sent in a paper envelope, Requisition forms through e mail or some suitable electronic media may be worked out, if possible.
d. Dedicated HCWs should be involved in laboratory processing of samples
e. Wear full PPE as gloves, gown, Goggles/face shield, mask, cap, closed washable shoes
f. Always follow standard precautions and good laboratory practices (GLP), contact and droplet precautions
g. Use a dedicated machine if possible. If not after processing the sample clean and disinfect the machine with suitable disinfectant (consider manufactures instructions also)
h. Allow minimum people inside the laboratory
i. Maintain a record/log book of persons involved in testing of COVID samples.
j. The lab should be well ventilated (windows open/exhaust fan on)
   a. All aerosol generating procedure including centrifugation of samples, making smears should be avoided (use alternative method if possible). Aerosol generating procedures should be done in a biosafety cabinet.Preferably centrifugation is done in biosafety cabinet. If not available, it is done in a dedicated and well ventilated room, maintain relative negative pressure, centrifuge with biosafety cap must be used, centrifuge with full PPE, do not permit any other person to enter the room. Allow to stand for 30 minutes then only open the tubes.
k. After wearing PPE, open the sample container/zip lock and disinfect outer surface of the vacutainers/containers with 1% hypochlorite/70% alcohol
l. Process the sample with all precautions (never take off PPE in between)

Other sterile body fluids shall also be processed on similar lines.

Disposal of Biomedical Waste (BMWM, SOPs)

a. Put the vacutainers in the red double bag & autoclave it (if available) or

b. Discard vacutainers (with open cap) into 1% hypochlorite solution (30-60minutes), drain the treated sample in drainage. And put the vacutainers in the red double bags lining red bins.
c. Tie the bags properly and label as 'COVID-19 Waste', wipe the outer surface of the bag with 1% hypochlorite solution(not required when bags autoclaved) ,send the waste separately as COVID waste.
d. All waste bins need also be disinfected(inner & outer surface) with1% hypochlorite after each use.
e. All the PPE should be disposed properly
f. Maintain separate record of COVID waste generated in each laboratory
g. BMW from other sections for the laboratory shall be handled as per existing policy(SOPs).

Rest of the blood samples received from non-COVID areas (wards/OPDs) may preferably be sent in leak proof container after proper disinfection of outer surface of the container through a dedicated health care worker. These samples shall be processed in the routine laboratory with all standard precautions and good laboratory practices and wearing appropriate PPE (triple layer surgical/N95 mask , gloves, face shield/goggles, gown) depending on the risk assessment.

2. All clinical samples for culture from COVID patient/suspect and respiratory samples regardless of source:

a. Follow all standard precautions and good laboratory practices
b. Wear PPE (gloves, gown, triple layer surgical /N95 mask, cap, face shield/goggles, covered closed shoes)
c. Receive the samples in zip lock /leak proof container and requisition forms in paper envelope separately
d. Open the zip lock/container in biosafety cabinet
e. Disinfect the outer surface of sample container with 1% hypochlorite/70% alcohol
f. Smear preparation and plating done in biosafety cabinet
g. Keep the plates inside the zip lock/container
h. Disinfect the outer surface of zip lock/container and place in the incubator
i. Plate reading be carried out in biosafety cabinet

BMW management:

COVID BMW to be managed as described above.

Separate record of COVID waste is maintained

BMW from other sections (non COVID samples) shall be handled as per existing policy (SOPs).

Environmental cleaning & disinfection (follow SOPs)

Wet mopping of floor with detergent & water followed by 1% hypochlorite (2-3 times/day)

Wet dusting of high touch surfaces with 1% hypochlorite every 2-3 hours

3. COVID-19 patient/suspect samples in pathology laboratory

b. Receive the histopathology sample in formalin in a leak proof container labeled clearly.
c. The primary container put in the secondary container to minimize leakage
d. Dedicated and trained HCWs are put on duty for processing of COVID samples
e. Wear appropriate PPE (gloves,N95 mask, face shield/goggles, gown/apron)
f. Wipe outer surface of the containers with 1% hypochlorite/70% alcohol
g. Change formalin after 24 hours
h. Ensure proper fixation & then only process
i. Frozen section must be avoided

j. All fresh samples should be handled in biosafety cabinet
k. Always follow the standard precautions and good laboratory practices.
l. Avoid centrifugation of cytological and hematological samples as much as possible. Preferably centrifugation is done in biosafety cabinet. If not available, it is done in a dedicated and well ventilated room, maintain relative negative pressure, centrifuge with biosafety cap used, centrifuge with full PPE, do not permit any other person to enter the room. Allow to stand for 30 minutes then only open the tubes.

The samples from non COVID areas/patients shall preferably be sent in triple packing. These samples would be processed with all standard precautions and good laboratory practices and wearing appropriate PPE(surgical mask/N95 mask, gloves, face shield/goggles) after risk assessment.

Disinfection of environmental surfaces and floor done consistently as per policy (SOPs).

PPE should be disposed properly (SOPs, Charts)

BMW of COVID-19 managed as described above (SOPs)

4. PCR: The respiratory samples(oropharyngeal and nasopharyngeal swabs) for COVID PCR testing shall be sent in triple packaging transported and processed in the dept. of microbiology as per existing SOPs (dept. of Microbiology)

1 The sample container received in the laboratory should be placed in a dedicated area
2 Donning and doffing of PPE shall be done in designated area and correct technique to be followed.
3 The samples should only be opened in biosafety cabinet wearing full PPE(including N95 respirator, gloves, face shield and/ or goggles, cap, gown, shoe covers)
4 The outer and inner surfaces of the outer container/ vaccine carrier should be wiped with 1% sod. Hypochlorite solution.
5 Follow all biosafety precautions while carrying out sample testing.
6 Restrict entry to the laboratory to minimum possible.
7 The biomedical waste shall be treated as COVID waste and handled as per BMWM rules 2016 as amended with some additional precautions (follow BMWM SOPs)
8 The COVID waste would be transported daily to CBMWTF.
9 Separate record of the COVID waste shall be maintained in the laboratory.
10 PPE should be disposed properly (SOPs, Charts)
11 Environmental cleaning and disinfection shall be done consistently as per policy (SOPs)

The HODs/laboratory in charges may ensure that all HCWs are adequately trained in infection control practices by HICC team

Infection prevention and control (IPC) practices with respect to detection of COVID-19 case in non-COVID wards/areas in a health care facility

1. All patients shall be treated as suspect until proved otherwise
2. Institutional policy for screening and triage (questionnaire based & thermal screening) of all patients visiting hospital should be followed strictly.
3. Triage of patients in emergency medicine and general OPDs should also be done.
4. Thermal screening of all HCWs would be mandatory at the entry points daily or at the beginning of the shift.
5. For admitted patients in various wards:
    a. Daily monitoring and recording of each patient for development of symptoms such as cough, unexplained fever, and breathing difficulty would be carried out daily.
    b. Suspect patient would be tested for COVID-19(RAT/TrueNat/RT-PCR), following appropriate sample collection and transportation guidelines (SOPs).
    c. It should be ensured that the patients wears surgical mask.
    d. If the patient tests positive inform higher authorities about it.
    e. The patient should be immediately isolated from other patients and then shifted to COVID ward (following the appropriate guidelines)
    f. The HCWs transporting the patient shall wear full PPE(glove , gown, N95 mask, cap, face shield) and follow standard precautions. Ensure that patient and attendant wear triple layer surgical mask while patient is being transported.
    g. Thorough cleaning and disinfection of the facility/ward should be done as per institutional policy.
    h. The patients and attendants in contact with the positive patient should be assessed and managed as per existing guidelines. The contact tracing shall be done by the rapid response team.
    i. The HCWs coming in contact with positive patients shall fill up the risk assessment forms and shall be risk assessed by institutional quarantine committee and managed as per quarantine policy for health care workers.

6. For health care workers (HCWs):
    a. The heads of the departments shall ensure daily monitoring and recording of all HCWs for the development of symptoms such as fever, cough, sore throat, body aches, breathing difficulty. This would be in addition to thermal screening at the entry point being done daily.
    b. All the HCWs should follow standard precautions all the time and additional contact, droplet and airborne precautions depending on risk assessment. Appropriate PPE should be used depending on the risk assessment.
    c. The HCW who develops such symptoms (mentioned above) shall be considered as suspected case of COVID-19
    d. HCWs should ensure that mask is put on properly.
    e. He/she should be isolated and taken off the duty roster
    f. He/she should be tested immediately for the COVID-19 (RAT/RT-PCR), following appropriate sample collection and transportation protocol of the institution.
    g. If HCW is tested COVID positive, shall be advised institutional/home isolation depending on the clinical feature and decision of COVID management committee of the institution (as per existing guidelines)

h. The HCWS in contact with the positive HCW shall be risk assessed and advised accordingly by the institutional quarantine committee.

i. If the symptomatic HCW tests negative , he/she is advised to self- quarantine till symptoms resolve and follow the treating physician's advice.

7. Restrict the entry of visitors/persons to the wards to minimum possible. Daily record of persons visiting the wards should be maintained (log book) which might help in contact tracing.
8. The HODs/ward/facility in charge may ensure that all HCWs are adequately trained in infection control practices by HICC team.
9. Biomedical waste management shall be as per BMWM rules 2016 as amended with some additional precautions (SOPs)
10. Environmental cleaning and disinfection shall be as per institutional policy (SOPs)

Institutional guidelines for managing health care workers working in COVID and NON-COVID areas of the hospital

Healthcare workers are at increased risk of acquiring COVID-19 infection if personal protection not adequately observed or there is breach in the protection.

The document provides institutional guidance on preventive measures, isolation and quarantine of Health care workers during COVID-19 pandemic.

1. **Institutional mechanism for preventing infection among HCWs**:

   A. There should be a functional Hospital infection control committee (HICC). It shall be responsible for the implementing the infection prevention and control activities and organising regular trainings on the IPC measures.

   B. The facility shall ensure that:

a) All the HCWs have undergone training on infection prevention and control (IPC).
b) Provisions have been made for regular (thermal) screening of all the hospital staff (at all entry points, at beginning of each shift)
c) Provisions for self- reporting of signs and symptoms suggestive of COVID-19.
d) HCWs in different settings of the hospital shall use PPE appropriate to their risk profile (as per MoH&FW guidelines and Institutional guidelines)
e) Designated donning rooms which are well lighted and preferably should have full length mirror. Donning sequence chart should be provided.
f) Designated doffing rooms which are well ventilated and well lighted. Preferably there should be foot operated/auto dispensing sanitizers, foot operated BMW bins, full length mirror. The doffing sequence and PPE disposal chart properly displayed. The arrows clearly marked on the floor to guide HCWs from working area to doffing room, then to shower and to the exit.
g) HCWs report any breach of PPE promptly to nodal officer/HOD.
h) All sharp injury/accidental exposures to be reported immediately to the unit in charge/HOD and recorded in NSI register and managed as per institutional NSI policy
i) Provision for the hand hygiene and eye wash at appropriate places in hospital.
j) A buddy system- two or more persons team formed amongst the deployed hospital staff who share responsibilities for his/her partner's safety and wellbeing in context of (i) appropriate donning& doffing of PPE (ii) maintaining hand hygiene (iii) taking requisite steps on observing breach of PPE.

2. **Action for HCWs**
   a) HCWs shall ensure all preventive measures and precautions (including frequent hand hygiene following correct technique and duration, respiratory etiquettes, avoid touching face with hands) are followed all the time.
   b) He/she shall use appropriate PPE at all times while on duty (depending on risk assessment of exposure)
   c) Help of a buddy/observer taken to ensure that there is no breach in IPC practices.
   d) Any breach of PPE and exposure is immediately informed to the nodal officers/HOD
   e) HCWs leaving the patient care units (wards/OPDs/ICU)-at doctors duty room/hostel/canteen/outside the hospital must follow social distancing and masking.
   f) Pregnant/lactating mothers and immunocompromised HCWs shall inform their medical condition to the hospital authorities for them to posted in non-COVID areas.

3. **SOPs for work force deployment**
   There should be a detailed roster making different teams to work in COVID areas.
4. **SOPs to be followed in case HCW reports exposure/breach of PPE.**

All HCWs must report every exposure /breach of PPE to nodal officer and HOD, of respective department.

Nodal officer/HOD shall get exact details of exposure and get the COVID-19 exposure risk assessment form filled and forward to the institutional quarantine committee. The committee shall decide the level exposure as high risk or low risk for further management.

A. High risk exposure would be:

i. HCW providing care to a COVID-19 case or lab worker handling respiratory specimens from COVID-19 cases without recommended PPE or with possible breach of PPE

ii. Performed aerosol generating procedures without appropriate PPE

iii. HCWs without mask, face shield or goggles

a) Having face to face contact with COVID-19 case within 1meter for more than 15 minutes

b) Having accidental exposure to body fluids

B. Low risk exposure would be: contacts who do not meet criteria of high risk

Management of HCWs on basis of exposure

	High Risk exposure	**Low risk exposure**
1	Quarantined (home/institutional) for 7 days, initially. Actively monitored for symptoms.	Continue to work
2	Tested as per latest ICMR protocol after 7days of quarantine: If test positive, but asymptomatic- follow protocol for very mild/mild/pre symptomatic cases(given below) If test negative and remain asymptomatic, decision to return back to work shall be taken and communicated to HCWs by the quarantine committee.	Self- monitor for development of symptoms
3	Actively monitored for symptoms during quarantine, If symptoms develop- manage as per protocol (given below)	In case symptoms develop, manage asper protocol(given below)
4	If symptoms develop after return to work, manage as per protocol (given below)	

5. SOPs to be followed in case:

a). Any HCW reports symptoms suggestive of COVID-19.

b). HCWs with low risk who continue to work and report COVID-19 symptoms.

<table>
<tr><td colspan="3">A. Isolate immediately</td><td colspan="2">B. Test (RT-PCR)</td></tr>
<tr><td>Very mild/Mild/
↓
Home isolation OR COVID care center</td><td>Moderate cases
↓
Dedicated COVID health center</td><td>Severe cases
↓
Dedicated COVID hospitals</td><td>Positive</td><td>Negative
↓
Managed in non COVID area</td></tr>
<tr><td colspan="3">↓
Discharge as per existing guidelines
And as per institutional discharge policy</td><td></td><td>↓
Discharge as per clinical condition.
Resume work after medical certification.</td></tr>
</table>

Institutional guidelines shall always be followed .

6. Quarantine of HCWs:

Regular quarantine of HCWs other than what is stipulated above is usually not recommended.

For low risk exposure which has occurred by virtue of serving in the identified COVID areas of the hospital the state or national guidelines may be followed. The institutional duty roster shall be followed for rotation of duties.

COVID-19 virus Exposure risk assessment form for HCWs

1.HCWs information	
A. Name	B. Department
C. Phone number	D. Age (in years) E. Gender
F. Current place of stay(Complete address)	
G. Type of HCW (specify) & designation (doctor, Nurse, Technician, others	
2. HCW interaction/activities performed on COVID-19 patient information	
A. Date of exposure to confirmed COVID-19 patient	
B. Place of exposure	
C. COVID-19 Patient details: Name & Department Patient symptomatic since(date) Test sample sent on(Date)	
D. Source control (source wearing a mask)	Yes/No
E. Approximate distance from patient(meters)	
F. Duration of contact(minutes)	
G. Aerosol generating procedure was performed on the patient	Yes/No, present/not present
H. Accidental exposure to body fluids	Yes/No
I. Did you have direct contact with the environment where confirmed COVID-19 patient was cared for?	Yes/No
J. During the health care interaction with a COVID-19 patient, did you wear PPE?	Yes/no
K. If yes, which of the following items of PPE used: 1.Triple layer surgical mask 2.N95 mask 3. disposable gloves 4. Disposable gown 5.Face shield/goggles/protective glasses	 1.Yes/No 2. Yes/No 3.Yes/No 4. Yes/No 5. Yes/No
L. Did you perform hand hygiene after touching the patient's surrounding (bed, door, handle etc.) regardless of whether you were wearing gloves?	Yes/No/NA
M. a. Any symptoms b.Any additional information pertaining to exposure	

Biomedical Waste (BMW) Management for COVID-19

Waste generated during patient care, diagnosis and treatment of COVID-19 cases and suspects in the hospital would be treated as COVID-19 waste. The areas where such waste shall be generated would be COVID ward, Triage ward, Flu clinic, sample collection centers (respiratory samples for PCR), PCR laboratory, laundry, radiology, other laboratories and autopsy room.

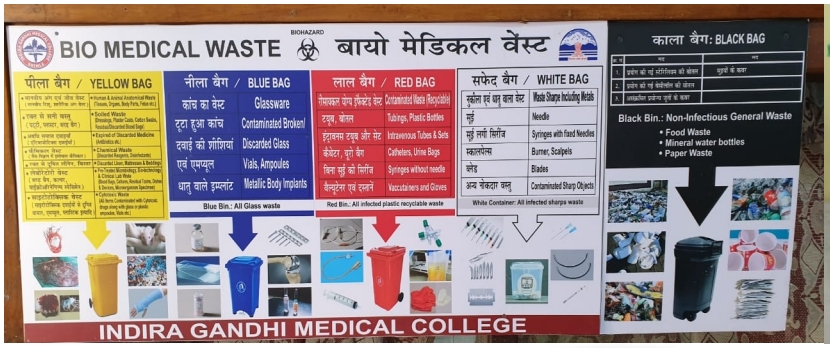
The HCWs need to follow the following steps for safe handling of this waste.

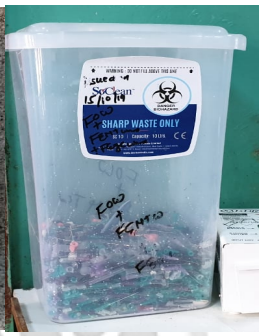
The BMW shall be segregated and handled as per BMWM rules 2016 as amended and Central Pollution Control Board (CPCB) guidelines (Rev. 4 ,July ,2020)

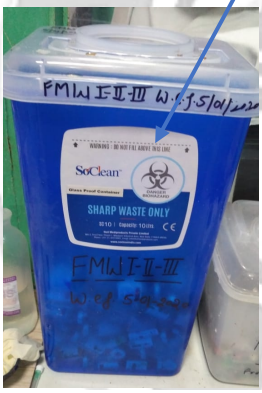
Colour coded bags/container	Broad type of waste/items	Method of disposal
Yellow	Infectious non plastic, non-sharp (soiled dressings, swabs, bandages, blood bag, anatomical waste, histopathology waste, soiled linen etc)	Incineration
Red	Infectious Plastic, non-sharp (catheters, tubings, gloves etc.)	Autoclave/microwave(recycle)
White sharp box	Sharp (metal) waste (needles, lancets etc)	Autoclaving, shredding/ encapsulation/Sharp pit
Blue Box	Glass, metallic implant	Disinfection/autoclaving, (recycle)

Liquid waste management:

Liquid waste generated by different activities such as used or discarded disinfectants, Silver X-ray film developing liquid, discarded formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities etc. in the hospital in the absence effluent treatment facility shall be pre-treated with 1% hypochlorite for 30 minutes in liquid waste treatment plants before mixing with other waste water.







COVID-19 WASTE

COVID-19 WASTE

Puncture proof auto lock container

(Liquid Waste Treatment Plant)

The following additional precautions shall be taken to handle COVID-19 waste:

- Report opening or operation of COVID-19 wards/isolation wards, and COVID -19 sample collection centres & laboratories to SPCB and CBMTF.
- Keep separate (foot operated /closed) color coded bins, and bags as per rules.
- Double layer collection bags (2 bags) should be used to ensure strength and no leakage.
- Label the outer bags as COVID-19 Waste.
- Tie the bags properly (when 2/3 full), and disinfect the outer surface with 1% hypochlorite (if autoclave facility available, no need for disinfection)
- The waste generated from laboratories should be pretreated by autoclave.
- Use dedicated trolleys (labeled as COVID-19 Waste) for waste transport to temporary storage area/to CBMWTF van.
- COVID-19 waste should be kept separate from other BMW of hospital at temporary storage area.
- The inner and outer surface of the bins/containers should be disinfected with 1% hypochlorite solution.
- General waste not having contamination, shall be disposed as solid waste in black bins and wet waste in green bins lined by yellow double bags.
- Only the contaminated general waste shall be discarded in yellow bins and treated as COVID-19 waste.
- Depute dedicated and trained sanitation workers separately for COVID waste who shall wear appropriate PPE while handling waste.
- **PPE:**HCWs handling BMW shall wear heavy duty gloves, plastic aprons, N95 mask, face shield/ goggles, cap.
- **Transport to CBMWTF:** Use a dedicated collection bin labelled as COVID-19 for temporary storage at the temporary storage room before handing over to authorized staff of CBWTF or biomedical waste from isolation wards shall be lifted directly into CBWTF collection van.
- Ensure that BMW is transported daily.
- **Dedicated vehicle:** The CBMWTF should use a dedicated vehicle for COVID-19 waste, however it needs not to be labeled as COVID-19 waste. The vehicle should be disinfected after each shift (1% hypochlorite or equivalent).
- **COVID-19 waste should not get mixed with other BMW at any point.**
- Maintain separate record of COVID waste in respective wards, generating COVID -19 waste.
- Feces from COVID confirmed who is unable to use toilets and excreta is collected in diapers, must be treated as BMW and shall be placed in yellow bags/container. if bed pan is used,

feces to be washed in toilet and pan washed with detergent and water followed by disinfection with 1% hypochlorite solution.

- **PPE disposal:**
  - Gloves, plastic aprons, goggles/eye shield- Red bin (lined by red double bag)
  - Non -plastic items: Gown, mask (surgical & N 95), cap, shoe covers,- Yellow bins (lined by yellow double bags)
  - Discarded items as linen, mattresses, beddings contaminated with blood/body fluids- in non-chlorinated yellow plastic bags/suitable packing material.

- **Liquid waste:** disinfected with 1% hypochlorite solution (in liquid treatment system) for 30 minutes and then drained.

Colour coded labelled double bags for COVID-19 BMW

Biomedical waste handling at quarantine facility (suspected COVID patients) & home isolation (COVID confirmed patients)

1 The general waste (not contaminated) shall be handled as per solid waste rules 2016.
2 Only contaminated general waste may be treated and handled as BMW.
3 Biomedical waste which is expected to be of little quantity (e.g. masks, gloves ,tissues or swabs contaminated with blood/body fluids of the patient, syringes, medicines etc), shall be collected in double yellow bags and bins (provided by ULBs), labeled as COVID-19 waste and outer surface of bags to be disinfected with 1% hypochlorite solution. It should be handed over to the authorized waste collectors engaged by municipal corporation/local bodies.
4 Masks and gloves used by the persons other than COVID-19 patients should be kept in a paper bag for 72 hours prior to disposal of the same as general waste after cutting the same to prevent reuse.
5 Person handling the COVID waste shall observe all standard precautions and wear appropriate PPE (heavy duty gloves, plastic aprons, N95 mask, eye shield/goggles, cap, gum boots).

Spill Management

Any spillage of blood/body fluids in COVID confirmed/suspect wards/areas shall be handled as **:**

- Attend immediately, mark the spill area and put 'wet floor' signage
- Wear appropriate PPE **(**heavy duty gloves, plastic aprons, N95 mask, eye shield/goggles, cap).
- Pick up any broken glass with the help of tongs, and put into the blue container
- Place a paper towel/any absorbent material on the spill.
- Pour 1% sodium hypochlorite solution on it (from periphery to center, just saturate the towel
- Leave it for 30 minutes contact time.
- Wipe the area with paper towel and put it in the yellow bag/container
- All the waste would be treated and handled as COVID-19 waste
- Clean it now with detergent and water, let it dry
- Remove the PPE carefully and dispose properly.(SOPs)
- Clean and disinfect all the reusable items (buckets, tongs)

The HODs/facility/ward in charges or in charges of outsource staff may ensure that all HCWs are adequately trained in infection control practices by HICC team of the institution.

A spill kit should be available in each ward/OT/laboratory or wherever spillage is expected.

The spill kit should include:

PPE: gown/coverall, mask (N95& surgical mask), cap, gum boot/shoe covers, heavy duty gloves, goggles/face shield)
Absorbent towel/ news paper
Dust pan, scoop/tongs
Waste collection bags
Undiluted hypochlorite solution (5%/10%)

Spill Kit

General infection prevention and control (IPC) guidelines

1. Prevent overcrowding in the hospital
2. Restrict entry to visitors to minimum possible.
3. Ensure adequate ventilation in patient care areas
4. HCW to adhere to infection control practices:
    a. Perform frequent hand hygiene (hand wash with soap and water/hand hygiene with ABHR, ensuring 70% alcohol)
    b. Wear mask properly.
    c. While in use, avoid touching mask
    d. Do not reuse the mask/hang around the neck/repeatedly wear and remove the mask- these practices are unwarranted
    e. Avoid touching face, nose and eyes
    f. Ensure social distancing, at least 1 meter distance from others
    g. Follow safe injection practices.
5. Patient care areas:
    Maintain at least 1 meter distance between patients, and between patient beds in the wards.
    Patients must wear a mask & observe cough/sneezing etiquettes.
    Patients requested to avoid touching surfaces, walls, doors etc.
    Spitting in hospital premises is prohibited

6. Wet dusting of frequently touched surfaces with detergent and water followed by 1% Sod Hypochlorite solution, and for metallic surfaces 70% alcohol instead of 1% Sod Hypochlorite solution is used (3-4 times a day).
7. Wet mopping of floors with detergent and water, followed by 1% sod. Hypochlorite, at least twice a day.
8. Bio medical waste to be handled as per BMW rules 2016 & amendment 2018 with some additional precautions (BMW, SOPs).
9. Always try to participate in the infection control trainings conducted by HICC, of the institution time to time.

Mobiles, tablets or Laptops infection control SOP

Bring minimum gadgets to hospitals

Clean front and back surfaces with alcohol wipes.

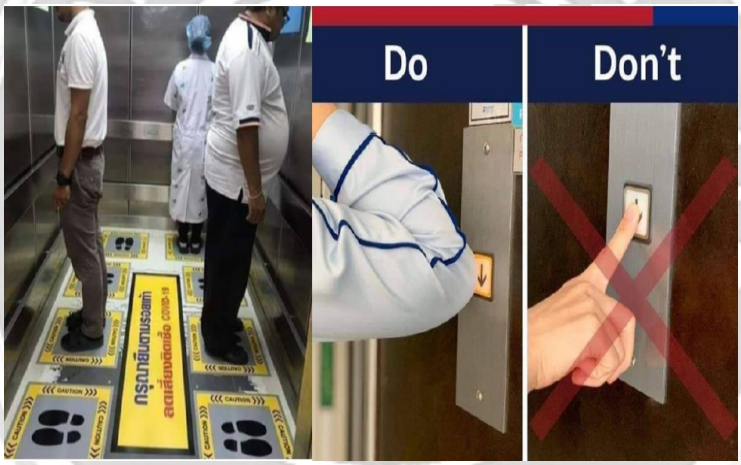
Switch off them during wiping

Clean 2-3 times per shift and before leaving workplace.

If feasible keep the covers in the cars before entering house

Infection prevention & control in elevators

1. Avoid use of lift, if feasible. Stand in a que, maintaining at least 1 meter distance from others while waiting for your turn. (follow the instructions displayed in front of lift)
2. 2-3 people per lift at one time, keeping a least 1meter distance from each other.
3. Hand rub before and after lift use
4. Do not touch walls/surfaces inside lift
5. Stand facing to wall. (as shown in circles made on the floor)
6. Avoid talking inside lift
7. Follow cough/sneezing etiquettes: cough or sneeze into a tissue/elbow. Never cough or sneeze in hands
8. Ensure wearing mask properly covering mouth and nose. (all patients, attendants and HCWs).
9. Clean the high touch surfaces such as lift buttons, adjacent wall area and door with 1% hypochlorite solution / 70% alcohol (2-3hrly)
10. Clean other areas of lift 2-3 times a day.



Infection prevention and control (IPC) practices in ambulance (COVID-19)

During ambulance transfer of COVID patient/suspect following precautions shall be observed:

1. There should be a dedicated ambulance for transfer of COVID patient/suspect.
2. Inform the hospital about the admission/transfer of potentially infectious patient. The receiving hospital should have all arrangements ready to receive the patient.
3. The ambulance staff wear N95 mask, gloves, gown (preferably water resistant), face shield/goggle, cap.
4. Driver wears triple layer surgical mask/N95 mask, when driver chamber is separate. If chamber is not separate driver needs to wear full PPE.
5. Cleaning and housekeeping staff- N95, heavy duty gloves, apron, face shield.
6. Patient and attendant should wear surgical mask.
7. Hand hygiene and cough etiquettes to be followed.
8. Cleaning and disinfection: the surfaces and equipment to be disinfected after and between transfer of patients with 1% sodium hypochlorite/70% alcohol depending on the material. Cleaning of frequently touched surfaces should be done after each patient transfer and whole ambulance(including outside) after each shift.
9. Driver should remove all the PPE and discard properly before going to the driver compartment and do hand hygiene to prevent contaminating the compartment.

Basic precautions for healthcare workers (HCWs) to protect against COVID-19

1. Use dedicated clothes for work at hospital, if possible.
2. Stop wearing watches, rings, bangles, bracelets etc.
3. Stop bringing laptops, bags, wallets to hospital
4. Just bring credit cards, a little cash, can leave your driver's license in the car
5. Clean and disinfect your glasses, keys, pens, mobile phones and other things which are carried to the hospital on arriving and before you leave for home, and also when you reach home.
6. Wash your hands properly before leaving hospital and also when you reach home.
7. Always wear masks properly covering mouth and nose.
8. Frequent hand hygiene in hospital is most important.
9. Do not touch your mouth, nose with hands.
10. Doors may be opened with elbow/foot/ non dominant hand.
11. Adhere to respiratory hygiene
12. When you reach home, better to leave your coat, bag (if any), mobile covers in the car.
13. Ask someone at home to open the door for you s(if feasible)
14. Leave work shoes outside house (in a rack outside house ,if possible) or mark a proper separate place inside house.
15. Avoid touching surfaces like doors, walls, table, chairs etc when your each home. Move straight to take a shower first.
16. Dip your clothes immediately in detergent and warm water, and do not mix with other clothes. Preferably wash them yourself.
17. Use a dedicated place/table to keep your mobiles/tablet/laptop. Do not carry them to your beds
18. Stay away from other family members, preferably separate rooms, especially in the presence of children /elders at home. If not possible keep 2 meters distance from others.
19. Always remember universal masking, frequent hand hygiene and social distancing, it works both in hospital, public places and at home.
20. Maintain proper cleanliness and ventilation of the house .
21. **Do not have meals, tea or coffee with other people in groups both in hospital, canteen, hostels and at home. If it is unavoidable maintain a distance of 2 meters from others.**
22. While travelling in public transport or in private vehicle with others , always wear mask and keep windows open.

Resources

1.https:/www.cdc.gov/coronavirus/2019/ncov strategy/decontamination-reuse-respirators **(CDC)**

2. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?gclid=Cj0KCQiAwMP9BRCzARIsAPWTJ_EWx986Dxd3TIr315huvL50e5Ko75vGl_ta7fkG-mlfNcGEygrh_zAaAlXuEALw_wcB **(WHO)**

3. https://www.mohfw.gov.in/pdf/6394860950158556898 7wastesguidelines.pdf **(Central Pollution Control Board)**

4.https://www.mohfw.gov.in/pdf/MeasuresUndertakenToEnsureSafetyOfHealthWorkersDraftedForCOVID19Services.pdf

5. https://www.mohfw.gov.in/pdf/GuidelinesonrationaluseofPersonalProtectiveEquipment.pdf

6.https://www.mohfw.gov.in/pdf/National%20Guidelines%20for%20IPC%20in%20HCF%20-%20final%281%29.pdf

7.https://www.mohfw.gov.in/pdf/updatedAdvisoryformanagingHealthcareworkersworkinginCOVIDandNonCOVIDareasofthehospital.pdf

8.https://www.mohfw.gov.in/pdf/GuidelinestobefollowedondetectionofsuspectorconfirmedCOVID19case.pdf

9. https://dhr.gov.in/sites/default/files/Bio-medical_Waste_Management_Rules_2016.pdf (2016 & 2018)

10. SOPs – JIPMER Puducherry, Version 2

11. SOPs – AIIMS New Delhi, Version 1.2

12. SOPs – PGIMER Chandigarh

13. SOPs – AIIMS Rishikesh