



**Super Speciality Paediatric Hospital &
Post Graduate Teaching Institute, NOIDA**

HOSPITAL INFECTION CONTROL

**INFECTION PREVENTION & CONTROL
STANDARD OPERATING PROCEDURE
FOR COVID-19**



**Prepared by:
Hospital Infection Control Committee, SSPH PGTI, NOIDA
Version 1.1, 17th May 2021**

**(Including Prevention and Control of Covid Associated
Mucormycosis)**



AMENDMENT SHEET

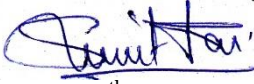

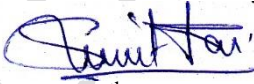
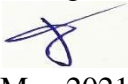
Sno	Section and Page No	Details of Amendment	Reasons	Prepared By: Signature	Approved By: Signature
01	59 - 65	Type: Addendum Addition of Chapter 19: Guidelines for Prevention and Control of Covid Associated Mucormycosis (CAM) and Treatment Guidelines as per UP Govt order dated 14 th May 2021	Anticipated upsurge of cases of CAM in the near future	Infection Control Officer: Dr Sumit Rai  17 th May 2021	Chairman HICC and Chief Medical Superintendent: Dr DK Singh  17 th May 2021
02	04	Type: Upgradation Scope Added to Previous Version with special reference to Engineering Controls for JE Civil and Elec	Anticipated upsurge of cases of CAM in the near future	Infection Control Officer: Dr Sumit Rai  17 th May 2021	Chairman HICC and Chief Medical Superintendent: Dr DK Singh  17 th May 2021



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SSPH PGTI: H.I.C.
Infection Prevention & Control S.O.P. COVID-19

Chapter 1: Scope of the Document, Document Control and Document Revision Policy

This Hospital Infection and Prevention Control Policy is being released with special reference to the pandemic caused by the novel Corona virus-2, also known as COVID-19.

The policy is being made according to:

1. Guidelines for Quarantine Facilities COVID-19, MOHFW and NCDC
2. UP State Government, Department of Health Services Guidelines dated 22nd March 2020
3. Guidelines for Handling COVID-19 Bio Medical Waste by CPCB Revision 1 dated 25th March 2020
4. Guidelines for Disinfection of Quarantine Facility for COVID-19, MOHFW and NCDC
5. MOHFW, DGHS (Emergency Medical Relief) Guidelines on Rational Use of PPE
6. CDC Guidelines on Cleaning and Disinfection with special reference to COVID-19
7. Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008 (Updated in 2019). William Rutala (<https://www.cdc.gov/infectioncontrol/guidelines/disinfection/>)

And other guidelines and SOPs from Government Authorities. Guidance has been sought from HIC Guidelines prepared by AIIMS, Delhi (30th March 2020), SGPGIMS, Lucknow (19th March 2020) and JIPMER, Pondicherry (24th March 2020) and the Zoom Teleconferencing done with SGPGIMS on 31st March 2020.

SCOPE OF THE DOCUMENT			
Name of Document	INFECTION PREVENTION & CONTROL STANDARD OPERATING PROCEDURE FOR COVID-19		
Document No	SSPH PGTI/HICC/HIC Manual/COVID19/2020/Ver1.1		
Date of Issue: 17 th May 2021	Date of Implementation: 17 th May 2021		
Prepared By:	Infection Control Officer & Member Secy HICC: Dr Sumit Rai, Associate Prof, Dept of Microbiology		
Approved By: Members of the Hospital Infection Control Committee	HICC Member	Name	Signature
	Medical Superintendent	Dr Akash Raj	
	HOD Anaesthesia	Dr Mukul Jain	
	HOD, CTVS	Dr Mukesh Kumawat	
	HOD, Neonatology	Dr Ruchi Rai	
	HOD Microbiology	Dr Sumi Nandwani	
	Chief Nursing Officer	Dr Manish Girhotra	
	Nodal Officer 2 HICC	Dr Naz Perween	
ICN	Mrs Priyanka, Mr Ashok		
Issued By	Chairman HICC	Dr DK Singh Chief Medical Superintendent	
DOCUMENT CONTROL			
Authorized to Hold Master Document	Infection Control Officer & Member Secy HICC Name: Dr Sumit Rai, Associate Prof, Dept of Microbiology		
Controlled Copies Distributed to	<ul style="list-style-type: none"> • Director Office • Dean Office • Chairman HICC • Faculty i/c Operation Theatre's • HOD Microbiology • HOD's of All Clinical Departments • Estate Office, JE Civil and Elec • Nodal Officers Infection Control Team • Chief Nursing Supervisor • House Keeping Services • Pest Control Services 		

Note: Isolation / Quarantine Ward shall be used synonymously with COVID-19 ward in the Document



IMPORTANT NOTE

ALL H.C.W. & STAFF OF SSPH & PGTI TO STRICTLY FOLLOW RESPIRATORY & TOUCH HYGIENE

- **COVER EVERY COUGH, SNEEZE & NASAL BLOWING WITH YOUR SHOULDER OR ELBOW, BUT NEVER WITH THE PALM OF YOUR HANDS**
- **DO NOT PICK YOUR NOSE IN THE HOSPITAL**
- **MAINTAIN AT LEAST 1 METER DISTANCE WHILE TALKING TO ANOTHER H.C.W.**
- **IF HANDS HAVE BEEN USED FOR COUGHS, SNEEZE, NASAL BLOWING OR NOSE PICKING: PERFORM HAND HYGIENE WITH SOAP & WATER OR ALCOHOL BASED HAND RUB (ABHR)**

Details on Respiratory Etiquettes have been documented later in this document in Chapter 7

DOCUMENT REVISION POLICY

If the need be, this document may be revised:

- Whenever new standard guidelines on COVID-19 are released from Govt of India (MOHFW, NCDC, ICMR etc) or UP State Govt or Any of the International Bodies (WHO, CDC etc).
- If any gross or major errors are pointed out in this version

DISCLAIMER

- This Manual / SOP is an adaption of all the existing guidelines for Infection Prevention and Control related to COVID-19, from Govt of India and customizing them according to our hospital
- Though, every caution has been taken while making this Manual / SOP, there may be voids, errors, discrepancies or disagreements among various guidelines, policies or procedures.
- While considering these discrepancies among various guidelines, safeguarding the health of all patients and health care workers has been given top most priority.
- Guidelines from MOHFW, Govt of India have been given preference over any other national or international guidelines, policies or procedures.



Chapter 2: Background and Basic Definitions

Based on currently available knowledge about the novel coronavirus and similar coronaviruses that cause SARS and MERS, spread from **person-to person** with these viruses happens **most frequently** among **close contacts (within about 6 feet)**. This type of transmission occurs via **respiratory droplets**. On the other hand, transmission of novel coronavirus to persons from surfaces contaminated with the virus has not been documented. **Transmission of coronavirus occurs much more commonly through respiratory droplets** than through fomites. Current evidence suggests that **novel coronavirus may remain viable for hours to days on surfaces** made from a variety of materials. **Cleaning** of visibly dirty surfaces **followed by disinfection** is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in households and community settings.

Cleaning: is removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.

Disinfecting: is the use of chemicals to kill germs and pathogens on surfaces, but does not sterilize the surface. This process, kills some germs and pathogens on a surface and lower the risk of spreading infection. Disinfection is to be done only for Inanimate Surfaces.

Isolation: is the process of containment of a Symptomatic Patient. The management involves, observing the symptoms, drawing samples for COVID-19 testing and treatment in that contained facility. Such patient could be positive for COVID-19, in which case he is shifted to a COVID-19 positive room OR could be COVID-19 negative (two negative samples at least 24 – 48 hours apart), in which case he would be shifted to the Quarantine Facility and treated accordingly. Unless proven otherwise, All symptomatic cases would be kept in separate isolation rooms and shall Not be allowed to meet anyone. Confirmed COVID-19 positive patients may share the isolation rooms.

Quarantine: is the process of containment of an Asymptomatic Individual who has history of contact with a confirmed COVID-19 positive or suspected COVID-19 patient or has been exposed to large public gatherings or has a recent history (<14 days) of international travel, or was symptomatic but was found COVID-19 negative (two negative samples at least 24 – 48 hours apart)

Active Quarantine: is used for HCW working in the hospital

Passive Quarantine: is used for HCW not working in the hospital



Chapter 3: Transmission Based Precautions

Person-to-person transmission of COVID-19 virus has been proven to occur via droplet and contact transmissions. There is not enough evidence to prove aerosol transmission of COVID-19, however aerosol transmission precautions need to be taken in closed environments.

Droplet Transmission: COVID-19 is predominantly spread by Droplet Transmission. Respiratory droplets are produced when an infected person coughs or sneezes. These droplets can infect the persons (by seeding on their mouths, noses, or eyes) who are within 1 meter distance
Preventable by: Surgical mask (if within 1 mt of infected case) and Hand Hygiene

Contact Transmission: Respiratory droplets (consisting of various bacteria, fungi and viruses) settle on the floor, various surfaces and inanimate objects. Healthcare personnel, patient or attendants after touching these surfaces and objects with their hands transmit these pathogens to other areas and on their face, nose, mouth and eyes.

Preventable by: Hand Hygiene with Soap and Water or Alcohol Based Hand Rub [ABHR]

Aerosol Transmission: COVID-19 transmission by Airborne Transmission from person-to-person over long distances is unlikely and not yet proven, however precaution must be taken while performing all Aerosol Generating Procedures (AGP), which include:

- Tracheal intubation
- Open suctioning
- Non-invasive positive pressure ventilation (BiPAP and CPAP)
- Tracheostomy
- CPR: Cardiopulmonary Resuscitation
- Manual ventilation before intubation
- Bronchoscopy
- Airway suction
- Chest physiotherapy
- Nebulizer treatment
- Sputum induction or
- Collection of Oropharyngeal & Nasopharyngeal swabs

Preventable By: N95 Respirators

Hand Hygiene is the SINGLE MOST EFFECTIVE and SCIENTIFICALLY PROVEN method for Infection Prevention and Control in All Health Care Settings and at Home

Please see the Images on DO's and DONTs in the Figures in the upcoming pages
All these are meant to undertake Transmission based Precautions



Figure 1: NEVER TOUCH THE OUTER SURFACE OF YOUR SURGICAL MASK OF PPE
DO **DONT**



Figure 3: NEVER TOUCH DOORS WITH HANDS: USE YOUR ELBOW OR FOOT TO PUSH
DO **DONT**



Figure 4: NEVER TOUCH LIFT BUTTONS WITH HANDS; USE ELBOW OR KEYS
DO **DON'T**



Figure 2: LIFT ETIQUETTES



When in enclosed spaces like Lifts and Elevators, face away from each other to prevent droplet based transmission of infections

In case you have to pull a door open, perform hand hygiene as soon as possible

Try to keep doors open in open access areas so there is minimum touching of handles and door knobs

In case you have to use your fingers or knuckles to press lift buttons, do hand hygiene as soon as possible



Chapter 4: Risk Stratification and Identification of Areas / Surfaces in the Hospital:

Low Risk Areas: Hospital wards other than the Isolation / Quarantine Ward (COVID-19 Ward), Kitchen, Administration area, Laboratories (those who are NOT testing for COVID-19), Faculty Lounge, Department offices, corridors, 1st floor Special OPD, All Staircases, CSSD, Laundry, Store and Engineering sections, Reception Entrance

Moderate Risk Area: Fever Clinic (Ground Floor Reception area), Emergency and Triage area, enclosed areas like Lifts and Toilets. Tower 3 Staff Quarantine Facility and Isolation lift

High Risk Areas: Nursing station and all corridors of the Isolation / Quarantine Ward, Isolation / Quarantine rooms in the COVID-19 ward, Medical examination room, sample collection areas (high concentration of infectious particles while coughing, sneezing, gag reflex during nasopharyngeal & oropharyngeal sample collection). Toilet and bathroom areas, PPE Doffing area, area for Bio Medical Waste collection, segregation and disposal. Laboratories testing for COVID-19.

Isolation Rooms: These rooms house the patients with symptoms who are either

- Positive for COVID-19 by the ICMR-NIV Real Time-PCR OR
- The result is awaited

Once the repeat / second test is reported as negative, the symptomatic but COVID-19 negative patients would be shifted to the Quarantine area and treated for other causes of community acquired pneumonia.

Quarantine Rooms: These rooms house the Individuals without symptoms who

- Have been exposed to a confirmed or suspected positive patient, or
- Have been exposed to large public gatherings or
- Have had a history of international travel

High Touch Surfaces

Bed Railings and Frames	Keyboard, Mouse, Printers & Computer
Tray Table and Bedside Tables	Landline and Intercom Phones
Door Knobs and Handles	Edges of Curtains
I.V. Lines Poles	Lift Buttons & Hand Rails on Staircases
BP Cuffs and Stethoscopes	Walls near Toilets in Patient Rooms
Paediatric Weighing Balance	Side Railings of Stretchers
Arm Chairs	Nursing Station Bench and Benchtap
<i>MOBILE PHONES ARE THE MOST TOUCHED SURFACES: RESTRICT THEIR USE</i>	

General Policies:

- Maintain Maximum aeration and natural ventilation in the COVID ward
- Keep All Windows of isolation rooms, doffing areas and BMW area open from 6AM to 6PM
- Open Doors by pushing with elbow or foot
- If Doors needs to be pulled by hands then then do hand hygiene
- If you have pulled the door and someone is coming or going through the door just next to you, keep holding the door so the other person doesn't have to touch it
- Whenever and wherever possible, use staircases without touching the railings
- Use elbow, keys etc to press lift buttons



Chapter 5: Hand Hygiene Practices

Hand Hygiene is the **SINGLE MOST EFFECTIVE** and **SCIENTIFICALLY PROVEN** method for Infection Prevention and Control in All Health Care Settings and at Home. This chapter on Hand Hygiene has been deliberately kept on number 5 because, Number 5 is associated with:

- **“WHO Your 5 moments of Hand Hygiene”**
- **“5 Fingers, When Clenched makes a Punch”**
- **5th Day of 5th Month (May): World Hand Hygiene Day**

Duration of Hand Hygiene:

- Soap and Water: At least 40 Seconds
- Alcohol Based Hand Rub (ABHR): At least 20 seconds

REMEMBER:

- Alcohol is an Antiseptic, which does not act effectively when hands are visibly dirty
- After **BODY FLUID EXPOSURE**, one must use **SOAP** and **WATER**
- There are **2 BEFORE Moments** and **3 AFTER Moments**

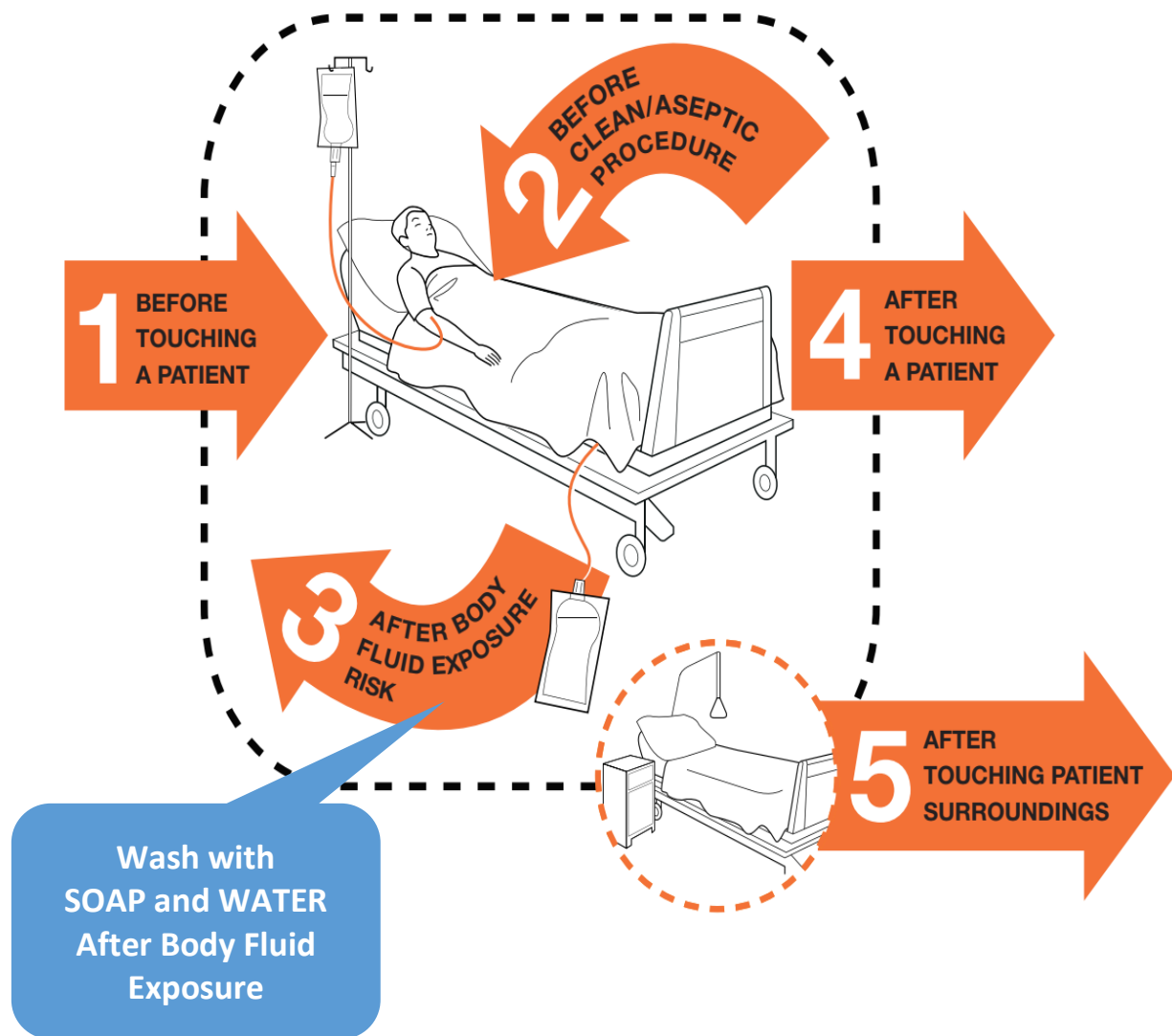
BEFORE TOUCHING A PATIENT	<p>WHEN? Clean your hands before touching a patient when approaching him/her.</p> <p>WHY? To protect the patient against harmful germs carried on your hands.</p>
BEFORE CLEAN/ASEPTIC PROCEDURE	<p>WHEN? Clean your hands immediately before performing a clean/aseptic procedure.</p> <p>WHY? To protect the patient against harmful germs, including the patient's own, from entering his/her body.</p>
AFTER BODY FLUID EXPOSURE RISK	<p>WHEN? Clean your hands immediately after an exposure risk to body fluids (and after glove removal). <u>USE SOAP AND WATER IN THIS STEP</u></p> <p>WHY? To protect yourself and the health-care environment from harmful patient germs.</p>
AFTER TOUCHING A PATIENT	<p>WHEN? Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.</p> <p>WHY? To protect yourself and the health-care environment from harmful patient germs.</p>
AFTER TOUCHING PATIENT SURROUNDINGS	<p>WHEN? Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched</p> <p>WHY? To protect yourself and the health-care environment from harmful patient germs</p>

Examples of Situations Where 5 Moments of Hand Hygiene Must be followed

Moment-1 and 4: Before and After touching a patient	Before and After: Taking pulse, BP, Inspection, Palpation, Percussion Auscultation, Shaking hands, Patient Ambulation, Applying oxygen mask, Giving physiotherapy, Recording ECG, Use of gloves
Moment-2 and 3: Before and after aseptic procedure/body fluid exposure	Before and After, Oral/dental care, Aspiration of secretions or Accessing draining system, Skin lesion care, Wound dressing, Giving injection, Drawing blood or sterile fluid, Handling an invasive device (catheter, central or PICC line, ET tube), Clearing up urine, faeces, vomit, Handling bandages, sanitary or baby napkin, Instilling eye drops, Moving from a contaminated body site to another body site during care of the same patient
Moment-5: After touching patient surroundings	After contact with Case File, Medical equipment in the immediate proximity of the patient, Bed or bed rail, Changing bed linen, Decanting a Urobag



Your 5 Moments for Hand Hygiene



HAND HYGIENE IS THE SINGLE MOST EFFECTIVE METHOD FOR CONTROL AND SPREAD OF ALL HEALTHCARE INFECTIONS: WHO & CDC



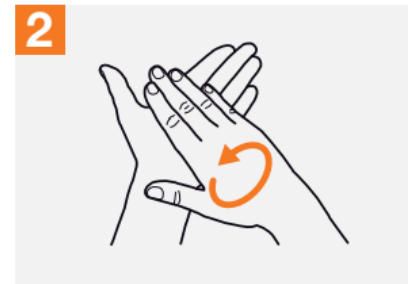
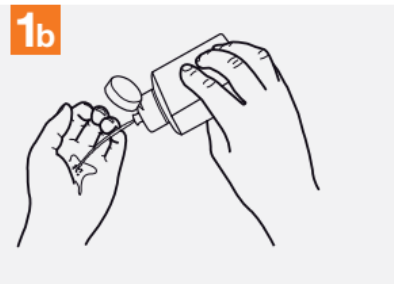
How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

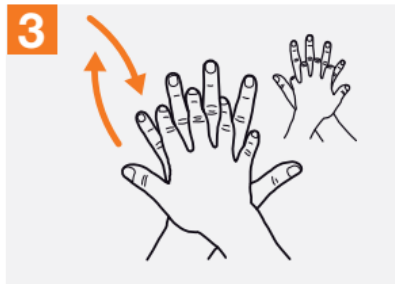
 **Duration of the entire procedure: 20-30 seconds**



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



2 Rub hands palm to palm;



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



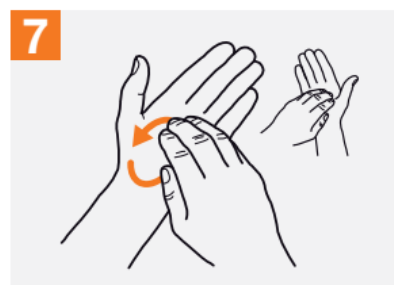
4 Palm to palm with fingers interlaced;



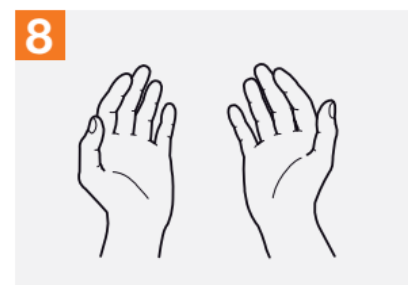
5 Backs of fingers to opposing palms with fingers interlocked;



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



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



8 Once dry, your hands are safe.

INDICATIONS FOR USING ALCOHOL BASED HAND RUB (ABHR)

Alcohol hand rub should be used

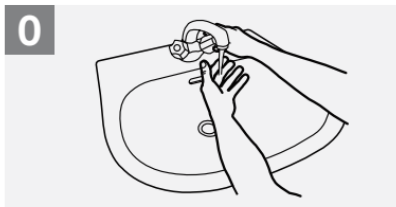
- During routine clinical rounds and handling the patient
- If the hands are not visibly dirty
- If hands are not contaminated with blood, or body fluids



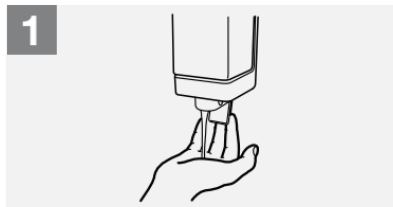
How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

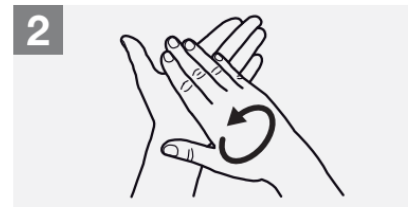
 **Duration of the entire procedure: 40-60 seconds**



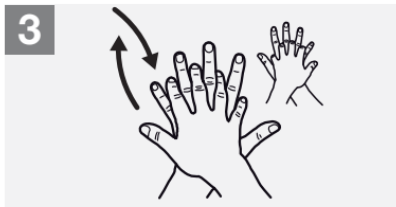
0 Wet hands with water;



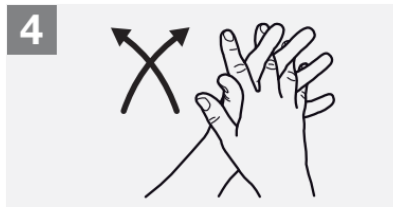
1 Apply enough soap to cover all hand surfaces;



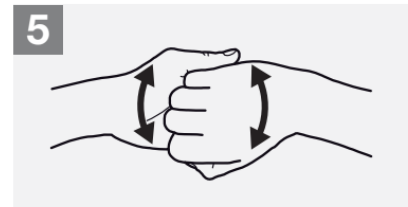
2 Rub hands palm to palm;



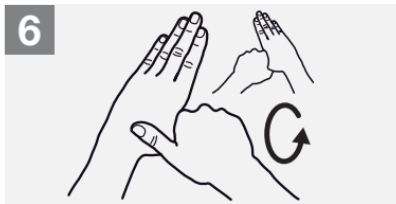
3 Right palm over left dorsum with interlaced fingers and vice versa;



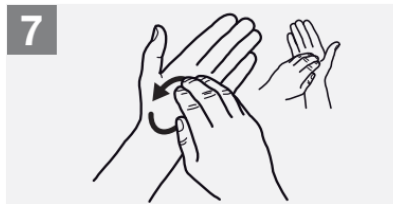
4 Palm to palm with fingers interlaced;



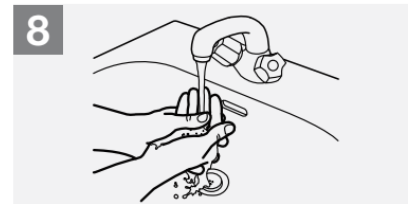
5 Backs of fingers to opposing palms with fingers interlocked;



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



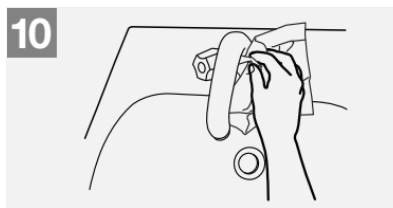
7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



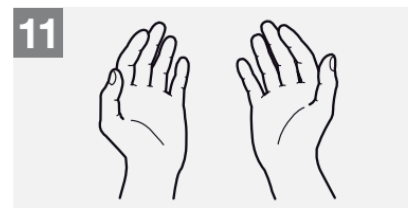
8 Rinse hands with water;



9 Dry hands thoroughly with a single use towel;



10 Use towel to turn off faucet;



11 Your hands are now safe.

INDICATIONS FOR USING HAND WASH

- Hands are visibly dirty or feel dirty or sweaty, contaminated with blood, or body fluids
- Potential exposure to spore forming organisms (e.g., *Clostridium difficile*); Non enveloped viruses (e.g. Norovirus, Rotavirus, Enteroviruses)
- Handling patients with diarrhoea
- After using washroom or toilets
- Before handling medication or food



Chapter 6: Personal Protective Equipment: What, When, How to Wear?

All Influenza pandemics are known to cause shortage of PPE's. Previously known and innovative strategies need to be adopted so that PPE's are not wasted and used only by HCW's involved directly with patient care. Therefore one must minimize the use of PPE by the following measures:

1. The Grade 1 Nursing Supervisor shall RESTRICT UNNECESSARY VISITORS to the COVID-19 ward if they are not directly involved in patient care.
2. All HCW's must consider COMBINING ACTIVITIES to minimize the number of times they enter a room (e.g. check vital signs + medication administration + food delivered by HCWs as well, while they are performing care) and plan which activities will be performed at the bedside.
3. SCREENING AREA: Restrict all HCWs from evaluating suspected cases of COVID-19 disease, one HCW can evaluate/screen, others must maintain distance
4. Use PHYSICAL BARRIERS to reduce exposure, such as glass, plastic windows, or screens with transparent plastic. This approach has been implemented in Fever clinic in the Reception area where patients present, such as triage areas, the registration desk at the emergency department or at the pharmacy window where medication is collected.
5. Supervisors and Senior HCW's must ensure PPE USE SHOULD BE RATIONALIZED and appropriate PPE should be used based on the risk of exposure
6. HCW's performing AEROSOL GENERATING PROCEDURES (AGP) on corona patients (suspected / confirmed) should use the following PPE: Gowns, Gloves, N95 Respirator and Eye protection (goggles or face shield)
7. Aerosol-generating procedures include
 - a. Tracheal intubation
 - b. Open suctioning
 - c. Non-invasive positive pressure ventilation (BiPAP and CPAP)
 - d. Tracheostomy
 - e. CPR (cardiopulmonary resuscitation)
 - f. Manual ventilation before intubation
 - g. Bronchoscopy
 - h. Airway suction
 - i. Chest physiotherapy
 - j. Nebulizer treatment
 - k. Sputum induction
 - l. Collection of Naso / Oro pharyngeal samples
8. General public and People working in administrative areas, without respiratory symptoms, No mask is required.
9. Wearing mask creates a false sense of security which causes HCW to become careless towards the MOST ESSENTIAL PREVENTIVE MEASURE: HAND HYGIENE
 - o Avoid closed crowded spaces (social distancing)
 - o Maintain distance – 1 meter (two arm distance)
 - o Practice hand hygiene and respiratory hygiene
 - o Refrain from touching face, nose, mouth



CDC RECOMMENDED EXTENDED USE AND LIMITED REUSE OF N95 MASK AS A CONTINGENCY CAPACITY STRATEGY:

To combat the shortage and rational use of PPE, especially N95 respirators, the following is recommended by CDC and WHO:

- Extended use of N95 Mask: Refers to WEARING THE SAME N95 RESPIRATOR BY THE SAME HCW for repeated close contact encounters with several patients, without removing the respirator between patient encounters; as long as they are functional well (UP TO 8HR OF CONTINUOUS USE).
- Discard N95 mask when contaminated with blood, respiratory or nasal secretions etc.
- Discard N95 at end of duty / day if Aerosol Generating Procedure has been performed.
- Consider use of a cleanable face shield (preferred) over an N95 respirator and/or other steps (e.g., masking patients) to reduce surface contamination.
- Perform hand hygiene before and after touching or adjusting the N95 mask.
- Limited Reuse of N95 Mask: Refers to the practice of using the same N95 respirator for multiple encounters with patients but removing it ('doffing') after each encounter. CDC RECOMMENDS THAT THE SAME MASK MAY BE REUSED BY THE SAME HCW FOR NOT MORE THAN 5 TIMES
- The HCW must write his name and date on the mask on the first day of wearing.
- One strategy to mitigate the contact transfer of pathogens from the FFR to the wearer during reuse is to issue five respirators to each healthcare worker who may care for patients with suspected or confirmed COVID-19. The healthcare worker will wear one respirator each day and store it in a breathable paper bag at the end of each shift. The order of FFR use should be repeated with a minimum of five days between each FFR use. This will result in each worker requiring a minimum of five FFRs, providing that they put on, take off, care for them, and store them properly each day. Healthcare workers should treat the FFRs as though they are still contaminated and follow the precautions outlined in our reuse recommendations. If supplies are even more constrained and five respirators are not available for each worker who needs them, FFR decontamination may be necessary
- There is tremendous risk when exposed to Coronavirus, MDR-TB etc. due to contact transmission; therefore exercise this option with great CAUTION.
- **MASK USED BY ONE HCW SHOULD NOT BE USED BY SOME OTHER HCW**

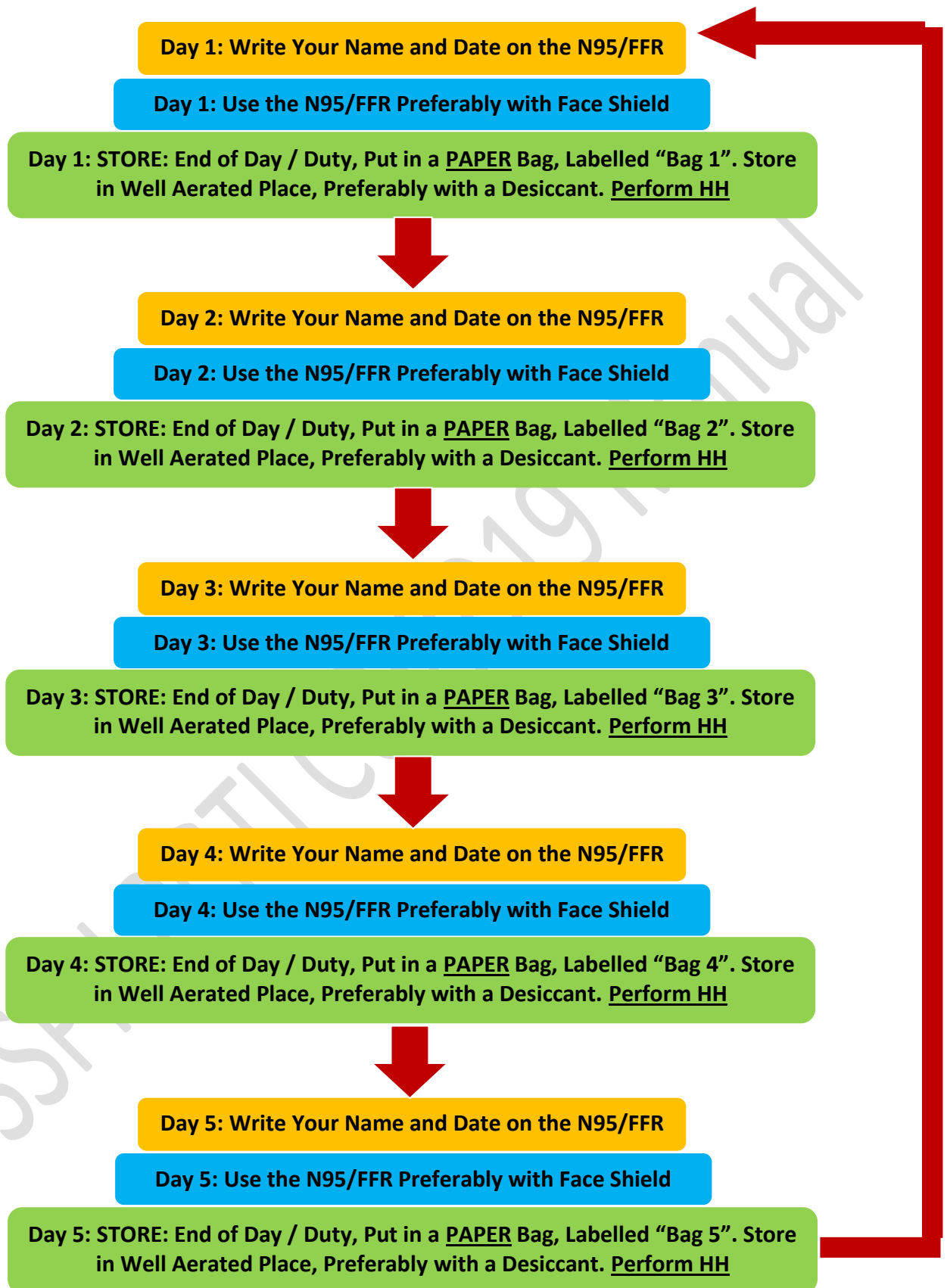
<https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/decontamination-reuse-respirators.html>

<https://www.cdc.gov/niosh/topics/hcwcontrols/recommendedguidanceextuse.html>

<https://www.fda.gov/media/136529/download>



SSPH PGTI Policy for Extended Use and Re-Use of the same mask by the same User



REPEAT SAME CYCLE ON DAYS 6, 11, 16 & 21. DISCARD ALL N95 AND FFR's on day 25. REISSUE 5 ON DAY 25 ITSELF. IF N95 GETS SOILED, GET A NEW ONE



SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

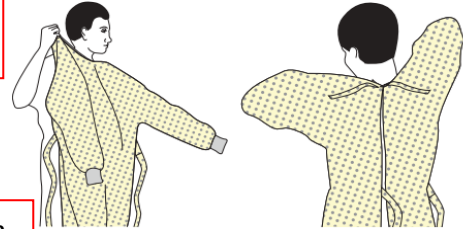
The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

Inspect the PPE for cuts, tears, gaps or any loss of integrity. Check Size

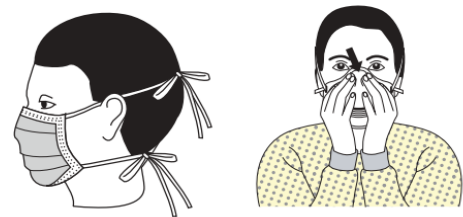
- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist

Depending on Duties of HCW , A Head cap may be worn



2. MASK OR RESPIRATOR

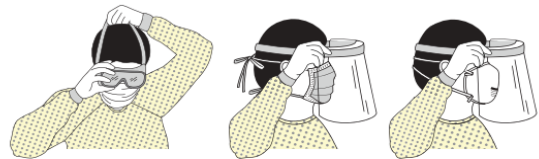
- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit

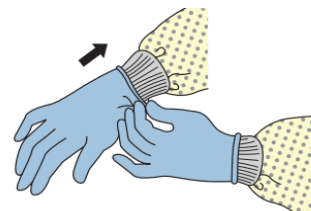
If using shoe cover while Donning, Do HAND HYGIENE



4. GLOVES

- Extend to cover wrist of isolation gown

Wearing gloves is NOT a substitute for hand hygiene. FOLLOW 5 MOMENTS OF HAND HYGIENE



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

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



Remove white coat/extra clothing, watch, jewellery, personal items. Leave mobile phone outside

- If you wear glasses, clean them. Wear after donning surgical/N95 mask
- Drink enough water and take something to eat before donning full PPE; use the toilet before donning, Shave off your beard (mask will not fit well otherwise)
- Trained observer (buddy) will assist

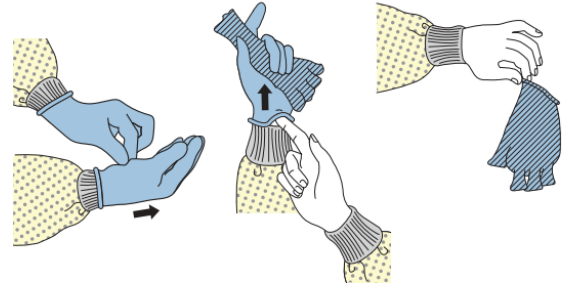


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

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

1. GLOVES

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



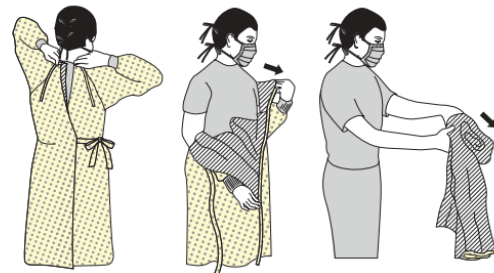
2. GOGGLES OR FACE SHIELD

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



3. GOWN

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

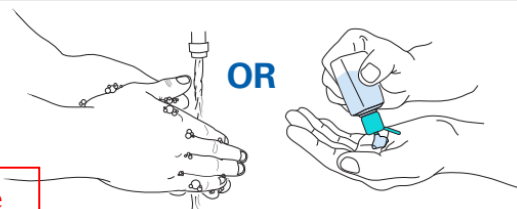


4. MASK OR RESPIRATOR

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



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



Wearing gloves is not a substitute for hand hygiene

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



Perform Doffing ONLY in the Designated DOFFING AREA

- Remove PPE slowly and carefully. Doffing needs to be done more carefully than Donning
- A trained HCW can observe from 2 metres distance
- Remove the mask outside patient care area. **DON'T TOUCH PPE FROM OUTER SURFACE**

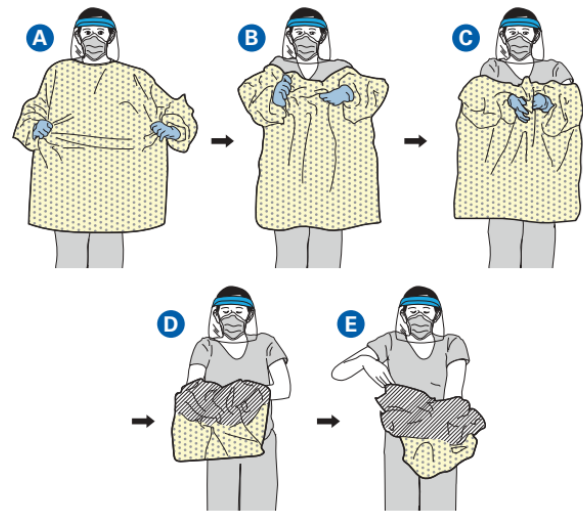


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

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

1. GOWN AND GLOVES

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



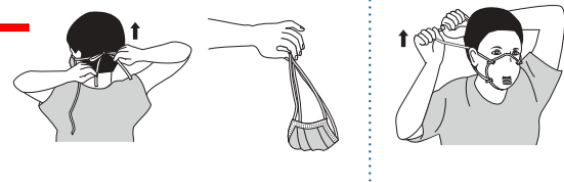
2. GOGGLES OR FACE SHIELD

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

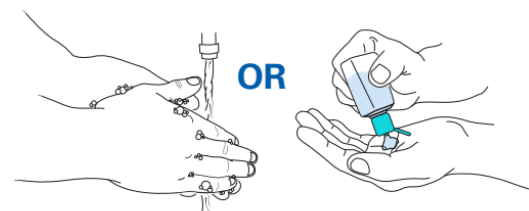


3. MASK OR RESPIRATOR

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



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



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





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The Government of India, Ministry of Health and Family Welfare, Directorate General of Health Services (Emergency Medical Relief) have issued the following directive for use of PPE's

TABLE 6.1: POINT OF ENTRY INTO THE HEALTH CARE FACILITY

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Health Desk	Provide information to travellers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
2	Immigration counters, customs and airport security	Provide services to the passengers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
3	Temperature recording station	Record Temperature with hand held thermal recorder.	Low risk	Triple layer medical mask Gloves	
4	Holding area/ Isolation facility of APHO/ PHO	Interview & Clinical examination by doctors/ nurses	Moderate Risk	N-95 masks Gloves	
5	Isolation facility of APHO	Clinical management (doctors, nurses)	Moderate Risk	N-95 masks Gloves	
		Attending to severely ill passenger	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
5	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
6	Administrative staff	Providing administrative support	No risk	No PPE	No contact with patients of COVID-19. They should not venture into areas where suspect COVID-19 cases are being managed



**TABLE 6.2: HOSPITAL SETTING - OUT PATIENT DEPARTMENT
(RESPIRATORY CLINIC / SEPARATE SCREENING AREA)**

S. No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Triage area	Triaging patients Provide triple layer mask to patient.	Moderate risk	N 95 mask Gloves	Patients get masked.
2	Screening area help desk/ Registration counter	Provide information to patients	Moderate risk	N-95 mask Gloves	
3	Temperature recording station	Record temperature with hand held thermal recorder	Moderate Risk	N 95 mask Gloves	
4	Holding area/ waiting area	Nurses / paramedic interacting with patients	Moderate Risk	N 95 mask Gloves	Minimum distance of one meter needs to be maintained.
5	Doctors chamber	Clinical management (doctors, nurses)	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed.
6	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
7	Visitors accompanying young children and elderlies	Support in navigating various service areas	Low risk	Triple layer medical mask	No other visitors should be allowed to accompany patients in OPD settings. The visitors thus allowed should practice hand hygiene

The Patient Care and Logistic Squads have been positioned at various areas in the Reception Hall at the Entrance of SSPH PGTI and in the Emergency Triage Area and are composed of the following teams, vide [Office Order SSPHPGTI, Noida/Dir/44/2020 dated 25th March 2020](#):

Team 1: Enquiry and Patient Movement, positioned at the main entrance to answer patient query and direct the patient movements

Team 2: Fever and Sickness Desk would screen the patients for possible COVID-19 infection with Influenza like Illness (ILI), Non COVID-19 medical / surgical emergency, direct them to Triage and manage OPD services

Team 3: Triage and Emergency Area for managing emergencies sent by Team 2



Team 4: Shall be stationed in the COVID-19 Isolation / Quarantine ward

Team 5: Shall manage all In Patients in Triage, Wards and Emergency

Details Discussed in Chapter 13

TABLE 6.3: HOSPITAL SETTING - IN PATIENT DEPARTMENT

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Individual isolation rooms/ cohorted isolation rooms	Clinical management	Moderate risk	N 95 mask Gloves	Patient masked. Patients stable. No aerosol generating activity.
2	ICU/ Critical care	Critical care management	High risk	Full complement of PPE	Aerosol generating activities performed
3	ICU /critical care	Dead body packing	High risk	Full complement of PPE	
4	ICU/ Critical care	Dead body transport to mortuary	Low Risk	Triple Layer medical mask Gloves	
5	Sanitation	Cleaning frequently touched surfaces/ floor/ changing linen	Moderate risk	N-95 mask Gloves	
6	Other Non-COVID treatment areas of hospital	Attending to infectious and non-infectious patients	Risk as per assessed profile of patients	PPE as per hospital infection prevention control practices.	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas.
7	Caretaker accompanying the admitted patient	Taking care of the admitted patient	Low risk	Triple layer medical mask	The caretaker thus allowed should practice hand hygiene, maintain a distance of 1 meter

TABLE 6.4: HOSPITAL SETTING - EMERGENCY DEPARTMENT

S.No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Emergency	Attending emergency cases	Moderate risk	N 95 mask Gloves	When aerosol generating procedures are anticipated
2		Attending to severely ill patients of SARI	High risk	Full complement of PPE	Aerosol generating activities performed



TABLE 6.5: PRE-HOSPITAL (AMBULANCE SERVICES)

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Ambulance Transfer to designated hospital	Transporting patients not on any assisted ventilation	Moderate risk	N-95 mask Gloves	
		Management of SARI patient while transporting	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
		Driving the ambulance	Low risk	Triple layer medical mask Gloves	Driver helps in shifting patients to the emergency

TABLE 6.6: OTHER SUPPORTIVE/ ANCILLARY SERVICES

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Laboratory	Sample collection and transportation	High risk	Full complement of PPE	
		Sample testing	High risk	Full complement of PPE	
2	Mortuary	Dead body handling	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed. No embalming
		While performing autopsy	High Risk	Full complement of PPE	No post-mortem unless until specified
3.	Sanitation	Cleaning frequently touched surfaces/ Floor/ cleaning linen in COVID treatment areas	Moderate risk	N-95 mask Gloves	
4.	CSSD/Laundry	Handling linen of COVID patients	Moderate risk	N-95 mask Gloves	
5.	Other supportive services	Administrative Financial Engineering Security, etc.	No risk	No PPE	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas.



TABLE 6.7: HEALTH WORKERS IN COMMUNITY SETTING

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	ASHAs/ Anganwadi and other field staff	Field Surveillance	Low Risk	Triple layer mask Gloves	Maintain distance of one meter. Surveillance team to carry adequate triple layer masks to distribute to suspect cases detected on field surveillance
2	Doctors at supervisory level conducting field investigation	Field surveillance Clinical examination.	Medium risk	N 95 mask Gloves.	

TABLE 6.8: Quarantine facility

S.No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Persons being quarantined		Low Risk	Triple layer mask	
2	Healthcare staff working at quarantine facility	Health monitoring and temperature recording	Low Risk	Triple layer mask Gloves	
		Clinical examination of symptomatic persons	Moderate Risk	N-95 masks Gloves	
3	Support staff		Low Risk	Triple layer mask Gloves	

TABLE 6.9: Home Quarantine

S.No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Persons being quarantined		Low Risk	Triple layer mask	
2	Designated family member	Taking care of person being quarantined	Low Risk	Gloves	While cleaning commonly touched surfaces or handling soiled linen
3	Other family		No Risk	No PPE required	Maintain a distance of at least 1 meter from person under home quarantine. Senior citizens in the household should stay away from such persons under home quarantine.

Points to remember while using PPE

- 1. PPEs are not alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes which must be followed at all times.**
- 2. Always (if possible) maintain a distance of at least 1 meter from contacts/suspect/confirmed COVID-19 cases**

Always follow the laid down protocol for disposing off PPEs as detailed in infection prevention and control guideline available on website of MoHFW



COVID-19: Guidelines on rational use of Personal Protective Equipment

Source - Ministry of Health and Family Welfare, Directorate General of Health Services [Emergency Medical Relief]

Patient Care Activities /Area	Risk of Exposure	Triple Layered Mask	N-95 Mask	Gloves	Gown/Coverall	Goggles	Head Cover	Shoe cover
Triage Area in OPD	Moderate risk	X	✓	✓	X	X	X	X
Help desk/ Registration counter	Moderate risk	X	✓	✓	X	X	X	X
Temperature recording station	Moderate risk	X	✓	✓	X	X	X	X
Holding area/ waiting area	Moderate risk	X	✓	✓	X	X	X	X
Doctors chamber in OPD	Moderate risk	X	✓	✓	X	X	X	X
Clinical Management in Isolation rooms	Moderate risk	X	✓	✓	X	X	X	X
ICU facility / Critical Care Ward where aerosol generating procedures are done	High Risk	X	✓	✓	✓	✓	✓	✓
SARI ward - attending to severely ill patients of SARI	High Risk	X	✓	✓	✓	✓	✓	✓
Sample Collection/Sample testing for COVID-19	High Risk	X	✓	✓	✓	✓	✓	✓
Dead Body Packing	High Risk	X	✓	✓	✓	✓	✓	✓
Dead Body Transport	Moderate Risk	X	✓	✓	X	X	X	X
Mortuary - Dead Body Handling	Moderate Risk	X	✓	✓	X	X	X	X
Mortuary- While performing autopsy	High Risk	X	✓	✓	✓	✓	✓	✓
Sanitary staff	Moderate risk	X	✓	✓	X	X	X	X
CSSD/Laundry- Handling linen of COVID-19 patients	Moderate risk	X	✓	✓	X	X	X	X
Visitors attending OPD	Low Risk	✓	X	X	X	X	X	X
Visitors accompanying Patients in IP facility	Low Risk	✓	X	X	X	X	X	X
Supportive services-Administrative Financial Engineering Security, etc	NO risk	X	X	X	X	X	X	X



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MINUTES OF MEETING OF COVID-19 CORE TEAM AT S.S.P.H. P.G.T.I. ON ADAPTION OF MOHFW GUIDELINES FOR RATIONAL USE OF P.P.E.

Minutes of Meeting

Adaptation of MOHFW/DGHS Guidelines on rational use of Personal protective equipment for Corona Preparedness at SSPHPGTI

Time: 11 am

Date: 31 March 2020

Venue: COVID office, SSPHPGTI

The MOHFW (attached) guidelines were discussed and the following recommendations were given for adaptations for our institute as follows:

Area	HCW	PPE as per MOHFW guidelines	HCQS	Quarantine
Team 1	Paramedical	N95, Gloves	Yes	Yes
Team 2	Doctors	N95, Gloves	Yes	Yes
Team 3	Doctors	N95, Gloves	Yes	Yes
Team 4	Doctors	Full complement PPE	Yes	Yes
Team 5	Doctors	Full complement PPE while visiting isolation ward	Yes	Yes
Isolation ward staff	Nurses Attendants/ HK	Full complement PPE	Yes	Yes
Main lobby staff (Waiting/Holding area)	Nurses Social workers Attendant/ HK	N95, Gloves	Yes	Yes
Emergency/Triage staff	Nurses Attendant/HK	*N95, Gloves	Yes	Yes
Pharmacy Registration desk X-ray technician		N95, Gloves N95, Gloves N95, Gloves	Yes	Yes
Guards in isolation, main lobby and triage		N95, Gloves	Yes	Yes
Attendants transferring patients to GIMS in ambulance		N95, Gloves (full PPE if COVID positive patients)	Yes	Yes
Ambulance driver		Tri Ply mask, Gloves		No
Emergency services 1. NICU 2. Post op wards 3. PHO 4. Dialysis	Doctors Nurses Attendant/HK	Tri Ply mask as per standard infection control policy of that area		No
Operation theatres	Doctors Nurses Technicians Attendant/HK	For suspected/proven COVID: full PPE		Yes: if exposed to a positive case
Labs	LIS Sample collection in emergency lab	N95, Gloves	Yes	Yes
	Sample collection in isolation ward	Full complement PPE		Yes
Administration	Admin staff Attendant/HK	No PPE		No

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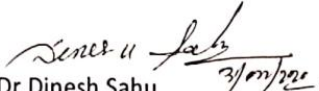
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Nurses / Faculty / FO/ER
CNO / MOH
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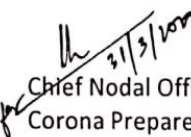


SSPH PGTI: H.I.C.
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Surgical gowns and caps are not part of standard recommendations. It may be provided as per availability.

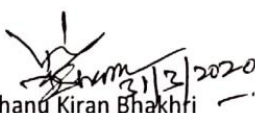
*In emergency/triage area, those patients who are suffering from SARI and those who desaturate or need intubation or resuscitation, full complement PPE will be provided to the team of healthcare workers involved.


Dr Dinesh Sahu
Data Management, COVID Officer, SSPHPGTI


Chief Nodal Officer
Corona Preparedness, SSPHPGTI


Dr Sumit Rai
Infection Control Officer
Member Secretary, HIC, SSPHPGTI


Dr Mukesh Kymawat
4th floor in charge


Dr Bhandu Kiran Bhakhti
Nodal Officer, Clinical services
Corona Preparedness

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1. CMS/MS, SSPHPGTI, Noida
2. Concerned file



Chapter 7: Respiratory Hygiene, Cough and Touch Etiquettes

These measures need to be taken to reduce droplet, contact and airborne transmission in health care facility and prevent the spread of infections. Respiratory and Contact precautions are the core for ANY Hospital Infection Prevention and Control Practices.

Hand Hygiene (HH), is the single MOST effective measure for Hospital Infection Prevention and Control

Respiratory Hygiene and Etiquettes

MUST DO / GOOD PRACTICE	NEVER DO / BAD PRACTICE
Always cover every cough, sneeze & nasal blowing with your shoulder or inner side of elbow	Never cover cough, sneeze & nasal blowing with the palm of your hands. If you do, then perform HH
Do Nasal wash and hygiene in washroom with running water. Wash hands with soap and water	Never pick your nose in the hospital. If you do, then perform HH
Maintain at least 1 meter distance while talking to another HCW	Never do overcrowding especially in closed spaces like lifts, gymnasium etc
Practice No Touch Greetings in the Hospital like Namastey or Hello.	Never shake hands. No fist bumps, No high 5's. If you do, then perform HH
Face the walls of the elevators when multiple people are travelling with you	Never be in close contact of anyone with respiratory symptoms with fever
Throw tissues only in dustbins immediately and do Hand Hygiene	Never spit anywhere except in the washroom
<i>SSPH PGTI has been Officially Designated as a <u>"Namastey Hospital"</u>, vide HICC Minutes of the Meeting dated 06/02/2020. Touch Greetings like Handshake, Hug, High 5, Fist Bumps are forbidden in the Hospital premises</i>	

Touch Etiquettes

MUST DO / GOOD PRACTICE	NEVER DO / BAD PRACTICE
Keep our hands away from your face, nose, eyes and ears	Never touch Any Hospital surface Unnecessarily. If you do, then perform HH
Always use your elbows to press elevator buttons	Never touch lift buttons with your fingers. If you do, then perform HH
Remove masks or respirators by only touching the string or elastic	Never touch the outside or inside of the masks or respirators. If you do, then perform HH
Always leave you mobile phones in lockers or at the nursing station. Sanitize your smartphone with ABHR	Never lean on bed rails, or walls or infant cots. If you do, then perform HH
Use landline / intercoms as frequently as possible. Sanitize with ABHR	Never keep case files on beds or infant cots. If you do, then perform HH
<i>Be a Good Samaritan and Check people who miss moments of HH irrespective of who they are</i>	



Chapter 8: House Keeping: Environmental Cleaning and Disinfection Protocols

Environmental Cleaning and Disinfection: It's imperative to strictly abide by cleaning and disinfection protocols to contain the COVID-19 illness. The virus can potentially survive on environmental surfaces for several hours and even days. Premises and areas, equipment potentially contaminated with the virus must be cleaned before they can be reused. Transfer of microorganisms from environmental surfaces to patients and susceptible contacts is mostly via hand contact with the surface. Hand hygiene is important to minimize the impact of this transfer. Cleaning and disinfecting environmental surfaces is fundamental in reducing healthcare-associated infections.

- 8.1 General Advisory for Cleaning and Disinfection
- 8.2 List of Available Disinfectants at SSPH PGTI
- 8.3 Areas and Frequency of Cleaning as per Risk Stratification
- 8.4 Method of Cleaning

8.1: General Advisory for Cleaning and Disinfection

1. Never use dry broom (*Jhaadu*) in Any Hospital Area
2. Always move from Clean to Dirty Area, Higher to Lower Area and from Top to Bottom
3. The HCW or the House Keeping staff must wear appropriate PPE before starting cleaning or disinfection
4. Environmental Cleaning for COVID19 is best done with either sodium hypochlorite or bleaching powder solution with 1% available chlorine
5. In general, all medium and high risk areas of the hospital shall be cleaned with detergent (Teepol) and disinfected with 1% hypochlorite and all low risk areas shall be cleaned with detergent (Teepol) and disinfected with low level disinfectant like
6. Clean and disinfect all surfaces. This includes horizontal, vertical and contact surfaces
7. Disinfect all "high-touch" surfaces daily and upon discharge or death
8. Cleaned surfaces should remain wet and air dry per the label's instruction
9. Clean floors on a regular basis, when spills occur and when visibly soiled
10. Consider potential contamination of privacy curtains
11. Do not bring equipment carts into isolation rooms
12. Only leave the room when cleaning is completed
13. Remove PPE before leaving the patient environment
14. Immediately perform hand hygiene
15. Disinfect cleaning equipment and return to the cart

8.2: List of Available Disinfectants at SSPH PGTI: Following is the list of the currently available disinfectants and chemical for cleaning:

1. **Virex II 256:** QAC Low Level Disinfectant [*1/2 oz per gallon of water i.e.: 15ml in 3.5 Litre water as working solution*]
2. **Bleaching Powder** (Approx 30- 33% available chlorine): High Level Disinfectant [*350 gm in 10 Litre water or 1kg in 30 Litre water as 1% working solution*]
3. Sodium Hypochlorite (5% solution): High Level Disinfectant [*1 Litre in 4 Litre water as working solution*]
4. Teepol: Liquid Detergent for surface cleaning
5. Detergent Powder: For surface cleaning
6. Colin: For surface cleaning
7. Harpic: Toilet cleaner
8. 95% Spirit: For surface cleaning [*730mL in 270mL distilled water as working solution of approx. 70% strength*]



8.3 Areas and Frequency of Cleaning as per Risk Stratification

To be supervised by In Charge House Keeping and Grade I Staff Nurse posted in the Designated Area, keeping in mind the following times:

M: Morning (6AM to 8AM); A: Afternoon (12PM to 2PM); E: Evening (4PM to 6PM); N: Night (8PM to 10PM)

High Risk Areas: Nursing station and all corridors of the Isolation / Quarantine (COVID-19) Ward, Individual rooms in the COVID-19 ward, Medical examination room, sample collection areas (high concentration of infectious particles while coughing, sneezing, gag reflex during nasopharyngeal & oropharyngeal sample collection). Toilet and bathroom areas, PPE Doffing area, area for Bio Medical Waste collection, segregation and disposal. Laboratories testing for COVID-19 from respiratory samples

Area	Cleaning	Disinfection	Contact Time	Frequency
4 th Floor Zone I & II Floors: All Corridors and Isolation Rooms and Nursing Station	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	4 times per day [M, A, E, N]
Floors on Isolation Rooms in COVID ward	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	4 times per day [M, A, E, N]
Walls of Isolation Rooms up to 7 feet height	Cleaning with detergent and water	1% Hypochlorite Hand Mopping	10 minutes	2 times per day [M, E]
Toilets in COVID ward and Isolation Rooms	Cleaning with detergent and water	1% Hypochlorite Wash	10 minutes	4 times per day [M, A, E, N]
Floors of BMW Area and Doffing Area	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	4 times per day [M, A, E, N]
Walls of Entire 4 th Floor up to 7 feet in Height	Cleaning with detergent and water	1% Hypochlorite Hand Mopping	10 minutes	Once daily [N]
High Touch Surface: Doors, Handles, Door knobs, Tables	Not needed unless visibly soiled	1% Hypochlorite Hand Mopping	10 minutes	6 times per day [M,A,A,E,E,N]
Terminal Disinfection of Isolation Rooms	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	Discharge, Shifting or Death
Non Critical Equipment: Thermal Scanner, Stethoscope, BP Cuff, Intercom, Keyboards, Mouse etc	Clean with Detergent if Soiled	70% EtOH / Alcohol wipe	Air Dry	After Each Use
Lift No 8: Patient Lift Lift No 9: BMW Lift	Cleaning with detergent and water	1% Hypochlorite Wash	10 minutes	4 times per day [M, A, E, N]
Lift No 5: HCW Entry Lift No 10: HCW Exit	Cleaning with detergent and water	1% Hypochlorite Wash	10 minutes	2 times per day [M, E]
Ambulance / Hearse Van Used to Transfer Positive / Suspected Positive Patients	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	Discharge, Shifting or Death



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Moderate Risk Area: Fever Clinic (Ground Floor Reception area), Emergency and Triage area, enclosed areas like Lifts and Toilets. Staff Quarantine Facility in Tower 3

Area	Cleaning	Disinfection	Contact Time	Frequency
Ground Floor Reception Area (Fever Clinic), including billing counter and Patient Waiting Areas	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	3 times per day [M, A, E]
Emergency & Triage Areas	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	3 times per day [M, A, E]
2 nd Floor Area Outside OT	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	2 times per day [M, A, E]
2 nd Floor Area Inside OT areas and Changing rooms	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	3 times per day [M, A, E]
2 nd Floor CTVS ICU	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	2 times per day [M, E]
High Touch Surfaces: First Floor Glass from Ground Floor to First Floor Special OPD and Wooden Doors, Handles, Door knobs, Tables, Patient Stool	Wet Hand Mopping With Detergent	1% Hypochlorite Hand Mopping	10 minutes	6 times per day [M,A,A,E,E,N]
Toilets Ground Floor, Fever Clinic, Emergency and Triage, All 1 st Floor, OT and 2 nd Floor Toilets	Cleaning with detergent and water	1% Hypochlorite Wash	10 minutes	3 times per day [M, A, E]
Non Critical Equipment: Thermal Scanner, Stethoscope, BP Cuff, Intercom, Keyboards, Mouse etc	Clean with Colin if Soiled	70% EtOH / Alcohol wipe	Air Dry	After Each Use
Lift No 1, 2, 3, 4, 6, 11, 12	Cleaning with detergent and water	1% Hypochlorite Wash	10 minutes	4 times per day [M, A, E, N]
Isolation Lift Tower 3 Quarantine Facility	Cleaning with detergent and water	1% Hypochlorite Wash	10 minutes	3 times per day [M, A, E]
Staff Quarantine Facility: Tower 3	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	2 times per day [M, E]

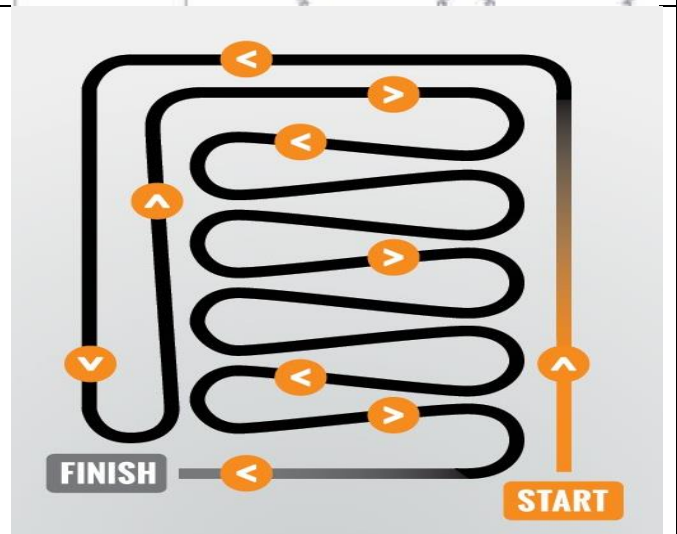
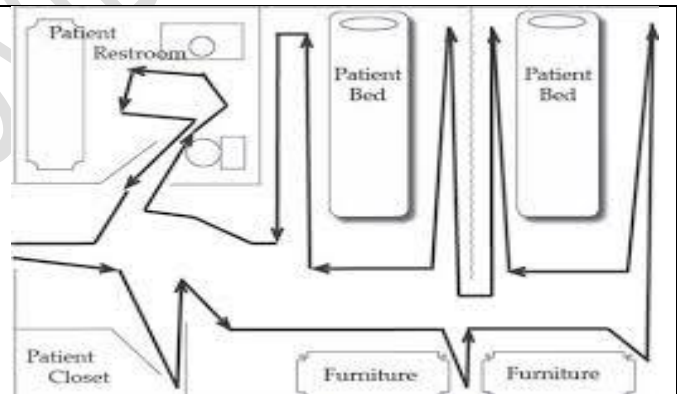


Low Risk Areas: Hospital wards other than the Isolation / Quarantine Ward (COVID-19 Ward), Kitchen, Administration area, Laboratories (those who are NOT testing for COVID-19), Faculty Lounge, Department offices, corridors, 1st floor Special OPD, All Staircases, CSSD, Laundry, Store and Engineering sections, Reception Entrance

Area	Cleaning	Disinfection	Contact Time	Frequency
Other : Hospital wards (3 rd Floor Zone 1 and Zone 2), NICU, BBTM, Endoscopy etc	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	2 times per day [M, A]
Department offices, corridors, 1 st floor Special OPD, All Staircases, CSSD, Kitchen, Laundry, Store and Engineering sections, Reception Entrance	Mopping of Floors with Detergent	1% Hypochlorite Mop	10 minutes	2 times per day [M, A]
5 th Floor and Laboratories NOT involved in diagnosis of COVID-19 from respiratory samples	Mopping of Floors with Detergent	Virex Mop	10 minutes	2 times per day [M, A]
High Touch Surfaces: First Floor Glass from Ground Floor to First Floor Special OPD and Wooden Doors, Handles, Door knobs, Tables, Patient Stool	Wet Hand Mopping With Detergent	1% Hypochlorite Hand Mopping	10 minutes	6 times per day [M,A,A,E,E,N]

8.4 Method of Cleaning:

1. Only do wet mopping of the floors. Never use dry broom
2. Move from the Cleanest area to Dirty area
3. Move from high level surface to low level surface
4. Move from Top to Bottom, clean ceilings, followed by walls, followed by floors
5. When cleaning the floor, begin at the end i.e. farthest from the door and move towards the door (in to out)
6. Remove visibly soiled and dirty items like bandage etc before starting cleaning
7. Restroom should always be cleaned last
8. Never shake the mops
9. Change microfiber mop after each room, after isolation room and after cleaning blood and bodily fluid spills
10. Do Not double dip the mops at one time
11. Cover 120 sqft i.e. 30 tiles of 2x2 ft each in one dip. Change the mop solution after 240 sqft i.e. 60 tiles
12. Follow the “8 Stroke Technique”





Cleaning Checklist for Isolation Rooms

Date:	
Unit:	
Room Number:	
Initials of Housekeeping Staff	

Nursing Supervisor must evaluate the following priority sites for each patient room:

Surfaces	Cleaned	Not Cleaned	Not Present in Room
Floor			N/A
Toilets			
Bed Rails and Controls			
Tray table			
IV pole (grab area)			
Call box / button			
Telephone Intercom			
Bedside table handle			
Chair			
Room sink			
Room light switch			
Room inner door knob			
Bathroom inner door knob / plate			
Bathroom light switch			
Bathroom handrails by toilet			
Bathroom sink			
Toilet seat			
Toilet flush handle			
Toilet bedpan cleaner			

Evaluate the following additional sites if these equipment are present in the room:

High-touch Room Surfaces	Cleaned	Not Cleaned	Not Present in Room
IV pump control			
Multi-module monitor controls			
Multi-module monitor touch screen			
Multi-module monitor cables			
Ventilator control panel			

Directly Observed: Yes: No:

Figure of 8 Cleaning Followed: Yes: No:



Chapter 9: Linen and Laundry Management

One must bear in mind the basic principle of cleaning and disinfection. Disinfection or Antisepsis is ineffective in presence of organic matter and therefore:

1. Clothes, Laundry and Linen needs to be **washed first and then disinfected**
2. One must never carry soiled linen holding it against body
3. Hand hygiene and PPE (surgical mask, heavy duty gloves, plastic apron, boots)
4. Place soiled linen in a leak-proof bag or bucket kept near the patient
5. Dedicated laundry area should be allocated in Basement 1 for cleaning soiled bedding, towels and clothes from patients with COVID-19
6. Soiled linen shall be placed in clearly labelled, leak-proof bags or containers, carefully removing any solid excrement and putting in covered bucket to dispose of in the toilet
7. Washing machine Cycle: Wash at 60-90°C with laundry detergent followed by soaking in 0.1% Sodium Hypochlorite for approximately 30 minutes and sundry.
8. Manual Washing Cycle: Soaked in hot water with soap/detergent in a large drum. Use a stick to stir and avoid splashing. Empty the drum and soak linen in 0.1% sodium hypochlorite for approx. 30 minutes. Rinse with clean water and let linen sundry



Chapter 10: Spill Management

- In case of any spillage (like blood/body fluids), it should be immediately attended. The area should be immediately evacuated and marked with sign board.



- The HCW who would clean the spill should put on PPE (Impermeable Gown, Goggles, Surgical Mask and Gloves), before cleaning.
- An absorbent material (Like tissue, newspapers) should be used to confine the spill and remove excess organic matter, which has to be disposed in Yellow bag
- Freshly prepared 1% Hypochlorite solution is used for cleaning the area. A contact time of 10 minutes is allowed with the hypochlorite solution.
- Lastly the area is to be cleaned with fresh clean water to remove residues of the disinfectant. Discard all contaminated material in yellow bag.
- Separate Mop and bucket should be used for cleaning spillage, other than the routine hospital cleaning mop and bucket.

SPILL KIT:

- ✓ Spill kit should be readily available at accessible distance at all locations of patient care.
- ✓ A Spill kit will contain:

- Protective water proof apron
- Disposable gloves and mask
- Eye protective goggles
- Absorbent material (Tissue or Newspaper)
- Biomedical waste bags, ties and Labels
- Disposable forceps and card board pieces (to pick broken glass in any), detergent, scoops and scrapers.
- Water proof Instruction chart



Chapter 11: House Keeping: COVID-19 Biomedical Waste Management

(Based on CPCB Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/ Diagnosis/ Quarantine of COVID-19 Patients, dated 25th March 2020)

COVID-19 Isolation wards:

The Nursing Supervisor shall ensure that:

1. Separate colour coded bins / bags / containers are placed in the ward and maintain proper segregation of waste as per BMW Rules, 2016
2. As a precaution **double layered bags (using 2 bags)** shall be used for collection of waste from COVID-19 isolation wards so as to ensure adequate strength and no-leaks
3. BMW is collected separately prior to handing over the same CBWTF. Use a dedicated collection bin labelled as “COVID-19” to store COVID-19 waste and keep separately in temporary storage room near Lift No 9. BMW collected in such isolation wards can also be lifted directly from ward into CBWTF collection van from Basement 1
4. In addition to **mandatory labelling, bags / containers** used for collecting BMW from COVID-19 ward, should be labelled as “COVID-19 Waste”.
5. General waste not having contamination should be disposed as solid waste as per SWM Rules, 2016
6. Separate record is maintained for COVID-19 BMW
7. Maintain separate record of waste generated from COVID-19 isolation wards
8. Dedicated trolleys and collection bins are used in COVID-19 isolation wards. A label “COVID-19 Waste” shall be pasted on these items also.
9. The (inner and outer) surface of containers / bins / trolleys used for storage of COVID-19 waste should be disinfected with 1% sodium hypochlorite solution daily.
10. The HCW, Housekeeping staff handling the COVID-19 BMW shall wear appropriate PPE at all times, including: triple layer mask, splash proof aprons / gowns, Nitrile gloves, gum boots, safety goggles and cap
11. Quarantine facility for suspected COVID patients: Treat the routine waste as general solid waste and dispose to local municipal as per SWM rule, 2016. Only biomedical waste which is expected to be little quantity should be collected and handed over to authorized waste collectors engaged by local bodies.
12. PPE disposal:
 - o Gloves, plastic apron, goggles - Red
 - o Non-plastic items such as Mask, gown, cap, shoe cover- Yellow bag



Chapter 12: Chemoprophylaxis Policy for Healthcare Workers

(Based on advisory from ICMR on the use of Hydroxychloroquine [HCQ] as Prophylaxis for COVID-19 Infection)

Chemoprophylaxis policy shall be provided to high risk population of HCW which includes:

1. **Asymptomatic Healthcare workers involved in the care of suspected or confirmed cases of COVID-19**
2. **Asymptomatic household contacts of laboratory confirmed cases**

The Following aspects must be followed by all HCW involved in direct care of COVID-19 positive patients:

1. All HCW must strictly follow Hand Hygiene, Touch and Respiratory Etiquettes including maintaining a 1 meter distance
2. All HCW need to self-monitor their health and must report to health authority if they become symptomatic
3. All HCW under high risk, who have been exposed and on chemoprophylaxis must remain under active quarantine while on work and under passive quarantine while off duty
4. HCQ must be issued by a registered medical practitioner and contraindications and adverse drug events (ADE) must be clearly explained
5. If the HCW experiences any symptoms besides Fever, Dry Cough, Dyspnoea, he should report to the practitioner who prescribed the drug

Dose of HCQ:

1. Asymptomatic HCW in the care of suspected or confirmed case of COVID-19: 400mg twice a day on Day 01, Followed by 400 mg once weekly for next 7 weeks; To be taken with meals
2. Asymptomatic Household contacts of laboratory confirmed case: 400 mg twice a day on Day 01 followed by 400 mg once weekly for next 3 weeks; To be taken with meals

Exclusion Criteria:

- The drug is not recommended for prophylaxis in children under 15 years of age
- The drug is contraindicated in persons with known case of retinopathy, known hypersensitivity to HCQ and 4 Aminoquinolone compounds

The HCW is advised to read the advisory given by the National Task Force on COVID-19 on HCQ use as prophylaxis



Chapter 13: Patient Movement, Screening, Isolation, Quarantine and Triaging Policy

SSPH PGTI has identified a separate triage and holding area for patients with Influenza like Illness (ILI). The Patient Care and Logistic Squads have been positioned at various areas in the Reception Hall at the Entrance of SSPH PGTI and in the Emergency Triage Area and are composed of the following teams, vide [Office Order SSPHPGTI, Noida/Dir/44/2020 dated 25th March 2020](#):

Team 1: Enquiry and Patient Movement, positioned at the main entrance to answer patient query and direct the patient movements

Team 2: Fever and Sickness Desk would screen the patients for possible COVID-19 infection with Influenza like Illness (ILI), Non COVID-19 medical / surgical emergency, direct them to Triage and manage OPD services

Team 3: Triage and Emergency Area for managing emergencies sent by Team 2

Team 4: Shall be stationed in the COVID-19 Isolation / Quarantine ward

Team 5: Shall manage all In Patients in Triage, Wards and Emergency

Isolation and Quarantine / COVID19 Ward: Located on the 4th Floor of the Hospital Building

All suspected patients with ILI or Severe Acute Respiratory Illness (SARI), sent by Team 2 shall be brought up on the 4th floor via lift no 8, which shall open only on ground floor and 4th floor and not any other floor. Similarly all Doctors shall use lift No 2 that shall also open only on ground floor and 4th floor and not any other floor. All Nursing staff will be using Lift No 12 and the end of Zone 1 on 4th Floor. The Isolation and Quarantine / COVID19 Ward located on the 4th Floor has the following areas for Patients:

1. **Screening Room:** Patients suspected with ILI / SARI are screened and samples are drawn by competent HCW wearing full PPE with N95 respirator
2. Isolation Room with Pending Reports: All SYMPTOMATIC patients shall be housed separately in these rooms and shall be relocated depending on their reports:
 - a. If a Symptomatic patient is found POSITIVE, that room shall be labelled as **Isolation Room COVID-19 Positive**. The patient shall not be moved. If the need may be more than two COVID-19 positive patients can be kept in the same room
 - b. A Previously KNOWN POSITIVE patient shall directly go into isolation and his room labelled as **Isolation Room COVID-19 Positive**
 - c. If a Symptomatic patient is found NEGATIVE for two samples taken >24 hours apart, he shall be housed in an **Isolation Room Labelled COVID19 Negative**, alone and treated for Possible Community Acquired pneumonia as per protocol
3. Quarantine Rooms: Shall house All ASYMPTOMATIC people who
 - Have been exposed to a confirmed or suspected positive patient, or
 - Have been exposed to large public gatherings or
 - Have had a history of international travel



Chapter 14: Security of the COVID-19 Ward

Former Army Personnel from Uttar Pradesh Poorva Sainik Kalyan Samiti (UPPSKS) must be stationed for maintaining security of the patients and the stationed HCW.

- One guard to be stationed outside the ward who shall wear a surgical mask and monitor in and out movement towards lift no 2.
- One guard to be stationed inside the ward near the Isolation Rooms, who shall wear full PPE and monitor in and out movement towards lift no 8.

The Supervisor and the Guards shall ensure that:

1. There is 24 hours manning of the post of the quarantine facility.
2. The guard manning the area must be trained and instructed to wear appropriate PPE (mentioned above) during the duty period.
3. Instructions for infection control measures like hand hygiene etc. should be properly briefed.
4. The guard shall monitor Doctors / Nursing staff / supporting staff / other entering the quarantine area should perform HH before and after entering the Isolation / Quarantine ward.
5. They give signal to people to not come near the quarantine facility if they do not have any purpose to visit the Quarantine facility.
6. He should report immediately to the Security Supervisor controlling the security of the quarantine facility, if anybody does not follow the instructions as directed.
7. The security personnel should not leave only after completing his shift and handing over to the reliever



Chapter 15: Policy for Healthcare Workers going on Quarantine

(Based on Quarantine Advisory from DGME, UP Govt dated 4th April 2020)

Health care workers closely involved in the management of COVID-19 positive cases are at risk of contracting the infection and may either:

- Remain Healthy and Asymptomatic without viral shedding, or become
- Healthy Asymptomatic Carriers with viral shedding and therefore may transmit infection to their family members and community, or become
- Symptomatic Carriers of the infection, or become
- Symptomatic due to infections caused by other respiratory pathogens

Therefore under ideal circumstances:

- All HCW closely involved in the management of COVID-19 positive cases should ideally be living under Active Self Quarantine, as soon as they are posted at the Isolation / Quarantine ward and after completing the roster of duties for 14 days, they must remain under self-i.e. Passive Quarantine for further 14 days, i.e. total 28 days.
- All HCW closely involved in the management of COVID-19 positive patients shall be provided with Chemoprophylaxis with Hydroxychloroquine according to ICMR advisory
- According to ICMR revised strategy of COVID-19 testing in India dated 20th March 2020, **Asymptomatic direct and high-risk contacts of a confirmed case should be tested once between day 5 and day 14 of coming in his/her contact.**
- Therefore, All HCW working in close contact or exposed to positive or suspected positive patients or working in patient areas positive for COVID-19 shall undergo testing on day 7 and day 14, considering day 0 as the first day of contact.

However, Quarantine policy document for the Health Care Workers (HCWs) working in COVID Hospital/Ward on the following pages shall be applicable at SSPH PGTI

(Please Turn Over)



**Office of Director General Medical Education
6th Floor Jawahar Bhawan Lucknow UP**

**Quarantine policy document for the Health Care Workers (HCWs)
working in COVID Hospital/Ward**

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Reference documents

The following documents were reviewed by the quarantine committee while preparing the draft

1. Infection prevention and control during health care when COVID-19 is suspected; Interim Guidance by World Health Organization (WHO), dated 19th March 2020 (Annexure I)
2. Considerations for quarantine of individuals in the context of containment for Coronavirus disease (COVID-19); Interim Guidance by World Health Organization (WHO), dated 19th March 2020 (Annexure I)
3. Risk assessment and management of exposure of health care workers in the context of COVID-19; Interim Guidance by World Health Organization (WHO), dated 19th March 2020 (Annexure III)
4. Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease (COVID-19); Center for Disease Control and Prevention, USA, dated 7th March 2020 (accessed from <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html> on 2nd April 2020) (Annex_IV).
5. Guidelines for Quarantine facilities COVID-19; National Center for Disease Control (NCDC), MoHFW, New Delhi (Annex_V)
6. COVID-19: Guidelines for Setting up Isolation Facility/Ward; National Center for Disease Control (NCDC), MoHFW, New Delhi (Annex_VI)
7. COVID-19: The updated case definitions and contact-categorisation; National Center for Disease Control (NCDC), MoHFW, New Delhi (Annex_VII)



Quarantine versus Isolation

Isolation refers to separation of individuals **who are ill** and suspected or confirmed to have COVID-19 infection.

Quarantine refers to separation of individuals **who are not yet ill but have been exposed** to COVID-19 and therefore have a potential to become ill.

The purpose of quarantine during the current outbreak is to reduce transmission by

1. Separating contacts of COVID-19 patients from community
2. Monitoring contacts for development of sign and symptoms of COVID-19
3. Segregation of COVID-19 suspects, as early as possible from among other quarantined persons

Suggested facilities for quarantine

1. There will be voluntary home quarantine of contacts of suspect /confirmed cases. When home quarantine is chosen, the person should occupy a well-ventilated single room, or if a single room is not available, maintain a distance of at least 1 meter from other household members, minimize the use of shared spaces and cutlery, and ensure that shared spaces (such as the kitchen and bathroom) are well ventilated.
2. Community based quarantine which could include Rooms/Dormitory which are (i) separated from one another (ii) may be preferable with in-house capacity of 5-10 beds/room and (iii) each bed to be separated 1-2 meters (minimum 1 metre) apart from all sides.



Indications for quarantine

All the contacts, regardless of their risk of exposure, shall be advised for quarantine

Duration of quarantine

Total duration of 14 days from the last exposure

Covid-19 testing of those on quarantine

All those on quarantine shall be tested for Covid-19 twice; once at the start of quarantine and second time at just before the completion of 14 days of quarantine period.

SSPH PGTI COVID-19



Definition of contacts

In a health care setting, a contact is a person that is involved in any of the following

1. Providing direct care **without proper personal protective equipment (PPE)** for COVID-19 patients
2. Staying in the same close environment of a COVID-19 patient (including workplace)
3. Traveling together in close proximity (1 m) with a symptomatic person who later tested positive for COVID-19 (such as porter and ambulance workers)

Contacts are categorized as high-risk or low-risk contact

High Risk Contact

1. Touched body fluids of the patient (Respiratory tract secretions, blood, vomit, saliva, urine, faeces)
2. Had direct physical contact with the body of the patient including physical examination **without PPE**
3. Exposure to an aerosol-generating procedure to a patient **without PPE**
4. **PPE not removed or replaced according to guideline** during the patient interaction or exposure to an aerosol-generating procedure
5. Touched or cleaned the linens, clothes, or dishes of the patient
6. Lives in the same household as the patient
7. Anyone in close proximity (within 3 ft) of the confirmed case without precautions

Low Risk Contact

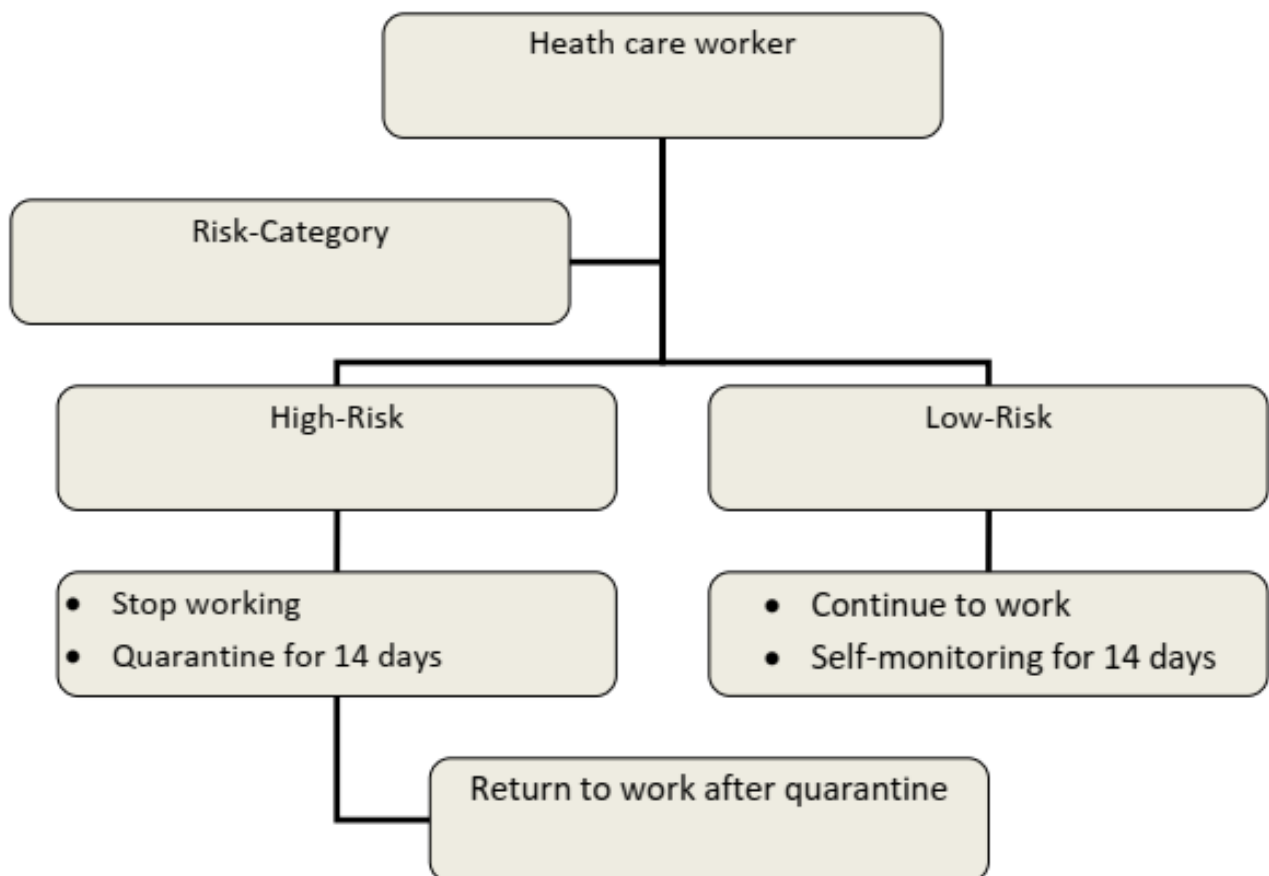
1. Shared the same space (worked in same room and not having a high risk exposure to confirmed or suspect case of COVID-19)



WHO's Quarantine recommendation for Health Care Workers (HCWs)

HCWs refers to all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials, including body substances; contaminated medical supplies, devices, and equipment; contaminated environmental surfaces; or contaminated air. HCP does not include clinical laboratory personnel.

Flow chart showing WHO's recommendation for quarantine of HCWs



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Quarantine recommendation for Health Care Workers (HCWs)

Definition of HCWs

The HCWs will include as follows (i) Doctors (ii) Nurses (iii) Radiology technician (iv) Dietician (v) Physiotherapist (vi) Pharamacist (vii) Laboratory personnel (viii) Medical social workers (ix) Hospital attendents (x) Cleaners and other safai karmchari (xi) Catering and kitchen staff who are involved in delivering food to the patient area

Risk categories

All the HCWs will be categorized as High-Risk or Low-Risk category as defined below

High-risk category

1. All HCWs working in ICUs in any area in COVID hospital
2. HCWs involved in performance of aerosol generating procedures such as
 - a) Endotracheal intubation or extubation
 - b) Cardio-pulmonary resuscitation (CPR)
 - c) Application of non-invasive ventilation (NIV) or open air-way suctioning
 - d) Bronchoscopy or tracheostomy
 - e) Nasopharyngeal swab or Sputum or Broncho-alveolar fluid specimen collection
3. Any protected contact of more than 15 minutes and at a distance less than 2 meters from a suspected or confirmed case
4. Any unprotected exposure to suspected or confirmed case
5. Laundry workers
6. Waste disposal staff
7. Sanitary staff
8. If any of the staff feels that there was a breach in personal protection during the entire duration of exposure while working in Covid hospital
9. Any HCW who became symptomatic during the seven days work



Low risk category

1. A protected or unprotected exposure of less than 15 minutes
2. A protected exposure with a distance less than 2 meters and duration less than 15 minutes such as
 - a) X-ray technician
 - b) Porters involved in patient transport
 - c) Kitchen staff
 - d) Registration counter staff
 - e) Security personnel
 - f) Data entry operator
 - g) Those involved in sample transport
3. Protected HCWs involved in non-ICU setting

Active quarantine (Stay during duty days)

All the HCWs, while on duty for seven days, will be mandatorily staying in in-house quarantine.

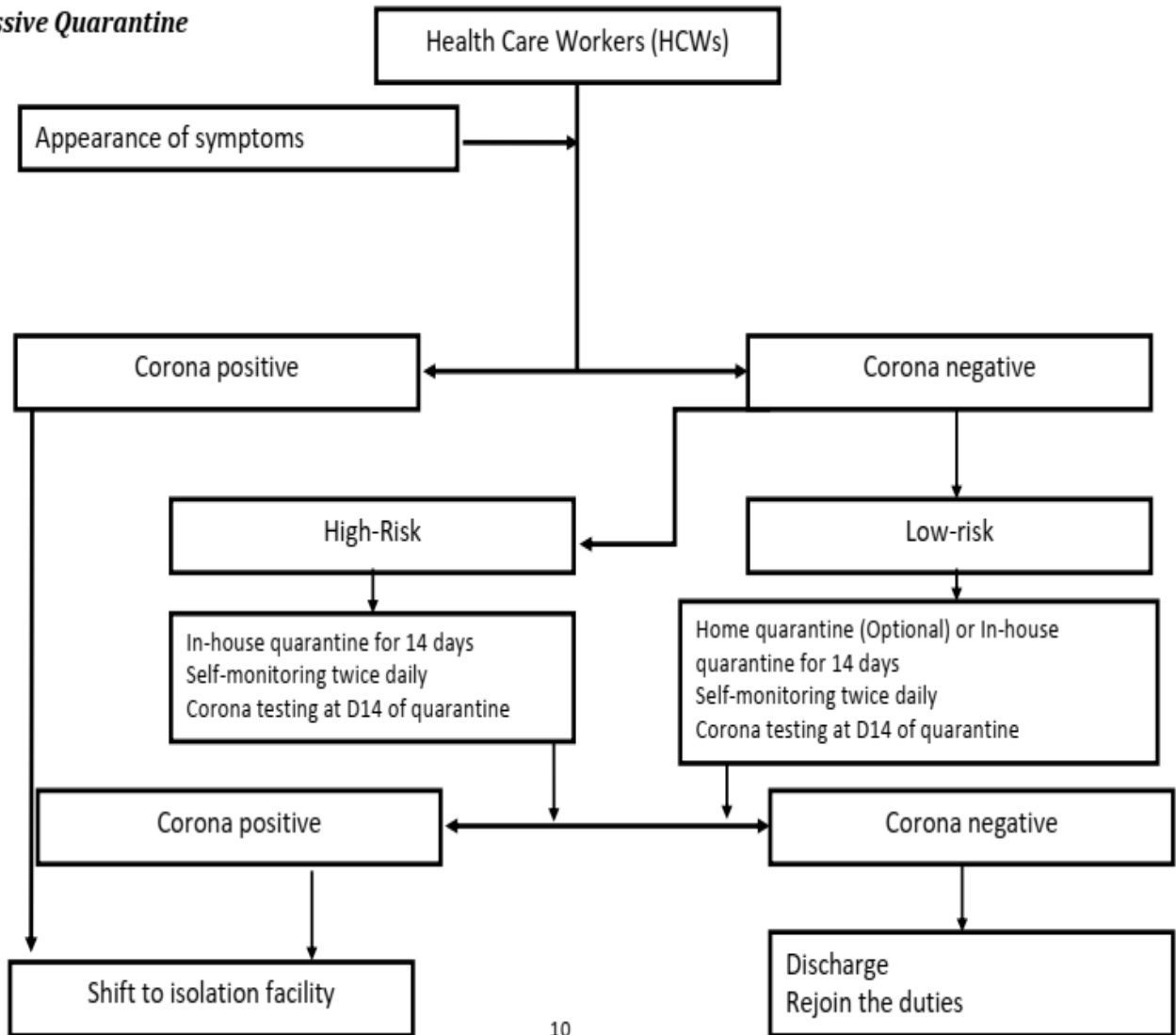
Determination of the risk category of the HCWs

The nodal office, Covid hospital, will assign the responsibility to a nodal person for determining the risk categorization for each of the HCWs who is completing their duties and are planned for passive quarantine.

The risk categorization will be informed to the HCWs as well as the quarantine committee in writing in duplicate.



Passive Quarantine





Guidelines for Home quarantine

Home quarantine will mean that the HCW will be staying in his/her home. A HCW will be permitted for home quarantine only if following criteria are fulfilled

1. There shall be uninterrupted 24x7 supply to food and water
2. He/she shall have a separate room with attached toilet
3. The room, used by the HCW, shall not be shared by other family members
4. There shall be no sharing of utensil and linen between the quarantined HCW and other family members
5. The HCW shall be able and agree to monitor for symptoms (fever, cough, breathing difficulty) twice daily
6. Discard all the disposable material in the hospital
7. Remove shoes and maximum possible cloths outside your house or in an isolated area at home
8. Keep bag packs and hospital stuff in a separate or dedicated area
9. Take bath immediately after entering the house
10. Change your remaining clothes and discard them in the laundry for **separate** cleaning
11. Maintain the minimum distance of one meter (3 feet) from other family members
12. Maintain standard hygiene practices and respiratory etiquettes.
13. Stay away from children and elderly family members

In-house quarantine

In house quarantine means the quarantine facility developed and provided by the institute at various places.

Rules for the utilization of quarantine facilities in a facility

1. All the HCWs, regardless of their risk category and level of work, will preferably be accommodated in single accommodation if facilities are available
2. In condition of logistic problems or limited accommodation facilities, those with high-risk category will be given preference for single accommodation and those with low-risk category will be accommodated on sharing basis
3. The sharing, if needed, will be done between 2-4 personnel depending upon the accommodation facility

All the quarantine guideline, as proposed by the institute, will be reviewed at regular intervals and will be updated with appropriate changes. These changes will be guided by the availability of new knowledge, disease burden, national and international policies for covid prevention and control, and resources available to us.



Chapter 16: Policy for Return to Work for Healthcare Worker

This policy is based on Criteria for Return to Work for Healthcare Personnel with Confirmed or Suspected COVID-19 provided as Interim Guidance from Centres of Disease Control

This policy is for the Competent Authority (Reporting Officer) for making decisions about return to work for healthcare workers (HCW) with confirmed COVID-19, or who have suspected COVID-19 (e.g., developed symptoms of a respiratory infection [e.g., cough, sore throat, shortness of breath, fever] but did not get tested for COVID-19).

Options include a test-based strategy or a non-test-based strategy (i.e., time-since-illness-onset and time since-recovery strategy). Use one of the below strategies to determine when HCW may return to work in healthcare settings:

1. **Test-based Strategy:** Exclude from work until there is:
 - a. Resolution of fever without the use of fever-reducing medications **AND**
 - b. Improvement in respiratory symptoms (e.g., cough, shortness of breath) **AND**
 - c. Negative results of an ICMR Authorized molecular assay for COVID-19 from at least two consecutive nasopharyngeal swab specimens collected ≥ 24 hours apart (total of two negative specimens)
2. **Non-test-based Strategy:** Exclude from work until
 - a. At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever reducing medications **AND**
 - b. Improvement in respiratory symptoms (e.g., cough, shortness of breath) **AND**
 - c. At least 7 days have passed since symptoms first appeared

Return to Work Practices and Work Restrictions: After returning to work, HCP should:

1. Wear a facemask at all times while in the healthcare facility until all symptoms are completely resolved **OR** until 14 days after illness onset, whichever is longer
2. Be restricted from contact with severely immunocompromised patients (e.g., transplant, hematology-oncology) until 14 days after illness onset
3. Adhere to hand hygiene, respiratory and touch hygiene, and cough etiquette i.e. cover nose and mouth when coughing or sneezing with disposable tissues or cover with elbow or shoulder
4. Monitor himself for symptoms, and seek re-evaluation from occupational health if respiratory symptoms recur or worsen



Chapter 17: Specimen Collection, Packaging and Transport Guidelines for 2019 novel Coronavirus (2019-nCoV)

Responsibilities:

- The clinician should decide necessity for collection of clinical specimens for laboratory testing of 2019-nCoV only after following the case definition as given by the health authorities, Government of India.
- Appropriate clinical sample need to be collected by laboratory personnel / health care worker trained in specimen collection in presence of clinician.
- By following all biosafety precautions and using personal protective equipment's (PPEs), clinical samples need to be sent to designated laboratory (ICMR-NIV, Pune) by following standard triple packaging.

Specimen collection details:

(Adapted from the WHO guidelines on 2019-nCoV):

Specimen type	Collection materials	Transport to laboratory	Storage till testing	Comment
# Nasopharyngeal AND oropharyngeal swab	Dacron or polyester flocced swabs*	4 °C	≤5 days: 4 °C >5 days: -70 °C	The nasopharyngeal and oropharyngeal swabs should be placed in the same tube to increase the viral load.
Bronchoalveolar lavage	Sterile container*	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	There may be some dilution of pathogen, but still a worthwhile specimen
Tracheal aspirate, nasopharyngeal aspirate or nasal wash	Sterile container*	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	Not applicable
Sputum	Sterile container	4 °C	≤48 hours: 4 °C >48 hours: -70 °C	Ensure the material is from the lower respiratory tract
Tissue from biopsy or autopsy including from lung	sterile container with saline	4 °C	≤24 hours: 4 °C >24 hours: -70 °C	Autopsy sample collection preferably to be avoided
# Serum (2 samples – acute and convalescent)	Serum separator tubes (adults: collect 3-5 ml whole blood)	4 °C	≤5 days: 4 °C >5 days: -70 °C	Collect paired samples: • acute – first week of illness • convalescent – 2 to 3 weeks later
# Whole Blood (5 ml)	Blood in EDTA Vial	4 °C	≤5 days: 4 °C	Not applicable

*For transport of samples for viral detection, use VTM (viral transport medium) containing antifungal and antibiotic supplements. Avoid repeated freezing and thawing of specimens. # **Priority specimens** . Other specimens need to be sent as per the clinical condition of the patient.



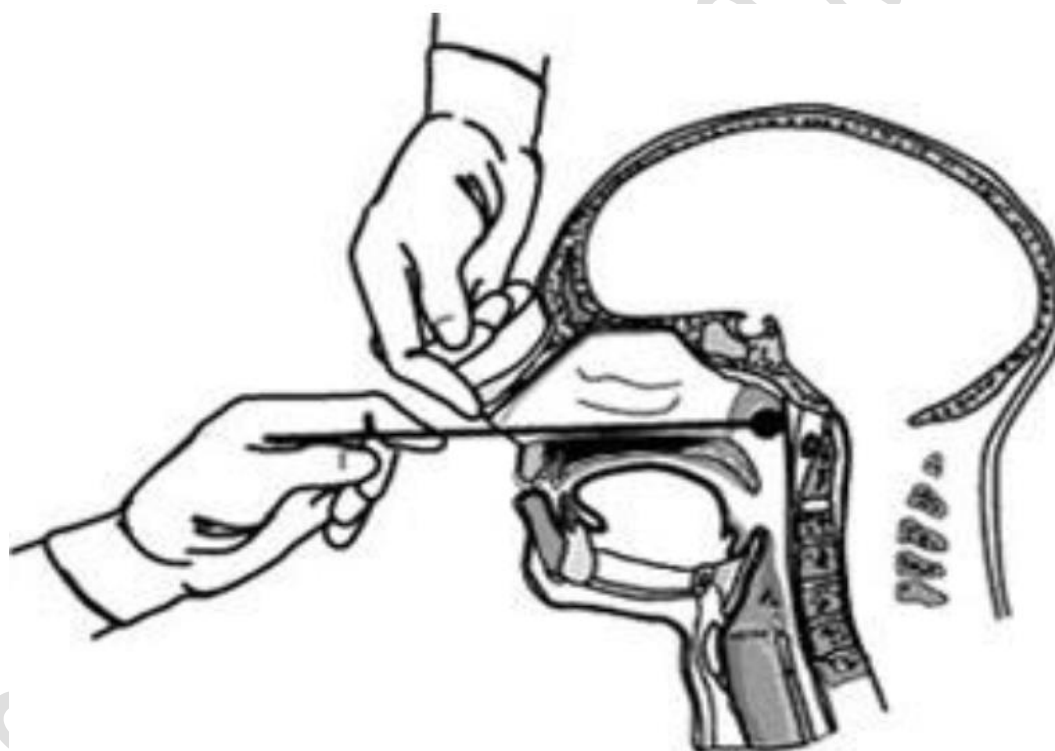
Collection of Diagnostic Respiratory Specimens (CDC)

When collecting diagnostic respiratory specimens (e.g., nasopharyngeal swab) from a possible COVID-19 patient, the following should be observed:

1. HCW collecting the sample in the room should wear an N-95 or higher-level respirator (or facemask if a respirator is not available), eye protection, gloves, and a gown.
2. The number of HCW present during the procedure should be limited to only those essential for patient care and procedure support. Visitors should not be present for specimen collection.
3. Specimen collection should be performed in a normal examination room with the door closed.
4. Clean and disinfect procedure room surfaces promptly as described in the section on environmental infection control below

1) **Nasopharyngeal specimen: (CDC recommended specimen type)**

- Use the flexible shaft NP swab provided to collect the specimen.
- Have the patient blow their nose and then check for obstructions.
- Tilt the patient's head back 70 degrees & insert the swab into nostril parallel to the palate (not upwards) until resistance is encountered or the distance is equivalent to that from nostrils to outer opening of patient's ear indicating contact with nasopharynx. Leave swab in place for several seconds to absorb secretions. Slowly remove the swab while rotating it.



- Insert the swab into the tube of VTM, making certain that the swab tip is covered by the liquid in the tube. The swab is to remain in the tube for transport.
 - **Plastic shaft NP swab:** The swab shaft extends past the top of the tube. Snap off at the break line on the shaft, allowing the end with the swab tip to remain in the liquid. The tip of the swab must be immersed in the liquid.
 - **Wire shaft swab:** cut the upper end of the wire with clean scissors so that it is even or below the top of the vial, allowing the end with the swab tip to remain in the liquid.

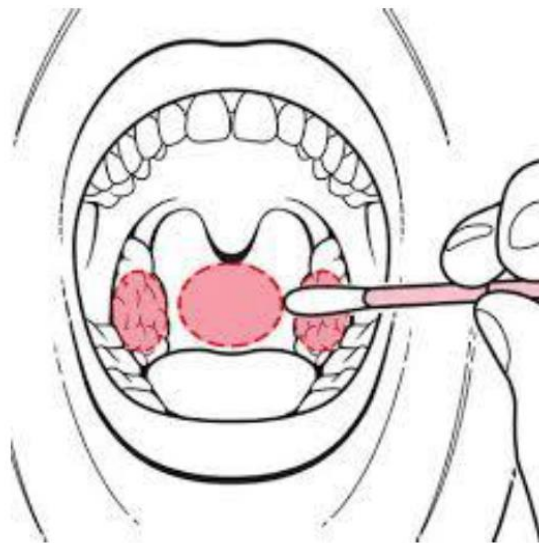


2) Throat specimen (Oropharyngeal swab [OP]):

- Use a throat swab to collect specimen by swabbing the patient's posterior pharynx and tonsillar area (avoid the tongue).
- Insert the swab into the vial of VTM. If the swab shaft extends past the top of the tube, clip it so that the top of the swab shaft is just below the top of the tube allowing the end with the swab tip to remain in the liquid. The swab tip must be immersed in the liquid.

If nasopharyngeal specimen cannot be collected due to inability to procure np swabs, a throat swab can be sent as an alternative specimen.

NOTE: Throat swab tips must be synthetic (ex: polyester, rayon, or dacron). Cotton or calcium alginate tipped, or wooden shaft swabs are unacceptable








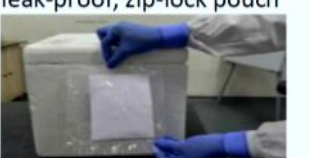
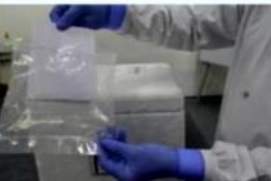

Specimen labelling and processing:

- Personal protective equipment's (apron, hand gloves, face shield, N95 Masks etc.) need to be used and all biosafety precautions should be followed so as to protect individuals and the environment.
- Proper labelling (name/age/gender/specimen ID) need to be done on specimen container and other details of sender (name/address/phone number) on the outer container by mentioning "To be tested for 2019-nCoV"

Requirements for Clinical Samples Collection, Packaging and Transport

<p>1. Sample vials and Virus Transport Medium (VTM)</p> 	<p>2. Adsorbent material (cotton, tissue paper), paraffin, seizer, cello tape</p> 	<p>3. A leak-proof secondary container (e.g., ziplock pouch, cryobox, 50 mL centrifuge tube, plastic container)</p> 
<p>4. Hard-frozen Gel Packs</p> 	<p>5. A suitable outer container (e.g., thermocol box, ice-box, hard-board box) (minimum dimensions: 10 x 10 x 10 cm)</p> 	

Procedure for Specimen Packaging and Transport

<p>1. Use PPE while handling specimen</p> 	<p>2. Seal the neck of the sample vials using parafilm</p> 	<p>3. Cover the sample vials using adsorbent material</p> 	<p>4. Arrange primary container (vial) in secondary container</p> 
<p>5. Placing the centrifuge tube inside a zip-lock pouch</p> 	<p>6. Placing the zip-lock pouch inside a sturdy plastic container and seal the neck of the container</p> 	<p><i>Note: Sample vials can also be placed inside a zip-lock pouch, covered in absorbent material and secured by heat-sealing or rubber bands. Then, the zip-lock pouch should be placed inside another plastic pouch and secured</i></p>	<p>7. Using a thermocol box as an outer container and placing the secondary container within it, surrounded by hard-frozen gel packs</p> 
<p>7. Using a hard card-board box as an outer container and placing the secondary container and the gel packs</p> 	<p>8. Placing the completed Specimen Referral Form (available on www.niv.co.in) and request letter inside a leak-proof, zip-lock pouch</p> 	<p>9. Securing the zip-lock pouch with the Specimen Referral Form on the outer container</p> 	<p>10. Attaching the labels:</p> <ul style="list-style-type: none"> • Senders' address, contact number; Consignee's address/contact number; • Biological substance-Category B; • 'UN 3373'; Orientation label, Handle with care 

Documents to accompany:

1) Packaging list/proforma Invoice 2) Air way bill (for air transport) (to be prepared by sender or shipper) 3) Value equivalence document (for road/rail/sea transport) [Note: 1. A vaccine-carrier/ice-box can also be used as an outer container 2. The minimum dimensions of the outer container should be 10 x 10 x 10 cm (length x width x height)]

Routing of samples:

- Clinical specimens, official documents and Specimen request forms for testing of 2019-nCoV need to be sent to the ICMR-NIV address (The Director, ICMR-National Institute of Virology, 20-A, Dr Ambedkar Road, Pune, Maharashtra, Pin: 411001).
- For shipment-related queries/information, kindly contact Dr Sumit Bharadwaj (Scientist B, Influenza Group) on email: sumitduttbhardwaj@gmail.com, phone 020-26006290/26006390



Chapter 18: Post Mortem Infection Control Practices for COVID-19

(Based on MOHFW Guidelines on Dead Body Management for death due to COVID-19)

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

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

1. Hand hygiene with soap and water or Alcohol Based Hand Rub
2. Use of PPE (e.g., water resistant apron, gloves, masks, eyewear).
3. Safe handling of sharps.
4. Disinfect bag housing dead body; instruments and devices used on the patient.
5. Disinfect linen.
6. Clean and disinfect environmental surfaces.

Note: All staff identified to handle dead bodies in the isolation area, mortuary, ambulance and those workers in the crematorium / burial ground must follow infection prevention control practices.

Removal of the body from the isolation room or area

1. The health worker attending to the dead body should perform hand hygiene and ensure proper use of PPE (water resistant apron, goggles, N95 mask, gloves).
2. All tubes, drains and catheters on the dead body should be removed.
3. Any puncture holes or wounds (resulting from removal of catheter, drains, tubes, or otherwise) should be disinfected with 1% hypochlorite and dressed with impermeable material.
4. Nostrils, Ear, Anus and Vagina should be plugged with cotton soaked in 1% Hypochlorite
5. Apply caution while handling sharps such as intravenous catheters and other sharp devices. They should be disposed into a sharps container.
6. If the family of the patient wishes to view the body at the time of removal from the isolation room or area, they may be allowed to do so with the application of Standard Precautions.
7. Place the body in leak-proof plastic body bag. The exterior of the body bag can be decontaminated with 1% hypochlorite. The body bag can be wrapped with a mortuary sheet or sheet provided by the family members.
8. The body will be either handed over to the relatives or taken to mortuary.
9. All used/ soiled linen should be handled with standard precautions, put in biohazard bag and the outer surface of the bag disinfected with hypochlorite solution.
10. Used equipment should be autoclaved or decontaminated with disinfectant solutions in accordance with established infection prevention control practices.
11. All medical waste must be handled and disposed of in accordance with BMW rules.
12. The health staff who handled the body must carefully remove PPE and shall perform hand hygiene.
13. Provide counselling to the family members and respect their sentiments.

Environmental cleaning and disinfection

1. All surfaces of the isolation area (floors, bed, railings, side tables, IV stand, etc.) should be wiped with 1% Sodium Hypochlorite solution; allow a contact time of 30 minutes, and then allowed to air dry.



Handling of Dead Body in Mortuary

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

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

1. The Team should be well trained in infection prevention control practices.
2. The number of forensic experts and support staff in the autopsy room should be limited.
3. The Team should use full complement of PPE (coveralls, head cover, shoe cover, N 95 mask, goggles / face shield).
4. Round ended scissors should be used
5. PM40 or any other heavy duty blades with blunted points to be used to reduce prick injuries
6. Only one body cavity at a time should be dissected
7. Unfixed organs must be held firm on the table and sliced with a sponge – care should be taken to protect the hand
8. Negative pressure to be maintained in mortuary. An oscillator saw with suction extraction of the bone aerosol into a removable chamber should be used for sawing skull, otherwise a hand saw with a chain-mail glove may be used
9. Needles should not be re-sheathed after fluid sampling – needles and syringes should be placed in a sharps bucket.
10. Reduce aerosol generation during autopsy using appropriate techniques especially while handling lung tissue.
11. After the procedure, body should be disinfected with 1% Sodium Hypochlorite and placed in a body bag, the exterior of which will again be decontaminated with 1% Sodium Hypochlorite solution.
12. The body thereafter can be handed over to the relatives.
13. Autopsy table to be disinfected as per standard protocol.

Transportation

- The body, secured in a body bag, exterior of which is decontaminated poses no additional risk to the staff transporting the dead body.
- The personnel handling the body may follow standard precautions (surgical mask, gloves).
- The vehicle, after the transfer of the body to cremation/ burial staff, will be decontaminated with 1% Sodium Hypochlorite.

At the crematorium/ Burial Ground

- The Crematorium/ burial Ground staff should be sensitized that COVID 19 does not pose additional risk.
- The staff will practice standard precautions of hand hygiene, use of masks and gloves.
- Viewing of the dead body by unzipping the face end of the body bag (by the staff using standard precautions) may be allowed, for the relatives to see the body for one last time.
- Religious rituals and any other last rites that does not require touching of the body can be allowed.
- Bathing, kissing, hugging, etc. of the dead body should not be allowed.



SSPH PGTI: H.I.C.
Infection Prevention & Control S.O.P. COVID-19

The funeral/ burial staff and family members should perform hand hygiene after cremation/ burial.

- The ash does not pose any risk and can be collected to perform the last rites.
- Large gathering at the crematorium/ burial ground should be avoided as a social distancing measure as it is possible that close family contacts may be symptomatic and/ or shedding the virus.

SSPH PGTI COVID19 Manual



Chapter 19 Prevention and Control of COVID Associated Mucormycosis (CAM or Rhino – Orbital Mucormycosis in COVID19 Patients)

Risk factors for CAM or Rhino – Orbital Mucormycosis in COVID19 Patients

1. Hot and Humid Conditions and Non – Observance and non-compliance of hospital infection prevention and control protocols, like Hand Hygiene and Contact Precautions
2. Patients of
 - a. Steroids or Voriconazole Therapy
 - b. Diabetics, Smoking, COPD etc
 - c. Neutropenia
 - d. Immunocompromised
3. Unhygienic Mask and Nasal Cannula Handling
4. Patients on Long Term High Flow Oxygen especially HFNC with high flow oxygen
5. Use of tap water in Oxygen Humidifiers (Cylinders and Oxygen Concentrators)
6. General Uncleanliness and Lack of Frequent Hand Hygiene

Prevention of CAM in the Hospital

1. Environmental Intervention:
 - a. All walls, roof must be dust and mold free.
 - b. Keep the hospital environment free from water logging in any of the area, to be ensured by Jr Engg (Civil)
 - c. All AHU and AC Vents must be cleaned and filters changed / cleaned as per inspection by Jr Engg (Elec) and must ensure at least 12 Air Changes / Hour.
 - d. Construction work should not be done where COVID patients are admitted
2. Intervention on Patient and HCW
 - a. All HCW to STRICTLY practice follow and preach WHO YOUR 5 MOMENTS OF HAND HYGIENE ALL THE TIME
 - b. All patients to ensure wearing N95 masks (when not on oxygen) ALL THE TIME
 - c. Nursing staff to ensure that all the patients must maintain good personal hygiene
3. Intervention on Equipment's and Medical Devices
 - a. ICNs and patient attendants to survey humidifiers for any dirt, dust, mold, mildew, stains, or any odd odour
 - b. ICNs and patient attendants to use only sterile saline or RO water for oxygen humidifiers, which should be changed daily. Tap water should not be used.
 - c. Oxygen masks and Nasal Cannulas to be cleaned with Soap and Water daily for each patient. If the
 - d. If the Oxygen masks and Nasal Cannulas has to be used for a different patient then it should be sterilized with ETO

Prevention of CAM at Home: The after effect of steroids would not wean off before two weeks after the last dose, therefore:

1. Patient Must Continue to wear masks even after treatment even when alone at Home
2. Patient must avoid construction and dusty areas., soil and mud
3. Continue washing mask and nasal cannula with soap and water on a daily basis
4. Maintain personal hygiene and regular Hand Hygiene
5. Continue using Sterile Saline or RO water in Humidifiers

MANAGEMENT AS PER ICMR AND FUNGAL INFECTION STUDY FORUM & UP GOVT GUIDELINES (ATTACHED)

TARGETTED ENVIORNMENTAL CHECKLIST TO PREVENT POST - COVID INVASIVE FUNGAL INFECTIONS (AS PER CDC PROTOCOL, ATTACHED)

COVID-19-associated mucormycosis (CAM)

Since the onset of the COVID 19 pandemic there have been multiple reports across country of very high incidence of mucormycosis among patients with COVID 19 especially in those who are diabetic and those who have received steroids.

COVID-associated mucormycosis (CAM) has been associated with high morbidity and mortality, exorbitant treatment costs and has led to shortage of antifungal drugs.

Fungal Infection Study Forum (FISF) recommendation

<http://www.fisftrust.org>

When and how to suspect CAM

- **Patients with Covid-19 illness (active/recovering/post-discharge) – common presentation: rhino-orbito-cerebral mucormycosis (ROCM)**
 - Initially – nasal blockage or congestion, nasal discharge (bloody or brown/black), local pain
 - Facial pain or numbness or swelling
 - Headache, orbital pain
 - Toothache, loosening of maxillary teeth, jaw involvement
 - Blurred or double vision with pain; paresthesia, fever, skin lesion, thrombosis & necrosis (eschar)
- **Pulmonary mucormycosis:**
 - Fever, cough, chest pain, pleural effusion, hemoptysis, worsening of respiratory symptoms
 - Lung CT – confused with COVID-related shadows; suspect mucormycosis in patients with thick-walled lung cavity (need to differentiate from covid-associated pulmonary aspergillosis), reverse halo sign, multiple nodules, pleural effusion
 - Repeated negative galactomannan & beta-glucan tests

Treatment of CAM

Team approach is required with infectious disease specialist, microbiologist, histopathologist, intensivist, neurologist, ENT specialist, ophthalmologist, dentist, surgeons, radiologists etc.

1. Control of diabetes & diabetic ketoacidosis
2. Reduce steroids (if patient is still on) with aim to discontinue rapidly
3. Discontinue other immunomodulating drugs if patient is taking like: Baricitinib, Tofacitinib
4. Surgical debridement: Extensive, to remove all necrotic material; if eye involved, exenteration of eye; in pulmonary, if the lesion is localized or in one lobe.
5. Medical treatment
 - a. Insert peripherally inserted central catheter (PICC line) or central venous catheter
 - b. Maintain adequate systemic hydration, infuse normal saline IV before amphotericin B infusion
 - c. Antifungal therapy
 - i. Liposomal amphotericin B (L-Amb) (preferred treatment) 5mg/kg/day, dilute in 200 cc 5% dextrose over 2-3 hours infusion (avoid slow escalation; higher dose 10mg/kg/day may be given in brain involvement)
 - ii. Amphotericin B deoxycholate (D-Amb); only if cost and availability of L-Amb is an issue; 1mg/kg/day in 5% dextrose, slow infusion for 6-8 hours. Pre-medication may be required to avoid infusion reaction
 - iii. Monitor renal function & potassium level while treating with amphotericin B
 - iv. Patients who are intolerant to amphotericin B, alternative agents are posaconazole or isavuconazole (injection/tablets)
 - v. Tab posaconazole: 300mg twice a day on first day, followed by 300mg once a day. Check posaconazole trough level after 7 days of therapy & avoid interacting drugs.
 - vi. Tab isavuconazole: 200mg three time a day for two days, followed by 200 mg once a day.
 6. Monitor patients clinically, with radio-imaging for response / disease progression & microbiologically
 7. After 3-6 weeks of amphotericin B therapy, consolidation therapy (posaconazole/isavuconazole) for 3-6 months
 8. Read global guideline on treatment of mucormycosis for further detailed information ([Lancet Infect Dis.](#) 2019; 19: e405-e421)

How to prevent this infection

- As poorly controlled diabetes is the major issue, **good glycemic control** during management of COVID 19 patients is required
- **Systemic steroids should only be used in patients with hypoxemia**
- **Oral steroids are contra indicated in patients with normal oxygen saturation on room air**
- **If systemic steroid is used, blood sugar should be monitored**
- **The dose and duration of steroid therapy should be limited to dexamethasone (0.1mg/kg/day) for 5-10 days**
- Universal masking reduce exposure to Mucorales; avoidance of construction sites
- During discharge of the patients, advice about the early symptoms or signs of mucormycosis (facial pain, nasal blockage and excessive discharge, loosening of teeth etc., chest pain, respiratory insufficiency)

How to diagnose mucormycosis:

Mucormycosis is a medical emergency even when clinically suspected.

Suspected patients should undergo appropriate **radio-imaging study:** MRI - PNS with brain contrast study for ROCM, plain CT thorax for pulmonary mucormycosis.

Rhino-orbito-cerebral

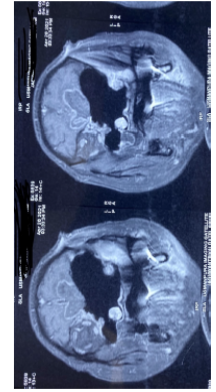
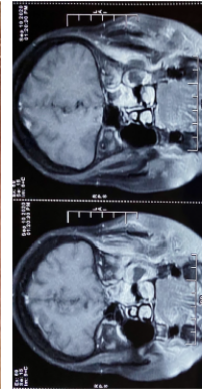
- Consult ENT surgeon for endoscopic collection of debrided tissue/biopsy – one portion in sterile saline for microscopy & culture, other portion in formal saline for histopathology

Pulmonary

- Broncho-alveolar lavage (BAL), Mini BAL, non-bronchoscopic lavage, transbronchial biopsy, CT guided biopsy from lung – process for microscopy & culture
- Chest X-ray and/ or HRCT – reverse halo sign, thick-walled cavity (need to differentiate from Covid associated pulmonary aspergillosis), multiple nodules, pleural effusion
- Repeated negative galactomannan & beta-D-glucan tests

References

1. RECOVERY Collaborative Group. Dexamethasone in Hospitalized Patients with Covid-19. *N Engl J Med.* 2021 Feb 25;384(8)
2. WHO Rapid Evidence Appraisal for COVID-19 Therapies (REACT) Working Group. . Association Between Administration of Systemic Corticosteroids and Mortality Among Critically Ill Patients With COVID-19: A Meta-analysis. *JAMA.* 2020 Oct 6;324(13):1330-1341
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3. Global guideline for the diagnosis & management of mucormycosis. *Lancet Infect Dis* 2019; 19: e405-e421



Misinformation & misleading

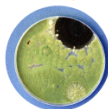
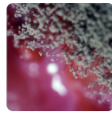
1. **Mucorales are not black fungi:** Black fungi are different category of fungi having melanin in the cell wall.
2. **Mucormycosis is not contagious.** It does not spread from one person to another.
3. Mucormycosis is not spread by oxygenation, humidifier, and water. The fungi remain in the indoor & outdoor environment. The spores enter the respiratory tract via air.
4. **No antifungal prophylaxis is recommended** as the incidence is not more than 10% in any COVID-19 cohort.

EVIDENCE BASED ADVISORY IN THE TIME OF COVID-19

(Screening, Diagnosis & Management of Mucormycosis)

Mucormycosis - if uncared for - may turn fatal

Mucormycosis is a fungal infection that mainly affects people who are on medication for other health problems that reduces their ability to fight environmental pathogens.



Sinuses or lungs of such individuals get affected after fungal spores are inhaled from the air.

This can lead to serious disease with warning sign and symptoms as follows:

- Pain and redness around eyes and/or nose
- Fever
- Headache
- Coughing
- Shortness of breath
- Bloody vomits
- Altered mental status



What predisposes

- Uncontrolled diabetes mellitus
- Immunosuppression by steroids
- Prolonged ICU stay
- Co-morbidities - post transplant/malignancy
- Voriconazole therapy

How to prevent

- Use masks if you are visiting dusty construction sites
- Wear shoes, long trousers, long sleeve shirts and gloves while handling soil (gardening), moss or manure
- Maintain personal hygiene including thorough scrub bath

When to Suspect

(in COVID-19 patients, diabetics or immunosuppressed individuals)

- Sinusitis - nasal blockade or congestion, nasal discharge (blackish/bloody), local pain on the cheek bone
- One sided facial pain, numbness or swelling
- Blackish discoloration over bridge of nose/palate
- Toothache, loosening of teeth, jaw involvement
- Blurred or double vision with pain; fever, skin lesion; thrombosis & necrosis (eschar)
- Chest pain, pleural effusion, haemoptysis, worsening of respiratory symptoms

Team Approach Works Best

- Microbiologist
- Internal Medicine Specialist
- Intensivist
- Neurologist
- ENT Specialist
- Ophthalmologist
- Dentist
- Surgeon (maxillofacial/plastic)
- Biochemist

Detailed management guideline & information available on the following

Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. Lancet Infect Dis. 2019 Dec;19(12):e405-e421. doi: 10.1016/S1473-3099(19)30312-3.

https://www.ijmr.org.in/temp/indian/MedRes1533311-3965147_110051.pdf



https://www.ijmr.org.in/temp/indian/MedRes1392195-397834_110303.pdf

Advisory developed by the following experts & National Task Force for COVID-19

- Dr. Arunabke Chakrabarti, Professor & Head, Department of Medical Microbiology, Chhatrapati Shivaji Maharaj Vastu Sangrahalaya, Mumbai
- Dr. M. Chandra Shekar, Associate Professor, Department of ENT, Dindayal Upadhyay Medical College, Rajkot
- Dr. Rajeev Soman, Consultant Infectious Disease Physician, Pune
- Dr. Prakash Shastri, Vice Chairman, Critical Care Sri Ganga Ram Hospital, New Delhi
- Dr. J. S. T. Iyadurai, Head, Dept. of Internal Medicine & Multi-disciplinary Clinical Management Group, BJ Medical College & Civil Hospital, Ahmedabad
- Dr. Gresh Parmar, Dean, Government Medical College, Rajkot
- Dr. Janak Khambhali, Professor, Dept. of Internal Medicine, Smt. NHL Municipal Medical College, Ahmedabad
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INDIAN COUNCIL OF MEDICAL RESEARCH

DEPARTMENT OF HEALTH RESEARCH
MINISTRY OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF INDIA



**TARGETTED ENVIORNMENTAL CHECKLIST TO PREVENT POST - COVID
INVASIVE FUNGAL INFECTIONS (As Per CDC Protocol)**

Ward: _____ Floor: _____ Room: _____

OBSERVATION AND VISUAL INSPECTION (To Be Done by Infection Control Nurse)

Walk Through Inspection: Doors, Windows, Ceilings, Walls Floors, Bathroom fixtures, Beds, Mattresses and Linen

	Elements to be Assessed	Notes by ICN
1	General Cleanliness	
2	Water Damage and Leaks in Plumbing	
3	Evidence of Fungal Growth (Mold, Mildew, Stains, Fungal Odour) in humid areas	
4	Lack of Maintenance	
5	ICN to educate all patients / attendants Hand Hygiene and Cleaning of Oxygen masks and Cannulas with EtOH	

Date, Name and Signature

RECENT BUILDING RECONSTRUCTION (To Be Done by Jr Engg [Civil])

	Elements to be Assessed	Notes by Jr Engg (Civil)
1	System Disruption, Maintenance and Water Shut off	
2	Internal Construction, Renovation, Demolition and Repairs	
3	Flooding of the facility with rain water or other damage to facility	
4	If Yes, then did the facility take the steps to dry out wet structural materials within 2 – 3 days?	
5	If Yes, then did the facility remove any wet structural materials that could not be dried out within 2 – 3 days?	
6	Inspection of Roof and Shaft's for water leakage	
7	Dampness of Walls Roofs and Bathrooms	

Date, Name and Signature

HEATING VENTILATION AND H.V.A.C. SYSTEM (To Be Done By Jr Engg [Elec])

	Elements to be Assessed	Notes by Jr Engg (Elec)
1	Whether HVAC Systems working	
2	If so, then Ambient Climate Control, Airflow Direction, Pressure Readings, Number of Air Changes per Hour (min 12 ACH) and Status of the Air Filters	
3	HVAC Systems: Maintenance and Repairs; Change of Filters, Filter Frame Inspection, Air duct cleaning, Air Handler Coil Maintenance, Drip Pan Maintenance and visual assessment of supply air grilles and dust accumulation	
4	Notable Events or Airflow Disturbances related to the HVAC System	
5	Relative Humidity less than 60%	

Date, Name and Signature



ENVIRONMENTAL CLEANING AND DISINFECTION (To Be Assessed by Housekeeping Supervisor)

	Elements to be Assessed	Notes by Housekeeping Supervisor
1	Cleaning done daily as per HIC Manual Protocol (April 2020)	
2	Only Wet Mopping being Done and Not Dry Broom	
3	No Permanent Wet Areas in the Hospital	
4	Disinfection Being Done Regularly with 1% Hypochlorite	
5	Common Touch surfaces being cleaned with surface disinfectants (Door handles, Phones, Keyboards, Files etc)	

Date, Name and Signature

EQUIPMENT, LAUNDRY AND MEDICAL DEVICES (To be Assessed by Staff Nurse Posted in Wards)

	Elements to be Assessed	Notes by Staff Nurse
1	Visual Inspection of all Oxygen Humidifiers for Dirt, Mold, Mildew, Stains, Fungal Growth	
2	Use of Sterile Saline in All Oxygen Humidifiers	
3	If sterile saline cannot be used then RO water being used and NOT tap water?	
4	Oxygen mask and HFNC are clean in all Non Invasive Ventilated Patients	
5	Whether masks and cannulas are being changed at least once a day and washed with soap and water for the same patient	
6	Masks and Cannulas if used for different patients have been sterilized by ETO?	
7	Hand Sanitizer bottles and tissue roll to be made available at each bedside in case the patient / attendant could / would clean the mask and cannula himself	

Date, Name and Signature



SSPH PGTI: H.I.C.
Infection Prevention & Control S.O.P. COVID-19

Govt of Uttar Pradesh, Rhino Ocular Cerebral Mucormycosis Treatment Guidelines
(G.O. as Received vis Email on 17th May 2021)

प्रेषक,

महानिदेशक,
चिकित्सा एवं स्वास्थ्य सेवार्थे, उ०प्र०,
स्वास्थ्य भवन, लखनऊ।

सेवा में,

अपर मुख्य सचिव,
चिकित्सा स्वास्थ्य एवं परिवार कल्याण,
उत्तर प्रदेश शासन।

पत्रांक:- 21फ/सं०रो०/2021/ 5690

लखनऊ, दिनांक 14/5/2021

विषय- कोविड रोग से ग्रसित व्यक्तियों में ठीक होने के उपरान्त उत्पन्न होने वाली राईनोसेरेबल म्यूकरमाईकोसिस से बचाव एवं उपचार के सम्बन्ध में दिशा-निर्देश निर्गत किये जाने विषयक।
महोदय,

उपरोक्त विषय में सादर अवगत कराना है कि वर्तमान में प्रदेश में कोविड रोग से ग्रसित रोगियों में उपचारोपरान्त राईनोसेरेबल म्यूकरमाईकोसिस सूचित हो रहे हैं, जिसके कारण रोगियों में काला फंगस नाम के रोग के कारण रोगी की मृत्यु भी सूचित हो रही है।

उपरोक्त के क्रम में अवगत कराना है कि कोविड रोग से ग्रसित व्यक्तियों में ठीक होने के उपरान्त उत्पन्न होने वाली राईनोसेरेबल म्यूकरमाईकोसिस से बचाव एवं उपचार के सम्बन्ध में शासन स्तर से निम्नानुसार दिशा-निर्देश निर्गत किये जाने हैं:-

राईनोसेरेबल म्यूकरमाईकोसिस से कोविड ग्रसित व्यक्तियों में बचाव, एवं उपचार

निदान:-

- इस रोग का प्रारम्भिक अवस्था में पता लगाना इसके उपचार एवं बेहतर परिणाम हेतु आवश्यक है।
- स्टेराईड का तर्कसंगत उपयोग इस रोग से राबरो अच्छा उपाय है।
- ब्लड सुगर का उचित नियंत्रण आवश्यक है।

कौन कौन से कोविड रोगियों में रोग की सम्भावना रहती है:-

- कोविड, मधुमेह के साथ कोविड रोगी जो स्टेराईड तथा टोकलीजुमाव या अन्य इम्यूनोस्प्रेसट प्रयोग कर रहे हैं तथा उनका ब्लड शुगर नियंत्रण में नहीं है।
- कोविड रोगी जो पहले से इम्यूलनोसपरासेन्टस प्रयोग कर रहे हैं।
- कोविड रोगी जिनको अंग प्रत्यारोपण हुआ है।

बचाव:

- ब्लड सुगर पर पूरा नियंत्रण।
- स्टेराईड का उचित, तर्कसंगत एवं विवेकपूर्ण प्रयोग।
- आक्सीजन ट्यूबिंग का बार-बार बदला जाना तथा प्रयोग की गयी आक्सीजन ट्यूबिंग का पुनः प्रयोग न किया जाय।
- कोविड मरीज को आक्सीजन देते समय उसका आर्द्रताकरण करना तथा आर्द्रता विलयन को बार बार करना।



- दिन में दो आर नाक का सलाईन से धोना।
- जो कोविड रोगी उच्च जोखिम वाले हैं उनको नाक धोना, एमफोरेटिस बी से उपचार।
- कोविड रोग से ग्रसित रोगी की प्रथम, तीसरे व सातवें दिन रोगी की परिस्थिति की जांच करना तथा रोगी को डिस्चार्ज करते समय सघन जांच करना चाहिये।

रोग के लक्षण और चिन्ह

- इस रोग के खतरे के लक्षण चेहरे पर भरापन/चेहरे पर दर्द/माथे में दर्द/आंख का लालीपन/सूजन, और आंख के चारो तरफ भरापन।
- नाक में पपड़ी जमना और खून मिला स्राव निकलना।
- चेहरे पर दर्द, सिरदर्द।
- नाक बंद होना।
- आंखों में सूजन, पलकों पर सूजन, आंखों की रोशनी जाना, एक के दो दिखना, आंखों को चलाने में दिक्कत, तालू का रंग बदलना, दांतों का ढीला होना, चेहरे और नाक का रंग बदलना, आंखों के पीछे दर्द का होना।
- इन सभी में से कोई भी लक्षण होने पर रोगी को नाक, कान, गला विशेषज्ञ को दिखाना चाहिए।

निदान:-

- नेजल स्पेकुलम से नाक की प्रारम्भिक जांच।
- नेजल एन्डोस्कोपी।
- केओओएचओ वेट माउन्ट।
- एन्डोस्कोपी पर मिडिल तथा इन्फिरियर टरबीनेट की ब्लेकिंग होना।
- कन्ट्रास्ट एमओआरआई पीएनएस तथा आरबिट।
- फ्लूरोस्ट सीटीए स्कोम पीएनएस।

उपचार-

- मधुमेह का उचित नियंत्रण।
- इलेक्ट्रोलाइट के बिगड़ने तथा रीनल फंक्शन टेस्ट तथा लीवर फंक्शन टेस्ट।
- डेड टिशु को प्रारम्भिक अवस्था में निकालना।
- फँगल कल्चर और सेन्सिटिविटी।
- (फ्लोटेरिजिन) 5mg/kg पर दिवस (2-3 ग्राम तक)
- पोरन्कोनाजाल 300mg 12 घंटे और बाद में 300 mg हर 24 घंटे पर
- आईसोवोकोमाजाल- लोडिंग डोज बाद में ओरली उपचार देना है- लक्षण तथा रेडियोलोनिकल लक्षण पर।

अन्य उपचार-

- नाक का providex iodine से धोना।
- Amphoteric B Deoxychryate Local Application/Amphoter gel/Cram 3% लोकल रोग के स्थान पर लगाया जा सकता है।
- Amphoteric B Deoxychryate का रिट्रोआबिटल इन्जेक्शन।



Annexure 1: Layout Plan for COVID-19 Ward, SSPH PGTI, NOIDA

Location: 4th Floor Hospital Building

For infection prevention and control in the COVID-19 ward, maximum precautions need to be taken by all HCW and for this purpose, following measures need to be taken:

1. Designating and Labelling Specific Areas in the COVID-19 Isolation Ward:

a. **Donning Area:** Waiting area near Lift No 5.

All HCW's after leaving Lift No 5 on 4th floor, shall wear appropriate PPE as per protocol. The Nursing Supervisor in charge of the COVID ward shall coordinate that HCW's shall enter the ward only if it is relevant and essential to avoid misuse of PPE.

b. **Doffing Area:** Lobby between Zone 2 and Zone 1.

All HCW's shall take off the PPE in the doffing area, Perform Hand Hygiene and Exit from Lift No 10

c. **Temporary BMW Storage Area:** Cordoned Off area opposite Lift No 9

The housekeeping staff supervisor shall ensure that COVID waste is properly disposed with labels

2. Maximum possible Unilateral Movement of Health Care Workers in and out of the Ward:

- All Health care workers shall enter the fourth floor from lift no 5
- Wear appropriate PPE in the Waiting area
- Perform the patient care activity / duties in the COVID ward
- Perform Doffing in the designated Doffing Area
- Perform Hand Hygiene
- Exit from Lift No 10

3. Minimum possible Movement of Patients in the Ward:

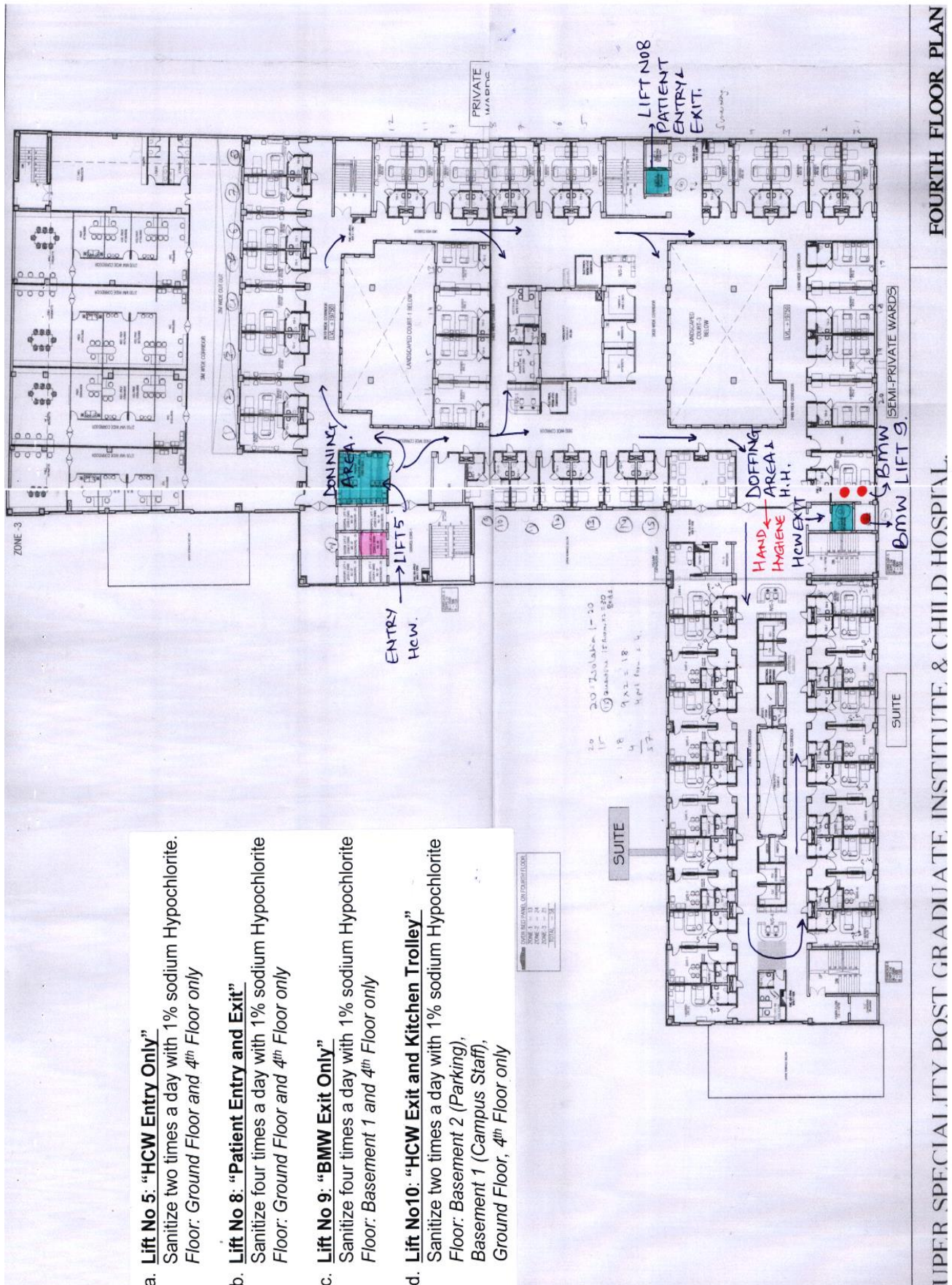
- The patients shall Enter and Exit the COVID ward from lift No 8, which would be sanitized 4 times a day with 1% sodium Hypochlorite
- Once housed in a room, the patient / quarantined person shall not be moved in and out again and again
- This is applicable for persons coming for screening or just for sample collection

4. Designating Specific Lifts for HCW's, Patients, Biomedical Waste and Kitchen:

- Lift No 2:** to be used as a normal / regular passenger lift which shall not open on 4th Floor
- Lift No 5:** To be Used for "HCW Entry Only". To be sanitized two times a day with 1% sodium Hypochlorite.
Floor: Ground Floor and 4th Floor only
- Lift No 8:** To be used for "Patient Entry and Exit". To be sanitized four times a day with 1% sodium Hypochlorite
Floor: Ground Floor and 4th Floor only
- Lift No 9:** To be used for "BMW Exit Only". To be sanitized four times a day with 1% sodium Hypochlorite
Floor: Basement 1 and 4th Floor only
- Lift No 10:** To be used for "HCW Exit and Kitchen Trolley". To be sanitized two times a day with 1% sodium Hypochlorite
Floor: Basement 2 (Parking), Basement 1 (Campus Staff), Ground Floor, 4th Floor only
- Lift No 12:** to be used as a normal / regular passenger lift which shall not open on 4th Floor



Annexure 2: Map and Movement Plan for COVID-19 Ward SSPH PGTI, NOIDA



- a. **Lift No 5: "HCW Entry Only"**
Sanitize two times a day with 1% sodium Hypochlorite.
Floor: Ground Floor and 4th Floor only
- b. **Lift No 8: "Patient Entry and Exit"**
Sanitize four times a day with 1% sodium Hypochlorite
Floor: Ground Floor and 4th Floor only
- c. **Lift No 9: "BMW Exit Only"**
Sanitize four times a day with 1% sodium Hypochlorite
Floor: Basement 1 and 4th Floor only
- d. **Lift No 10: "HCW Exit and Kitchen Trolley"**
Sanitize two times a day with 1% sodium Hypochlorite
Floor: Basement 2 (Parking),
Basement 1 (Campus Staff),
Ground Floor, 4th Floor only



Annexure – 3: Self-Monitoring Chart for Health Care Worker During Quarantine Period

Name of HCW:		Designation:	
Job Responsibility:		Active Quarantine	Passive Quarantine
Duration of Quarantine: From: DD / MM / YYYY		To	DD / MM / YYYY
Day of Quar & Date	Temperature	Dry Cough	Breathlessness
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
14			

Self-Declaration:

I, _____ declare that I have self-monitored my health during the Active / Passive Quarantine and that I have followed all the precautions including:

- Contact Precautions
- Transmission Precautions
- Social Distancing and
- Strict Compliance of Lockdown

And, that the above self-declared Health record is authentic, genuine and validated by myself

Date:

Time:

Place of Declaration:

Place of Quarantine: Institutional / Home

Signature of the HCW