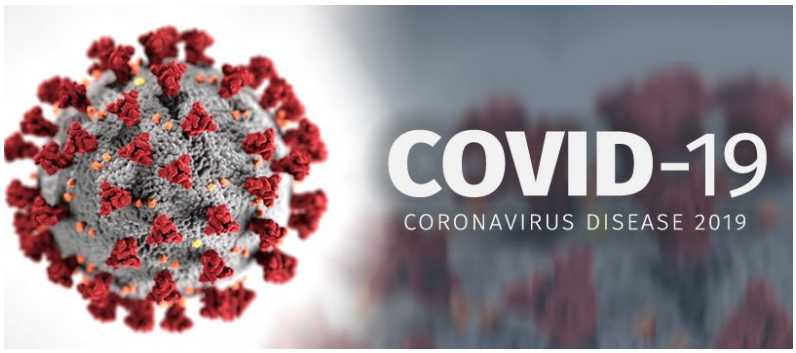
VERSION: III

Date: 01.07.2020



COVID-19
INFECTION PREVENTION & CONTROL
STANDARD OPERATING PROCEDURE

SRI SIDDHARTHA
ACADEMY OF HIGHER EDUCATION

Deemed-to-be-University

Accredited 'A' Grade by NAAC

Established under Section 3 of the UGC Act, 1956
MHRD, GOI No. F.9-31/2006-U.3 (A) Dtd. 30th May 2008

Agalakote, B.H. Road, Tumkur – 572107, Karnataka, India

HOSPITAL INFECTION CONTROL COMMITTEE (HICC)

- Introduction
- Objective
- Scope
- Responsibility
- Accountability
- Abbreviations

Infection Prevention & Control of COVID 19

- Prevention of transmission
- Hand hygiene
- PPE
- Rational use of gloves
- Rational use of masks
- Respiratory hygiene and cough etiquette
- Environmental cleaning and disinfection protocol
- Laundry infection control SOP
- Lift infection control SOP
- Mobile infection control SOP
- Biomedical waste SOP
- Spill management SOP
- After death infection control SOP

1.0 INTRODUCTION

An outbreak of pneumonia of unknown cause in Wuhan City, Hubei Province, China, in December 2019 was found to be caused by a novel Coronavirus, renamed as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). This potentially fatal acute respiratory infection is now termed as Coronavirus disease 2019 (COVID-19). Clinically, it can present as a respiratory infection with symptoms' severity ranging from a mild common cold-like illness, to a severe pneumonia leading to potentially fatal acute respiratory distress syndrome.

Transmission of infection occurs mainly via droplet, contact transmissions and via aerosol during aerosol generating procedures (AGPs) such as tracheal intubation, open suctioning, non-invasive positive pressure ventilation (BiPAP and CPAP), tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, airway suction, chest physiotherapy, nebulization, sputum induction and collection of specimens.

2.0 OBJECTIVE

To lay down the protocols for the purpose of prevention and control of COVID 19 infection.

3.0 SCOPE

This SOP covers all the infection prevention and control (IPC) measures to be followed for COVID 19 infection.

4.0 RESPONSIBILITY: HICC Members

5.0 ACCOUNTABILITY: Chairman of HICC

6.0 ABBREVIATIONS

BMW: Biomedical Waste ManagementCPR: Cardiopulmonary Resuscitation
HICC: Hospital Infection Control CommitteeIPC: Infection Prevention & Control
PPE: Personal Protective EquipmentSARI: Severe Acute Respiratory Illness

INFECTION PREVENTION AND CONTROL (IPC) OF COVID 19

1.0 Prevention of Transmission

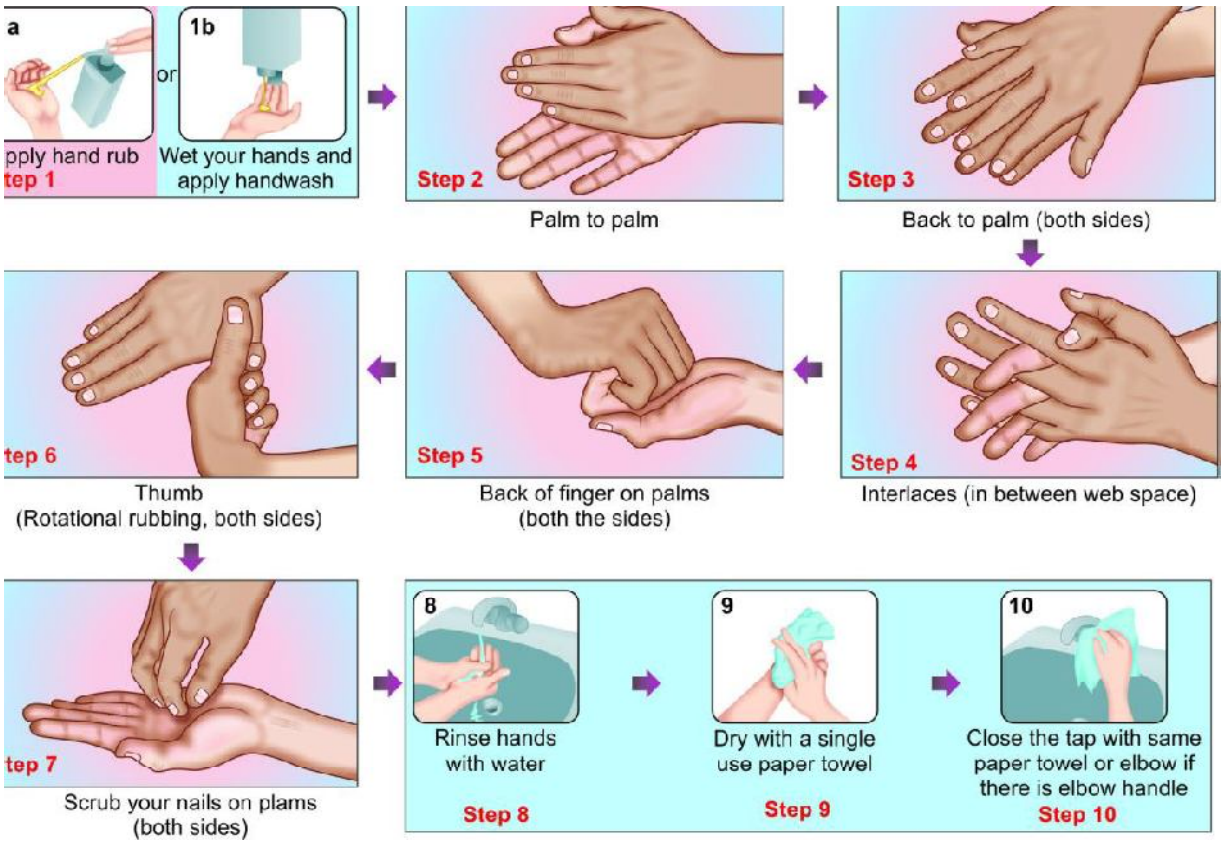
Transmission	Situations	Prevention
Droplet transmission	Respiratory droplets produced when the infected person coughs orsneezes-can infect the persons (by seeding on their mouths, noses or eyes) who are within 1 meter distance	**Surgical mask** (if within 1 mt of infected case)
Contact transmission	Respiratory droplets settle down on floor, surfaces and inanimateobjects. Any one touching such floor, surfaces, door handles, inanimate objects and then touching face (nose, mouth, eyes), can get infected.	**Hand hygiene ***
Airborne transmission	Aerosols may be produced duringaerosol generating procedures such as tracheal intubation, open suctioning, non-invasive positive pressure ventilation (BiPAP and CPAP), tracheostomy, CPR, manual ventilation before intubation, bronchoscopy, airway suction, chest physiotherapy, nebulization, sputum induction and collection ofspecimens.	**N95 Mask**

* **Most crucial preventive measure**

Note: Airborne transmission from person-to-person over long distances is not very likely
Measures suggested are based on the above modes of transmission.

2.0 HAND HYGIENE

Hand hygiene is the **most important measure**for the prevention and control of COVID-19. Hand hygiene can be performed with soap and water (40seconds) or alcohol-based hand rubs (20seconds).



Steps of Hand rubs (Step 1a-7) and Steps of Hand wash (Step 1b-10)

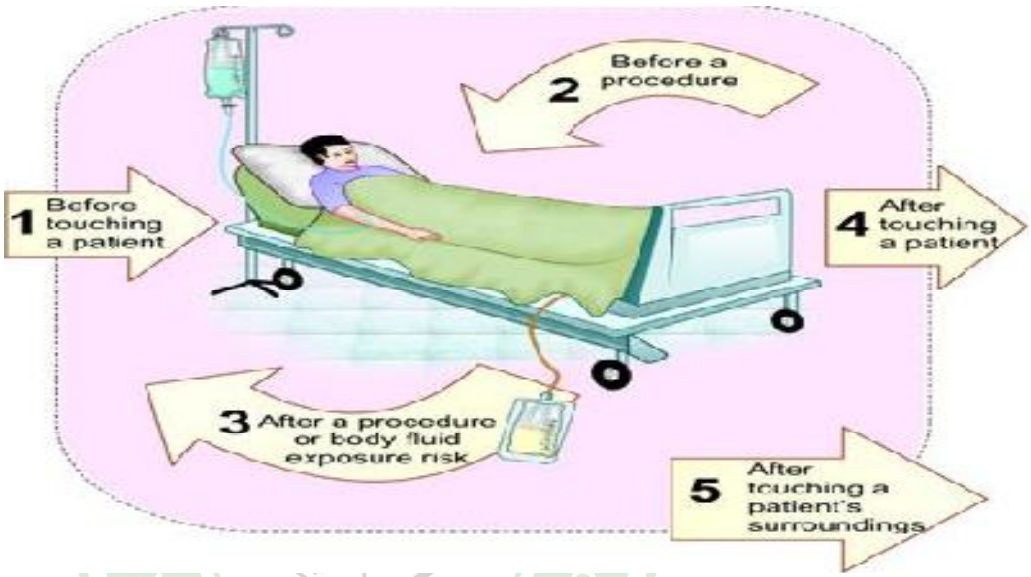
Indications for using handrub:

- Handrub should be used during routine clinical rounds and while handling the patients
- If the hands are not visibly dirty, not contaminated with blood or body fluids

Indications for using hand wash:

- Hands are visibly dirty, contaminated with blood or body fluids
- Potential exposure to spore forming organisms (e.g., Clostridium*difficile*); non envelopedviruses (e.g. Norovirus, rotavirus, enteroviruses)
- Handling patients having diarrhea, after using restroom
- Before handling medication or food

Five moments of Hand hygiene



Before and after	Before and after	After contact with
• Taking pulse, blood pressure • Auscultation and palpation • Shaking hands • Helping a patient to move around • Applying oxygen mask • Giving physiotherapy • Recording ECG • Use of gloves	• Oral/dental care • Aspiration of secretions or accessing draining system • Skin lesion care, Wound dressing • Giving injection • Drawing of blood or sterile fluid • Handling an invasive device (catheter, central line, ET tube) • Clearing up urine, faeces, vomit, • Handling bandages, napkin etc • Instilling eye drops • Moving from a contaminated body site to another body site during care of the same patient	• Handling the case sheet • Medical equipment in the immediate vicinity of the patient • Bed or bed rail • Changing bed linen • Decanting urobag

3.0PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal Protective Equipments (PPEs) are protective gears designed to safeguard the health of workers by minimizing the exposure to a biological agent.

3.1 Components of PPE

Components of PPE are goggles, face-shield, mask, gloves, coverall/gowns (with or without aprons), head cover and shoe cover.

3.1.1 Face shield and goggles

Contamination of mucous membranes of the eyes, nose and mouth is likely in a scenario of droplets generated by cough, sneeze of an infected person or during aerosol generating procedures carried out in a clinical setting. Inadvertently touching the eyes/nose/mouth with a contaminated hand is another likely scenario. Hence protection of the mucous membranes of the eyes/nose/mouth by using face shields/ goggles is an integral part of standard and contact precautions. The flexible frame of goggles should provide good seal with the skin of the face, covering the eyes and the surrounding areas and even accommodating for prescription glasses.

3.1.2 Masks

Protecting the airway from the particulate matter generated by droplets / aerosols prevents infection. Contamination of mucous membranes of the mouth and nose by infective droplets or through a contaminated hand also allows the virus to enter the host. Hence using masks are crucial while dealing with a suspect or confirmed case of COVID-19/performing AGPs.

Types of masks: The type of mask to be used is related to particular risk profile of the category of personnel and his/her work.

1. Triple layer medical mask
2. N-95 Respirator mask

3.1.2.1 Triple layer medical mask: A triple layer medical mask is a disposable mask, fluid-resistant and provides protection to the wearer from droplets of infectious material emitted during coughing/sneezing/talking.

3.1.2.2. N-95 Respirator mask: An N-95 respirator mask is a respiratory protective device with high filtration efficiency to airborne particles. To provide the requisite air seal to the wearer, such masks are designed to achieve a very close facial fit. They should have high fluid resistance, good breathability (preferably with an expiratory valve), clearly identifiable internal and external faces, duckbill/cup-shaped structured design that does not collapse against the mouth. If correctly worn, the filtration capacity of these masks exceeds those of triple layer medical masks. Since these provide a much tighter air seal than triple layer medical masks, they are designed to protect the wearer from inhaling airborne particles.

3.1.3 Gloves

Care should be exercised while handling objects/surface potentially contaminated by suspect/confirmed cases of COVID-19. Nitrile gloves are preferred over latex gloves because they resist chemicals, including certain disinfectants such as chlorine.

Note: There is a high rate of allergies to latex and contact allergic dermatitis among health workers.

If nitrile gloves are not available, latex gloves can be used.

Nonpowdered gloves are preferred to powdered gloves.

3.1.4 Coverall/Gowns

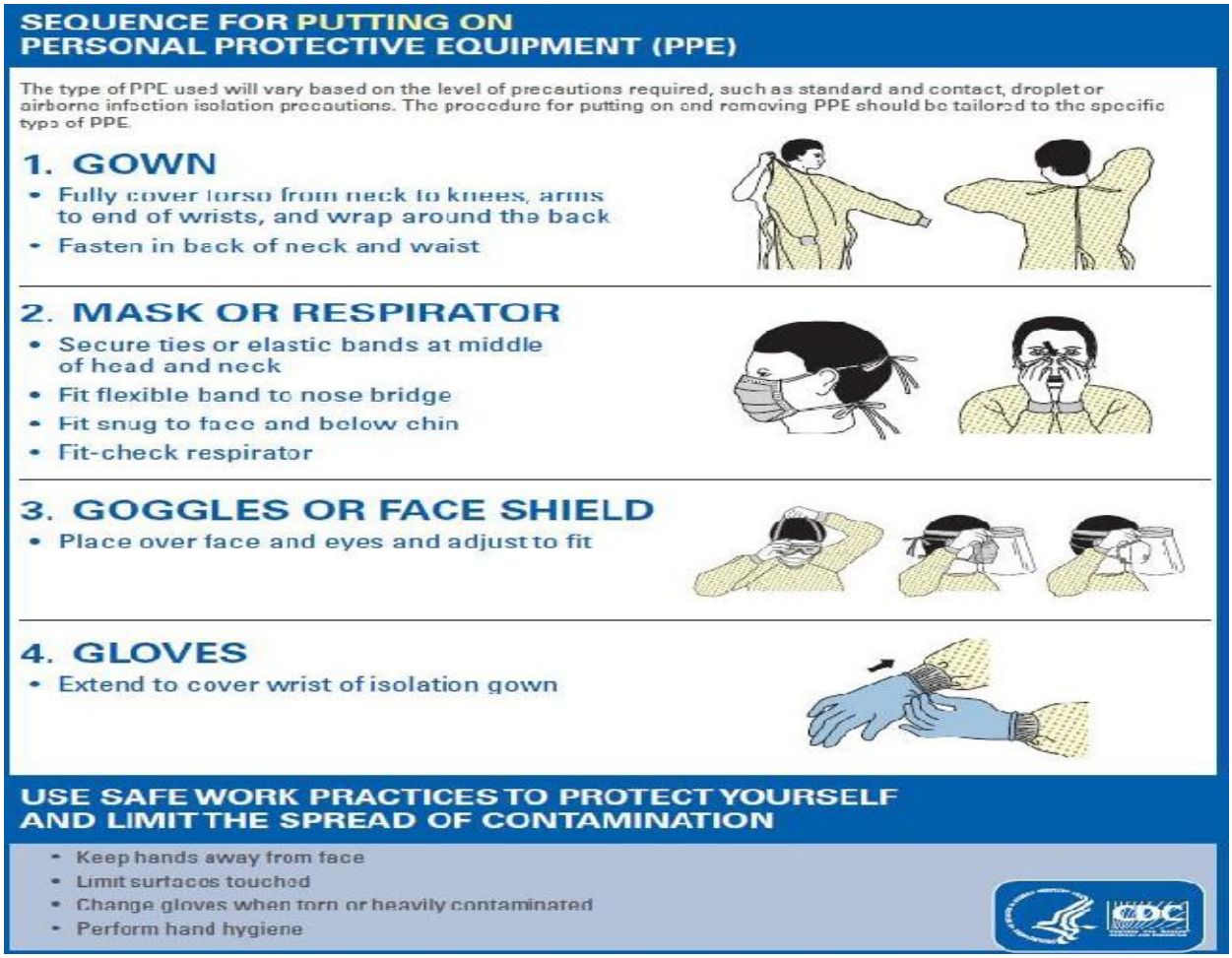
Coverall/gowns are designed to protect torso of healthcare providers from exposure to virus. By using appropriate protective clothing, it is possible to create a barrier to eliminate or reduce contact and droplet exposure, both known to transmit COVID-19, thus protecting healthcare workers working in close proximity (within 1 meter) of suspect/confirmed COVID-19 cases or their secretions. An apron can also be worn over the gown for the entire time the health worker is in the treatment area.

3.1.5 Shoe covers

Shoe covers should be made up of impermeable fabric to be used over shoes to facilitate personal protection and decontamination.

3.1.6. Head covers

Coveralls usually cover the head. Those using gowns, should use a head cover that covers the head and neck while providing clinical care for patients. Hair and hair extensions should fitinside the head cover.



Sequence of donning PPE (CDC)

Sequence of doffing PPE (CDC)

3.2Rational use of PPE

- The PPEs are to be used based on the risk profile of the health care worker.
- **Cleaners** should wear boot and heavy duty gloves, in addition.

3.2.1Out Patient Department (Respiratory Clinic / Separate screening area)*

Sl.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	Holding area/ waiting area	Nurses / paramedic interacting with patients	Moderate Risk	N 95 mask Gloves	Minimum distance of one meter needs to be maintained.
4	Doctors chamber	Clinical management (doctors, nurses)	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed.
5	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
6	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

*A separate triage and holding area for patients with Influenza like illness should be designated.

3.2.2. In-patient Services

Sl. 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 NonCOVID 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

3.2.3. Emergency Department

Sl.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	Emergency	Attending to severely ill patients of SARI	High risk	Full complement of PPE	Aerosol generating activities performed.

3.2.4. Pre-hospital (Ambulance) Services

Sl. 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

Note:

- Housekeeping staff should wear appropriate PPE when handling and transporting used patient care equipment(gloves) or while cleaning/disinfecting corona ward (surgical mask, gown, heavy duty gloves, eye protection if risk of splash, Boots or closed work shoes)
- Housekeeping staff should wash their hands with soap and water immediately after removing the PPE, and whencleaning and disinfection work is completed.

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

3.3. Minimize the need for PPE to ensure optimal availability by adopting the following strategies:

3.3.1 Restrict visitors to the Corona ward

3.3.2 Restrict HCWs to the Corona ward if they are not involved in direct care.Consider bundling activitiesto minimize the number of times a room is entered(e.g., check vital signs during medicationadministration). Plan whichactivities will be performed at the bedside.

3.3.3Screening area**:** Restrict HCWs evaluating suspected casesof COVID-19 disease, one HCW can evaluate/screen, others can maintain distance and interact; thus minimizing the need for these individuals to go to healthcare facilities for evaluation.

3.3.4 Use physical barriersto reduce exposure to the COVID-19 virus, such as glass or plastic windowsin areas where patients will first present, such as triage areas, the registration desk atthe emergency department or at the pharmacy window where medication is collected.

NOTE: Ensure PPE use is rationalized and appropriate as per the risk of exposure.

3.3.5To combat the short supply of PPEs, the following is recommended by CDC and WHO.

3.3.5.1 Extended use of N95 Mask: Refers to wearing the same N95 respirator 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).

- Discard N95 mask when contaminated with blood, respiratory or nasal secretions etc
- 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

3.3.5.2Limited 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. There is tremendous risk, therefore exercise this option with great CAUTION.

4.0RATIONAL USE OF GLOVES

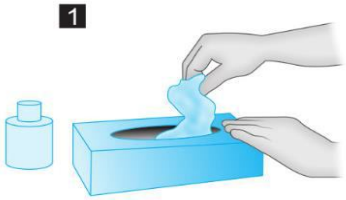
DOs	DON'Ts
Wear gloves only when there is indication (e.g. anticipated exposure to blood/body fluid)	**Don't wear gloves if there is no indication** (e.g. measuring BP, pulse etc)
Remove glove after single use and then wear fresh gloves for next activity	**Don't keep wearing same gloves for long time** (as it creates false sense of security and prevents us to the most important measure, i.e. hand hygiene)
Do hand hygiene before and after glove use	**Don't do hand hygiene over gloved hand**
Disposal in red bag after use	**Don't dispose in yellow bag after use**

NOTE: GLOVES ARE NOT A SUBSTITUTE FOR HAND HYGIENE

HANDWASHING IS THE MOST IMPORTANT PREVENTIVE MEASURE

HOW TO DON GLOVES

1

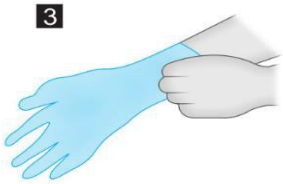


Take out a glove from its original box

2

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

3

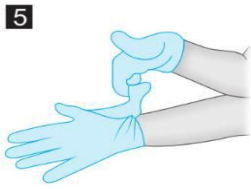


Don the first glove

4

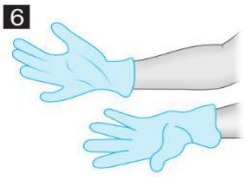
Take the second glove with the bare hand and touch only a restricted surface of the glove corresponding to the wrist

5



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

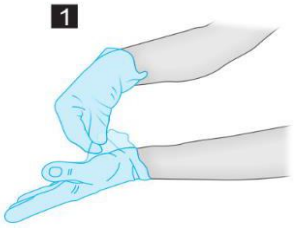
6



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

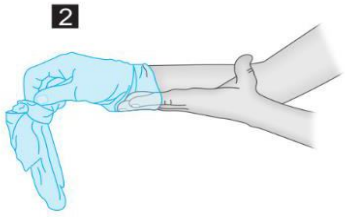
HOW TO REMOVE GLOVES

1



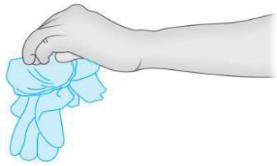
Pinch one glove at the wrist level to remove it, without touching the skin of the forearm, and peel away from the hand, thus allowing the glove to turn inside out

2



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

3

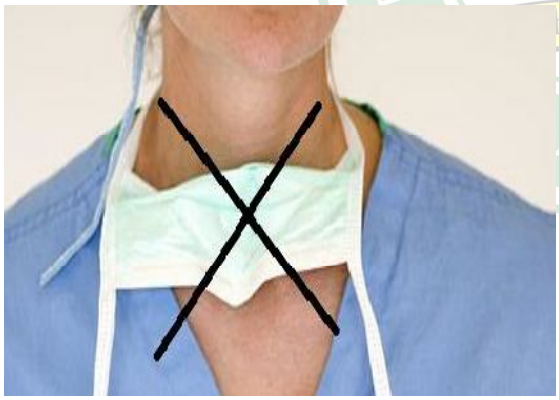


Discard the removed gloves

(REB BAG)

5.0 RATIONAL USE OF MASK

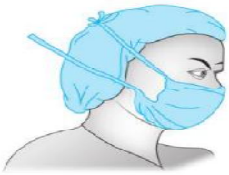
DOs	DON'Ts
Use mask only when clinically indicated • Surgical mask- when handling • respiratory patients • N95 mask- when doing aerosol generating procedures	**Do not use mask when clinically not indicated** • Wearing masks when not indicated creates afalse sense of security that can lead to neglect theother essential measures such ashand hygiene practices
Always hold by its strings	**Don't touch/hold front/back part of mask**
Fitting: Compress the mask to ensure a seal across nose bridge, face and cheeks	Do not allow **tangling of mask** around neck
Discard after 4-6h for surgical mask and 8h for N95 mask	• Do not keep using mask for longer time/days • Do not wash mask and reuse
Discard in yellow bags	Do not throw masks here and there after use



HOW TO WEAR OF FACE MASK

1. Bring the mask to the face, placing the metal nosepiece over the bridge of the nose to ensure a close and comfortable fit

2. Secure by tying the top set of strings behind the head



3. Pull the bottom of the mask to fit closely under the chin

4. Secure by tying the bottom set of strings, high on the head above the first set

HOW TO REMOVE FACE MASK

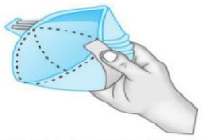
1. Remove gloves if worn and decontaminate the hands

2. Untie the strings and remove the mask handling only by the strings

3. Dispose of the mask into the waste bin (YELLOW BAG)

2. Decontaminate the hands

N95 MASK



1. Noseclip is located in top panel. Perform the noseclip by gently bending at the center of the panel. Hold respirator in one hand and pull out bottom panel to form a cup

2. Turn respirator over to expose headbands

3. Cup respirator under chin and pull and straps over the head

4. Locate the lower strap below the ears and the upper strap across the crown of the head. Adjust top and bottom panels for a comfortable fit.

5. Using both hands, mould noseclip to the shape of the lower part of the nose. Pinching the nosepiece using only one hand may result in less effective respirator performance.

6. The seal of the respirator on the face should be fit-checked prior to wearing in the work area.

6.0 RESPIRATORY HYGIENE AND COUGH ETIQUETTE

DOs	**DON'Ts**
Cough/sneeze with a tissue paper or into your sleeve if no tissue is available	**Don't cough/sneeze on your hands**
Do hand hygiene if coughed/sneezed on hands Turn head away from others when coughing/sneezing	**Don't cough/sneeze on nearby people** • Do not spit here and there • If tissues are used, discard into yellow bag • Don't discard tissues into other BMW bags
Maintain 1 meter (2 arm) distance □ if you have cough/sneeze □ from people with respiratory symptoms □ from contacts of corona cases who are on quarantine	**Do not stay within 1 meter from others** □ if you have cough/sneeze □ from people with respiratory symptoms □ from contacts of corona cases who are on quarantine
Social distancing refers to avoid gathering. It doesn't mean maintaining 1 meter distance from all people at home and office. No need to maintain 1 meter distance from known people without respiratory symptoms, with no history of contact to corona cases, or not on quarantine	

7.0ENVIRONMENTAL CLEANING AND DISINFECTION PROTOCOL

COVID-19 virus can potentially survive in the environment for several hours/days.

- Hand hygiene is important to minimize the impact of this transfer
- Cleaning and disinfecting environmental surfaces is fundamental in reducing healthcare-associated infections

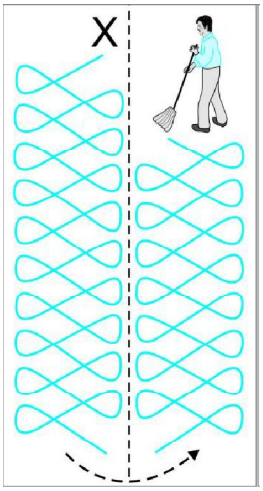
COVID isolation room/ screening area	Disinfectant	Contact time	Frequency
High touch surfaces	Hypochlorite 0.5% (wipe)	10 min	Twice/ shift (4 hourly)
Floor	Clean (soap & water)and then Hypochlorite 0.5% (mop)	10 min	Once/ shift (8 hourly)
Wall, ceiling (wipe)	Hypochlorite 0.5%	10 min	Once daily
Linen (used)	Hypochlorite 0.1%	30 min	As and when
Toilet	Clean (soap & water)and then Hypochlorite 0.5%(wash)	10 min	Twice/ shift (4 hourly)
Corridor)	Hypochlorite 0.5% (mop	10 min	Once / shift (8 hourly)
Non-critical equipment(stethoscope, BP cuff, thermometer)	Alcohol wipes		After each use
Termination disinfection	Soap and water followed by 0.5% hypochlorite	10 min	As and when needed

- Contact time of at least 10 minutes is necessary for hypochlorite
- Hypochlorite should be used mainly on hard, non-porous surfaces (it can damage textiles and metals)

<u>Surfaces (Table surfaces, slabs, walls, windows, equipment surfaces)</u>:

- **Wipes a**re recommended over spray for all reachable surfaces and high-touch areas including stainless steel, rubber and equipment surfaces
- **Spray** is recommended for only non-reachable surfaces - Spray should be avoided in general, as coverage is uncertain and spraying may promote the production of aerosols.
- **Floor:** Mop is recommended.
- **Wettest (Bucket) wipes**- do not use for non-critical areas like fans, walls, doors etc. First, wipe with plain water andthen can disinfect with Lysol.
- **Dishes and eating utensils** used by a patient with known or suspected infection: No special precautions other thanstandard precautions such as hand hygiene and wearing gloves when handling patient trays, dishes and utensils.

7.1 Measures during mopping



- Progress from the least soiled areas to the most soiled areas and from high surfacesto low surfaces
- Remove gross soil (visible to naked eye) prior to cleaning and disinfection
- **Never shake mops:** Minimise turbulence to prevent the dispersion of dust thatmay contain micro-organisms
- Use dust control mop prior to wet/damp mop. **Do not use brooms**
- Wash the mop under running water before doing wet mopping
- Do not **'double-dip'** mops (dip the mop only once in the cleaning solution, asdipping it multiple times may re contaminate it)
- An area of **120 square feet** to be mopped before re-dipping the mop in the solution.
- Cleaning solution to be changed after cleaning an area of **240 square feet**. (i.e.change solution for every room)
- Change more frequently in heavily contaminated areas, when visibly soiled andimmediately after cleaning blood and body fluid spills.
- **Cleaning sequence:** Always cleaning should proceed in a top-to-down sequencei.e., ceiling based equipment first, walls, then floor based equipment and lastly thefloor.
- When cleaning the floor, begin at the end farthest from the door and move towards the door **(in to out).**
- The cleaning staff should always move from clean to unclean areas and never vice versa
- When cleaning individual equipment: clean from top to down
- **Eight stroke technique for mopping:** In open areas use a figure eight stroke in open and wide spaces,overlapping each stroke; turn mop head over every five or six strokes.
- While in small spaces, starting in the farthest corner of the room, drag the mop toward you, then push itaway, working in straight, slightly overlapping lines and keeping the mop head in full contact with the floor.Repeat until entire floor is done.
- No. of strokes per wipe- vary depends on area and material and size of the wipe

- Use new wipe for each use
- Never do zig-zag cleaning, never do re-dipping of cloth

7.2Disinfection: After cleaning all equipment, wash with soap and hot water; followed by decontamination with 0.5 hypochlorite 10 min and then dry it in sunlight

- Change the mop head when heavily soiled or at the end of the day.
- Report adverse incident to supervisor
- Collect waste, handle plastic bags from the top (do not compress bags with hands)
- Clean hands on leaving the room.

7.3 CLEANING AND DISINFECTION SOP

Corona isolation ward/room (when patient is occupied)

- **Floor -** mop with sodium hypochlorite (0.5%, 5000ppm) three times a day
- **Bacillol-25 spray** for reusable dedicated equipment (e.g. thermometers)every once hour
- **High touch area:** Wipe with sodium hypochlorite (0.5%, 5000ppm)
- **Low touch area** (wall and ceiling): daily once
- Designate specific well-trained staff for cleaning environmental surfaces
- **Wear appropriate PPE** - heavy duty gloves, mask, eye protection(goggles/face shield), long-sleeved gown, apron (if gown is not fluidresistant), and boots or closed shoes
- The supervisor must use a checklist to promote accountability for cleaning responsibilities

Terminal disinfection (After Corona patient discharge or transfer or death)

- **Clean with Soap and water followed by disinfection with 0.5%hypochlorite.**
- All surfaces and floor including walls, ceiling, toilet etc thatwere in contact with patient or may have become contaminated during patientcare followed
- **Bacillol-25 spray** for reusable dedicated equipment (e.g. thermometers)
- **Do not spray or fog** occupied or unoccupied rooms with disinfectant potentially dangerous practice, that has no proven benefits
- **Wear appropriate PPE** - heavy duty gloves, mask, eye protection(goggles/face shield), long-sleeved gown, apron (if gown is not fluidresistant), and boots or closed shoes

8.0 LAUNDRY INFECTION CONTROL SOP

- Never carry soiled linen against body; place soiled linen in a leak-proof bagor bucket
- Hand hygiene and PPE (surgical mask, heavy duty gloves, plastic apron,boots)
- Dedicated laundry area should be there for cleaning soiled bedding, towelsand clothes from patients with COVID-19
- Soiled linen should be placed in clearly labelled, leak-proof bags orcontainers, carefully removing any solid excrement and putting in coveredbucket to dispose of in the toilet or latrine.

If Washing machine is there:

- Wash at 60-90°C with laundry detergent followed by soaking in 0.1%Sodium Hypochlorite for approximately 30 minutes and dried

If no machine washing is there:

- 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 approximately 30 minutes
- Rinse with clean water and let linen dry fully in the sunlight

9.0 LIFT INFECTION CONTROL SOP

- 3-4 people per lift at a time: Maintain two arm distance
- Hand rub/wash before and after lift use
- Clean high touch area of lift such as lift-buttons, rails and adjacent-wall area, door every one hour
- Clean other areas of lift every 8 hourly

10.0 MOBILES & LAPTOP INFECTION CONTROL SOP

- Avoid bringing to hospital if not absolute necessary
- Clean front and back surface
- Alcohol wipes
  - Twice per shift
  - And also before leaving workplace
- Switch off during wiping

11.0 BIOMEDICAL WASTE MANAGEMENT

COVID-19 Corona isolation wards need to follow these steps to ensure safe handling and disposal of biomedical waste generated during patient care.

Follow the same principle segregation of waste as per BMWM Rules, 2016.

Color coded bag/box	Broadly include Items	Disposal method
Yellow	Infectious non-plastic, non-sharp	Incineration
Red	Infectious plastic, non-sharp	Autoclave or microwave (recycle)
White Sharp box	Sharps (metal)	Sharps pit
Blue Box (recycle)	Glass, metal implants	Autoclave

Note:

- Keep **separate dedicated** color coded bins/bags/containers in corona isolation wards and label as “COVID-19 Waste”
- Use **double layered bags (using 2 bags)** for collection of waste from COVID-19isolation wards so as to ensure adequate strength and no-leaks
- Use **dedicated trolley and collection bins** and label as “COVID-19 Waste”
- Keep “COVID-19 Waste” separately in temporary storage room priorto handing over to authorized staff. COVID-19 Waste collected in such isolation wardscan also be lifted directly from ward into collection van.
- **Disinfection:** Disinfect the inner and outer surface of bags/containers/ collection bins/ trolleys with 0.5 % sodium hypochlorite
- **General waste** not having contamination should be disposed as solid waste **(black bag)**
- Maintain **separate record** of waste generated from COVID-19 isolation wards
- **PPEs:** Depute dedicated sanitation/ SMC worker and use adequate PPEs- three layered mask,splash proof apron/gowns, nitrile gloves, gum boots, safety goggles
- **Dedicated vehicle:** A dedicated vehicle should be used for transport of COVID-19 waste; however separate label as COVID-19 waste is not necessary. Disinfect the vehicle with 0.1% sodium hypochlorite.

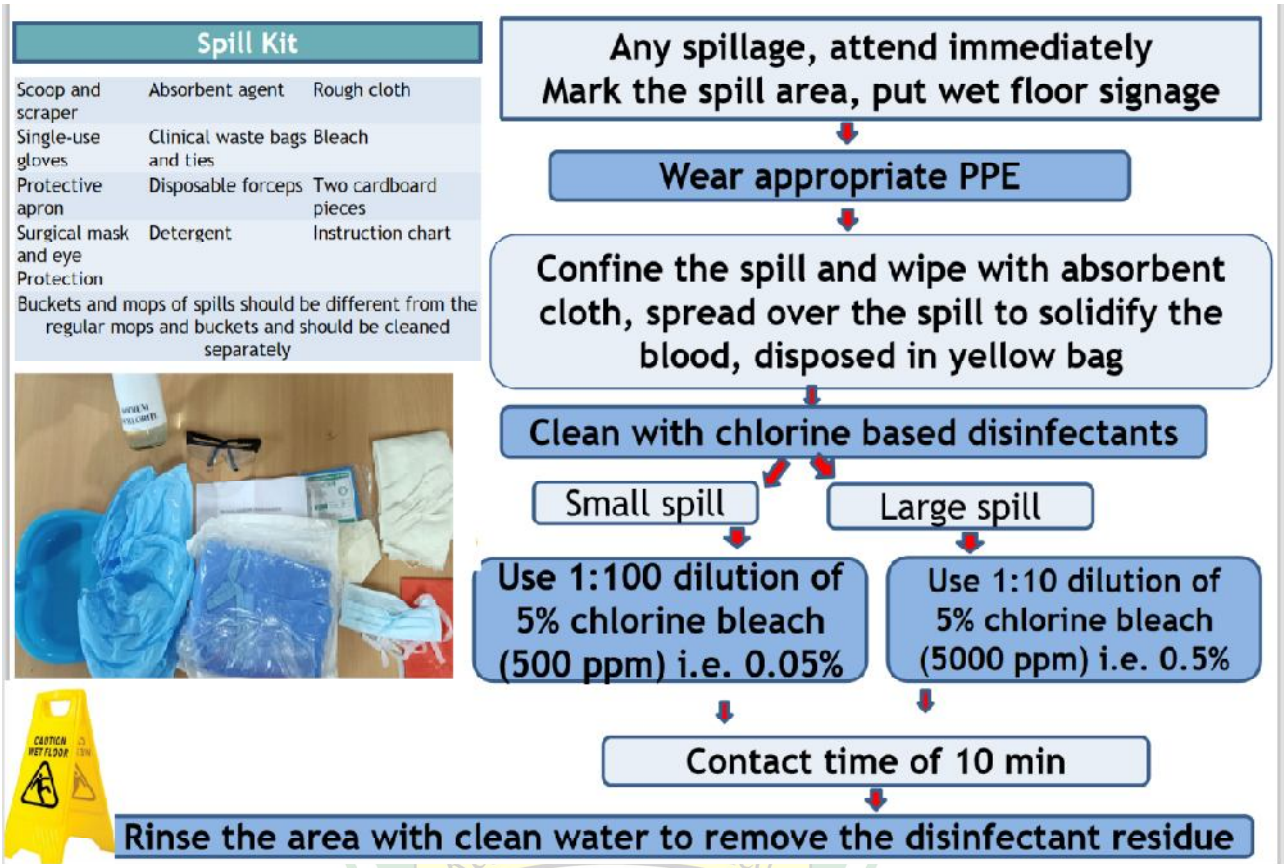
11.1Quarantine facility for suspected COVID patients:

Treat the routine waste as general solid wasteand dispose to local municipal as per solid waste management rule, 2016. Only biomedical wastewhich is expected to be little quantity should be collected and handed over to authorized wastecollectors engaged by local bodies.

11.2 PPE disposal:

- Gloves, plastic apron, goggles – red bag
- Non-plastic items such as Mask, gown, cap, shoe cover- yellow bag

12.0 SPILL MANAGEMENT PROTOCOL



13.0 DEAD BODY MANAGEMENT

- Only the lungs of dead COVID patients, if handled during an autopsy, can be infectious.

Standard Precautions to be followed by HCWs while handling dead bodies of COVID

1. Hand hygiene.

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. 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 should be trained in the infection prevention control practices.

13.1 Overall recommendations

- **Body bag**- One body bag, robust leak-proof of 150µm thickness is needed.
- **Viewing of the body** -is allowed with standard precautions
- **Embalming** of dead body should not be allowed.
- **Hygienic preparation**- either not allowed, or allowed with appropriate PPEs
- **Autopsy**- need to avoided as much a possible
- **Final treatment**- either cremation or cuffing depending up on the religious practice; howevercremation is more advisable.

13.2 Specific recommendations

1.Removal of the body from the isolation room or area

- The health worker attending to the dead body should perform hand hygiene, ensure proper use of PPE (water resistant apron, goggles, N95 mask, gloves).
- All tubes, drains and catheters on the dead body should be removed.
- Any puncture holes or wounds (resulting from removal of catheter, drains, tubes, or otherwise)should be disinfected with 1% hypochlorite and dressed with impermeable material.
- Apply caution while handling sharps such as intravenous catheters and other sharp devices. Theyshould be disposed into a sharps container.
- Plug oral, nasal orifices of the dead body to prevent leakage of body fluids.
- If the family of the patient wishes to view the body at the time of removal from the isolation roomor area, they may be allowed to do so with the application of Standard Precautions (hand hygiene,mask and gloves)
- Place the dead body in leak-proof plastic body bag. The exterior of the body bag can be decontaminated with 1% hypochlorite.
- The body bag can be wrapped with a mortuary sheet or sheet provided by the family members.
- The body will be either handed over to the relatives or taken to mortuary.
- All used/ soiled linen should be handled with standard precautions, put in bio-hazard bag and theouter surface of the bag disinfected with hypochlorite solution.
- Used equipment should be autoclaved or decontaminated with disinfectant solutions.

- All floor, wall, ceiling, high touch area and medical care equipment used should be disinfected/mopped with 1% hypochlorite solution.
- Do not do fogging or spray of the isolation room.
- All medical waste must be handled and disposed of in accordance with Bio-medical waste management rules.
- The health staff who handled the body will remove personal protective equipment, discard in appropriate waste bins and will perform hand hygiene.

13.3Environmental cleaning and disinfection

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

13.4Handling of dead body in Mortuary

- Standard precautions have to be followed
- Dead bodies should be stored in cold chambers maintained at approximately 4°C.
- Environmental surfaces, instruments and transport trolleys should be properly disinfected with 1%Hypochlorite solution.
- After removing the body, the chamber door, handles and floor should be cleaned with sodium hypochlorite 1% solution.

13.5Autopsies on COVID-19 dead bodies

- **Autopsies should be avoided**.
- But if autopsy is to be performed for special reasons, the following infection prevention controlpractices should be adopted:
- The team should be well trained in infection prevention control practices.
- The number of forensic experts and support staff in the autopsy room should be limited.
- The team should use full complement of PPE (coveralls, head cover, shoe cover, N 95 mask, goggles / face shield).
- Reduce aerosol generation during autopsy using appropriate techniques especially while handling lung tissue.

- After the procedure, body should be disinfected with 1% Sodium Hypochlorite and placed in a bodybag.
- The exterior of the bag will again have to be decontaminated with 1% Sodium Hypochlorite solution.
- The body thereafter can be handed over to the relatives.
- Autopsy table to be disinfected as per standard protocol.

13.5Transportation

- 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 with1% Sodium hypochlorite.

13.6At the crematorium/ Burial Ground

- The staff will practice standard precautions of hand hygiene, use of masks and gloves.
- Bathing, kissing, hugging, etc. of the dead body should not be allowed.
- 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 measureas it is possible that close family contacts may be symptomatic and/ or shedding the virus.

Prepared by	*Verified by*	*Approved by*
Dr. Girish Babu. R. J Prof. & HOD Dept. of Microbiology	**Dr. M.Z. Kurian** Registrar	**Dr. P. Balakrishna Shetty** Vice-Chancellor

Special Thanks

To

Hospital Inspection Control Committee