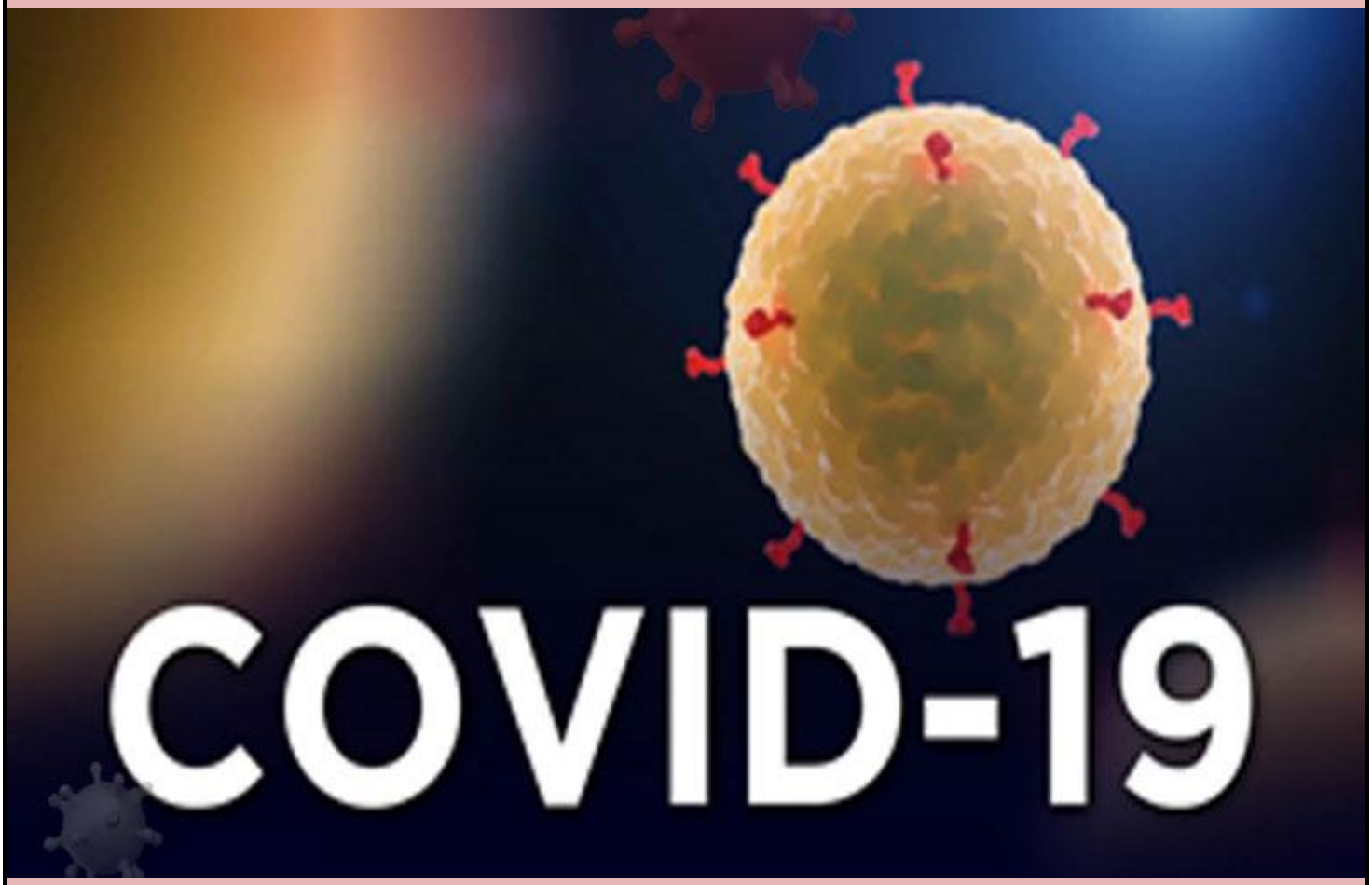
MGM MEDICAL COLLEGE HOSPITAL AND MCRI

N-6, CIDCO, AURANGABAD, MAHARASHTRA

STANDARD OPERATING PROCEDURES

MANAGEMENT OF COVID-19



Guidance

Dr Rajendra Bohra	-	Dean
Dr Pravin Suryawanshi	-	Dy Dean
Dr B.K Somani	-	Medical Superintendent
Dr H R Raghavan	-	Medical Superintendent

CONTRIBUTIONS

Dr. Anand Nikalje	-	Consultant Head Intensivist
Dr. Swati Mahajan	-	Asso Prof Dept of PSM
Dr. Dhanjay Jabade	-	Asst Prof Dept of Medicine
Dr. Prashant Akulwar	-	Consultant Intensivist
Dr. Pradeep Taur	-	Consultant Intensivist
Dr. Rohan Gundre	-	Consultant Intensivist
Dr. Yogesh Adkine	-	Consultant Intensivist
Mr.Rahul Deshmukh	-	Quality Coordinator

Edited and Compiled

By

Department of Quality

MGM Medical College and Hospital, Aurangabad

INDEX

Edited and Compiled By	Verified By	Approved By
Sd/-	**Sd/-**	**Sd/-**
Quality Coordinator	Medical Superintendent	Dean
	Sd/-	**Sd/-**
	Chief Coordinator COVID	Dy Dean

❖ Screening and Admission

Case Definitions

SARI with history of fever or measured temperature ≥38 C° and cough; onset within the last ~10 Days; and requiring hospitalization

Surveillance case definitions of SARI

1. SARI in a person, with history of fever and cough requiring admission to hospital, with no other etiology that fully explains the clinical presentation

AND

Any of the following:

a) History of international **travel** in 14 days prior to symptom onset or

b) The disease occurs in a **health care worker** who has been working in an environment where patients with severe acute respiratory infections are being cared for, without regard to place of residence or history of travel **or**

c) The person develops an unusual or **unexpected clinical course**, especially sudden deterioration despite appropriate treatment, without regard to place of residence or history of travel, even if another etiology has been identified that fully explains the clinical presentation.

2. A person with acute respiratory illness of any degree of severity who, within 14 days before onset of illness,
had any of the following exposures

a) **Close physical contact** with a confirmed case of COVID - 19 infection, while that patient was symptomatic or

b) Healthcare facility in a country where **hospital-associated** COVID - 19 infections have been reported.

CLOSE CONTACT

Defined As:

- **Health care associated exposure**, including providing direct care for COVID – 19 patients, working with health care workers infected with COVID – 19**,** visiting patients or staying in the same close environment of a COVID - 19 patient.
- Working together in close proximity or sharing the same classroom environment with a COVID – 19 patient
- Travelling together with COVID - 19 patients in any kind of conveyance.
- Living in the same **household** as a COVID – 19 patients.

Screening Protocol

1. Screening of patient and visitors entering to hospital premises shall be screened as per the case definition.
2. All suspect patients as per the case definition shall be directed towards COVID OPD.
3. Suspect patient shall be accompanied by supportive worker whereas patient and relative shall be provided with mask immediately if not worn already. Patient shall be taken to COVID OPD from outer passage of hospital to minimize the risk of transmission in other clinical area.
4. Record of all patients screened & referred to COVID OPD shall be maintained which shall include patient name, complaints, address and contact number.
5. Screening counter shall be placed at Casualty and Hospital entrance which shall function 24X7 where as screening counter for OPD entrance shall function during OPD timings.
6. Faculty and Staff of Dept of Preventive and Social Medicine along with one Resident and Interns of MBBS shall function on screening counter where as at night time counter shall be manned by staff nurses along with resident posted.
7. Non touch Thermal sensor shall be used for measurement of temperature.
8. All required PPE such as Gloves, Masks, Caps, and Gowns shall be made available.
9. Provision of appropriate distance (1 meter) shall be maintained at all locations of screening.
10. Provision of hand washing and alcohol based hand rub shall be made available.

Screening Protocol for Patient Requiring Admission

1. All the patients requiring admission due to various clinical conditions shall compulsorily seek COVID screening consultation by being referred to COVID OPD .
2. All the patients referred to COVID OPD shall be screened as per COVID screening score.
3. All the patients should undergo chest X-ray as part of COVID screening before admission.
4. All the patients shall be categorized in two categories as per COVID screening score i.e “COVID Suspect” and “Non COVID suspect” and same shall be stamped on the OPD paper of the patient.
5. All the patients in category of “COVID suspect” shall be primarily admitted in COVID Isolation ICU or ward for further management and swab collection. Whereas all patient in “Non COVID suspect” category shall be admitted in clinical area of respective specialty.

6. If result of the report is negative then patient will be shifted to respective clinical area where as positive patients shall be treated in Isolation ICU or shall be treated as per govt. guidelines issued from time to time.
7. If 1st Test report negative then repeat sample testing is considered on following grounds:
   a. Strong clinical suspicion
   b. Primary diagnosis is Community acquired pneumonia
   c. Unable to establish etiology other than CAP or Covid 19 infection
8. Patients seeking chemotherapy and dialysis on day care basis shall be screened on day 1 and on every fourth day thereafter. COVID score of Subsequent visit shall be marked in score sheet given along with patient case sheet.

Note-Any patient requiring admission after MGM or MCRI OPD consultation, shall be referred to COVID OPD for consultation and remark along with ward attender with appropriate transport arrangement.

Annexure: Scoring form for Screening of COVID-19 Suspect

FM/MGM/AAC-55

MGM Medical College Hospital, Aurangabad

Scoring form for Screening of COVID-19 Suspect

Sr. no	Parameter	Score	Patient Score	Special Remark if any
1	Fever > 99 ˚F	1		
2	Cough	2		
3	Shortness of breath/ difficulty in breathing	2		
4	Oxygen saturation on room air <95%	2		
5	X ray Chest abnormal	3		
6	History of travel from outside city	1		
7	Contact with COVID 19 patients	2		
8	Any family member suffering from cough, fever, cold, breathing difficulty	1		
9	Whether asked to be quarantined	3		
	Total	**15**		

- **O.P.D. Screening:** Score ≥**3**, refer patient to COVID OPD.
- **Admitted patient: Score ≥ 3** Shift the patient to MICU or Isolation ward after informing chief coordinator, Nodal officer, Intensivist on call
- If score is ≤ 2, Consider patient as Non COVID

Name of Doctor: **Signature:**

COVID OPD management:

1. Any patient with suspected flu like symptoms should be immediately referred to COVID OPD of the hospital.
2. Patients and visitors entering from main hospital entrance (Gate no-9) shall be directed as per their complaints eg; patient with cough, cold, fever and shortness of breath shall be directed towards COVID OPD and all other complaints shall be directed towards Casualty or OPD for further treatment.
3. Detailed case history will be taken on OPD paper as per the application of case definition.
4. The entire patient referred to COVID OPD shall be screened as per COVID screening score.
5. All the patients should undergo chest X-ray as part of COVID screening.
6. All the patients shall be categorized in two categories as per COVID screening score i.e "COVID Suspect" and "Non COVID suspect" and the same shall be stamped on the OPD paper of the patient.
7. If required suspect cases shall be referred to Govt medical college for further treatment.
8. All referred patients shall be given referral note which shall include History, Clinical details of patient and reason for referral. Record of all the referred patients shall be maintained.
9. Patient shall be given appropriate personal protective equipments (Mask) and shall be taken outside the hospital from external route to prevent transmission of infection to other clinical areas.
10. Patient shall be transported in Hospital Ambulance.
11. All the transport medium used such as Wheelchair, Stretcher and Ambulance shall be sanitized by appropriate method (1% Hypo chloride) after the each use.
12. All required PPE such as Water Repellant Suit, Surgical scrub suit, Gloves, Masks, Caps, and Gowns shall be made available.
13. Provision of hand washing and Alcohol based hand rub shall be made available.
14. Faculty and residents of Department of medicine, Pulmonary medicine and Pediatrics shall be posted 24X7 at COVID OPD.
15. Provision of male and female changing room, dining room shall be made available.
16. Food coupon for Tea, Breakfast, Lunch, Dinner shall be made available at time office.

Transportation of Patients

A) Intra Hospital Transport

1. Information about intra hospital transfer of patients should be communicated to respective clinical area well in advance (at least 30 min prior in case of planned transfer).
2. Dedicated lift shall be used for such transfer (lift Number 4 for wheelchair and lift Number 1 for stretcher) lift men shall be informed in advance. Social distancing shall be maintained during transportation.
3. Security Personnel should clear the traffic in advance.
4. Staff involved in such transportation should use all related PPE.
5. In case patient on ventilator/NIV cuff pressure should be maintained to prevent air leak and aerosol generation. Staff should wear full PPE (water repellent suite, N 95 mask, Gloves, Eye protection etc.)
6. In case of transfer for CT/MRI, prior information shall be provided. Health worker should wear all required PPE & CT/MRI shall be cleaned with 1% of hypochlorite solution after use.
7. CT/MRI machines shall not be used till one hour after such procedure for confirmed or suspect patient.
8. Post transport, clean the trolley / chair immediately with 1% hypochlorite solution. Remove gloves, mask, gown (Doffing).Perform hand hygiene.

B) Inter Hospital

1. Communicate in advance with hospital where patient is getting transferred.
2. Patient shall be transferred through predefined designated path only.
3. Security personnel should clear the traffic in advance.
4. Staff involved in such transportation should use all related PPE (Medical mask, Cap, Gown etc)
5. In case patient on ventilator/NIV cuff pressure should be maintained to prevent air leak and aerosol generation. Staff should wear full PPE (Water Repellent Suite, N 95 mask, Gloves, Eye protection etc.)
6. Ambulance driver also shall wear Cap, at least Medical Mask, Gloves. Patient relative should seat along with patient. No relatives will be allowed to sit in the driver cabin.
7. In case of requirement of support for lifting and shifting of patient, staff accompanying or ambulance driver should hold at foot end and not at head end of patient to prevent possibility of transmission.
8. One ambulance shall be designated to transfer such patient to outside hospital.
9. Post Transport; clean the Trolley / Wheel chair/Ambulance immediately with 1% hypochlorite solution. Remove gloves, mask, gown (Doffing).Perform hand hygiene.

Management of Isolation Area

(Includes observation ward area, isolation wards, and isolation ICU area)

- Suspected and confirmed patients shall be separated in different ward areas.
- Suspected patients shall be isolated in separated cubical.
- When separate rooms are not available cohorting may be done and keep distance of 1m.
- The suspected patients must wear mask all the times and do frequent hand hygiene
- Confirmed patients can be arranged in the same room with bed spacing of not less than 1.2 meters (appx. 4feet)

COVID -19 MANAGEMENT PROTOCOL
(As per approval of DMER Mumbai)

FOR COVID -19 ADULT PATIENTS

Group	Clinical Criteria	Treatment	Remarks
A)Asymptomatic			
1. Without co morbidity	**No H/O Fever, cough, running nose, shortness of breath**	**Tab Hydroxychloroquine 400 mg BD on day 1 then 200mg BD for 4 days.**	
2. With Comorbidity Any of the following – >60 years Diabetes, HTN/IHD/COPD, Immunocompromised state	**No H/O Fever, cough, running nose, shortness of breath**	**Tab Hydroxychloroquine 400 mg BD on day 1 then 200mg BD for 4 days. + Cap Oseltamivir 75 mg BD for 5 days**	
B) Symptomatic / URTI WITHOUT CO MORBIDITY	**H/O Fever, cough, running nose without shortness of breath RR </24 / min SpO_2 > 94 % Normal Chest on auscultation**	**Tab Hydroxychloroquine 400 mg BD on day 1 then 200mg BD for 4 days. + Cap Oseltamivir 75 mg BD for 5 days + Tab Azithromycin 500 mg OD for 5 Days**	
C)) Symptomatic / URTI WITHOUT CO MORBIDITY	**H/O Fever, cough, running nose without shortness of breath RR </24 / min SpO_2 > 94 % Normal Chest on auscultation**	**Tab Hydroxychloroquine 400 mg BD on day 1 then 200mg BD for 4 days. + Cap Oseltamivir 75 mg BD for 5 days + Tab Azithromycin 500 mg OD for 5 Days Or Lopinavir / Ritonavir 200 mg + 50 mg. 2 tab BD for 5 days LOPINAVIR / RITONAVIR TO BE CONSIDERED IN 1. Symptomatic patients with any one of the following a) Hypoxia as defined as requirement of supplement O_2**	

		saturation to more than 90% **b) Hypotension as defined as systolic BP <90 mm hg or need for vasopressure or inotropic support** **c) New onset organ dysfunction increase in creatinine by 50% from baseline or urine output less than 0.5 ml /kg for 6 hours** **2. Reduction of GCS by 2 or more** **3. Any other organ dysfunction**	
D) SYMPTOMATIC WITH PNEUMONIA WITHOUT RESPIRATORY FAILURE / MODS	**No signs os severe pneumonia**	**Tab Hydroxychloroquine 400 mg BD on day 1 then 200mg BD for 9 days.** **+** **Tab Azithromycin 500 mg OD for 5 Days** **+** **Cap Oseltamivir 75 mg BD for 5 days** **Or** **Lopinavir / Ritonavir 200 mg + 50 mg.** **2 tab BD for 5 days** **LOPINAVIR / RITONAVIR TO BE CONSIDERED IN** **1) Symptomatic patients with any one of the following** **d) Hypoxia as defined as requirement of supplement O_2 saturation to more than 90%** **e) Hypotension as defined as systolic BP <90 mm hg or need for vasopressure or inotropic support** **f) New onset organ dysfunction increase in**	

		creatinine by 50% from baseline or urine output less than 0.5 ml /kg for 6 hours **2) Reduction of GCS by 2 or more** **3) Any other organ dysfunction**	
E) SYMPTOMATIC WITH SEVERE PNEUMONIA WITHOUT RESPIRATORY FAILURE / MODS	**Any one of:** **1. RR - >24/min** **2. SpO_2 -< 94% on room air** **3. Confusion drowsiness** **4. Systolic BP < 90 mm of Hg or diastolic BP < 60mm of Hg**	**Tab Hydroxychloroquine 400 mg BD on day 1 then 200mg BD for 9 days.** **+** **Lopinavir / Ritonavir 200 mg + 50 mg.** **2 tab BD for 10 days** **+** **Tab Azithromycin 500 mg OD for 10 Days** **+** **Additional antibiotics** **+** **Fluid management** **+** **Ventilatory management as per ARDS protocol** **CLOSED SUCTIONING AND USE OF HME FILTER** **CORTICOSTEROIDS TO BE AVOIDED** **AVOID AEROSOL PRODUCING PROCEDURES**	

FOR COVID -19 PAEDIATRIC PATIENTS

COVID -19 suspect case

Any patients with acute respiratory illness (fever with at least one of the following – cough or shortness of breath) with:

- History of travel to high risk COVID -19 affected countries in the last 14 days or
- Close contact with a laboratory confirmed case of COVID -19 in the 14 days.

Asymptomatic traveler / close contact

- ✓ Home quarantine
- ✓ Temperature monitoring twice
- ✓ Contact & droplet precautions
- ✓ Don't need admission

On developing symptoms

- CBC , ECG to be done or not to be decided by pediatrician
- Oseltamivir to be used in high risk influenza suspects
- Do not combine Hydroxychloroquine with lopinavir

MILD CASE

Low grade fever, cough, malaise , rhinorrhea, sore throat without shortness of breath

MODERATE TO SEVERE CASES

TEST NEGATIVE

Symptomatic Management

TREATMENT

- Captablet oseltamivir (For high risk influenza suspects) according to age / weight band
- Antibiotics if needed
- Azithromycin – amox /clave)
- Syp Tab Paracetamol @mg /kg/dose SOS

TEST POSITIVE

- Home isolation (if > 72 hours afebrile or 7 days after symptom onset whichever is longer) / two negative samples 24 hours apart.
- Monitoring of temperature
- Paracetamol & symptomatic Rx
- Contact & droplet precautions
- Danger signs explained
- High – risk individuals may be considered for admission based on clinical judgment

MODERATE TO SEVERE CASES

Patient having any one of the following

- Tachypnea (as per age group < 2 months > 60, 2-11 months >50, 1-5 yrs > 40)
- SpO_2 < 94% in room air
- Confusion / Drowsiness
- Hypotension (BP < 5th percentile or > 2 SD below normal for age)

→ TEST NEGATIVE

Treat as per clinical condition

↓

TEST POSITIVE

- Oxygen supplement to maintain SpO_2 > 94 %
- Antipyretics , antitussives, antibiotics indicated
- MDI/nebulisation
- Hydroxychloroquine (as per pediatric dose)
- Lopinavir /ritonavir (as per pediatric dose) may be considered on case to case basis (within 10 days of symptom – onset)
- Corticosteroids to be avoided

Azithromycin

@10mg /kg / dose for 5 days can be considered in confirmed cases

IF WORSENING

Respiratory failure
Hypotension
Worsening mental status \ S
MODS

↓

SHIFT TO PICU

- NIV/HFNC to be used carefully in view of risk of aerosol generation
- Ventilator management as per ARDS protocol
- Conservative fluid management (if not in shock)
- Standard care for ventilated patient
- Prone ventilation, ECMO for refractory hypoxemia
- Avoid disconnecting patients from ventilators as if results in loss of PEEP
- In line catheter for suction and clamp , endotracheal tube when disconnection required

→

DISCHARGE

If two negative sample at least 24 hours apart after clinical and radiological improvement

PEDIATRIC DOSES OF DRUGS USED FOR TREATMENT OF COVID – 19

1. Oseltamivir

- **Age< 1 year**

< 3 months: 12 mg (per dose) PO 12 hrly x 5 days

3-5 months: 20 mg (per dose) PO 12 hrly x 5 days

6-11 months: 25 mg (per dose) PO 12 hrly x 5 days

- **Age > 1 Year**

<15 kg : 30mg (per dose) PO 12 hrly x 5 days

15-23 kg: 45 mg (per dose) PO 12 hrly x 5 days

23-40 kg 60 mg (per dose) PO 12 hrly x 5 days

>40 kg : Administer as in adults Cap. Oseltamivir 75 mg (per dose) 12 hrly for 5 days

2. HYDROXYCHLOROQUINE

10 mg /kg/dose orally 12 hrly (max: 600 mg/ dose) x 2 days

Followed by

3mg / kg/ dose TID (max: 200 mg/dose) x 3 days

3. LOPINAVIR / ROTONAVIR COMBINATION

14 days to 6 months old: LPV / r: calculate dose as per lopinavir component 16 mg/kg/dose/PO 12 hrly

6 months to 18 years age: weight wise:

- 15-25 kg : LPV/r (200mg/50 mg) per dose PO 12 hrly
- 26-35 kg: LPV/r (300mg/75 mg) per dose PO 12 hrly
- 35 kg : LPV/r (400mg/ 100 mg) per dose PO 12 hrly

Endotracheal Intubation and Mechanical Ventilation

1. Airborne precautions with all PPE (N95 masks) are indicated along with face shield and full contact precautions.
2. Minimize personnel during intubation.
3. Endotracheal intubation, should only be attempted by an airway competent doctor.
4. Perform rapid sequence induction to minimize contact time with the patient.
5. Pre oxygenate with tight fitting face mask / two handed grip to minimize leak. Avoid bagging to reduce aerosalisation .
6. Use the video laryngoscope and conventional laryngoscope shall be avoided. Avoid placing the operator's face close to the patient.
7. Attach a viral filter to the bag-valve mask before the procedure, if possible. This should reduce the spread of viral particles out of the endotracheal tube following intubation (or during bag-mask ventilation if that is required)
8. Attach to the ventilator immediately post intubation and do not use positive pressure until cuff inflated.
9. Use caprnography or predetermined length to decide the placement of ET tube to avoid the need for clinical examination.
10. Ensure meticulous removal, placement and discard of equipment used and PPEs.
11. Lung protective mechanical ventilator strategy and ventilator care bundle (head end elevated, sub-glotic suction, daily sedation interval, spontaneous breathing trials, gastric ulcer prophylaxis and VTE prophylaxis) should be applied to minimize the complications of invasive ventilation.
12. Timely invasive mechanical ventilation may benefit both the patient and the health care staff.

Role of NIV and High Flow Nasal Oxygen

NIV and high flow nasal oxygen therapy is controversial due to high risk of aerosolisation.

1. Non-invasive ventilation; If NIV is applied in case if invasive ventilation is not available; non-vented NIV mask (oro-nasal interface) with dual limb circuit should be used with minimal leak around the mask.
2. High flow oxygen device and single limb NIV with vented mask is discouraged to minimize aerosolisation. However, low flows 15-30 L/min may be considered.

Personal Protective Equipments:

a) All doctors should have N-95 masks if doing close examination (e.g. Ophthalmoscopy, otoscopy, auscultation of lung fields)

b) Security staff and other staff to wear surgical mask

c) If doing any aerosol generating procedure – Full PPE (Cap, N95 mask, goggles, gloves, gown).

COVID-19 RELATED PERSONAL PROTECTION MANAGEMENT

Protection Level	Protective Equipment	Scope of Application
Level I Protection	• Disposable surgical cap • Disposable surgical mask • Work uniform • Disposable gloves or/and disposable isolation clothing, if necessary	• Pre-examination triage (Flu centre) • General outpatient department
Level II Protection	• Disposable surgical cap • Medical protective mask(N95) • Work uniform • Medical protective uniform/gown • Disposable latex gloves • Goggles	• Fever out patient department • Isolation ward area (including isolated intensive ICU) • Non-respiratory specimen examination of suspected/confirmed patients • Imaging examination of suspected/ confirmed patients • Cleaning of surgical instruments used with suspected/confirmed patients
Level III Protection	• Disposable surgical cap • Medical protective mask(N95) • Work uniform • Disposable medical protective uniform (Water repellant suite) • Disposable latex gloves • Full-face respiratory protective devices or powered air-purifying respirator	• When the staff performs procedures such as tracheal intubation, tracheotomy, bronchofibroscopy, GI endoscopy, etc., during which, the suspected/ confirmed patients may spray or splash respiratory secretions or body fluids/blood • When the staff performs surgery and autopsy for confirmed/suspected patients • When the staff carries out NAT for COVID-19

Recommended PPE during the outbreak of COVID-19 outbreak, according to the setting, personnel, and type of activity

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Inpatient facilities			
Screening Clinical triage for prioritization of care according to severity (e.g. Manchester classification) should be performed in separate area for individuals with symptoms and signs	Health care workers	Preliminary screening not involving direct contact.	• Maintain physical distance of at least 1 meter. • Ideally, build glass/plastic screens to create a barrier between health care workers and patients • No PPE required. • When physical distance is not feasible and yet no patient contact, use mask and eye protection.
	Patients with symptoms suggestive of COVID-19	Any	• Maintain physical distance of at least 1 meter. • Provide medical mask if tolerated by patient. • Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 1 meter from other patients. • Perform hand hygiene and have the patient perform hand hygiene
	Patients without symptoms suggestive of COVID-19	Any	• No PPE required • Perform hand hygiene and have the patient perform hand hygiene
Patient room /ward	Health care workers	Providing direct care to COVID-19 patients, in the absence of aerosol-generating procedures	• Medical mask • Gown • Gloves • Eye protection (goggles or face shield) Perform hand hygiene
	Health care workers	Providing direct care to COVID-19 patients in settings where aerosol-generating	• Respirator N95 or FFP2 or FFP3 standard, or equivalent. • Gown • Gloves • Eye protection • Apron

		procedures are frequently in place	• Perform hand hygiene
	Cleaners	Entering the room of COVID-19 patients	• Medical mask • Gown • Heavy-duty gloves • Eye protection (if risk of splash from organic material or chemicals is anticipated) • Closed work shoes • Perform hand hygiene
	Visitors	Entering the room of a COVID-19 patient	• Maintain physical distance of at least 1 meter • Medical mask • Gown • Gloves • Perform hand hygiene
Areas of transit where patients are not allowed (e.g. cafeteria, corridors)	All staff, including health care workers.	Any activity that does not involve contact with COVID-19 patients	• Maintain physical distance of at least 1 metre • No PPE required • Perform hand hygiene
Laboratory	Lab technician	Manipulation of respiratory samples Specimen handling for molecular testing would require BSL-2 or equivalent facilities. Handling and processing of specimens from cases with suspected or confirmed COVID-19 infection that are intended for additional laboratory tests,	• Maintain physical distance of at least 1 metre • Medical mask • Eye protection • Gown • Gloves • Perform hand hygiene

		such as haematology or blood gas analysis, should apply standard precautions[9]	
Administrative areas	All staff, including health care workers.	Administrative tasks that do not involve contact with COVID-19 patients.	• Maintain physical distance of at least 1 metre • No PPE required • Perform hand hygiene

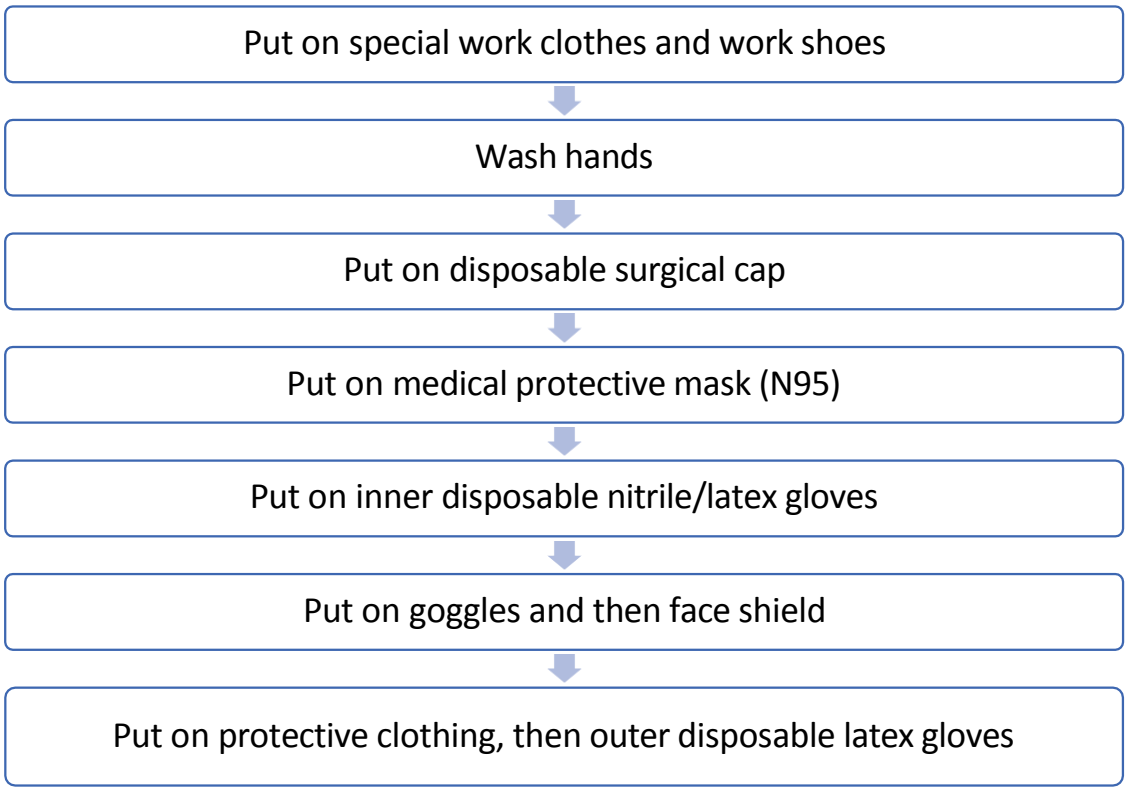
Out Patient Facilities			
Screening/triage	Health care workers	Preliminary screening not involving direct contact[c].	• Maintain physical distance of at least 1 metre. • Ideally, build a glass/plastic screen to create a barrier between health care workers and patients • No PPE required • When physical distance is not feasible and yet no patient contact, use mask and eye protection. • Perform hand hygiene
	Patients with symptoms suggestive of COVID-19	Any	• Maintain spatial distance of at least 1 metre. • Provide medical mask if tolerated. • Perform hand hygiene
	Patients without symptoms suggestive of COVID-19	Any	• No PPE required • Perform hand hygiene
Waiting room	Patients with symptoms suggestive of COVID-19	Any	• Provide medical mask if tolerated. • Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 1 meter from other patients. • Have the patient perform hand hygiene
	Patients without respiratory symptoms	Any	• No PPE required • Have the patient perform hand hygiene
	Health care workers	Physical examination of patient with symptoms suggestive of COVID-19	• Medical mask • Gown • Gloves • Eye protection • Perform hand hygiene

Consultation room	Health care workers	Physical examination of patients without symptoms suggestive of COVID-19	• PPE according to standard precautions and risk assessment. • Perform hand hygiene
	Patients with symptoms suggestive of COVID-19	Any	• Provide medical mask if tolerated. • Hand hygiene and respiratory etiquette
	Patients without symptoms suggestive of COVID-19	Any	• No PPE required • Have the patient perform hand hygiene
	Cleaners	After and between consultations with patients with respiratory symptoms.	• Medical mask • Gown • Heavy-duty gloves • Eye protection (if risk of splash from organic material or chemicals). • Closed work shoes • Perform hand hygiene
Administrative areas	All staff, including health care workers	Administrative tasks	• Maintain physical distance of at least 1 metre between staff • No PPE required • Perform hand hygiene
Home care			
Home	Patients with symptoms suggestive of COVID-19	Any	• Maintain physical distance of at least 1 meter. • Provide medical mask if tolerated, except when sleeping. • Hand and respiratory hygiene
	Caregiver	Entering the patient's room, but not providing direct care or assistance	• Maintain physical distance of at least 1 meter • Medical mask • Perform hand hygiene

	Caregiver	Providing direct care or when handling stool, urine, or waste from COVID-19 patient being cared for at home	• Gloves • Medical mask • Apron (if risk of splash is anticipated) • Perform hand hygiene
	Health care workers	Providing direct care or assistance to a COVID-19 patient at home	• Medical mask • Gown • Gloves • Eye protection
Ambulance or transfer vehicle	Health care workers	Transporting suspected COVID-19 patients to the referral health care facility	• Medical mask • Gowns • Gloves • Eye protection • Perform hand hygiene
	Driver	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment is separated from the COVID-19 patient	• Maintain physical distance of at least 1 meter. • No PPE required • Perform hand hygiene
		Assisting with loading or unloading patient with suspected COVID-19	• Medical mask • Gowns • Gloves • Eye protection • Perform hand hygiene
		No direct contact with patient with suspected COVID-19, but no separation between driver's and patient's Compartments	• Medical mask • Perform hand hygiene
	Patient with suspected COVID-19.	Transport to the referral health care facility.	• Medical mask if tolerated • Have the patient perform hand hygiene

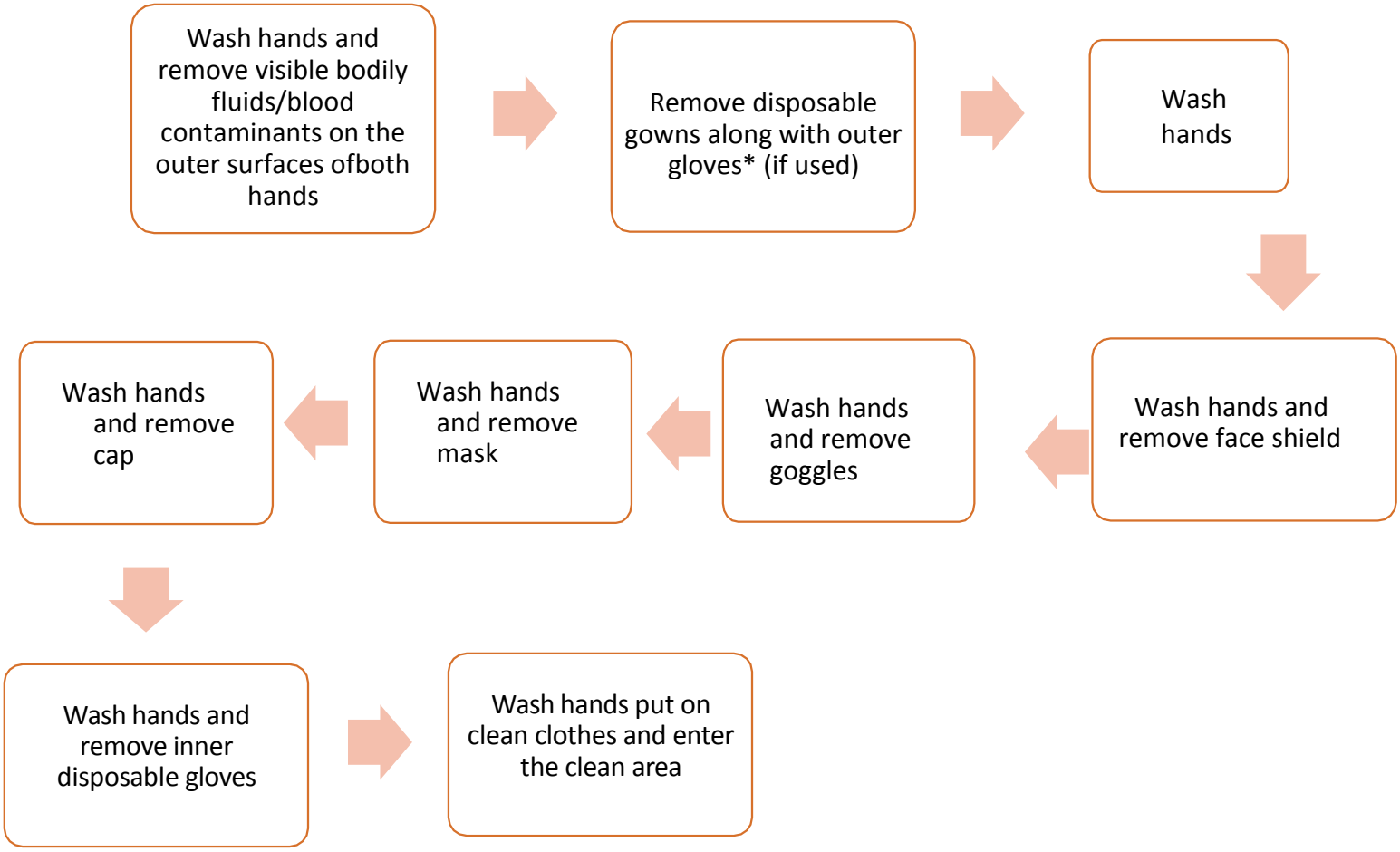
	Cleaners	Cleaning after and between transports of patients with suspected COVID-19 to the referral health care facility.	• Medical mask • Gown • Heavy duty gloves • Eye protection (if risk of splash from organic material or chemicals). • Boots or closed work shoes • Perform hand hygiene
Special considerations for rapid-response teams assisting with public health investigations			
Anywhere	Rapid-response team investigators	Remote interview of suspected or confirmed COVID-19 patients or their contacts.	• No PPE if done remotely (e.g. by telephone or video conference). • Remote interview is the preferred method.
		In-person interview of suspected or confirmed COVID-19 patients or contacts without direct contact	• Medical mask • Maintain physical distance of at least 1 metre. • The interview should be conducted outside the house or outdoors, and confirmed or suspected COVID-19 patients should wear a medical mask if tolerated. • Perform hand hygiene

Guidance on donning PPE



(If wearing protective clothing without foot covers, please also put on separate waterproof boot covers), put on a disposable isolation gown (if required in the specific work zone) and face shield/powered air-purifying respirator(if required in the specific work zone).

Guidance of removing PPE



* For gloves and protective clothing, turn inside out, while rolling them down (Note : If used , remove the waterproof boot covers with clothing)

Masks management

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

Laboratory Testing

Whom to Test?

- All symptomatic persons (fever, cough, difficulty in breathing) within 14 days of international travel
- All symptomatic contacts of confirmed cases
- All symptomatic health care workers
- All hospitalized patients with Severe Acute Respiratory Illness (Fever AND cough and/or shortness of breath)
- 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. Direct and high risk contact include:
    - Those who live in the same household of a confirmed case and
    - Healthcare workers who examined a confirmed case without adequate PPE as per recommendations.

Who will collect the sample?

- Doctor or nurse on floor will collect the sample after wearing appropriate PPE
- Specimens should be collected as soon as possible once a suspected case is identified regardless of time of symptom onset
- Label each specimen container with the patient's IPD/UIN number, name, ward, specimen type and the date of collection
- Fill the requisition form completely (As recommended by ICMR/ NIV, Pune)

Samples to be collected

Essential Samples:

- Oropharyngeal swab
- Nasopharyngeal swab

Other preferred samples:

- Bronchoalveolarlavage
- Trachealaspirate
- Sputum

} Wide mouth sterile plastic containers

In lab confirmed patients:

- Blood
- Stool and urine - Wide mouth sterile plastic containers

In deceased patients:

- Autopsy material including lung tissue
- Collection of OP and NP swabs

Optimal timing:

- Within 3 days of symptom onset and no later than 7days.
- Preferably prior to initiation of antimicrobial chemoprophylaxis or therapy.

Respiratory Specimen collection - Materials required

Personal Protective Equipment (PPE)

1. Water repellant scrub suite
2. N 95 masks
3. Goggles
4. Face shield
5. Cap
6. Shoe covers
7. Hand gloves

Specimen collection material

- **Specimen Collection**

- Nylon/Dacron flockedswabs-2
- Sterile container with viral Transport medium(VTM)

- **Specimen packing**
  - Cotton
  - Tissue papers
  - Parafilm roll
  - Scissors
  - Cello tape
  - Zip lock pouches
  - Plastic container with seal
  - Thermocol box
  - Icepacks

- **Specimen Transport**
  - Labels
  - Hard cardboard box

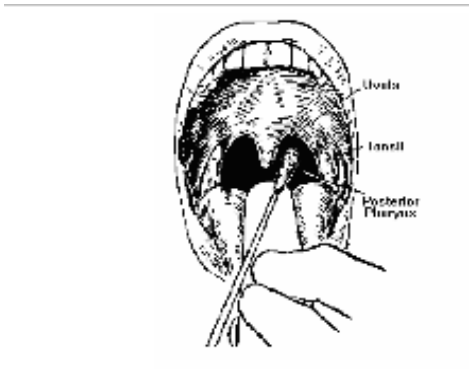
General considerations

- Combined nasal and oral swabs to be collected in viral transport medium
- All uninoculated VTM to be kept at room temperature
- Turbid VTM must be discarded
- All respiratory specimens collected in VTM must be stored in dedicated refrigerator before packing and transport.

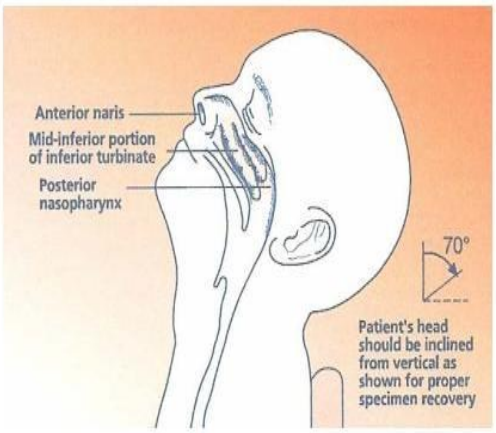
Collection of Oropharyngeal swab

Procedure:

1. Hold the tongue out of the way with a tongue depressor.
2. Use a sweeping motion to swab posterior pharyngeal wall and tonsillar pillars
3. Have the subject say "aahh" to elevate theuvula.
4. Avoid swabbing soft palate and do not touch the tongue with swab tip.
5. Put the swab in VTM



Collection of Nasopharyngeal Swabs



Procedure:

1. Tilt patient's head back 70degree
2. Insert swab into nostril (swab should reach depth to distance from nostrils to outer opening of the ear.
3. Leave swab in place in place for several seconds to absorb secretions.
4. Slowly remove swab while rotating it.
5. Place tip of swab into VTM and snap / cut off the applicator stick.

Transport of Routine Laboratory samples (e.g. Biochemistry, Hematology and Microbiology tests)

- Well labeled samples for investigations shall be sent in double transparent zip lock pouches.
- Sample requisition form shall be placed inside the pouch in a way so that patient details are clearly visible from outside without opening the pouch or requisition can be placed in software wherever possible.
- Mention the “Suspect of COVID-19” or “COVID-19” in case of confirm case on top of the requisition form in red ink with bold letters.
- All laboratories shall maintain separate register and enter the patient and specimen details without removing the requisition form from the pouch.
- Standard precautions as per HIV specimens (NACO guidelines) to be followed.
- In case of suspected exposure, COVID exposure protocol mentioned elsewhere to be followed.

Disinfection and Sanitation Procedures

- **OPD Area**

➢ Deep cleaning

- At least twice in a day
- Spray all areas with 0.5-1% Na hypochlorite/lyzol
- Mopping all high touch surfaces with 1% Sodium hypochlorite
- Flooring cleaning with soap and water

➢ Periodic cleaning

- Mopping all high touch surfaces at least every 2-4hrs with 0.5-1% Sodium hypochlorite
- Repeat the procedure at any time when there is contamination.

- **Emergency / Casualty area/IPD area**

➢ Deep Cleaning

- At least twice in a day
- Spray all areas with 0.5-1% Sodium hypochlorite
- Mopping all high touch surfaces with 1% Sodium hypochlorite
- Flooring cleaning with soap and water

➢ Periodic cleaning

- Mopping all high touch surfaces at least every 2-4hrs with 1% Sodium hypochlorite
- Repeat the procedure at any time when there is contamination

- **Isolation Area (Ward/ICU)**
  - Clean the floors and surfaces for every 4 hourly with 1% hypochlorite
  - Mopping all high touch surfaces with 1% Sodium hypochlorite at every 2 hourly
  - Repeat the procedure at any time when there is contamination

Disinfection for Floor and Walls

1. Visible dust shall be completely removed before disinfection and handled in accordance with disposal procedures of blood and bodily fluid spills
2. Disinfect the floor and walls with 0.5-1% hypochlorite through floor mopping, spraying or wiping
3. Make sure that disinfection is conducted for at least 30minutes
4. Carry out disinfection at least once per shift and repeat the procedure at any time when there is contamination

Disinfection of Object Surfaces

1. Same as above
2. Wipe cleaner regions first, then more contaminated regions: first wipe the object surfaces that are not frequently touched, and then wipe the object surfaces that are frequently touched

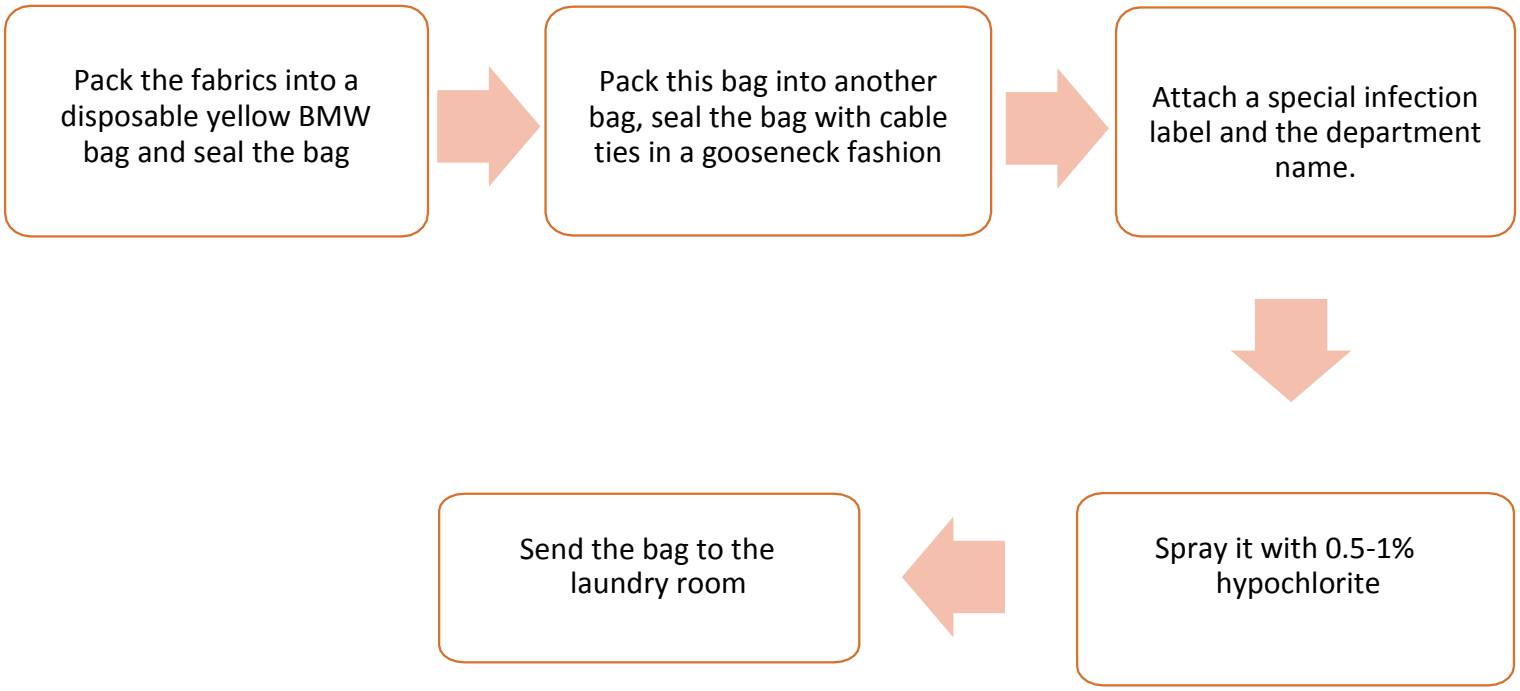
Decontamination of ambulance

- Decontamination of ambulance needs to be performed every time a suspect/confirmed case is transported in the ambulance. The following procedure must be followed while decontaminating the ambulance
- Gloves and N-95 masks are recommended for sanitation staff cleaning the ambulance.
- Disinfect (damp wipe) all horizontal, vertical and contact surfaces with a cotton cloth saturated (or microfiber) with a 1% sodium hypochlorite solution. These surfaces include, but are not limited to: stretcher, Bed rails, Infusion pumps, IV poles/Hanging IV poles, Monitor cables, telephone, Countertops, sharps container. Spot clean walls (when visually soiled) with disinfectant-detergent and windows with glass cleaner. Allow contact time of 30 minutes and allow air dry.
- Damp mop floor with 1% sodium hypochlorite disinfectant.
- Discard disposable items and Infectious waste in a Bio/Hazard bag. The interior is sprayed with 1% sodium hypochlorite. The bag is tied and exterior is also decontaminated with 1% sodium hypochlorite and should be given to the hospitals to dispose of according to their policy.
- Change cotton mop water containing disinfectant after each cleaning cycle.
- Do not place cleaning cloth back into the disinfectant solution after using it to wipe a surface.
- Remove gloves and wash hands.

Disinfection Procedures for Infectious laundry of Suspected or Confirmed Patients

- **Infectious fabrics:**
    1. Bed sheets, and pillow covers used by patients
    2. Floor towels used for environmental cleaning
    3. Hospital cloths of patients
    4. No curtains should be there in COVID management areas

Disinfection Procedures for Infectious laundry of Suspected or Confirmed Patients - Collection method



Storage and washing:

1. Person handling the infectious fabric at linen dept shall wear all required PPE such as (Water resistance suite, mask, cap, goggles, and long heavy duty gloves and Gum boots).
2. Infectious fabrics should be separated from other linen (non-COVID-19) and washed during pre fix timings to prevent mix of the infectious linen with non infectious linen.
3. All infectious linen (Cotton material) shall be kept in 1 % hypochlorite for 30 min before washing.
4. Wash these fabrics with Detergent powder preferably using warm water for 30 min cycle. Dry the linen in dryer machine for 30 min or dry in sunlight.

Washing and Disinfection Procedure for Water repellent suites

1. Dip it in to antibacterial solution like Dettol for 15 min
2. Wash it gently and do not use brush, Avoid vigorous washing
3. Dry it for 12 hours or Dry it in dryer machine for 30 min
4. Autoclave at 100^0 for 15 min

Disinfection of transport trolleys:

- Trolleys shall be disinfected immediately each time after being used for transporting infectious fabrics.
- Transport Trolleys should be wiped with chlorine-containing disinfectant 0.5-1% sodium hypochlorite.
- Leave disinfectant for 30 minutes before wiping the tools clean with clean water

Biomedical Medical Waste Management

5. All the waste generated in COVID patient care units is BMW
6. Put the medical waste into a double-layer yellow BMW bag
7. Seal the bag with cable ties in a gooseneck fashion
8. Spray the bag with 0.5-1% hypochlorite
9. Affix a special infection label and transfer it

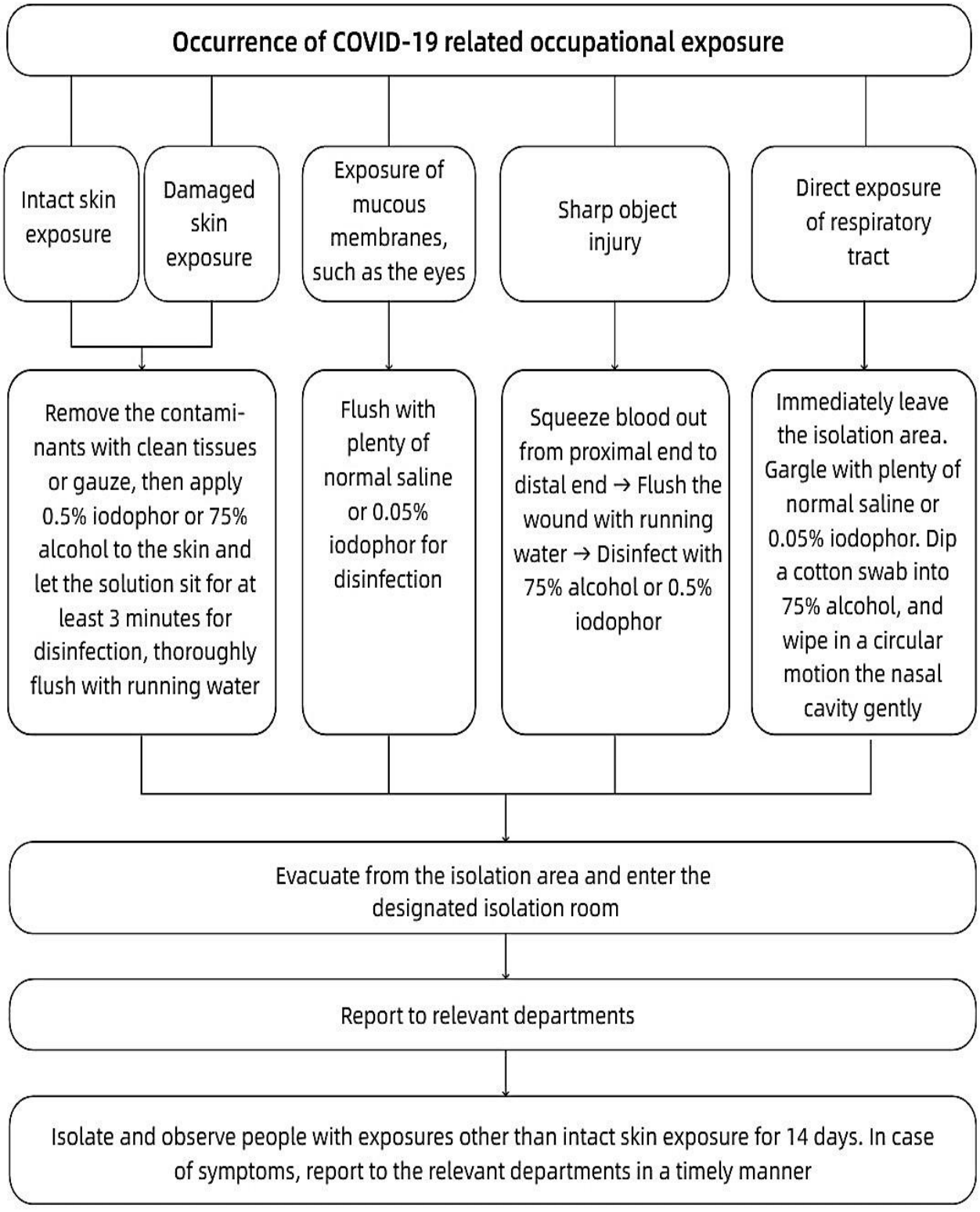
- **Sharps Containers**

- Put sharp objects into a sharps container, seal the box and spray the box with 0.5-1% hypochlorite
- Put the bagged waste into a medical waste transfer box
- Affix a special infection label, fully enclose the box and transfer it
- Transfer the waste to a BMW storage area along a specified route at a fixed time point, microwave it and store the waste separately at a fixed location

Disposal Procedures for Spills of Blood/Fluids

- Spills of a **small volume (< 10 mL)** of blood/bodily fluids
    - Carefully remove the spills with disposable absorbent materials such as gauze, wipes, etc., which have been soaked in 0.5-1% hypochlorite disinfecting solution
- Spills of a **large volume (> 10 mL)** of blood and bodily fluids
    - First, place signs to indicate the presence of as pill
    - Completely cover the spill with disinfectant powder or bleach powder containing water-absorbing ingredients or completely cover it with disposable water-absorbing materials and then pour a sufficient amount of 1-2% hypochlorite disinfectant onto the water-absorbing material (or cover with a dry towel which will be subjected to high-level disinfection). Leave for at least 30 minutes before carefully removing the spill.
- Fecal matter, secretions, vomit, etc. from patients shall be collected into special containers and disinfected for 2 hours by a 4-5% hypochlorite disinfectant at a spill-to-disinfectant ratio of1:2
- After removing the spills, disinfect the surfaces of the polluted environment or objects
- Containers that hold the contaminants can be soaked and disinfected with 1% hypochlorite for 30 minutes and then cleaned
- All waste collected should be disposed of as medical waste
- Used items should be put into double-layer medical waste bags and disposed of as medical waste

Procedures for Taking Remedial Actions against Occupational Exposure toCOVID-19



Guidelines for use of hydroxy-chloroquine as prophylaxis for SARS CoV-2 infection

Eligible individuals:

- Healthcare workers involved in care of suspected or confirmed cases of COVID patients
- Healthcare workers involved in care of asymptomatic household contacts of laboratory confirmed cases
- Household contacts of suspected symptomatic health care worker

Procedure

1. Health care worker should draw OPD registration paper
2. Health care worker shall be assessed with detailed health history
3. ECG Examination is must before final prescription
4. Chief coordinator/Authorized consultant only shall review the ECG and other assessment details
5. Health care worker shall produce written consent for willingness for prophylaxis treatment
6. Chief coordinator/Authorized consultant only shall generate the prescription in duplicate form by following all ideal prescription guidelines. Only one dose shall be prescribed at one time.
7. On obtaining prescription medical store keeper shall issue the prophylactic medication.
8. Overwriting on prescription shall not be accepted in any case.
9. Health care workers shall maintain the record of OPD case paper and ECG for subsequent doses.
10. New prescription will be generated at each dose (Weekly)

Dose:

- Asymptomatic health care workers involved in care of suspected or confirmed cases of COVID patients – 400mg 12hourly on day 1, followed by 400mg once weekly for next 7 weeks; to be taken with meals
- Asymptomatic household contacts of lab confirmed cases - 400mg BD on day 1, followed by 400mg once weekly for next 3 weeks; to be taken with meals

Exclusion/Contraindications–

- Drug not recommended for prophylaxis in children under 15 years of age
- Contraindicated in known cases of retinopathy, known hypersensitivity to hydroxy chloroquine, 4-aminoquinolonecompounds

Key considerations–

- Drug has to be given only on the prescription of a registered medical practitioner
- Advised to consult a physician for any adverse event or potential drug interaction before any initiation of medication

Note-

- ***Drug shall be provided as per duty roster of the health care worker***
- ***Those not involved in patient care and COVID testing should not initiate prophylaxis.***

Dietary Management – COVID Patients

- All diets shall be served in disposable containers
- All labeled diets must reach the designated patient care unit
- In special wards (Single room occupancy) designated food shall be placed by hospital attendant wearing full PPE
- Patients will then be informed to collect their food from outside their rooms
- All leftovers/disposables shall be discarded as BMW infected waste category (Yellow)

Hospital authorities should immediately inform to local Govt. authorities for further needful.

If COVID report is awaited dead body should not be given to relative till the report gets available.

Care of dead body and wrapping

1. The health worker attending to the dead body should perform hand hygiene, ensure proper use of PPE.
2. All tubes, drains and catheters on the dead body should be removed.
3. Any puncture holes or wounds should be disinfected with 1% hypochlorite and dressed with impermeable material.
4. Apply caution while handling sharps .
5. Plug Oral, nasal orifices of the dead body to prevent leakage of body fluids.
6. Place the dead body in leak-proof plastic body bag. The exterior of the body bag can be decontaminated with 1% hypochlorite.
7. The body bag can be wrapped with a mortuary sheet or sheet provided by the family members

Disinfection

1. All used/ soiled linen should be handled with standard precautions, put in biohazard bag and the outer surface of the bag disinfected with 1% hypochlorite solution.
2. Used equipment should be autoclaved or decontaminated with disinfectant solutions in accordance with established infection prevention control practices.
3. The health staff who handled the body will remove personal protective equipment and will perform hand hygiene
4. 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 in Mortuary

1. Mortuary staff handling COVID 19 dead body should follow standard precautions.
2. Dead bodies should be stored in dedicated cold chambers for COVID Patients at temperature of approximately 4°C.
3. 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.

Transportation of dead body

1. 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).
2. The vehicle, after the transfer of the body to cremation/ burial , will be decontaminated with 1% Sodium Hypochlorite.

At the Crematorium

1. The Crematorium staff will practice standard precautions of hand hygiene, use of masks and gloves.
2. 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.
3. Religious rituals such as reading from religious scripts, sprinkling holy water and any other last rites that does not require touching of the body can be allowed.
4. The funeral/ burial staff and family members should perform hand hygiene after cremation.
5. The ash does not pose any risk and can be collected to perform the last rites.
6. No more than five to ten people gathering are allowed at the crematorium.

Note- Policy on Management of dead body shall change time to time as per directions of local Govt. Authorities.

Upkeep of Medical Records

- No records to be collected by MRD personnel
- All records to be retained at COVID patient care units
- Final disposal/transport process to be updated soon

Engineering controls

At the minimum following should be ensured:

- Adequate power back must be ensured with response time log for power backup
- Ventilation should be provided through dedicated HVAC system for each patient care unit (separate AHU for patient care areas and non-clinical areas)with
    - Temperature range of18-24degrees
    - Humidity55-60%
    - ACH of 10-12ACH/hr
    - All re-circulated air must come through HEPA filters (will be reviewed as per the latest guidelines issued time to time)
    - All pre-filters to be checked weekly and logged
- Uninterrupted potable water supply to be available
- Medical Gas Pipe line System
    - All patient care units must have piped supply of Medical oxygen, Medical Air and Vacuum
    - Portable cylinders are hazardous, can carry infections - must be avoided.

References

1. https://ncdc.gov.in/WriteReadData/l892s/89568514191583491940.pdf
2. https://www.mohfw.gov.in/pdf/GuidelinesfornotifyingCOVID-19affectedpersonsbyPrivateInstitutions.pdf
3. https://www.mohfw.gov.in/pdf/5Sample%20collection_packaging%20%202019-nCoV.pdf
4. https://journals.lww.com/anesthesia-analgesia/Fulltext/2020/05000/Recommendations_for_Endotracheal_Intubation_of.1.aspx
5. https://www.who.int/publications-detail/rational-use-of-personal-protective-equipment-for-coronavirus- disease-(covid-19)-and-considerations-during-severe-shortages.
6. https://www.mohfw.gov.in/pdf/Guidelinesondisinfectionofcommonpublicplacesincludingoffices.pdf
7. https://www.mohfw.gov.in/pdf/AdvisoryontheuseofHydroxychloroquinasprophylaxisforSARSCoV2infection.pdf
8. https://www.mohfw.gov.in/pdf/StandardOperatingProcedureSOPfortransportingasuspectorconfirmedcaseofCOVID19.pdf
9. https://icmr.nic.in/node/39071
10. https://www.mohfw.gov.in