



# THE RED BOOK

VERSION 21 (JANUARY 2022)

POWERED BY

APOLLO HOSPITALS GROUP



## REDBOOK FOR INTERNET RELEASE

### ACKNOWLEDGEMENTS

We would like to thank the Ministry of Health & Family Welfare, Government of India, various State Governments, FICCI, CII, ICMR, NCDC, AIIMS, NIV, other Central Governmental agencies, NATHEALTH, WHO, Members of Apollo Hospital and Apollo Health & Lifestyle Limited teams with a special mention to Consultants, Junior Medical Staff, Medical heads, Nursing heads, Infectious disease specialists, Microbiology heads, Quality heads, Laboratory heads, Marketing team and all the authoritative websites and material published by organizations.

### DISCLAIMER

The COVID-19 Red Book does not aim to provide medical advice.

It is completely left to the physicians/s to use their judgement to decide on clinical management. Red Book summaries best practice guidelines which will be updated from time to time.

COVID testing, Isolation and Quarantine protocols to be followed as per local Govt rules and regulations.



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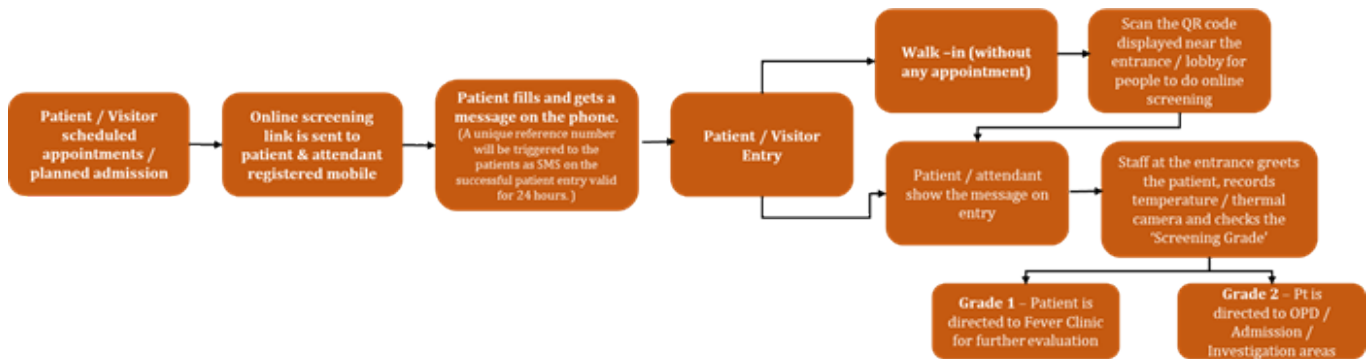
# CHAPTER I

## REDESIGNED HOSPITAL PROCESSES



## HOSPITAL ENTRANCES (Refer to hospital entrance checklist)

### SCREENING



### Screening Criteria:

1. Do you have fever, cough, cold, body pains etc?
2. Do any of your family members have any of the above symptoms?
3. Did you participate in any event with more than 15 members?
4. Were you in contact with anyone who was suspected or a confirmed case of COVID?
5. Were you ever tested positive for Covid-19 or had any symptoms suggestive of possible infection?

### Definition of contact

A contact is a person that is involved in any of the following:

- Providing direct care without proper personal protective equipment (PPE) for COVID-19 patients
- Staying in the same close environment of a COVID-19 patient (including workplace, classroom, household, gatherings).
- Traveling together in close proximity (1 m) with a symptomatic person who later tested positive for COVID-19.

### High Risk Contact

- Touched body fluids of the patient (respiratory tract secretions, blood, vomit, saliva, urine, faeces)
- Had direct physical contact with the body of the patient including physical examination without PPE.
- Touched or cleaned the linens, clothes, or dishes of the patient.
- Lives in the same household as the patient.
- Anyone in close proximity (within 3 ft) of the confirmed case without precautions.
- Passenger in close proximity (within 3 ft) of a conveyance with a symptomatic person who later tested positive for COVID-19 for more than 6 hours.

### Low Risk Contact:

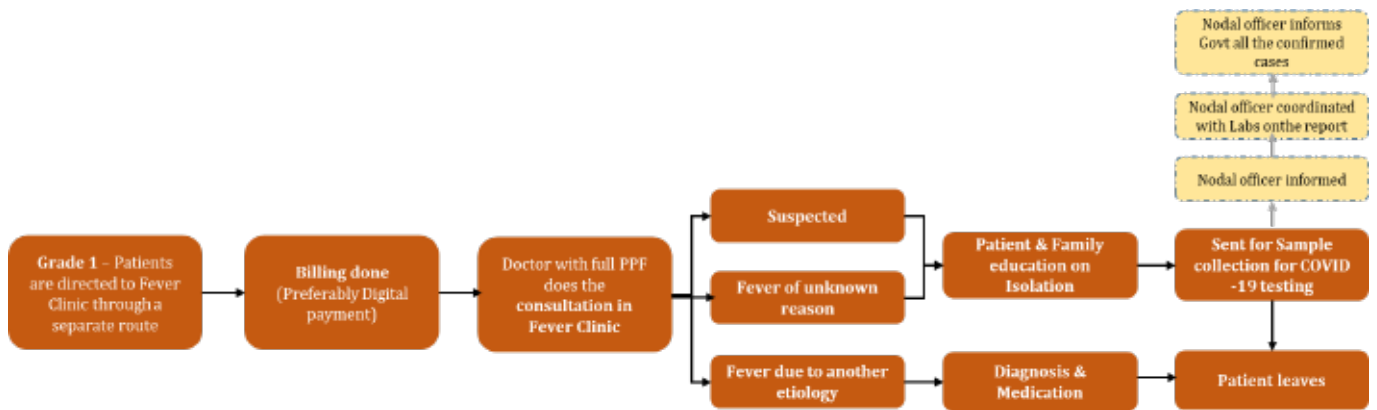
- Shared the same space (same class for school/worked in same room/similar and not having a high risk exposure to confirmed or suspect case of COVID-19).
- Travelled in same environment (bus/train/flight/any mode of transit) but not having a high risk exposure.



# Fever Clinic

(Refer to Fever Clinic checklist)

An outpatient facility where patients could come in when they have fever or fever accompanied with multiple other health related issues. The physician would evaluate and use evidence based clinical protocols to diagnose the cause of the problem.



## Consult room:

One consult room with separate entry and exit (preferably)

Room should be segregated from the regular area  
Separate area in the out-patient zone with separate air-conditioning/ ventilation

Waiting areas to be segregated from routine check-up area and fever clinic areas

## People

Senior Doctor  
Nurse  
Housekeeping staff  
Security

## Equipment:

- Portable X Ray
- Table and chairs
- Basic Monitor Thermometer
- NIBP- for BP measurement
- Stethoscope
- Stretcher Oxygen cylinder
- Pulseoximeter

## Personal protective equipment (ppe):

- Hand rub
- Medical Face masks- N95
- Gloves
- Caps, gowns, shoe covers

## Surface disinfectants:

1% Sodium Hypochlorite

## Clinical protocols for fever clinics:

a. The doctor will be a trained GP /Internal Medicine qualified doctor.

b. The doctor will be wearing PPE for the encounter. The doctor will follow all standard patient examination protocols as laid down in Hutchinson's Clinical Methods.

d. Post consultation, the possible clinical etiologies envisaged are:

- nCOVID 19
- Fever due to another etiology
- Fever of unknown origin where nCOVID 19 cannot be ruled out.

## Fever due to suspected nCOVID 19\*\*:

All cases due to suspected symptoms of nCOVID will be dealt with as per the standard guidelines in vogue as directed by the Central and State government authorities. These guidelines will be updated as and when modified by the authorities. X Ray needs to be done for evaluation.

Fever due to another etiology: The patient will be advised the necessary diagnostics and medication. In case his condition is not contagious, he will be guided to the non-fever area of the clinic for further activities which will include sampling and the pharmacy. He will be encouraged to utilise the services at home where diagnostics is concerned.

## Acute Febrile illness unknown origin (PUO)\*\*:

The patient will be directed as mentioned in "Fever due to suspected nCOVID 19: section. Any other tests as indicated by his condition or the diagnostic fever profile testing will be advised and offered to him.

## Post Consult:

The patient as per marked (\*\*) sections will be directed to the specific area which is designated for sample collection for potential nCOVID cases.

### Prophylaxis:

All staff in this designated area will be advised prophylactic medication after possible exposure to a case of nCOVID. All other clinic staff will be assessed for prophylaxis based on the contact as assessed by the clinician in the centre with the IPC team if available. This will be governed by the ICMR guidelines which are in vogue at the time. Medication will be given with a doctor's prescription and after approval from the Medical Services.

### Biomedical waste management:

All biomedical waste created, including the PPE will be disseminated as per the norms which have been made by the Ministry of Health & Family Welfare, Government of India (MoHFW, GOI). This will be supervised by the Infection Control Nurse (ICN) where available or by the Operations team and audited.

### Screening

Every patient needs to be screened at the entry point of the clinic/ hospital. Patients with fever should be directed to the fever clinic. Out of the patients who are evaluated in the fever clinic, the ones that will be suspected to have a viral infection like Corona virus, will have to undergo tests for confirmation of a diagnosis

### Fever clinic- SUGGESTED TEST PANELS

Four fever types have been described including sustained/continuous fever, intermittent fever, remittent fever and relapsing fever

#### Continuous or sustained fever

is defined as fever that does not fluctuate more than about 1 °C (1.5 °F) during 24 h, but at no time touches normal.

Continuous fevers are characteristics of lobar and gram-negative pneumonia, typhoid, acute bacterial meningitis, urinary tract infection, among others. Fever characterized by slow stepwise temperature rise and a high plateau are classical of typhoid fever.

However, this fever pattern is reported in only about 12% of cases in clinical practice, possibly because most patients with fever self-medicate with antibiotics and anti-pyretics before consulting some health personnel.

Fever associated with relative bradycardia (temperature pulse dissociation or Faget's sign) is a feature of untreated typhoid, leishmaniasis, brucellosis, Legionnaire's disease and psittacosis, Yellow Fever, among others

### Fever Panel - RECOMMENDED TESTS

|                                      |
|--------------------------------------|
| Complete Urine Examination           |
| Complete Blood Count (Cbc)           |
| Erythrocyte Sedimentation Rate (Esr) |
| Typhidot - Igm                       |

**Intermittent fever** is defined as fever present only for several hours during the day.

This pattern of fever can be seen in malaria, pyogenic infections, tuberculosis (TB), schistosomiasis, lymphomas, leptospira, borrelia, kala-azar, or septicemia Sources of continuous, intermittent or transient bacteremia may lead to continuous, intermittent or transient fevers respectively. In malaria, depending on the specie of parasite, fever can occur with a periodicity of 24 h (quotidian-due to plasmodium falciparum), 48 h (tertian – plasmodium ovale and vivax), or 72 h (quartan – Plasmodium malariae).

The Pel-Epstein's fever is an intermittent low grade fever characterized by 3–10 days of fever with subsequent a febrile periods of 3–10 days. It is thought to be a typical but rare manifestation of Hodgkin's lymphoma

### Fever Panel - Recommended Tests

|   |
|---|
| Complete Blood Count (Cbc)                  |
| Erythrocyte Sedimentation Rat E (Esr)       |
| Malarial Antigen ( Vivax And Falciparum)    |
| Peripheral Smear For Malarial Parasite (Mp) |
| Tuberculin Test                             |
| X-Ray Chest Pa                              |

**Remittent** fever is defined as fever with daily fluctuations exceeding 2 °C but at no time touches normal. Remittent fevers are often associated with infectious diseases such as infective endocarditis, rickettsiae infections, brucellosis, among others.

### Fever Panel - RECOMMENDED TESTS

|                                      |
|--------------------------------------|
| Complete Urine Examination           |
| Complete Blood Count (Cbc)           |
| Erythrocyte Sedimentation Rate (Esr) |

These tests are to be prescribed by the clinician. Based on the clinical profile of the patient the clinician is at liberty to add diagnostic tests or advise individual tests as indicated.

**Relapsing fevers** refer to those that are recurring and separated by periods with low-grade fever or no fever. Periodic or relapsing fevers are seen in malaria, lymphoma, borrelia, cyclic neutropenia, and rat-bite fever. Fever associated with night sweats has been described in infectious diseases such as TB, Nocardia, brucellosis, liver or lung abscess and sub-acute infective endocarditis, as well as in non-infectious diseases such as polyarteritis nodosa and cancers such as lymphomas.

| Fever Panel - Recommended Tests             |         |
|---|---------|
| Complete Blood Count (Cbc)                  |         |
| Erythrocyte Sedimentation Rate              | E (Esr) |
| Malarial Antigen ( Vivax And Falciparum)    |         |
| Peripheral Smear For Malarial Parasite (Mp) |         |
| Tuberculin Test                             |         |
| X-Ray Chest Pa                              |         |

### REFERENCE CHART: PATIENT CLASSIFICATION

\*\* Just a pictorial representation and doctor's clinical judgment may supersede this

| 1.  | Travel History/ Contact History | Contact History             | Contact History more than 14 days      | Contact History less than 14 days                   | Direct Contact with Confirmed COVID 19 Case |
|-----|---------------------------------|-----------------------------|--|---|---|
| 2.  | Fever                           | 98.6 oF - 100 °F            | 100 °F- 102 °F                         | 102 °F - 104 °F                                     | > 104 °F                                    |
| 3.  | Breathing Difficulty            | No                          | Mild (Breathless while climbing steps) | Moderate (Breathless while walking on level ground) | Severe (Breathless even while sitting)      |
| 4.  | Body Pain                       | No                          | Mild                                   | Moderate  | Severe                                      |
| 5.  | Fatigue/ Weakness               | No                          | Mild                                   | Moderate  | Severe                                      |
| 6.  | Sore Throat                     | No                          | Mild                                   | Moderate  | Severe                                      |
| 7.  | Cough                           | No                          | Mild                                   | Moderate  | Severe                                      |
| 8.  | Diarrhoea                       | 1-2 episodes in last 24 hrs | 3 to 5 episodes in last 24 hrs         | 5 to 7 episodes in last 24 hrs                      | More than 7 episodes in last 24 hrs         |
| 9.  | Other Medical Conditions        | None                        | High BP                                | High BP + Diabetes Mellitus, chronic lung condition | Reduced Immunity                            |
| 10. | Status in last 48hrs            | Improved                    | No Change                              | Worsened  | Worsened a Lot                              |
| 11. | Age                             | 15 to 50 Yrs                | 5 to 15 Yrs                            | 0 to 5 Yrs  | > 50 Yrs                                    |
| 12. | Sense of smell/ taste           | Fine                        | Not good                               | Lost  | Lost  |

#### Instructions & Info

The checklist has to be filled 'row wise' for all the attributes, from Sl Nos. 1 to 11.

For each attribute 'tick' the appropriate response which best suits the condition.

This simple checklist will help non-medical personnel and their families to decide when to consult the medical authorities.

This checklist will also help medical personnel to screen the OPD patients and prioritize their patients.

#### Interpretation

The entire chart above is divided into 'Three Color Coded Zones'.

'Green Zone indicates Safe Zone', 'Amber Zone indicates Caution Zone' and 'Red Zone indicates Danger Zone'.

See in which zone, maximum of your ticks fall and make interpretation as per table below.

| Colour Zone         | Category | Impression                         | Advice  |
|---------------------|----------|------------------------------------|---|
| Predominantly Green | Safe     | No need to worry                   | Stay at home. Monitor health continuously   |
| Predominantly Amber | Caution  | Exercise. Extreme caution          | Stay at home. Follow all Quarantine protocol. Notify Medical authorities on telephone |
| Predominantly Red   | Danger   | Immediate Medical attention needed | Visit Hospital immediately. May require COVID-19 testing & Hospitalization.           |





Criteria for Intensive Care access should be collectively discussed and defined for each patient in advance involving the medical team and patient/family members, just as any decision to limit treatment should be collegial, motivated, shared with patient/family members and documented in medical records.

The factors to be considered in such a decision are: age, functional status, comorbidity, advanced treatment provisions already expressed, availability of resources and eventual discussion with colleagues with proven experience. COVID-19 can lead to a significant increase in the need for ICU beds and a tricky imbalance between need and availability, so uncomfortable ethical issues can arise. Clear criteria and early assessment are essential to avoid hasty and inappropriate decisions.

For suspected COVID 19 patients, testing for Covid 19 to be done as per the ICMR guidelines, which state that the testing is to be limited to the following:

- a) For all asymptomatic individuals who have undertaken international travel in the last 14 days -
  - i) They should stay in home quarantine for 14 days,
  - ii) They should be tested only if they become symptomatic (fever, cough, difficulty in breathing) ,
  - iii) All family members living with a confirmed case should be home quarantined.
- b) All symptomatic contacts of laboratory confirmed cases.
- c) All symptomatic health care workers.
- d) All hospitalized patients with Severe Acute Respiratory Illness (fever and cough and / or shortness of breath).
- e) Asymptomatic direct and high-risk contacts of a confirmed case should be tested once on day 14 of coming in his/her contact.



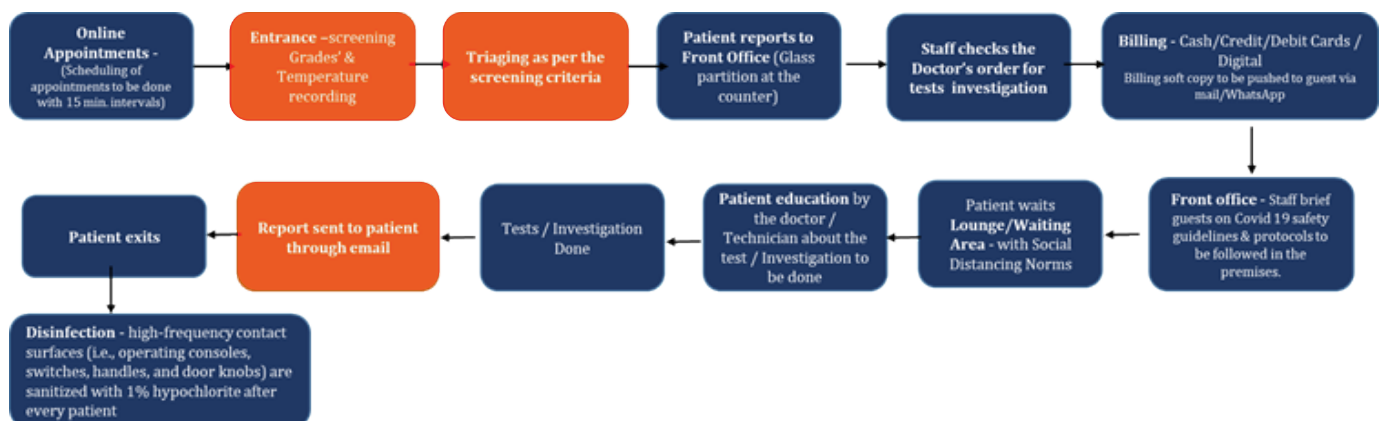
## REGULAR OUT PATIENT SERVICES:



## COMMUNICATE WITH PATIENTS WHO HAVE TAKEN AN APPOINTMENT AND SEND THEM INSTRUCTIONS ON

1. COVID checklist (6 questions)
2. Ask them to bring their own pen
3. Preferred mode of payment is digital
4. Be on time as the scheduled time
5. Wear a mask always
6. Patients should be instructed to come alone unless they need special assistance
7. Attendant (if accompanies) should wear a mask
8. For patients coming alone, advise patients to leave personal belongings in their vehicle or the waiting room.
9. Preferably empty their bladder while coming to the hospital
10. Maintain social distancing
11. Carry a hand sanitizer/ use sanitizer at the hospital at the entrance
12. Information on online reports if tests are done
13. Avoid touching areas like stair handles, lift buttons, door knobs etc
14. OP Pharmacy to follow the que management & token system to avoid the crowd. Ensure social distancing. (Refer the OP Pharmacy checklist)

## RADIOLOGY AND OTHER DIAGNOSTICS (Refer the Radiology & Diagnostics checklist)



Scheduling of OP & IP patients / cases to avoid the crowding at the front office.

Social distancing at the waiting areas. Proper display of social distancing signages.

Implementation of Token system and display at the waiting area.

# INFECTION CONTROL PROTOCOLS

## CT Scan

Infection control in the CT suite is also critically important. In exceptional cases, the following should be practised when performing the scan on a suspected or confirmed case:

- Pathway for patient transfer
- The corridor should be cleared of patient traffic
- PPE must be provided to the patient
- Transport boys and the accompanying doctor should wear full PPE (Goggles, N-95 mask, head gear, gloves, gown and shoe covers).
- Once patient is shifted to CT room, clean the corridor with 1% hypochlorite.
- Post these cases at the end of the day if possible

## Protocol for chest CT imaging at CT suite

- Two technicians are desirable for the CT scanning of patients for the assessment of COVID-19 pneumonia.
- One technician uses PPE (Goggles, N-95 mask, head gear, gloves, gown and shoe covers), set up the patient on the CT imaging table, while the other technician/doctor operates the CT console will wear 3 layered mask.
- The first technician remains inside the CT room with the patient and will be responsible for subsequent transfer of the patient to designated area/room.
- Donning and doffing of PPE should be strictly as per the IPCC protocols.
- Patient is transferred to the designated room/ward once the CT scan is completed.

## Disinfection of CT room

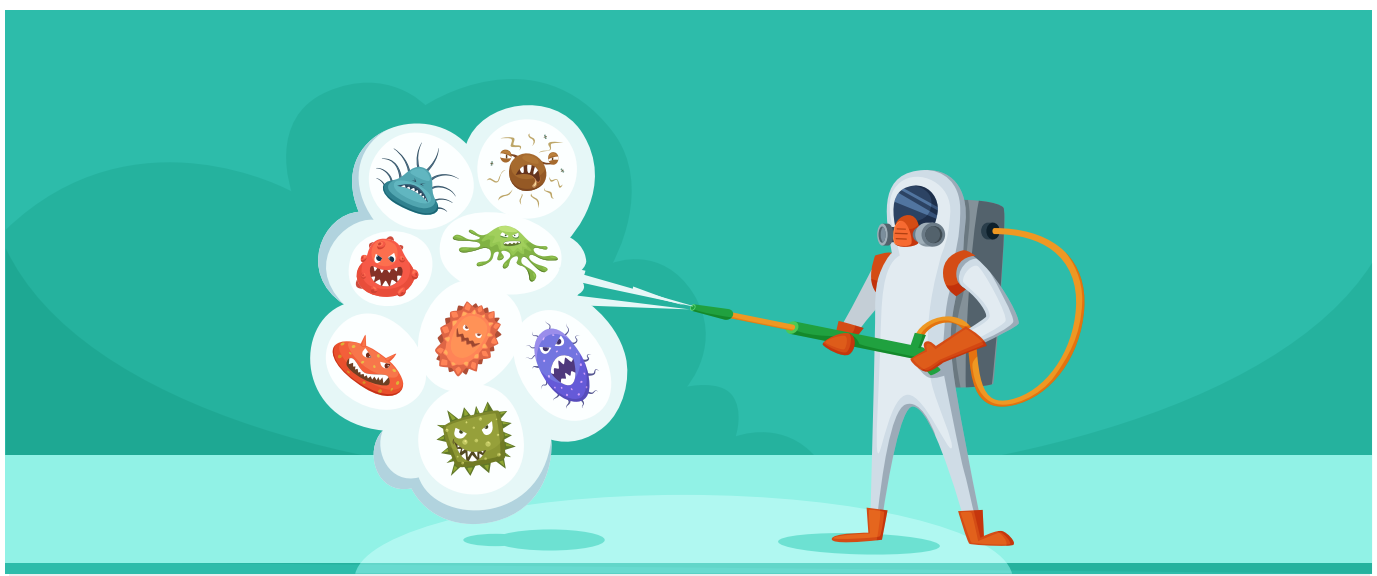
- The CT scanner and console rooms are sanitized. After leaving the CT suite, the high-frequency contact surfaces (i.e., operating consoles, switches, handles, and door knobs) are wiped with a cloth soaked with alcohol-based disinfectants.
- All surfaces are cleaned with 1% hypochlorite. The CT suite is tightly closed for 1 hour to thoroughly ventilate and exchange the room air.

## Transport of patient through dedicated corridor

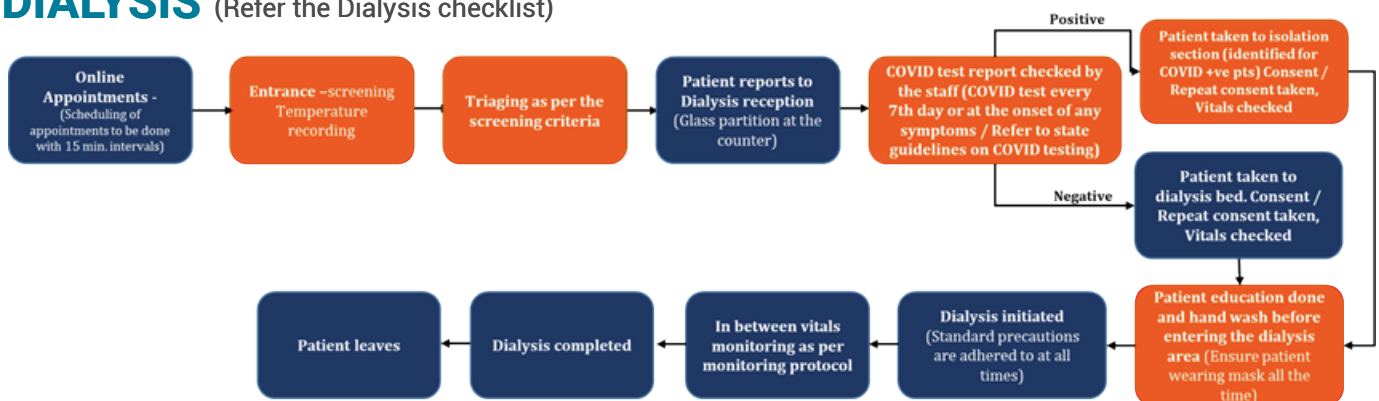
Once patient is transported through corridor, disinfect floors and surfaces with 1% hypochlorite. No traffic movement should happen for one hour.

## X-RAY

- Potable X-ray machine is used.
- All the HCW including the X-ray technician shall wear Full PPE as per policy. (Goggles, N-95 mask, head gear, gloves, gown and shoe covers)
- X-ray Machine is disinfected with Bacillol 25 and 1% hypochlorite.
- Between each patient, the room shall be disinfected with 1% hypochlorite.



## DIALYSIS (Refer the Dialysis checklist)



A sign board to be posted/ placed prominently Hindi and English in the dialysis unit and waiting area, asking patients to report COVID related symptoms like any fever, cough or breathing difficulty or any positive report

The management of Dialysis is categorized in to;

- The patients coming for day care dialysis.
- The patients needing dialysis who are suspected or a confirmed COVID patients.

Measures to be undertaken by Dialysis Unit, to minimize spread of COVID infection amongst patients and staff members. All patients on dialysis, suspected of COVID – 19, to be tested with RT – PCR test.

All Universal and Standard precautions to be strictly followed throughout the Dialysis unit and in pre dialysis area.

## Screening for Day Care Dialysis Patients

The Dialysis patients coming for day care dialysis area are screened at the entry.

- 1) Temperature screening using the thermal gun is done.
- 2) Check list for signs and symptoms of cold/ fever/cough/travelling/ attending any event in group/ contact with suspected/positive patient history is filled up.

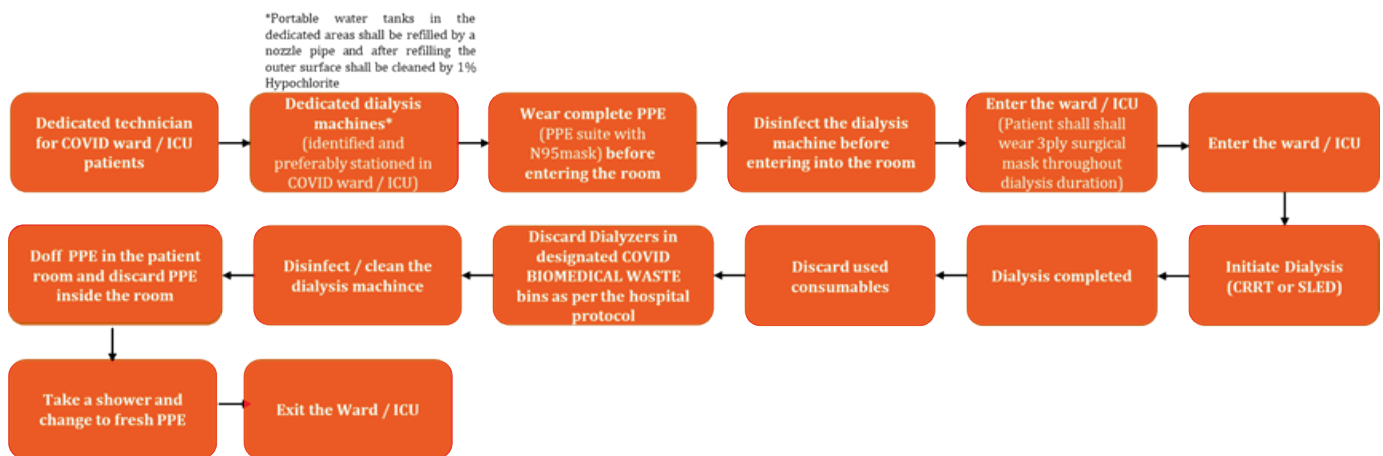
## Infection control protocols

1. Patients are educated to strictly follow the schedule.

2. All the patients on dialysis are advised to wear three layered mask all the times from the time they start from home.
3. Patients are asked to disinfect their hands before entering department.
4. Patient's attender is sent back home and asked to come back at the end of dialysis. Alternatively, he/she can wait down in the waiting area. Social distancing to be followed at all times.
5. Dialysis personnel, should wear a three-layer surgical facemask. Standard precautions are adhered to at all times.
6. Patients are advised to have food before coming for dialysis. In the unit they will be provided only with tea and biscuits. (avoid this also if possible)
7. After the dialysis, internal and external disinfection of the machine should be done. External disinfection of Machine is done with 1% hypo chlorite.
8. Clean and disinfect frequently touched surfaces after the dialysis between each patient with 1% hypochlorite. Monitors and trolleys are disinfected with Bacillol 25. This includes bedside tables and lockers, dialysis machines, door knobs, light switches, counter tops, handles, desks, phones, keyboards, toilets, faucets, and sinks etc.
9. Separating equipment like stethoscopes, Oxygen saturation probes and between patients with appropriate cleaning and disinfection shall be done in between shifts.
10. Bed linen shall be changed between every patient and used linen and gowns shall be placed in a dedicated container for waste or linen.



## DIALYSIS FOR SUSPECTED OR CONFIRMED COVID CASES IN COVID WARD (IN-PATIENTS)



## CHEMOTHERAPY (Refer the Chemotherapy checklist)

Screening of all patients shall be carried out based on temperature, declaration form of contact/travel and self- assessment for early symptoms.

All Universal and Standard precautions shall be strictly followed at all times by all staff.

All the patients are advised to wear three layered mask all the times. If they are not wearing a mask, shall be offered a three ply surgical mask and instructed to wear immediately.

Patient attendants wait down in the waiting area or at the bed side ensuring social distancing followed at all times. Patients shall be educated to follow cough etiquettes, like coughing or sneezing using the inside of the elbow or using tissue paper.

For patients who are preparing to be admitted, hospitals to record for symptoms potentially associated with COVID-19, such as fever and cough, at the time of screening as well as during history and physical by the doctor.

Special attention should be considered in case of recent new symptoms such as:

- Fever
- Coughing
- Sore throat
- Difficulty breathing
- Muscle pain
- Tiredness
- Anosmia
- Dysgeusia

Scheduling of Chemotherapy patients to be done at least 2 – 3 days prior to plan the beds.

Patients to be informed regarding the cough etiquettes, trained in proper handwashing, hygiene, and how to minimize exposure to sick contacts and large crowds.

## INFECTION CONTROL PROTOCOLS

Clean and disinfect all frequently touched surfaces after procedure with 1% hypochlorite. This includes bedside tables, door knobs, light switches, counter tops, handles, desks, phones, keyboards, sinks, floor, etc.

Monitors, syringe pump, Infusion pump, any biomedical equipment shall be cleaned and disinfected after every use in between patients.

Bed linen shall be changed between every patient and used linen and gowns shall be placed in a dedicated container for waste or linen.

## CHEMO ADMIXTURE UNIT

Clean and disinfect all frequently touched surfaces after procedure with 1% hypochlorite. This includes tables, door knobs, light switches, counter tops, handles, desks, phones, keyboards, sinks, floor, etc.

Laminar Hood and medication fridge shall be cleaned and disinfected as per as per Hospital Cleaning and Disinfection Protocol and / or manufacturer's instructions.

Staff while mixing chemo drugs inside the admixture unit shall wear N95 mask, Cap, Goggle, Plastic Apron and Gloves. Floor pharmacist responsible for dispensing and collecting chemo drugs shall wear a three-ply mask and gloves. In-charges shall ensure all staff are trained and follow appropriate PPE donning and doffing sequence.



## **RADIATION THERAPY** (Refer the Radiotherapy checklist)

- Sign boards / digital screen shall be placed prominently in the Radiation Therapy Unit and waiting area, asking patients to report COVID related symptoms like any fever, cough or breathing difficulty or any positive Covid-19 report to the reception.
- Scheduling of OP & IP patients / cases to avoid the crowding.
- Covid 19 testing is mandatory WEEKLY if allowed by the state governments.
- All patients receiving radiotherapy must be screened at the entrance.
- Patient attendants shall wait in the waiting area ensuring SOCIAL DISTANCING followed at all times. Patients shall be educated to follow cough etiquettes, like coughing or sneezing using the inside of the elbow or using tissue paper. 'Do Not Sit' sticker shall be put on alternate seats.

### **.Radiation therapy or Radiotherapy of COVID POSITIVE patients**

- The Radiotherapy to be scheduled towards the evening and preferably at the end of the list, to ensure that the concerned treatment area is not crowded and all other scheduled treatments are completed before the infected patient is received in the unit.
- The nurse, bio medical department, housekeeping department and security department to be informed by the radiotherapy department about the scheduled time of therapy for any necessary arrangements. The infection Control Department shall be intimated.
- The security personnel to ensure that the pathway is clear of any patient / attendant / unnecessary staff.
- The patient to wear surgical mask and the staff handling the transportation of patient to wear full PPE.

### **Infection Control Protocols**

Regular training to staff on the protection level of their corresponding role, the appropriate personal protection equipment (PPE) for the role (a radiation therapist wearing PPE during treatment delivery, a nurse during assessment and post procedure care etc), as well as the dons and doffs.

### **Cleaning and disinfection**

- Treatment couch and mould is cleaned after each treatment with 1% Hypo
- Console room, monitors, mould storage cupboard is cleaned with 1% Hypochlorite three times a day.
- Regular hand washing by doctors, staff, patient and attendants.
- Posters displayed as a reminder for hand washing and social distancing.
- Social distancing protocol to be adhered at the waiting time. Signages to be displayed for Social distancing and handwashing methods.

- The technicians concerned to wear full PPE and cover the entire machine except for the spaces required for air ventilation through the machine and table using protective sheets before the arrival of patient. .
- The radiotherapy to be performed in presence of two technicians. One technician in the console room. The second technician will position the patient in the machine area.
- The second technician will not enter the console area
- The Transport staff not to intermingle with any other staff member who is not in PPE or with the attendant of the patient or touch any surface or equipment which is non-mandatory
- After the therapy is completed, the patient leaves the radiotherapy area. The security personnel to ensure that the pathway is clear of any patient / attendant / unnecessary staff.

## ENDOSCOPY & BRONCHOSCOPY

(Refer the Endoscopy/Bronchoscopy checklist)

- Only essential personnel should be present during procedures.
- For patients defined as suspected, probable or confirmed COVID-19, enhanced PPE should be practiced during endoscopy, including the use of a N95 mask; isolation gown with water resistance; head cover; eye protection and face shield. The procedure should be conducted in negative pressure room.
- For patients who are tested negative COVID – 19, healthcare providers should perform endoscopy with PPE, including a face mask; isolation gown with water resistance; eye protection.
- All specimen from patients with COVID-19 should be handled with extra precaution and with appropriate protective equipment.
- Standard room disinfection should be conducted at the end of the session in rooms where non-COVID or low-risk patients had endoscopy. All surface areas, shall be cleaned with 1% Hypo.
- All specimen from patients with COVID-19 should be handled with extra precaution and with appropriate protective equipment.
- Standard room disinfection should be conducted at the end of the session in rooms where non-COVID or low-risk patients had endoscopy. All surface areas, shall be cleaned with 1% Hypo.
- The disinfection and reprocessing of the endoscope and instruments used for a patient with COVID-19 will be similar to those used in standard practice.



## BLOOD BANK

(Refer the Blood Bank checklist)

### 1. Consultation and Evaluation of Blood Donors

- 1.1 Additional inquiries about COVID-2019 are recommended to evaluate blood donors.
- 1.2 A prospective donor meets any one of the following criteria is suggested to defer blood donation for at least 28 days (4 weeks)
  - a. has a fever or symptoms of respiratory illness
  - b. has close contact exposure to individuals who have a fever or symptoms of respiratory illness;
  - c. has close contact exposure to or has a history of epidemiological association to someone confirmed as COVID-2019 or clustering infected ones;
  - d. has direct contact with wild animals.
- 1.3 When evaluating a donor, it is suggested to differ common symptoms such as occasional cough from that of respiratory illness.

### 2. Notification from Blood Donors

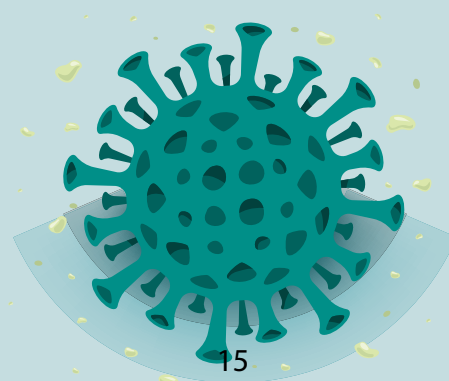
- 2.1 Blood Bank shall provide education to blood donors and make them sign an undertaking to inform the blood establishment within 14 days after donation if they have symptoms such as fever, cough, fatigue and shortness of breath, or been quarantined.
- 2.2 Follow up calls to donors to learn their health status after donation, and reiterate the instructions above.
- 2.3 If a blood donor after donation reports his/her COVID-2019 alike symptoms or that he/she has been quarantined, it is suggested:
  - a. to quarantine his/her blood and blood components in the bank
  - b. to retrieve his/her blood and blood components from other departments
- 2.4 If a donor reports his/her symptoms or diagnosis of COVID-2019 when his/her blood and blood components have been transfused, immediately inform the related hospital and report to health authorities.

### 3 .Blood Donation Area

- 3.1 Every blood donor entering the blood donation site should wear a mask and be provided with hand disinfectant.
- 3.2 Retain one meter or further between donors while donations if possible, or use collection bench with interval one when necessary
- 3.3 The reusable squeeze ball should be covered with disposable pad and sanitized frequently.

### 4. Site Disinfection & Distribution and Management of Protective Articles

- 4.1 Minimize the use of central air conditioning. If it is necessary to use, switch to fresh air mode. Disinfect air outlets at densely populated places after work each day.
- 4.2 Ensure that air conditioning intakes adequate fresh air and exhausts directly to the outside. Turn off the return air vent when air-conditioning is not used.
- 4.3 The room temperature of blood donation sites should be controlled at around 26°C. Ventilate the air at least twice a day for not less than 30 minutes each time. Wipe seats, stairs, escalator handrails, workbenches, floors and instruments with chlorine disinfectant or 75% alcohol before and after work.
- 4.4 Enhance the disinfection of blood delivery vehicles. Disinfect after each trip, especially the steering wheels, door handles and seats.
- 4.5 Enhance the disinfection of blood transport boxes. Disinfect both the inside and the outside of the boxes after they are returned from hospital to blood establishment each day.
- 4.6 Treat routine medical waste as usual.



## PHYSIOTHERAPY

(Refer the Physiotherapy checklist)

- A sign board shall be posted/ placed in waiting area, asking patients to report COVID related symptoms like any fever, cough or breathing difficulty or any positive report to the reception, who would convey to the Head of the Department immediately.
- Tele consultation and therapy through simulation shall be considered for patients referred for Physiotherapy. If physiotherapy through physical contact is necessary, patient to be advised to come for Physiotherapy.
- Screening of all patients based on temperature, declaration form of contact/travel and self-assessment for early symptoms.
- All Universal and Standard precautions to be followed at all times by all staff.
- All the patients to wear three ply mask all the times.
- All physiotherapy shall be performed strictly by appointment. There shall be an appropriate gap between appointments to avoid crowding.

### Infection Control Protocols:

- Staff to wear proper PPE while attending to the patients. Patient to wear a three-ply mask at all times during the therapy.
- Strict hand-hygiene to be practised at all times- in between patients and also when moving from lower parts (perineal region) to upper end of the patient.
- Social Distancing in the waiting area is followed at all times
- After the therapy, disinfection of the machine / equipment shall be done. External disinfection of Machine is done with 1% hypochlorite and / or following manufacturing instructions.
- Clean and disinfect all frequently touched surfaces after the therapy between each patient with 1% hypochlorite.

## CATHLAB

(Refer the Cath Lab checklist)

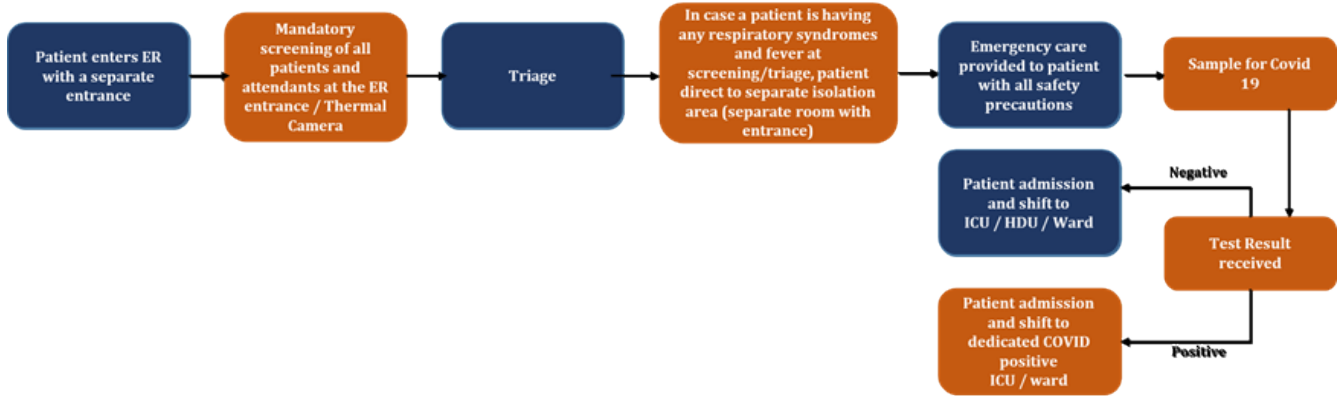
- A sign board placed in waiting area, asking patients to report COVID related symptoms like any fever, cough or breathing difficulty or any positive report to the reception.
- Testing for COVID / SARS-CoV-2 shall be conducted and reports shall be checked by the consultant before patient is scheduled for procedure in DSA / Cathlab.
- Screening of all patients to be carried out based on temperature, declaration form for contact / travel history and self- assessment for early symptoms. The screening to be documented in the declaration form for all patients.
- All the patients are advised to wear mask all the time.
- Patient attendants to wait in the waiting area ensuring SOCIAL DISTANCING is followed at all times. Education to be provided to follow cough etiquette. 'Do Not Sit' sticker shall be placed on alternate seats

### Infection Control Protocols:

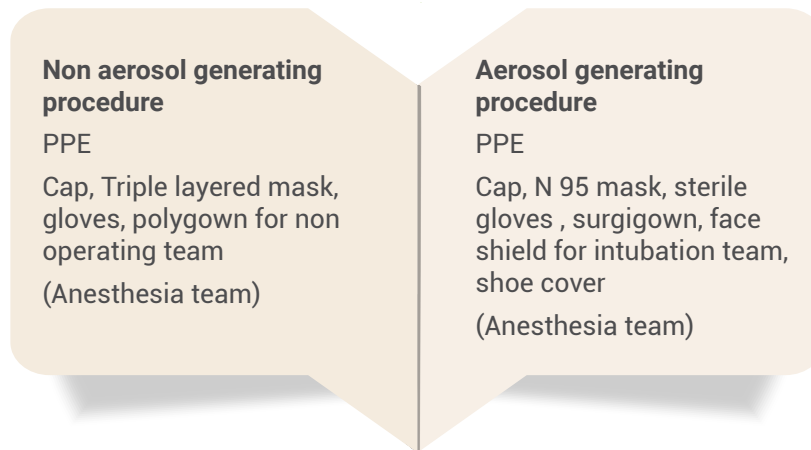
- Any equipment not in use should be protected by the technician as appropriate.
- Manufacture's guidelines to be followed for cleaning of the equipments.
- Cleaning and disinfection shall be done of all frequently touched surfaces after procedure, between each patient with 1% hypochlorite.
- All biomedical waste protocols shall be followed.



# EMERGENCY (Refer the ER checklist)



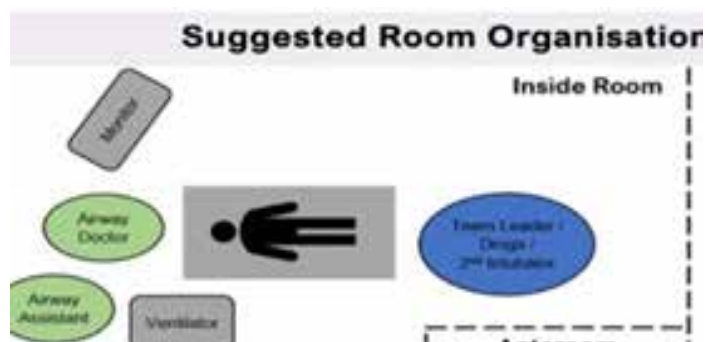
## Emergency Procedure On Suspected Covid 19 Patient



Aerosol generating procedure- Intubation, CPR, Bronchoscopy, Open suction  
 Note: Hand hygiene is essential either patient is isolated or not

### Suggested Room Organisation

## General instructions for intubation team





### Apply

1. Keep things prepared for intubation
2. Keep only required equipment inside the OT
3. Surgeons and personnel not needed for intubation should remain outside the operating room until anesthesia induction and intubation are completed for patients with or suspected of having infection.
4. Keep OT doors closed during intubation
5. Consider adopting the double glove technique.
6. Standard ASA monitoring should be applied before induction of anesthesia.
7. Avoid elective laparoscopy procedures as it increases risk of aerosolization

### Assign:

Designate the most experienced anesthesia professionals available to perform intubation, if possible.

Avoid trainee intubation for sick patients.

### Prepare to:

1. Pre-oxygenate for 5 minutes with 100% FiO<sub>2</sub>
2. Perform a rapid sequence induction (RSI) to avoid manual ventilation of patient's lungs and potential aerosolization of virus from airways.

Limit BMV unless unavoidable and apply Cricoid Pressure only in case of ongoing regurgitation)

### RSI:

Depending on the clinical condition, the RSI may need to be modified. If manual ventilation is required, apply small tidal volumes.

### Use:

1. Ensure there is a high quality HMEF (Heat and Moisture Exchanging Filter) rated to remove at least 99.97% of airborne particles 0.3 microns or greater placed in between the facemask and breathing circuit or between facemask and reservoir bag or any oxygenation interface
2. After intubation wait for 15minutes before starting procedure by the surgical team



### Infection control protocols

#### Disinfection and sterilization:

1. Keep the used laryngoscope blade post intubation in a separate tray and send for sterilization by EO after decontamination with gloves
2. Discard used respiratory circuit and changes the soda lime in between case
3. Disinfect the anesthesia machine, equipment (monitor, ECG machine etc. any other equipment used for the patient with alcohol by the technician

#### Remember:

01

After removing protective equipment, avoid touching your hair or face before washing hands.

02

Do hand hygiene compulsorily after discarding PPE

(Adapted from Anesthesia Patient Safety Foundation, American College of Surgeons)

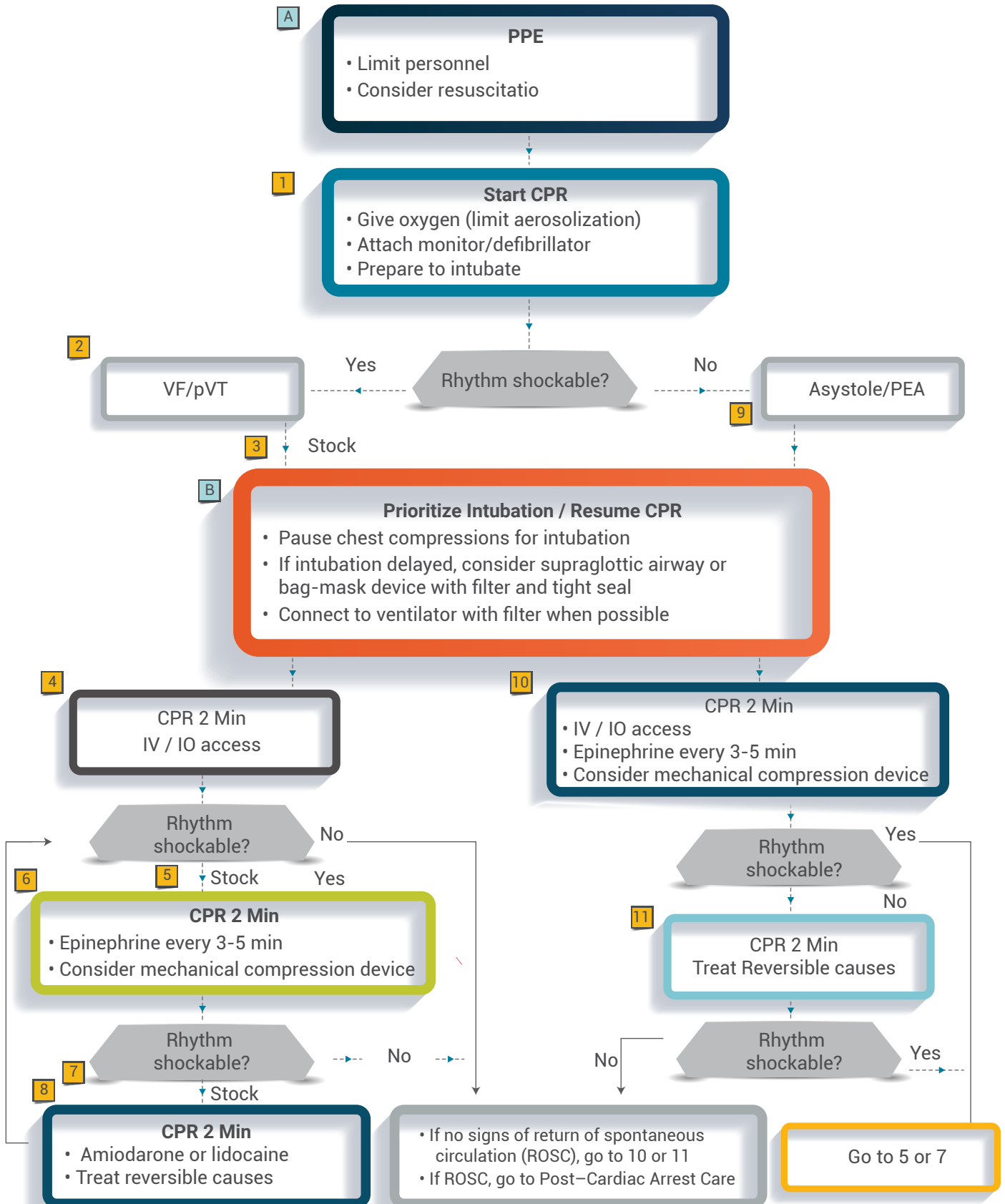
#### INTUBATION BOX:

To protect doctors and nurses against the risk of Covid 19 transmission from AGPs (Aerosol generating procedures), intubation boxes have been designed for critical care & high risk areas and Endoscopy. These are clear aerosol boxes designed to keep COVID-19 patients' airborne droplets from infecting healthcare workers during intubation, and are used for procedures such as intubation.



# ACLS Cardiac Arrest Algorithm For Suspected or Confirmed Covid-19 Patients

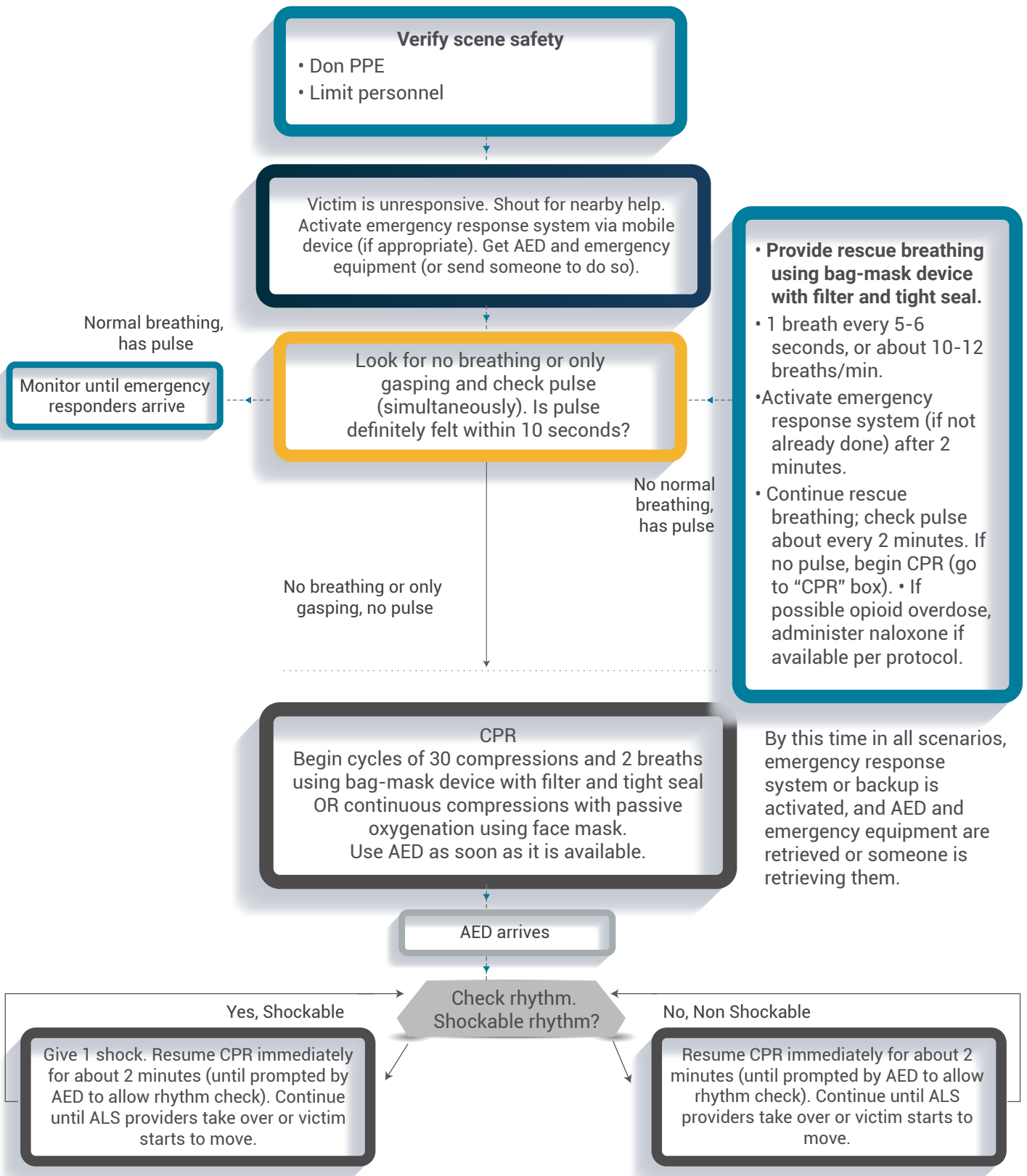
2020 American Heart Association (Updated April 2020)



# BLS Healthcare Provider Adult Cardiac Arrest

## Algorithm For Suspected Or Confirmed Covid-19 Patients

2020 American Heart Association (Updated April 2020)



## Admission process

### Regular / Elective Admission

Screening of all patients shall be carried out based on temperature, declaration form of contact/travel and self- assessment for early symptoms.

All patients coming for elective admission to be tested with RT – PCR test (as per the state regulations)

Scheduling to be done to avoid crowding in the waiting area.

All Universal and Standard precautions shall be strictly followed at all times by all staff.

All the patients are advised to wear three layered mask all the times. If they are not wearing a mask, shall be offered a three ply surgical mask and instructed to wear immediately.

Patient attendants wait down in the waiting area ensuring social distancing followed at all times. Patients shall be educated to follow cough etiquettes, like coughing or sneezing using the inside of the elbow or using tissue paper

### Patient Admission In Isolation Area

- Total admissions can only be taken up to the number of isolation beds identified in the facility.
- Patients who arrive in ambulance as a confirmed case will need to be sent to the designated room directly.
- Attendants will not be allowed into the patient treatment area.
- Attendants need to come with mask and hand sanitized to the admission room separately and give patient details to the ward secretary there (who needs to be in gown and mask). The ward secretary will print the admission paper, sticker etc. inside the ward directly to avoid human contact.
- All the pharmacy related and Food & Beverages (F&B) related instructions from inside the ward will be entered in computer or told to the ward secretary who will communicate to others.
- We need to stock all basic materials (pharmacy) inside so that the transfer is minimum. The F&B and Pharmacy materials will be kept over trolley which the insiders will pull in and after delivery will be rolled out at the intermediary area. Similar transfer of materials will be done in confirmed area also through intermediate area after discussing with the nurse in-charge. Thorough disinfection of these trolleys needs to be carried out after use.
- Patient attendants who are direct contacts, will leave their details including address, phone number with the ward secretary and will be advised for home self-quarantine.

### Management of Newly Admitted Pneumonia cases

1. Suspect COVID-19 cases should be admitted into negative pressure (NEP) isolation facility, as per existing workflow for handling suspect COVID-19 cases.
2. Confirmed COVID-19 cases should be admitted into NEP isolation facility. Ideally, they should be kept isolated from other patients but if the isolation capacity needs to be freed, the confirmed COVID-19 patients may be cohorted together in the same room (i.e. need not be separated from each other).
3. Pneumonia cases admitted for surveillance testing should be admitted to the facility's Pneumonia ward/ separate ward. If there are insufficient normal pressure isolation rooms or single rooms, hospitals may consider isolating in designated cohort rooms.
4. Upon receiving COVID-19 test results
  - a.) Negative cases should be transferred quickly to general wards, as a priority, to free up beds for other pneumonia cases;
  - b.) Positive cases should be transferred quickly to NEP isolation room, as per existing workflow for handling COVID-19 cases. If the positive case was previously housed in a cohort room, the related contact tracing/activity mapping as well as relevant infection control measures (e.g. decontamination and cleaning) should be activated immediately.

### Managing prolong standing chronic patients in ICU/HDU (immunocompromised, fragile)

- Such type of patients to be put in a single unit (separate from COVID isolation ward/ICU) to ensure that cross contamination infection can be prevented.
- Visiting timings to be curtailed and fixed. All visitors to be appropriately screened before sending in.
- Fix the staff of these areas also to decrease possibilities of colonised asymptomatic staff driven infection.
- AHU of these areas must be different from designated COVID isolation rooms and even different floors are preferred.
- Limited movement and accessibility from staff, services to be followed.

# Isolation Room - Negative Pressure Room

(Refer to Isolation Room Checklist)

Rooms: which are clearly demarcated from regular patient rooms with good ventilation with separate AC/ventilation

Toilet: The toilet should have a negative pressure facility and should not be connected to any exhaust/air conditioning/ventilation that leads to general ventilation of the hospital.

ICU: Demarcated ICU beds, preferable separate AC

Separate Donning and Doffing room – Ante room/area

## Staff

- Dedicated doctors
- Senior nurses (nursing care and sample collection when required)
- HK staff for cleaning
- Security
- Biomedical staff
- Waste collection
- Radiology
- The staffing is separate for suspected and confirmed areas. The staff entering the Confirmed or Suspect Isolation area has to don full PPE.
- Facilities for the treating staff would be free food and free healthcare in this period as per government

directives. The treating staff are to be quarantined if they develop respiratory symptoms.

## Equipment/ Products:

- Monitors
- Thermometer
- NIBP- for BP measurement
- Stethoscope
- Drug boxes & Emergency carts
- Defibrillators
- Oxygen, Suction, Air ports
- ICU equipment - as per normal protocol

## PPE:

Hand rub, Medical Face masks, Gloves, Caps, gowns, shoe covers

## Surface Disinfectants

1 % Sodium Hypo chlorite

## Others:

- Tabs to be utilized for communication of staff inside with those outside.
- Inside the Suspect and Confirmed Isolation areas, separate toilets would be demarcated for patients and staff.
- DO NOT reuse any items for confirmed/suspected cases.

**Medicine stock for isolation ward:** (Quantities could be decided based on the predictive requirement)

# COVID-19 SURGICAL PATIENTS MANAGEMENT

|            | TRANSFER   | OT ENTRANCE                                 | OT SET UP   | ANESTHESIA | SURGERY | RECOVERY |
|------------|--|---|---|------------|---------|----------|
| STAFF      | Full PPE worn throughout the surgery   |   |   |            |         |          |
|            | Same staff / team allocated to the patient through out the process   |   |   |            |         |          |
|            |  | Handover, RT PCR Test report, Check consent | The operating room personnel including Surgeons and Anesthetists not TO step out of OT during the surgery. And especially if already donned with PPE. The surgical team is advised to enter the OT only after 20 minutes of intubation. The surgical team should exit the OT before extubation  |            |         |          |
| ROUTE      | Green Corridor – Fixed transfer route, transport personnel should be the same from transport origin to destination.<br>Dedicated Lift – Sanitize lift after each use |   |   |            |         |          |
| MATERIAL   |  |   | Consumables, instruments checked & replaced before starting of procedure<br>Disposable material should be preferred<br>No unnecessary items should be brought into the OT   |            |         |          |
| PATIENT    |  |   | Directly take to OT<br>Sign-In, Time out, Sign Out<br>Post operative direct transfer the patient to ICU. Avoid keeping the patient recovery if not necessary.   |            |         |          |
| OT         |  |   | Dedicated OT with a separate AHU, preferable the 1 <sup>st</sup> OT after the entrance. Case to be scheduled at the end of the day if not an emergency case. Clinical documentation must remain outside the OT.<br>High rate of air exchange cycle (Preferably >25 exchange per hour), relative humidity of 40-70%.<br>Patient to be observed in OT for at least 15-20 minutes to minimize risk of cough and aerosolization outside the OT.<br>Deep cleaning of OT post surgery / disinfection. |            |         |          |
| EQUIPMENTS | Dedicated stretcher, wheel chair etc   |   | All equipment or instruments should be dedicated i.e. to be used only in the dedicated OT.<br>Thorough cleaning of all equipments as per the manufacturer's guideline   |            |         |          |



## Patient transportation within the hospital

### Inter-Facility Transfer and Movement of Inpatients

1. All non-critical inter-facility patient transfers should be minimized.
2. Patients requiring critical services which are unavailable at the admitting hospital (e.g. PET-CT) MUST be screened prior to transfer.
3. A pre-transfer assessment of any signs and symptoms of pneumonia must be completed by the admitting doctor and documented before the transfer will be approved.
4. A CXR performed and read by a radiologist prior to the transfer is recommended.
5. The ambulance team facilitating the transfer will not proceed until the pre-transfer assessment has been completed. Disinfection of Ambulance as per hospital protocols to be done.
6. The receiving facility MUST check the records on receipt of the patient before commencement of care.
7. To avoid cross-facility transmission of COVID-19, ALL radiological, laboratory, rehabilitation, day care, dialysis and dental services are to be carried out within the same facility as far as possible.
8. Patients shall be masked during the transportation to Diagnostic areas.
9. All staff and care givers who come into direct contact with the patient should wear personal protective equipment
10. Deep cleaning / fumigation of the room is

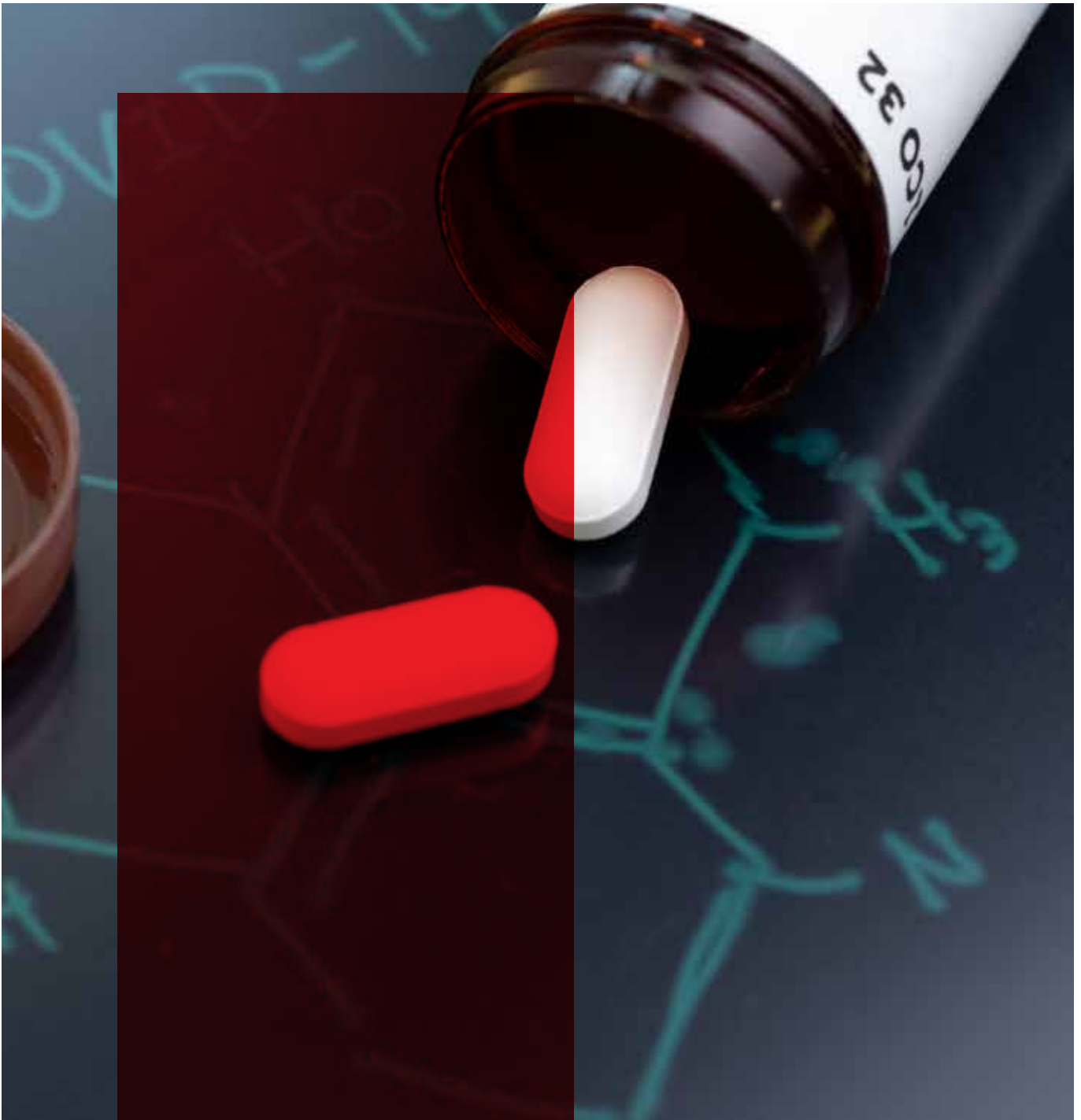
performed after each patient.

11. After imaging, the room downtime is typically between 30 minutes to 1 hour for room decontamination and passive air exchange.
12. Gloves and N-95 masks are recommended for sanitation staff cleaning the area

### Code Green (Suggested As A Good Practice):

- Call XX and announce CODE GREEN IN 15 MINUTES OR 30 MINUTES (please note that this is not an emergency code like CODE BLUE. The 15-30 minutes is to ensure that patients who are in transit or getting some investigation done will finish and will be shifted back to their rooms before the area is cordoned off for green corridor)
- After 15 or 30 minutes, please call XX again and announce CODE GREEN STARTING FROM AREA 1 TO AREA 2 (eg CODE GREEN starting now from ER to Level 5) and then start the green corridor process for movement of suspect patient. (All members of the team in this chain from ER to Level 5 should be positioned and do the needful. Unnecessary crowding of people and blocking of normal activities should be refrained)
- Once the desired activity is completed, normal activities can be resumed. CODE GREEN COMPLETED can be announced
- Lifts and other areas of patient movement to be cleaned as per protocol
- All personnel involved in the movement should be properly protected with PPE





## Chapter II **Clinical Protocols**

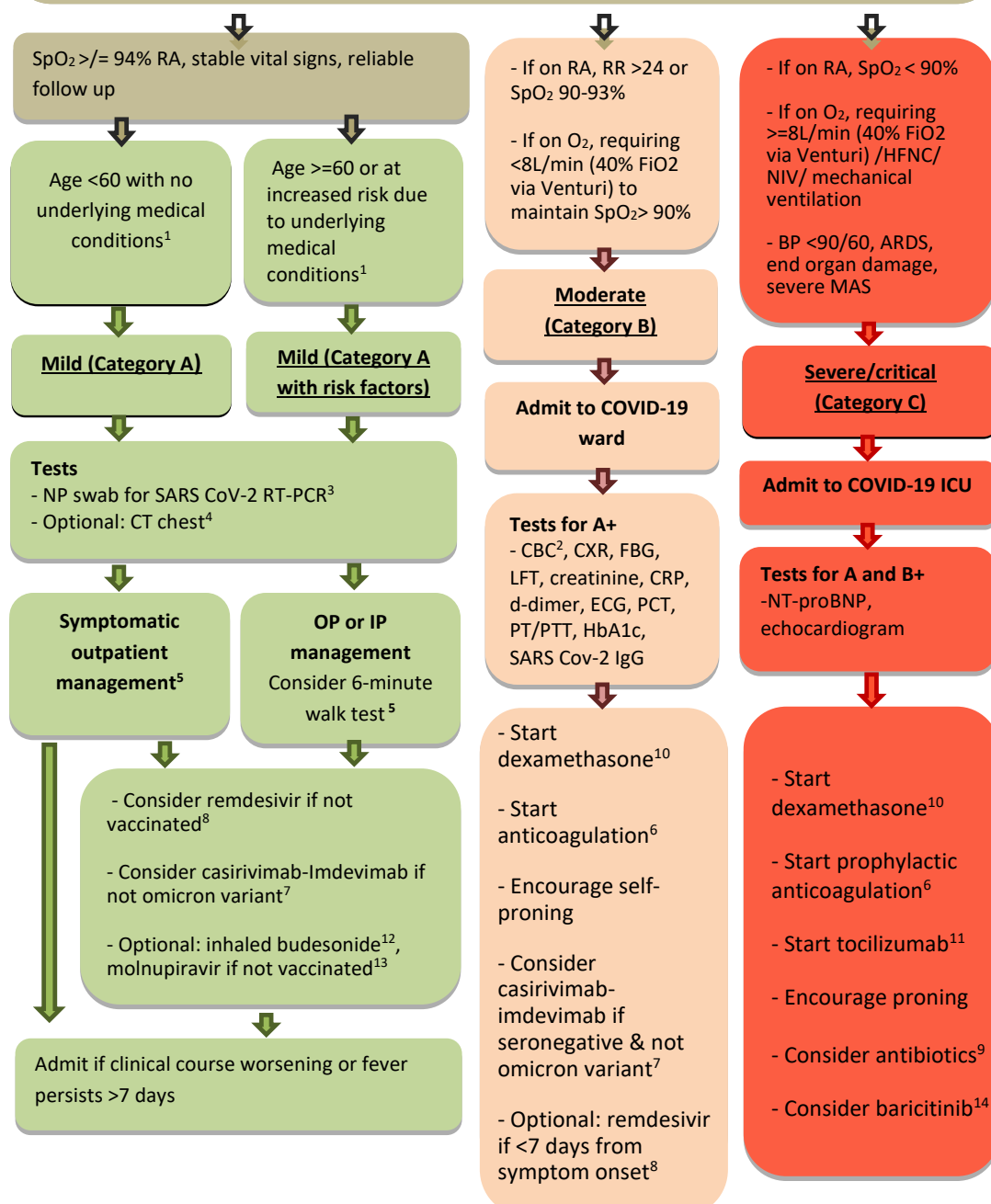
# Clinical Care Investigation & Treatment Protocol

Version 49 (updated 10<sup>th</sup> Jan 2022)

## Investigation and treatment protocol for COVID 19

### Suspect COVID when:

- Fever >38 C, coryza, sore throat, cough, dyspnea
- Muscle pain, chills, repeated shaking with chills, conjunctivitis, loss of taste or smell, headache, nausea, diarrhea, hepatitis, acute abdominal pain, severe pharyngitis in children, rash with or without enanthem, myocarditis, STEMI, ischemic/hemorrhagic stroke, encephalitis, altered mental status/delirium in elderly
- Sick contacts, residence in high prevalence area, immune disorders (MIS-C, MIS-A, ITP, ADEM)
- Any febrile illness >72 h without clinically overt localization



1 Medical conditions that increase risk: chronic kidney disease, COPD, solid organ transplant, obesity (BMI>30, risk increased further if BMI>40), congestive heart failure, coronary artery disease, cardiomyopathies, sickle cell disease, type 2 diabetes mellitus, pregnancy, children who are medically complex or have neurologic/ genetic/ metabolic/ congenital heart disease, smoking, leukemia/hematological malignancy especially with recent chemotherapy, cystic fibrosis, type 1 diabetes, moderate-to-severe asthma, dementia and other neurologic conditions, stroke/cerebrovascular disease, liver disease, overweight (BMI 25-30), and HIV infection. Possibly increased risk with: hypertension, immunocompromised state from blood or bone marrow transplant/immune deficiencies/use of corticosteroids/use of other immunosuppressants, overweight pulmonary fibrosis, thalassemia, solid organ malignancy, obstructive sleep apnea, psychiatric disease

2 Lymphocytopenia (lymphocyte count under  $1.0 \times 10^9$  /L) is a risk factor for progression to severe disease. Neutrophil lymphocyte ratio >3.13 is an independent risk factor for severe disease. RDW>14.5% at diagnosis or a rise in RDW during hospitalization predicts increased mortality.

3 A negative test for SARS CoV-2 PCR (especially from an upper respiratory sample) or a positive test for another respiratory pathogen does not exclude SARS-CoV-2 infection: need to repeat testing if index of clinical suspicion is high, preferably from a lower respiratory tract specimen. Rapid antigen test has a specificity of 100% and sensitivity of 50-84%; if negative, PCR is needed to rule out infection. Antibody to SARS CoV-2 can help diagnosis in PCR negative individuals with late presentations 2 weeks after onset of symptoms, MIS-C/MIS-A, COVID related auto-immune syndromes or determine candidates for casirivimab-imdevimab. Govt rules need to be followed in decisions on testing.

4 CT chest (without contrast) is more sensitive than RT-PCR for the diagnosis of febrile patients with COVID-19 and can be used as a diagnostic aid if RT-PCR testing is negative/not available/report is delayed. Ultrasonogram of chest (where expertise available) can be used if CT not possible. CTPA is the test of choice for suspected PE.

5 Patients treated on outpatient basis should be advised regarding home isolation, warning signs and need for close follow up. The duration of isolation in home/hospital is 10 days from symptom onset (provided fever has resolved) for mild-moderate cases, and 20 days for severe/immunocompromised patients. Govt should be notified for all positive cases and advice followed regarding site of care and isolation.

6 Start at least prophylactic anticoagulation with LMWH (eg enoxaparin or equivalent) for all admitted patients. Dose of enoxaparin is 40 mg sc q24h

(maximum of 1 mg/kg). Contra-indications are active bleeding or a platelet count of  $<25 \times 10^9$  /L. Start therapeutic anticoagulation (enoxaparin 1mg/kg q12h or equivalent) in moderately ill (Cat B) patients with elevated d-dimer>4 times normal, but not in severely ill patients (Cat C). A rising d-dimer >1 mcg/ml, especially >6 times normal, could be due to either worsening lung injury or DVT/PE. Start therapeutic anticoagulation (enoxaparin 1mg/kg q12h or equivalent) for proven DVT or PE, or if strongly suspected, till excluded on venous

Doppler / CTPA. Prolonged aPTT is not a contra-indication to anticoagulation. Repeat PT, platelet count and d-dimer every 2-3 days in patients who do not show improvement. At discharge, consider starting patients at high risk (modified IMPROVE-VTE score>4 or score>2 with d-dimer >2 times upper limit, age>75, underlying malignancy) on DVT prophylaxis (eg. rivaroxaban 10 mg od or equivalent for 4 weeks). underlying malignancy) on DVT prophylaxis (eg. rivaroxaban 10 mg od for 4 weeks or equivalent).

7 Casirivimab 600 mg plus imdevimab 600 mg (low dose) should be given as an intravenous infusion in a monitored setting where infusion reactions can be treated. Consider in patients with multiple medical conditions that increase risk and start as early as possible (within 72h) after a positive test, contra-indicated if >7 days from symptom onset. Benefit can occur irrespective of antibody serostatus, but likely to be poor against omicron variant. Therapy (1200mg/1200mg) for hospitalized patients recommended only for patients who are Covid antibody negative. Benefit limited to Cat B patients or Cat C patients not on NIV or higher levels of oxygen support, who present <7 days after symptom onset. Benefit likely to be poor against omicron variant.

8 Remdesivir: Optional if patient presents <7 days from symptom onset and is on low flow O<sub>2</sub>. Probably confers no benefit in steroid treated patients and does not reduce mortality. May reduce duration of hospital stay and improve oxygenation in patients requiring low flow oxygen, but not on high flow O<sub>2</sub>/NIV/HFNC/mechanical ventilation. Dose is 200 mg iv on day 1 followed by 100 mg once daily for 4 more days. For non-hypoxemic high risk patients, administer a 3 day course starting as early as possible and always within 7 days of symptom onset. Avoid co-administration of HCQ (reduces efficacy). Monitor LFT.

9 Community acquired bacterial pneumonia



complicating COVID is uncommon, unlike influenza, except in ventilated patients. Elevated PCT may help decide if antibiotics indicated: use narrow spectrum antibiotics like ceftriaxone or amoxicillin-clavulanate. Blood cultures are not routinely recommended for suspected bacterial CAP. CAPA should be considered and looked for in patients on mechanical ventilation using serum AG/BDG and ET fungal stain and culture. CAM should be looked for in patients who develop ENT symptoms, especially in uncontrolled diabetics who receive high doses of steroids.

10 Dexamethasone: dose is 8 mg once daily iv/po for 7-10 days (or till discharge if earlier). Increase dose to 16 mg per day in patients requiring  $>10\text{ l O}_2$ , especially if not on other immunomodulators. Alternatives are hydrocortisone 50 mg IV q8h or methylprednisolone 32 mg/day. In hypoxemic patients (either at rest or after 6-minute walk test) who cannot be admitted due to bed unavailability or other reasons, oral dexamethasone 8 mg od can be administered with close monitoring for side effects. Consider adding a single dose of ivermectin 12 mg to prevent *Strongyloides* hyper-infection. In patients continuing to remain severely hypoxemic after a 10-day course of dexamethasone, re-assess after CTPA.

11 Tocilizumab: administer single dose within 24 h of worsening in patients requiring  $\text{FiO}_2 > 0.4$ , HFNC rate  $> 30\text{ l/mt}$  or higher levels of respiratory support. Dose is single infusion of 400 mg iv or 8 mg/kg (not to exceed 800 mg of total dose). A second dose may be considered if there is no improvement 24h after first dose. Avoid if infection present or suspected.

12 Inhaled budesonide: Start within 6 days after first symptom. Dose is 800 micrograms via metered dose inhaler twice daily for 7-14 days.

13 Molnupiravir: Dose is 4 tab of 200 mg (800 mg) twice daily for 5 days. Avoid in pregnancy or in women who might become pregnant on treatment.

14 Baricitinib: Consider for patients who  
-have not received tocilizumab  
-require  $8\text{ L O}_2$  or  $\text{FiO}_2 > 0.4$  or higher levels of

respiratory support for at least 8 hours

-are not improving despite 24h of standard care including dexamethasone.

Dose is 4 mg orally or through a nasogastric tube for 14 days or until hospital discharge. Modify dose for renal function, avoid if creat  $\text{cl} < 15$  or ongoing sepsis, monitor CBC and LFT.

**Note:**

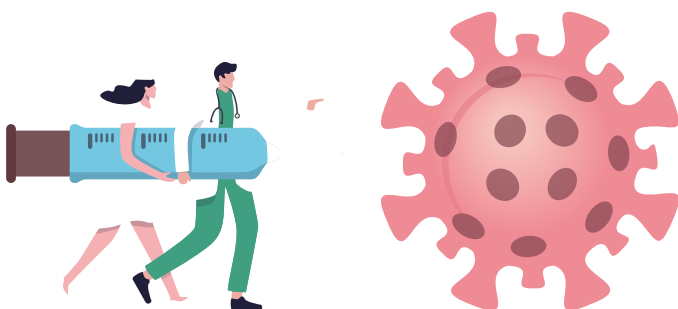
1. An informed consent is required wherever newer/unlicensed tests and therapies are used
2. This guideline is an advisory and does not replace appropriate clinical judgment. The treating clinician will need to decide on appropriate treatment for individual patients based on their unique clinical features

**Abbreviations**

RA: room air, FBG: fasting blood glucose, ITP: idiopathic thrombocytopenic purpura, GBS: Guillain Bare syndrome, RFT: renal function test, LFT: liver function test, NP/OP: naso/oropharyngeal, CXR: chest X ray, PCT: procalcitonin, LMWH: low-molecular-weight heparin, MIS-C: multi-system inflammatory syndrome in children, MIS-A: multi-system inflammatory syndrome in adults, COPD: chronic obstructive airways disease, CTPA: computed tomography pulmonary angiogram, ADEM: acute disseminated encephalomyelitis, MAS: macrophage activation syndrome, CAPA: Covid associated pulmonary Aspergillosis, AG: Aspergillus galactomannan, BDG: serum 1-3 Beta d glucan, CVA: cerebrovascular accident, CAM: Covid associated Mucormycosis

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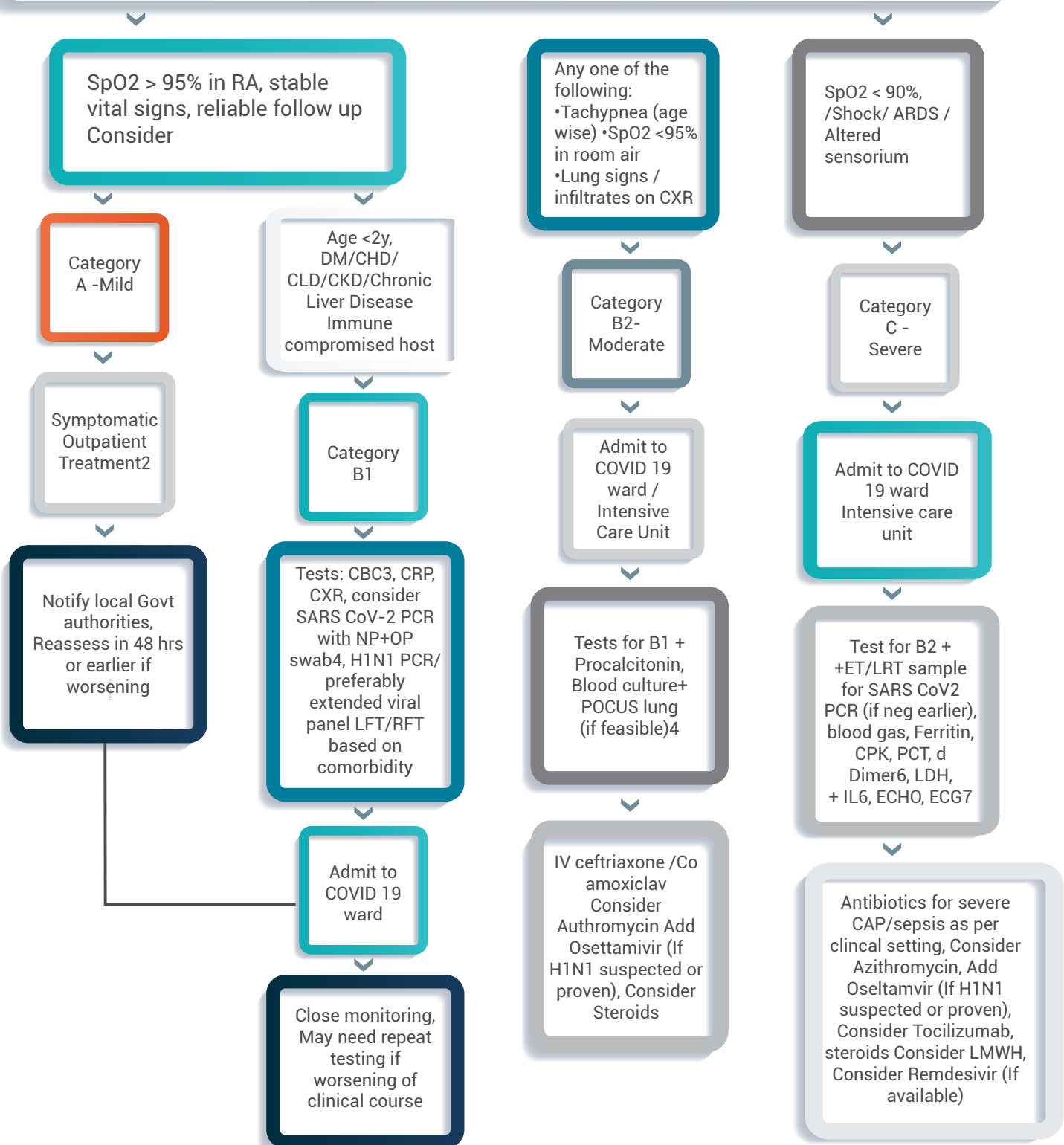


Pediatric ICU /  
**HDU management**

# Management Protocol For Pediatric Covid 19

UPDATED 27<sup>th</sup> May 2020

**Suspect COVID 19 when:** Fever >38 C /100.40F with any of the following:- Respiratory symptoms (coryza, sore throat, cough), Myalgia, Headache, GI symptoms (Abdominal pain,Vomiting, diarrhea), Conjunctivitis, Poor feeding/Listlessness in infant, Loss of taste or smell in olderchildren (above 8y), Any febrile illness without localization, History of contact with Covid positive case, patient fulfilling criteria for atypical/typical Kawasaki disease\*,unexplained reddist/bluish discolouration of toes.



1. Child should be masked whenever possible. Preferably the child should be cared by parent instead of grandparent. Elderly members of the family or those with comorbid conditions should avoid close contact. Caretaker should wear a mask and practice hand hygiene frequently. While changing diaper or cleaning after soiling, attendant should wash hands properly with soap due to probable risk of infection from fecal shedding of virus. Preferably test the caretaker.
2. Monitor trend of lymphocyte count, lymphocytopenia is a risk factor for progression to severe disease. Neutrophil to lymphocyte ratio  $>3.13$  is an independent risk factor for severe disease at an early stage
3. A single negative test for SARS CoV-2 PCR (especially from an upper respiratory sample) or a positive test for another respiratory pathogen does not exclude SARS-CoV-2 infection. Need to repeat testing if index of suspicion is high.
4. CT scan may be considered if first test sample is negative in a patient with high clinical suspicion of Covid, who is already intubated or ill and older child who will cooperate for CT.
5. D-dimer  $>1$ mcg/ml predicts poor prognosis at an early stage. Consider LMWH in patients with very high d-dimer levels ( $>6$  times normal)
6. Tocilizumab may be considered in  $> 2$  years if IL-6 levels are elevated at the dose of 4-8 mg/kg
7. Corticosteroids may be used in patients with refractory hypoxemia after ruling out other causes such as R-L shunts, pleural collection on an individual case based upon the risk benefit ratio. Consider early steroids, Methylprednisolone 1-2 mg/kg per day in 2 to 3 divided doses, for 3-5 days if  $<2$  days into hospitalisation and 8 days from symptom onset. Please note that at present, there are

no pediatric studies available for the dosage.

**Please note:**

- Ideally pediatric patients should be managed in different ward from adults. If not feasible, it is preferable to keep them together.
- This guideline will be updated as more information and research comes in and is to be used to guide medical management with your best clinical judgment. The role of HCQ will be revisited.
- Treatment experiences are based on in-vitro data and very minimal clinical experience,
- Discharge policy for the patient should be as per local guidelines.
- Consider getting an informed consent wherever necessary

**Abbreviations:**

DM – Diabetes Mellitus  
 CHD – Congenital Heart Disease  
 CLD – Chronic Lung Disease  
 CKD – Chronic Kidney Disease  
 POCUS- Point of Care Ultrasound  
 N-: Nasopharyngeal  
 OP- Oropharyngeal  
 PIMS – TS - Paediatric Inflammatory Multisystem Syndrome  
 Temporarily associated with SARS-COV-2  
 LMWH - Low-molecular-weight heparin



### Paediatric Multisystem Inflammatory Syndrome Temporally associated with SARS-CoV-2 (PIMS – TS)

PIMS – TS, also called Multisystem Inflammatory Syndrome in Children (MIS-C) is a newly described syndrome that has clinical and laboratory features that overlap with typical or atypical Kawasaki's Disease (KD), Toxic Shock Syndrome (TSS) and Macrophage Activation Syndrome (MAS). Children with this syndrome appear to have had current or recent infection with SARS-CoV-2 or an epidemiological link to a COVID 19 patient.

#### Case definition for PIMS – TS:

1. A child presenting with fever, laboratory evidence of inflammation\*, and evidence of single or multi-organ dysfunction (shock, cardiac, respiratory, renal, gastrointestinal or neurological disorder) with additional features (See clinical features). This may include children fulfilling full or partial criteria for KD.
2. Exclusion of other plausible diagnosis (e.g. bacterial sepsis, staphylococcal or streptococcal shock syndromes etc.).
3. SARS-CoV-2 PCR testing may be positive or negative.

\* includes one or more of the following: neutrophilia, lymphopenia, hyperferritinemia, elevated CRP, ESR, PCT, fibrinogen, ferritin, D-dimer, LDH, IL-6, triglycerides, ALP/AST

#### Clinical features include but are not limited to:

- Persistent fever  $\geq 38^{\circ}\text{C}$ .
- Hypotension and shock (wide pulse pressure, usually).
- Oxygen requirement.
- Abdominal symptoms, Abdominal pain, diarrhoea, vomiting.
- Skin and mucous membrane changes, Conjunctivitis, rash, erythematous changes in lips and oral cavity, extremity edema/induration etc.
- Respiratory Symptoms, Cough, sore throat, Respiratory failure is uncommon.
- Hepatosplenomegaly, lymphadenopathy.
- Meningeal signs, confusion, syncope.

#### Laboratory tests:

- CBC: may show anemia, neutrophilia, lymphopenia, thrombocytopenia.
- Biomarkers of Inflammation: CRP, ESR, PCT, fibrinogen, ferritin, D-dimer, LDH, IL-6, TGL.
- Organ function tests: RFT, electrolytes, LFT, coagulation profile, ECHO (including coronaries), ECG, CKR, Troponin, BNP.
- USG abdomen: to rule out significant alternative abdominal pathology.
- SARS-CoV-2: RT-PCR. Save serum sample for future serology testing prior to IV immunoglobulin (IVIg) administration.
- Blood Cultures (to rule out alternative diagnosis).
- Other diagnostic tests: to rule out other differentials (e.g. Standard respiratory viral panel).

#### Treatment:

- Manage as COVID positive, even if RT PCR negative, with full PPE.
- Conduit specialist services as early as possible (PICU, ID specialists, Cardiology, Rheumatology, Hematology).
- Supportive care, O<sub>2</sub> to maintain SaO<sub>2</sub>>94%, ventilation, judicious fluids, vasoactives as needed. Close cardiorespiratory monitoring as clinical deterioration can be rapid. Monitor and support other organ functions (Liver, Renal etc.).
- Empiric antibiotics as per local sepsis protocols, pending cultures and definitive diagnosis.
- Consider anticoagulation/antiplatelet therapy (with LMWH/ aspirin) as many patients are prothrombotic, unless contraindications exist (e.g. Bleeding, platelet count  $< 50000 \times 10^9/L$ ).
- Immunomodulatory therapies,
  - First line: IVIG 2g/kg. Add aspirin (30-50 mg/kg/day), if criteria for KD met.
  - Second line: IV methylprednisolone (30-50 mg/kg/day, max 1 gm) for 3 days.
  - Third line: Consider other immunomodulatory such as Tocilizumab, Anakinra, Infliximab if IVIG and steroid refractory/severe disease/rapid clinical decline, in consultation with other specialists.

## Pediatric ICU/HDU management of COVID-19

### 1. PICU/HDU Admission criteria (Any **one** of below)

- a) Respiratory: Tachypnoea, increased work of breathing, desaturation <95% in room air, lung signs or progressive infiltrates on CXR
- b) Symptoms and signs of shock
- c) Altered sensorium

### 2. COVID case in PICU/HDU (*negative pressure area, all staff with full PPE*)

- If oxygen is provided nasal cannula, apply surgical mask over NC to reduce aerosolization
- Insert at least 2 peripheral IV lines (PIV), wide bore cannula preferred: one for IV fluids and meds, 2<sup>nd</sup> for blood sampling, consider hep-flush. Consider peripheral arterial line if 2<sup>nd</sup> PIV not possible
- Samples for organ function (LFT, RFT, coagulation) and inflammatory markers (procalc, IL-6), other investigations as per patient condition and treating physician.
- Take samples for blood cultures (2 sets)
- Inhaled medicines via MDI and spacer (*Avoid nebulization machines*)
- Prevention and treatment of healthcare associated infections.
- **Family counseling: remember family members likely to be carriers/infected! Use appropriate precautions. Consider telephonic communication with careful documentation**

### 3. Respiratory support: High Flow Nasal Cannula (HFNC) or Non-invasive Ventilation via Mask (NIV)

| <b>HFNC (1<sup>st</sup> preference)</b>  | <b>NIV</b>  |
|--|---|
| <ul style="list-style-type: none"> <li>• Titrate flows 0.5-2L/kg, FiO<sub>2</sub> 0.6 to maintain SpO<sub>2</sub> =&gt; 92% (<i>Minimize flows</i>)</li> <li>• Apply Surgical mask over HFNC</li> <li>• Wait for 1-2 hours for response after any intervention</li> <li>• HFNC failure criteria:<br/>Worsening ROX &lt;4.88<br/>(SpO<sub>2</sub>/RR x FiO<sub>2</sub>)</li> </ul>  | <ul style="list-style-type: none"> <li>• Deliver NIV via 2-limb standard ventilator (<u>NOT standalone NIV machine</u>)</li> <li>• CPAP helmet (if available) preferred to oro-nasal mask</li> <li>• Bacterial /viral filter (HME) connected to expiratory limb</li> <li>• Start with PEEP @ 5cmH<sub>2</sub>O, higher PEEP can lead to leaks and aerosolization.</li> <li>• Add PS if CO<sub>2</sub> elevated (consider dead-space as cause of hypercapnia)</li> <li>• Titrate PS to achieve saturation/FiO<sub>2</sub> (SF ratio) &gt;265 and pH 7.35 (<i>beware of leaks with high PS levels</i>)</li> </ul> |
| <ul style="list-style-type: none"> <li>• Monitor and document SaO<sub>2</sub> and saturation/ FiO<sub>2</sub> ratio (SF): Aim for oxygen saturation &gt; 92% and SF &gt; 265               <ul style="list-style-type: none"> <li>• Consider awake prone if hypoxia persists</li> <li>• Consider low dose dexmedetomidine infusion in the event of irritability                   <ul style="list-style-type: none"> <li>• Perform blood gases Q 4-8H if elevated CO<sub>2</sub> is of concern</li> <li>• Maintain negative fluid balance if BP and MAP stable</li> </ul> </li> </ul> </li> </ul>  |   |
| <p><b>Responders</b></p> <ul style="list-style-type: none"> <li>• Respiratory distress improved</li> <li>• Heart rate and respiratory rates decrease by 20%</li> <li>• FiO<sub>2</sub> requirements &lt; 0.5</li> </ul> <p><i>Continue therapy, monitor for worsening and secondary infections</i></p>   |   |
| <p><b>Non-responders: consider Intubation</b></p> <p><b>Indications for Intubation</b></p> <ul style="list-style-type: none"> <li>- Persistent or Worsening respiratory distress, Spo<sub>2</sub> &lt;88-90% on HFNC/NIV with FiO<sub>2</sub> &gt;0.6</li> <li>- Contraindications to NIV (Hemodynamic instability, altered mental status)</li> <li>- Progressive hypercapnia, rising pCO<sub>2</sub>, pH&lt;7.35 (most patients are hypocapnic)</li> <li>- Drowsiness, fatigue</li> <li>- Refractory shock with need for high dose pressors, cardiac dysfunction, Lactic acidosis</li> <li>- Consider for multi-organ failure</li> <li>- CNS issues: encephalopathy seizures with inability to maintain airway ± hypoventilation</li> <li>- Timely intubation in the presence of experienced personnel for high risk children*</li> </ul> |   |



*\*High risk: Age <1 year, co-morbidities including immunocompromised patients, chronic lung, renal and liver disease, diabetes, cardiac disease*

#### 4. COVID 19-INTUBATION (high risk procedure for patient and HCW)

##### Preparedness

- Video-laryngoscopy preferred if easily available and expertise +
- First pass intubation ideal
- Place Plastic drape over patient head and neck to prevent aerosol dispersion into the room

**Choice of Drugs:** Ketamine 0.5-1 mg/kg, Rocuronium 0.6 mg/kg

- Apneic oxygenation if possible: use nasal prongs or face mask less than 5 LPM for 5min
- Maintain SpO<sub>2</sub> > 92%

##### Do's and Don'ts during Intubation

- Use Rapid Sequence Intubation: Give full dose sedation and **full dose paralysis** to avoid cough
- Wait for 30-60 sec for complete knock down before intubating.
- **AVOID performing bag valve mask (BVM) ventilation.**
- **If BVM essential, use bacterial/viral filter or HME, ensure 2-handed tight mask seal, small tidal volumes**
- Do not insert NG tube before intubation
- Do not do oral suction unless absolutely essential, perform after muscle relaxation
- **Use only Cuffed ET tubes.** ET tube distance to be fixed predetermined prior to insertion
- **Clamp end of ET tube near the adaptor**

##### Immediate Post-Intubation

- Connect the **pre-prepared connections:** In-line suction + etCO<sub>2</sub> + HEPA filter + ventilator circuit
- **Release the clamp**
- Check etCO<sub>2</sub> trace
- **DO NOT BAG** to check for bilateral equal entry
- Fix the ET tube securely
- HEPA filter can be removed as it gets clogged in the presence of active humidification system and adds to the dead space. Moreover we have filter in the expiratory limb of circuit.

##### During ventilation:

- Closed suction preferred
- Avoid circuit disconnection
- In case of disconnection from ventilator and manually ventilated, HEPA filter should be connected between Bag and ET tube, or between the bag and mask in resuscitation sequence when there is no advanced airway in-situ.
- Inhaled medicines via MDI
- Follow standard pediatric VAP bundle precautions

#### 5. Supportive Care of COVID-19 patient on ventilator

- Insert Invasive lines- Central line preferably Femoral, Arterial line, Urinary catheter, NG tube
- Sedation-analgesia infusion: Use Unit-specific regimens
- Fluids and renal support:
  - Keep overall dry.
  - Monitor RFT, treat shock, hypoperfusion
  - Established acute kidney injury (AKI): Fluid management +/- Renal replacement therapy
- Coagulation: Discordant rise in D dimer, consider LMWH
- GI issues: Watch for gut ischemia- bloody stool, severe abdominal pain
- Nutrition: Target in ventilated patients- 55-60kcal/kg, 1.0-1.5g/kg protein enteral route preferred, consider TPN after 3-5 days if targets not met
- Prevention and treatment of healthcare associated infections.

FOCUSING LINKS

- **Family counseling: remember family members likely to be carriers/infected! Use appropriate precautions. Consider telephonic communication with careful documentation**
- Conservative fluid strategy, avoid colloids.
- Shock/hypoperfusion, including septic shock:
  - Epinephrine - Vasoactive of choice for septic shock.
  - Myocarditis – Inodilators like milrinone, diuretics.
  - Maintain age appropriate mean arterial pressure: Judicious norepinephrine

## 6. VENTILATORY STRATEGIES

### Use lung protective strategies

- Wherever possible:  $FiO_2 < 0.6$ , tidal volume ( $V_t$ ) 5-7ml/kg ideal body weight, (lower  $V_t$  with poor lung compliance), PEEP upto 10 cmH<sub>2</sub>O in severe disease, titrate to  $SpO_2 > 88\%$ )
- Consider dead space effect for persistent poor compliance, hypoxemia and elevated airway pressures: may need to decrease PEEP and minimize airway pressures
- Target-  $O_2$  sats  $> 88\%$ , pH  $> 7.15$  (if RV dysfunction or PHT present, aim for pH 7.3)
- Limit Driving pressure  $< 15$ cmH<sub>2</sub>O, plateau pressure  $< 30$  cmH<sub>2</sub>O
- Early and deep sedation with neuromuscular paralysis for initial 48hrs
- Hemoglobin target- 7gm/dl if stable
- Maintain negative fluid balance. Avoid fluid boluses unless clear evidence of fluid loss. Consider early vasoactive-inotropes to maintain perfusion and desired MAP
- Early proning with close monitoring

### Persistent hypoxemia

- Repeat CXR and consider secondary infections: send tracheal secretions for gram stain and culture, consider empiric antibiotics, usual criteria, co-infections # (see below)
- Consider CT chest if feasible
- PEEP titration
- Careful recruitment manoeuvres if lung recruitable
- Frequent Echo for RV and LV function, bubble test for R-L shunt
- Target Hb – 10gm/dl
- Trial of inhaled Nitric oxide (iNO): Initiate early if pulmonary hypertension or RV dysfunction present. Stop if no benefit within 1hour of trial.
- Consider trial of HFOV
- Steroids: Consider MPS in moderate to severe disease at doses mentioned above.
- **Refractory hypoxemia despite all above:** Consider ECMO if available

### Patient Improving: Consider Extubation

- Consider pre-extubation dexamethasone if risk factors for post-extubation stridor present
- SBT trial: Use only PEEP without PS. Avoid T piece
- Extubation criteria similar to any ARDS patient
- Extubation should be to **face-mask**, not to NIV or HFNC
- Aerosol precautions required
- Two staff members with full PPE to perform extubation
- Low dose sedation (IV dexmedetomidine 0.5-1.0mcg/kg/min) to avoid anxiety
- The patient should **not** be encouraged to cough
- Prior to ET removal, gentle oral suctioning may be performed with care so as not to precipitate coughing

## 7. Disease specific anti-microbial and supportive therapy

- Consider Azithromycin
- Consider tocilizumab\*, Consider steroids(methylprednisolone)

### # Co-Infections

- Secondary bacterial pneumonia common in upto 50%, consider ceftriaxone/BL-BLI + linezolid/vancomycin (Dose modification if required)
- Oseltamivir for H1N1 infection
- Doxycycline/ Azithromycin for Atypical coverage

## 8. Imaging

- Daily CXR for ventilated patients until improving
- In units with experience in lung ultrasound (POCUS), this can be done daily or more frequently
- CT scan of the chest is more sensitive than CXR and USG. It can be considered in children who are already intubated or in a co-operative older child after taking appropriate transport precautions.

# Management Protocol For Neonates

## Born To Suspected Of Proven Covid 19 Mothers (Or) Exposed To A Covid 19 Person

Suspect COVID if any of the following symptoms are present:  
Fever / Lethargy / Grunting / Tachypnea / Recession / Desaturation 92% / Feed Intolerance / Term Baby with congenital pneumonia

| Category A  | Category B   | Category c   |
|---|--|--|
| Asymptomatic Neonates   | Asymptomatic Neonates  | Preterm Neonate or Sick Neonate  |
| CBC / CRP / CXR / RTPCR on Nasopharyngeal & Anal Swab                             | CBC / CRP / ?PCT / CXR / LFT Renal Profile / RT PCR on Nasopharyngeal & Anal Swab on day 2 & 6   | Tests in CAT – B + Ferritin / LDH / CPK / d-Dimer / IL – 6 / ECG / ECHO / USG Chest / ? CT Chest |
| Observe the Baby in the NICU while awaiting material reports                      | Admit to COVID – 19 isolation in NICU  | Admit to COVID – 19 isolation in NICU  |
| Consider discharge for babies born by NVD in 12 – 24 hours & LSCS within 48 hours | Supportive treatment nasal cannula O2 / CPAP   | CPAP / Intubate & Ventilate ? Surfactant Caffeine / Antibiotics Blood Products / ? LMWH / ? HCO  |
| Daily follow up via phone calls for two weeks                                     | <ol style="list-style-type: none"> <li>Daily CBC – monitor lymphocyte count</li> <li>RT PCR for Nasopharyngeal swab and anal swab on day 2,4,6/7</li> <li>Daily CXR if on the ventilator</li> <li>d-Dimer / IL – 6? Useful in neonate as a disease predictor</li> <li>? Use for Hydrxychloroquine at a dose of 5 mg / kg / d÷2 (Not approved in 1 month of age)</li> </ol> |  |

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>Use of full PPE by all healthcare providers is mandatory. Donning and Doffing done step wise in designated areas.</li> <li>Neonatal resuscitations undertaken atleast 2 meters away from mother</li> <li>Follow standard NRP guidelines – to provide PPV, use only self inflating bag &amp; mask and NOT 'T - piece'</li> <li>Commonly used neonatal resuscitation equipment to be readily available in disposable grab bags so as to avoid taking the whole trolley</li> </ol> | <ol style="list-style-type: none"> <li>Obtain &amp; save cord blood for COVID – 19 IgM &amp; IgG</li> <li>All babies needing respiratory support nursed in an incubator and try and place the expiratory limb of the circuit inside incubator if possible</li> <li>Breast feeding is permissible in COVID positive mother</li> <li>Equipment and isolation areas cleaned according to hospital policy for COVID patients</li> </ol> |
|--|---|

## Contributor names in Alphabetical Order

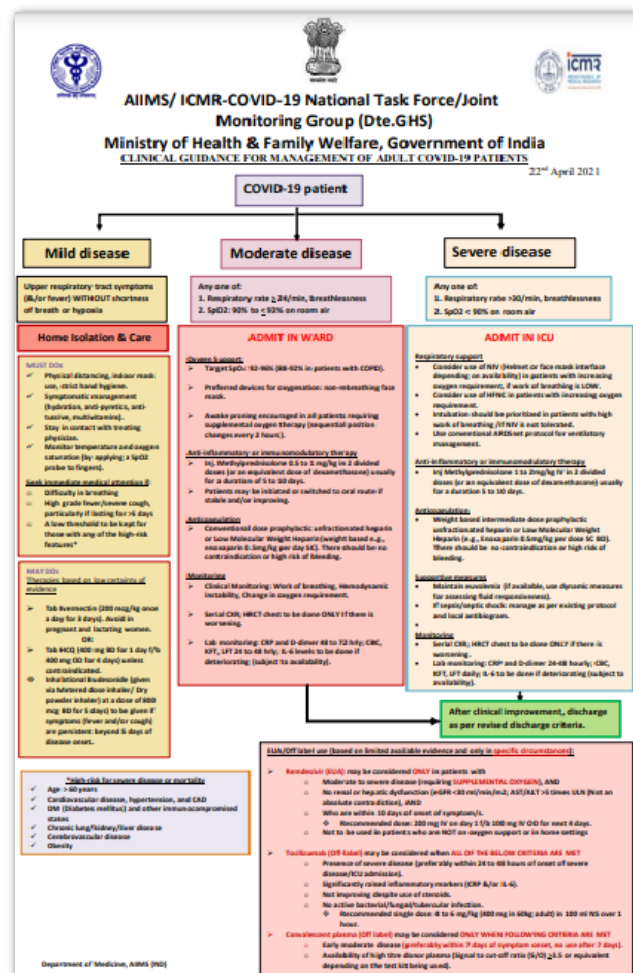
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## CLINICAL MANAGEMENT PROTOCOL: COVID-19

AIIMS/ ICMR-COVID-19 National Task Force/Joint Monitoring Group (Dte.GHS)  
 Ministry of Health & Family Welfare, Government of India  
<https://www.mohfw.gov.in/pdf/COVID19ManagementAlgorithm22042021v1.pdf>

COVID 19 PRONING FOR SELF CARE  
 Ministry of Health & Family Welfare  
 Government of India  
<https://www.mohfw.gov.in/pdf/COVID19ProningforSelfcare3.pdf>

REVISED GUIDELINES FOR HOME ISOLATION OF MILD /ASYMPTOMATIC COVID-19 CASES (Updated on 28th April 21)  
 Ministry of Health & Family Welfare  
 Government of India  
<https://www.mohfw.gov.in/pdf/RevisedguidelinesforHomeisolationofmildasymptomaticCOVID19cases.pdf>







## SOP Preparation And Transfusion **of Covid - 19 Convalescent Plasma (CCP)**



# SOP PREPARATION AND TRANSFUSION OF COVID-19 CONVALESCENT (CCP)

Prepared by:

**Dr Sudipta Sekhar Das, Dr Mohit Chowdhry**

## 1. Principle & Application

The outbreak of severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), has become pandemic. To date, no specific treatment has been proven to be effective. Promising results were obtained in China using hyperimmune plasma from COVID-19 recovered patients. Use of CCP has also been studied in outbreaks of other respiratory infections, including the 2009-2010 H1N1 influenza virus pandemic, 2003 SARS-CoV-1 epidemic, and the 2012 MERS-CoV epidemic. Plasmapheresis is an approved and safe apheresis procedure performed to collect plasma from eligible donors and intended to use the plasma in indicated patients.

## 2. Responsibility

It is the responsibility of the consultant /medical officer, apheresis supervisor / technologist and apheresis nurse posted in blood donation complex / apheresis section to select eligible donor, perform plasmapheresis, and store processed and labelled plasma for use in indicated patients. These personnel are also responsible for documentation and record keeping of each and every procedure and product in computer system or in a dedicated register.

## 3. Definition

This SOP describes donor eligibility, preparation / processing, labeling, storage, distribution and transfusion of CCP obtained by plasmapheresis.

## 4. Methods and Materials

### Donor Eligibility & Recruitment

1. Donor should be eligible for all criteria for blood / plasma donation as laid down in the Drugs and Cosmetics (D&C) Act of India.
2. ABO compatible with patient
3. Negative for other Infectious markers like HIV, HBV, HCV, syphilis and malaria
4. Written and informed consent for donation
5. Additional eligibility criteria
6. Documentation of COVID-19 infection
  - A diagnostic test (e.g., nasopharyngeal swab) at the time of illness, OR
  - A positive serological test for SARS-CoV-2



antibodies after recovery, if prior diagnostic testing was not performed at the time when COVID-19 was suspected.

- Report / written documentation may be hand carried by the potential donor
7. Confirmation of recovery of donor from COVID-19 infection
    - Donor good health including absence of fever and respiratory symptoms on day of donation
    - Complete resolution of symptoms at least 28 days prior to donation and negative results for COVID-19 either from nasopharyngeal swab specimen or by a molecular diagnostic test from blood.
    - Documents related to date of COVID-19 infection, history of symptoms and treatment received and date of resolution of all symptoms must be traceable.
  8. SARS-CoV-2 neutralizing antibody titers if feasible should be performed. A titer of  $\geq 160$  may be acceptable

#### 9. Donor gender

- Male donors negative results for COVID-19 either from one or more nasopharyngeal swab specimens
- Female donors negative results for COVID-19 either from one or more nasopharyngeal swab specimens and for HLA antibodies (wherever possible). This is done to prevent the risk of Transfusion related acute lung injury (TRALI)

#### Collection of Covid-19 Convalescent Plasma (CCP)

1. Collection to be done in licensed apheresis premises
2. Trained and dedicated staff. Universal safety precaution to be followed strictly
3. Use of legally approved apheresis equipments, kits and anticoagulants
4. Monitor donor throughout the procedure for any procedure related adverse events
5. Volume to be collected: 500 ml (without anticoagulant volume)
6. Donation interval: CCP donor may donate plasma every 15 days as permitted by allogeneic plasma donor eligibility criteria laid down in the D&C Act.
7. Plasma collected may be divided into desired number of aliquots (200-250 ml per aliquot)

#### Labelling and storage of CCP

1. Aliquots of plasma may be labeled as a Plasmapheresis leading to Single donor plasma. In addition the label may include
  - SARS-CoV-2 antibody titer / test result
  - Cautionary statement like " Caution: New Drug - Limited by National law to investigational use"
2. In case not being used immediately, freeze as soon as possible at – 40oC or preferably colder and stored frozen until distribution
3. Separate deep freezer or dedicated drawer / rack in existing deep freezer may be used for freezing CCP. Proper signage is needed to locate these CCP storage sites more easily.

#### Distribution / Issue of CCP

1. CCP to be issued to prescribed patient only against valid requisition and samples
2. If frozen, CCP to be thawed before issue following departmental standard operating procedure (SOP)
3. It is crucial to ensure ABO compatibility between the donor and the recipient
4. CPP before issue to be checked for product

appropriateness, labeling, blood group, volume and expiry. Proper documentation and records to be maintained in the blood & component issue register.

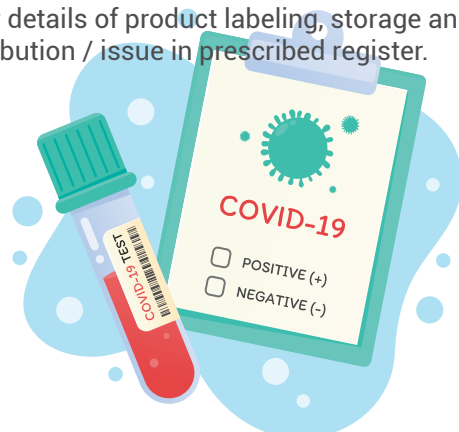
5. Requisition, issue slip and related documents may be stored in a separate folder / file/box.
6. There should not be any delay in the transportation of product. A system may be developed such that the blood bank is updated once the product reaches the patient.

#### Recommendations For CCP Transfusion

1. The treating physician or the doctor in charge of the patient should check and confirm the plasma product, related documents and the designated patient before initiation of transfusion.
2. Patient may receive an initial dose of 200-250 ml followed by one or two additional doses of 200-250 ml according to disease severity and tolerance of infusions.
3. Blood / serum / plasma samples of the patient prior to and after transfusion of CCP should be collected for future potential scientific investigations.
4. Complete documentation of CCP transfusion by the treating physician / doctor.
5. Any adverse events related to CCP transfusion to be notified to the blood bank

#### 5. Documentation

- Enter the details of donors in the computer system / dedicated register.
- Photocopy of investigations, treatment prescriptions / papers may be preserved and recorded
- Enter details of plasmapheresis procedure including adverse reactions if any in the computer system / dedicated register
- Enter details of product labeling, storage and distribution / issue in prescribed register.



## OPTIMAL UTILIZATION OF OXYGEN

| Wards and Rooms   | Operation Theatres (OTs)   | Intensive Care Units (ICUs)  |
|---|--|--|
| <ol style="list-style-type: none"> <li>1. Patients who need oxygen should be given nasal prongs as far as possible. Maintain SpO<sub>2</sub> at 90-92% (COPD patients 88-92%)</li> <li>2. If facemasks are required for O<sub>2</sub> therapy, avoid facemask with reservoir bags. Venturi masks can be useful.</li> <li>3. When using Venturi masks ensure appropriate oxygen flow as prescribed. Reduce the Venturi percentage as saturation improves</li> <li>4. When O<sub>2</sub> therapy is over, please ensure that the O<sub>2</sub> flow is shut off before leaving the patients side.</li> <li>5. Do not use O<sub>2</sub> for nebulization. Instead use portable electrical nebulizer.</li> <li>6. Remember- oxygen is a drug. Excess is harmful</li> <li>7. Ward in charge nurses should make regular bed side visits to ensure that O<sub>2</sub> is not being wasted.</li> <li>8. Biomedical/ Engineering team to be involved for daily rounds to check leakage from the ports</li> </ol> | <ol style="list-style-type: none"> <li>1. Please ensure that the anaesthesia machine is switched off when all the work for the patient is completed.</li> <li>2. Since all OTs are equipped with advanced anaesthesia machines, low flow anaesthesia or metabolic anaesthesia is to be used.</li> <li>3. Ensure that all gas flows are off when leaving the operating room at the end of the case.</li> <li>4. Biomedical/ Engineering team to be involved for daily rounds to check leakage from the ports</li> </ol> | <ol style="list-style-type: none"> <li>1. Make use of nasal prongs instead of facemask for administering O<sub>2</sub> for oxygen needs upto 3L. For requirements above 3L, use facemask</li> <li>2. Limit the flow of oxygen to ensure that the patients SpO<sub>2</sub> is between 90-92% (PaO<sub>2</sub> <math>\geq</math> 60 mmHg). Higher SpO<sub>2</sub> is not required unless the patient is very anaemic (hemoglobin &lt; 7gm%)</li> <li>3. Venturi mask may be used</li> <li>4. When using Venturi masks ensure appropriate oxygen flow as prescribed. Reduce the Venturi percentage as saturation improves</li> <li>5. In case facemask is required for oxygen therapy, avoid facemask with reservoir bags</li> <li>6. Ensure that the O<sub>2</sub> flow is off when not required.</li> <li>7. NIV should be restricted to the minimum number of patients as well for the shortest period of time. When using any of these gadgets, please ensure that the minimal oxygen settings are kept to maintain SpO<sub>2</sub> 90-92%. In COPD patients SpO<sub>2</sub> should be maintained between 88-92% only</li> <li>8. Routine use of NIV in post-surgical patients can be suspended for some time now, However, it should be used when required to avoid any re- intubations.</li> <li>9. For patients on ventilators use minimal O<sub>2</sub> setting to maintain the SpO<sub>2</sub> levels mentioned earlier. It is not necessary that the FiO<sub>2</sub> be reduced after every blood gas. Respiratory Therapies should reduce the FiO<sub>2</sub> levels based on the SpO<sub>2</sub> readings and come down to the minimal levels at the earliest.</li> <li>10. Respiratory Specialist should be actively involved in patient ventilation management</li> <li>11. Do not use O<sub>2</sub> for nebulization until further notification</li> <li>12. Remember- oxygen is a drug. Excess is harmful</li> <li>13. Post arrest saturation (after getting a blood gas or SpO<sub>2</sub> in position) maintain SpO<sub>2</sub> at 92-94% (as suggested by 2020 ACLS guidelines). During resuscitation use 100% O<sub>2</sub> only</li> <li>14. Biomedical/ Engineering team to be involved for daily rounds to check leakage from the ports</li> </ol> |





## **CHAPTER III**

### Prevention & Control of Infection

# Infection Prevention and Control Measures for Patients With Suspected or Confirmed Covid - 19 Infection

## Covid-19 Related Personal Protection Management

| Area/ Service   | Category of people                   | Risk of exposure | N 95 mask | Triple layer mask                                    | Gloves | Gown/ coverall | Face shield/ goggles | Head cover | Shoe cover | Social distance | Hand Hygiene |
|---|--------------------------------------|------------------|-----------|--|--------|----------------|----------------------|------------|------------|-----------------|--------------|
| Screening area/ Entrance  | Screening staff                      | Low              |           |  |        |                |                      |            |            |                 |              |
|   | Security / Baggage screening area    | Low              |           |  |        |                |                      |            |            |                 |              |
|   | Housekeeping                         | Low              |           |  |        |                |                      |            |            |                 |              |
| Patients/ visitors with respiratory symptoms  | Patients/ visitors                   | Moderate         |           |  |        |                |                      |            |            |                 |              |
| Patients/ visitors/ attendants  |                                      | Low              |           |  |        |                |                      |            |            |                 |              |
| Triage/ Fever Clinic in OPD   | Dr, Nurse, HK                        | Moderate         |           |  |        |                |                      |            |            |                 |              |
| ER triage   | Dr, Nurse                            | High             |           |  |        |                |                      |            |            |                 |              |
|   | HK                                   | Moderate         |           |  |        |                |                      |            |            |                 |              |
| Help desk/ registration/ front office/ billing/ OP secretary/ all other patient facing administrative departments | Any staff                            | Moderate         |           |  |        |                |                      |            |            |                 |              |
| Doctor in OP  | Pulmonologist                        | Moderate         |           |  |        |                |                      |            |            |                 |              |
|   | Internal Medicine                    | Moderate         |           |  |        |                |                      |            |            |                 |              |
|   | Infectious Diseases                  | Moderate         |           |  |        |                |                      |            |            |                 |              |
|   | Gastroenterologist                   | Moderate         |           |  |        |                |                      |            |            |                 |              |
|   | ENT                                  | High             |           | If aerosol generating procedures done                |        |                |                      |            |            |                 |              |
|   | Ophthal                              | High             |           | Close care like slit lamp, direct ophthalmoscope etc | LATEX  |                |                      |            |            |                 |              |
| Area/ Service   | Category of people                   | Risk of exposure | N 95 mask | Triple layer mask                                    | Gloves | Gown/ coverall | Face shield/ goggles | Head cover | Shoe cover | Social distance | Hand Hygiene |
|   | Dentistry                            | High             |           |  | LATEX  |                |                      |            |            |                 |              |
|   | Dentistry while performing procedure | High             |           |  | LATEX  |                |                      |            |            |                 |              |



|  | Other specialty    | Moderate         |           |                   |        |                |                      |            |            |                 |              |
|--|--------------------|------------------|-----------|-------------------|--------|----------------|----------------------|------------|------------|-----------------|--------------|
| Nurses in OP   | Nurses             | Moderate         |           |                   | LATEX  |                |                      |            |            |                 |              |
| Sample collection collecting all samples except for COVID and sputum related | Technicians        | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| Sample collection COVID  | Technicians        | High             |           |                   |        |                |                      |            |            |                 |              |
| Routine lab (Transport, testing- non respiratory samples)                    | Concerned staff    | Low              |           |                   |        |                |                      |            |            |                 |              |
| Routine lab (Respiratory samples)  | Concerned staff    | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| X Ray  | Technicians        | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| Ultrasound   | Doctors & Nurses   | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| Treatment room   | Nurses/ Doctors    | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| OP Pharmacy  | Staff              | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| Blood bank   | Staff              | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| PFT  | Technician         | Moderate         |           |                   |        |                |                      |            |            |                 |              |
| Wards  | Doctors & Nurses   | Moderate         |           |                   |        |                |                      |            |            |                 |              |
|  | HK                 | Moderate         |           |                   |        |                |                      |            |            |                 |              |
|  | Pharmacy           | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Physiotherapy      | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Dietician          | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Social worker      | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Ward secretary     | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Billing            | Low              |           |                   |        |                |                      |            |            |                 |              |
| Area/ Service  | Category of people | Risk of exposure | N 95 mask | Triple layer mask | Gloves | Gown/ coverall | Face shield/ goggles | Head cover | Shoe cover | Social distance | Hand Hygiene |
|  | Administrator      | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Security           | Low              |           |                   |        |                |                      |            |            |                 |              |
| ICU  | Doctors & Nurses   | Moderate         |           |                   |        |                |                      |            |            |                 |              |
|  | HK                 | Moderate         |           |                   |        |                |                      |            |            |                 |              |
|  | Pharmacy           | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Physiotherapy      | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Dietician          | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Social worker      | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Ward secretary     | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Billing            | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Administrator      | Low              |           |                   |        |                |                      |            |            |                 |              |
|  | Security           | Low              |           |                   |        |                |                      |            |            |                 |              |

|   |   |                  |              |                   |        |                |                      |            |            |                 |              |
|---|---|------------------|--------------|-------------------|--------|----------------|----------------------|------------|------------|-----------------|--------------|
| ICU for aerosol generating procedures   | All conducting  | High             |              |                   |        |                |                      |            |            |                 |              |
| OT for aerosol generating procedures  | Doctors & Nurses  | High             |              |                   |        |                |                      |            |            |                 |              |
| OT  | Doctors & Nurses  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
|   | HK  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
|   | Pharmacy/ Stores  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
|   | Secretary/ Administrator                                    | Moderate         |              |                   |        |                |                      |            |            |                 |              |
|   | Security  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Cath Lab  | Doctors & Nurses  | Moderate         |              |                   | LATEX  |                |                      |            |            |                 |              |
|   | HK  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Dialysis  | Doctors & Nurses  | Moderate         |              |                   | LATEX  |                |                      |            |            |                 |              |
|   | Technicians   | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Endoscopy   | Doctors & Nurses  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
|   | HK  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
|   | Technicians   | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Bronchoscopy  | All   | High             |              |                   |        |                |                      |            |            |                 |              |
| Labor room  | All staff   | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Labor room- if patient is suspected/ containment zone                               | All staff   | High             | If intubated |                   |        |                |                      |            |            |                 |              |
| Interventional radiology  | Doctor, Nurses, HK  | Moderate         | If intubated |                   |        |                |                      |            |            |                 |              |
| Area/ Service   | Category of people  | Risk of exposure | N 95 mask    | Triple layer mask | Gloves | Gown/ coverall | Face shield/ goggles | Head cover | Shoe cover | Social distance | Hand Hygiene |
| Isolation rooms/ treating confirmed positive patients in dialysis or any other area | All staff- Dr, Nurse, HK, Secertray, admin, transport staff | High             |              |                   |        |                |                      |            |            |                 |              |
| Pre anesthetic check area   | Doctors & Nurses  | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Dead body packing area/ storage   | Concerned staff   | High             |              |                   |        |                |                      |            |            |                 |              |
| Dead body transport   | Concerned staff   | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| CSSD staff  | All in department   | Moderate         |              |                   |        |                |                      |            |            |                 |              |
| Administrative staff including engineering etc those that visit patient areas       | All in department   | Low              |              |                   |        |                |                      |            |            |                 |              |

|  |                              |          |  |  |  |  |  |  |  |  |
|--|------------------------------|----------|--|--|--|--|--|--|--|--|
| Administrative staff like finance, marketing etc that do not visit patient areas | All in department            | Low      |  |  |  |  |  |  |  |  |
| Ambulance driver while transporting COVID patients                               | Drivers                      | Low      |  |  |  |  |  |  |  |  |
| Ambulance-management of patients   | Technicians, doctors, nurses | High     |  |  |  |  |  |  |  |  |
| F&B Staff in wards   | Waiters                      | Moderate |  |  |  |  |  |  |  |  |
| F&B Staff in ICU   | Waiters                      | Moderate |  |  |  |  |  |  |  |  |
| Chefs, kitchen staff   | Concerned staff              | Low      |  |  |  |  |  |  |  |  |

**\*\* Ministry of Health & Family Welfare, Directorate General of Health Services (Emergency Medical Relief)**

**\*\* Rational use of PPE for COVID-19, World Health Organization, 19 March 2020**

Risk based assessment for any additional PPE, needs to be done & implemented.

- Hand hygiene to be done in all situations.
- Follow standard guidelines of Infection Control practices, as these recommendations are additional to what is being followed in these areas.
- All HK staff, Security staff, F&B staff, technicians, Paramedics (Non critical areas) should wear 3 ply mask.
- All the other staff (Not in contact areas) to wear Mask, follow social distancing and hand hygiene.
- In addition, patients and their attendants to be encouraged to put on face cover.
- In case a COVID-19 patient is detected in such Non-COVID Health facility, the MoHFW guidelines for the same has to be followed (Available at: <https://www.mohfw.gov.in/pdf/GuidelinstobefollowedondetectionofsuspectorconfirmedCOVID19case.pdf>)





## A PPE BURN **CALCULATOR**

## A PPE Burn calculator to facilitate administrators to indent and track utility of PPE is available from CDC

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html>

The Personal Protective Equipment (PPE) Burn Rate Calculator excel icon[3 sheets] is a spreadsheet-based model that will help healthcare facilities plan and optimize the use of PPE for response to coronavirus disease 2019 (COVID-19).

### PPE related instructions

- Eye protection (face shields and goggles) can be cleaned and reused between patients. Wipe down with sodium hypochlorite after each encounter. Allow to air dry and store in a plastic bag. They should be issued against employee name and they should be responsible for cleaning and no mix ups –(write your names with markers)
- Gowns cannot be reused
- N95 masks could be reused and area specific lots to be sterilized as per the instructions given (names to be on the mask for ensuring it goes to the same individual)

### STORES

- Need to issue PPE based on the matrix to respective departments and departmental heads to ensure compliance and prevent wastage
- Housekeeping & F&B to issue PPE as required on a daily basis before the start of the shift to prevent wastage and should be strictly monitored
- No staff should use PPE from Nursing inventory
- Stores need to take a baseline inventory of PPE from all departments
- Recall excess PPE
- Issue week wise/day wise based on the requirement
- Every department's usage to be monitored
- Unnecessary PPE to be not issued if patients are not there or departments are shut down.

### Front office/ front line areas:

- All areas to have acrylic safeguards/ glass safeguards to protect the staff
- Should be cleaned every 4 hours with 1% sodium hypochlorite
- This will reduce the PPE required in many areas (example face shields may not be required)





## Cleaning & Disinfection:

### Guidelines for Preparation of 1% sodium hypochlorite solution

| Product                                    | Available chlorine                 | 1percent                         |
|--|------------------------------------|----------------------------------|
| Sodium hypochlorite - liquid bleach        | 3.5%                               | 1 part bleach to 2.5 parts water |
| Sodium Hypochlorite - liquid               | 5%                                 | 1 part bleach to 4 parts water   |
| NaDCC (sodium dichloroisocyanurate) powder | 60%                                | 17 parts to 1 litre water        |
| NaDCC (1.5 g tablet) - tablets             | 60%                                | 11 tablets to 1 litre water      |
| Chloramine powder                          | 25%                                | 80 g to 1 litre water            |
| Bleaching powder                           | 70%                                | 7g to 1 litre water              |
| Any other                                  | As per manufacturer's Instructions |                                  |

- Clean the surfaces after every patient use including equipment used on the patient example BP apparatus, stethoscope, etc
- Discard waste
- Housekeeping staff to wear PPE (N-95 in ID Ward)

#### Notes:

1. All staff at the healthcare facilities must wear 3 ply masks.
2. All staff working in the emergency department, department of infectious diseases, outpatient department of respiratory care, endoscopic examination room (such as gastrointestinal endoscopy, bronchofibroscope, laryngoscopy, etc.) must upgrade their surgical masks to N95.
3. Staff must wear a protective face screen based on Level II protection while collecting respiratory specimens from suspected/confirmed patients

#### Disinfection

- Cleaning in all triage and suspect/ confirmed Isolation areas is done by R2/ hospital approved disinfectant. Disinfection in all triage and suspect/ confirmed Isolation areas is done using 1 % sodium hypochlorite
- Disinfection in public areas outside the triage and suspect/ confirmed Isolation areas is to be done using 1 % sodium hypochlorite, especially as a precaution during this outbreak.

#### DISINFECTION FOR FLOOR AND WALLS

(1) Visible soiled surfaces shall be cleaned with soap and water before disinfection and handled in accordance with disposal procedures of blood and bodily fluid spills;

- (2) Disinfect the floor and walls through floor mopping, spraying or wiping; (ref chart)
- (3) Make sure that disinfection is conducted for at least 20 minutes;
- (4) Carry out disinfection three times a day and repeat the procedure at any time when there is contamination.
- (5) To avoid the possible generation of aerosols of ARI pathogens, use damp cleaning (moistened cloth) rather than dry dusting or sweeping.
- (6) During wet cleaning, cleaning solutions and equipment soon become contaminated; change cleaning solutions, cleaning cloths and mop heads frequently, according to health-care facility's policies.
- (7) Ensure that equipment used for cleaning and disinfection is cleaned and dried after each use.
- (8) Launder mop heads daily and dry them thoroughly before storage or reuse.
- (9) To facilitate daily cleaning, keep areas around the patient free of unnecessary supplies and equipment.
- (10) Do not spray (i.e. fog) occupied or unoccupied rooms with disinfectant; this is a potentially dangerous practice that has no proven disease-control benefit.
- (11) To facilitate cleaning, and to reduce the potential for generation of aerosols caused by use of a vacuum cleaner, accommodate patients in uncarpeted rooms or areas where possible. If vacuuming is necessary, use a vacuum cleaner that is equipped with a high-efficiency particulate air (HEPA) filter, if available.

## Disposal of Fecal Matter and Sewage

(1) Before being discharged into the municipal drainage system, fecal matter and sewage must be disinfected by treating with chlorine-containing disinfectant (for the initial treatment, the active chlorine must be more than 40 mg/L). Make sure the disinfection time is at least 1.5 hours;

(2) The concentration of total residual chlorine in the disinfected sewage should reach 10 mg/L.

## Cleaning staff general instructions

- Comply with '5 Moments' of hand hygiene & 6 steps of hand hygiene protocols
- Cleaning staff should be informed to avoid touching their face, especially their mouth, nose, and eyes when cleaning.
- Cleaning staff should wear disposable gloves and a mask plus eye protection or a face shield while cleaning.
- Cleaners should use alcohol-based hand rub before putting on and after removing PPE.

## Engineering Controls to prevent/control COVID-19 (Corona Virus)

• Use of environmental and engineering controls is vital to limit HCP (Healthcare Professionals) exposure and to address the basic infrastructure of the health care facility to manage COVID suspected or infected patients.

## Implement Engineering Controls

Design and install engineering controls to reduce or eliminate exposures by shielding HCP and other patients from infected individuals. Examples of engineering controls include:

- physical barriers or partitions to guide patients through triage areas
- curtains between patients in shared areas

- air-handling systems (with appropriate directionality, filtration, exchange rate, etc.) that are installed and properly maintained

## Dishes and eating utensils

- When possible, wash reusable items in a dishwasher. If no dishwasher is available, wash the items by hand with detergents. Use nonsterile rubber gloves if washing items by hand.
- Wash dishes and eating utensils for the patient after each meal or use.
- Discard disposable items as waste, classified as directed by the relevant state, territory or national legislation and regulations.

## Spill management

- Put Signages
- Promptly clean and decontaminate spills of blood and other potentially infectious materials.
- Wear all PPE mentioned above.
- Using a pair of forceps and gloves, carefully retrieve broken glass and sharps if any, and use a large amount of folded absorbent paper to collect small glass splinters. Place the broken items into the puncture proof sharps container.
- Cover spills of infected or potentially infected material on the floor with paper towel/ blotting paper/newspaper. Pour 1 % freshly prepared sodium hypochlorite.
- Leave for 30 minutes for contact
- Place all soiled absorbent material and contaminated swabs into a designated waste container.
- Then clean the area with gauze or mop with water and detergent with gloved hands.

## Routine environmental cleaning

- It is good practice to routinely clean surfaces as follows.

## Frequently touched areas

- Door handles, Bed side & railings, Table tops, Food trolley, Light switches & telephone & key boards, Medicine cup boards, IV pole knobs,
- Disinfectant 1% sodium hypochlorite/Virkon
- Frequency – 3 times a day.

## Minimal touch surfaces

- Floor, ceilings, walls ,curtains & blinds.
- Disinfectant 1% sodium hypochlorite/ Virkon
- Frequency – 2 times a day.
- Damp mopping is preferable to dry mopping.
- Walls & blinds should be changed when visibly dirty
- Curtains to be changed at the time of deep cleaning



after patient discharge.

### Terminal cleaning: discharge patients

- Terminal cleaning requires both thorough cleaning and disinfection for environmental decontamination.
- Cleaning should be followed by or combined with a disinfectant process
- Ensure room is prepared prior to cleaning, remove medical equipment and patient used items.
- Wear PPE – surgical mask, protective eyewear, apron and gloves.
- Ensure AC & fan is switched off.
- Remove the bio medical waste bins and replace after cleaning & disinfecting.
- Remove soiled linen, bed screens and curtains (including disposable curtains/screens) that are soiled or contaminated
- Damp dust all surfaces, furniture and fittings with 1% sodium hypo chlorite/ virkon from top to bottom.
- Clean all surfaces of bed and mattress with 1% sodium hypo chlorite /virkon
- Wash the floor with R2 followed by disinfection with 1% Sodium hypo chlorite/ virkon
- Replace all the required amenities and block the bed (contact time 4 hrs) as per IC protocol.
- Release the bed after 4hrs after surface areas disinfecting with 1% sodium hypochlorite/ virkon
- Bed making to be done as per the SOP.
- New curtains to be fixed.

### Soiled linen collection

- Enter the room with yellow liner & with proper PPE .
- Switch off the fan.
- Remove the soiled linen as a precautionary measures soil linen to be collected in double layered (using 2 bags),tag the cover, quantity of linen to be mentioned.
- (COVID-Sticker/identification to be placed).
- The soiled covers to be transported to the common soiled collection area in designated closed trolley.
- The trollies to be cleaned & disinfected & remove the PPE and follow hand hygiene protocols.
- Common soil linen collection area: The transported soiled covers to be placed in
- Identified bins and to hand over separately to the

vendor and to be washed separately as per the infected linen washing protocols. Fresh to be collected separately.

- Infectious fabrics should be separated from other infectious fabrics (non-COVID-19) and washed in a dedicated washing machine
- Wash and disinfect these fabrics with chlorine-containing disinfectant at 90 oC for at least 30 minutes
- Note: Linen stock to be maintained separately.
- The trolleys used to carry linen shall be disinfected immediately each time after being used for transporting infectious linen.
- The transport trolley should be wiped with chlorine-containing disinfectant. Leave disinfectant for 30 minutes before wiping the trolleys clean with clean water.

### Lift cleaning protocols

- All the lift boys to carry hand rubs and insist patients on hand hygiene.
- Routine cleaning (Top to Bottom) : Before starting of each shift lift to be brought to basement for thorough cleaning (With dry wipes & disinfectant with Virex) with proper PPE. (FREQUENCY 3- TIMES A DAY).
- As a precautionary measures disinfection of lifts is done very 2- hours.
- Lift buttons/Railings to be disinfected half an hour.
- End of the day thorough cleaning of floors lifts with R2 & Virex.
- Separate trolley to be identified /carried.

### Wheel chair & stretcher:

- After shifting every patients wheel chairs & stretchers will be disinfected with Bacillol.
- Designated wheel chair/stretcher labelled with COVID-19 in the areas required.
- End of the day wheel chairs & stretchers will be cleaned thoroughly.

The equipment in the OT needs to be covered by the transparent drapes too, while operating on all suspect or confirmed cases.

### Post Discharge Cleaning & Disinfection Process:



All the rooms after cleaning, sanitization and disinfection are being sealed with 'clean seal' sticker to ensure no one entered the room before new admission.

Housekeeping staff will wedge the stickers, neatly between a door after a room is cleaned. The perforated sticker tears when a door opens. After the guest enters the room, ensure the sticker is removed from the door neatly. Torn parts are not left out. Ensure the Quality of the Sticker.



# Guidance on Donning and doffing of personal protective equipment (ppe) to manage covid-19 patients

[https://www.cdc.gov/coronavirus/2019-ncov/downloads/A\\_FS\\_HCP\\_COVID19\\_PPE\\_11x17.pdf](https://www.cdc.gov/coronavirus/2019-ncov/downloads/A_FS_HCP_COVID19_PPE_11x17.pdf)

## Donning (putting on the gear):

*More than one donning method may be acceptable. Training and practice using your healthcare facility's procedure is critical. Below is one example of donning.*

1. **Identify and gather the proper PPE to don.** Ensure choice of gown size is correct (based on training).
2. **Perform hand hygiene using hand sanitizer.**
3. **Put on isolation gown.** Tie all of the ties on the gown. Assistance may be needed by another HCP.
4. **Put on NIOSH-approved N95 filtering facepiece respirator or higher (use a facemask if a respirator is not available).**  
If the respirator has a nosepiece, it should be fitted to the nose with both hands, not bent or tented. Do not pinch the nosepiece with one hand. Respirator/facemask should be extended under chin. Both your mouth and nose should be protected. Do not wear respirator/facemask under your chin or store in scrubs pocket between patients.\*
  - » **Respirator:** Respirator straps should be placed on crown of head (top strap) and base of neck (bottom strap). Perform a user seal check each time you put on the respirator.
  - » **Facemask:** Mask ties should be secured on crown of head (top tie) and base of neck (bottom tie). If mask has loops, hook them appropriately around your ears.
5. **Put on face shield or goggles.** When wearing an N95 respirator or half facepiece elastomeric respirator, select the proper eye protection to ensure that the respirator does not interfere with the correct positioning of the eye protection, and the eye protection does not affect the fit or seal of the respirator. Face shields provide full face coverage. Goggles also provide excellent protection for eyes, but fogging is common.
6. **Put on gloves.** Gloves should cover the cuff (wrist) of gown.
7. **HCP may now enter patient room.**

## Doffing (taking off the gear):

*More than one doffing method may be acceptable. Training and practice using your healthcare facility's procedure is critical. Below is one example of doffing.*

1. **Remove gloves.** Ensure glove removal does not cause additional contamination of hands. Gloves can be removed using more than one technique (e.g., glove-in-glove or bird break).
2. **Remove gown.** Untie all ties (or unsnap all buttons). Some gown ties can be broken rather than untied. Do so in gentle manner, avoiding a forceful movement. Reach up to the shoulders and carefully pull gown down and away from the body. Rolling the gown down is an acceptable approach. Dispose in trash receptacle.\*
3. **HCP may now exit patient room.**
4. **Perform hand hygiene.**
5. **Remove face shield or goggles.** Carefully remove face shield or goggles by grabbing the strap and pulling upwards and away from head. Do not touch the front of face shield or goggles.
6. **Remove and discard respirator (or facemask if used instead of respirator).\*** Do not touch the front of the respirator or facemask.
  - » **Respirator:** Remove the bottom strap by touching only the strap and bring it carefully over the head. Grasp the top strap and bring it carefully over the head, and then pull the respirator away from the face without touching the front of the respirator.
  - » **Facemask:** Carefully untie (or unhook from the ears) and pull away from face without touching the front.
7. **Perform hand hygiene after removing the respirator/facemask** and before putting it on again if your workplace is practicing reuse.



\*Facilities implementing reuse or extended use of PPE will need to adjust their donning and doffing procedures to accommodate these practices.

[www.cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)

Active

Go to 5

## Disposal Procedures for COVID-19 Related Medical Waste

- All waste generated from infected patients shall be disposed of as medical waste
- Put the medical waste into a double-layer medical waste bag, seal the bag and spray the bag with 1000 mg/L chlorine- containing disinfectant
- Put sharp objects into a special plastic box, seal the box and spray the box with 1000 mg/L chlorine-containing disinfectant
- Put the bagged waste into a medical waste transfer box, attach a special infection label, fully enclose the box and transfer it
- Transfer the waste to a temporary storage point for medical waste along a specified route at a fixed time point and store the waste separately at a fixed location
- The medical waste shall be collected and disposed of by an approved medical waste disposal provider
- A separate note/record to be maintained for waste generated.
- The trolleys need to be separate and should follow all protocols as mentioned for linen collection trolleys/ carts.



More information available at:

<https://ncdc.gov.in/WriteReadData/l892s/63948609501585568987.pdf> (2nd March 2020)

<https://www.dpcc.delhigovt.nic.in/managementofcovid19wasteindelhi#gsc.tab=0>

(Refer to Other Support Functions Infection Control Checklists)

## Covid-19: guidelines on dead body management

The guidelines for handling dead bodies of patients expiring from Covid 19 have been laid down by the MOHFW, Govt of India. (March 2020)

[https://www.mohfw.gov.in/pdf/1584423700568\\_COVID19GuidelinesonDeadbodymanagement.pdf](https://www.mohfw.gov.in/pdf/1584423700568_COVID19GuidelinesonDeadbodymanagement.pdf)

### Standard Precautions to be followed by health care workers while handling dead bodies of COVID

1. Hand hygiene.
  2. Use of personal protective equipment (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.
  6. All medical waste must be handled and disposed of in accordance with Biomedical waste management rules.
- Embalming of dead body will not be allowed.

### Covid associated mucormycosis

**Mucormycosis:** It is a form of invasive fungal infection commonly seen in immunocompromised population, the principal forms of these diseases include rhinocerebral, cutaneous, pulmonary and disseminated infections.

#### Prevention

##### In the hospital

- Identifying high risk patients.
- Strict Glucovigilance (especially in long-standing diabetics).
- Patient related articles to be cleaned daily.
- Maintain Personal hygiene
- Frequent cleaning of environment.
- Dry oxygenation up to 4 liters.
- If using humidification then, Use clean sterile water in humidification chambers. Empty the humidification chamber daily and fill fresh sterile distilled water.
- Wash the chamber with soap solution weekly.
- Whenever using humidifiers in such situation especially ICU, use prefilled humidifiers eg living spring prefilled humidifier. Dry oxygenation for higher levels after discussing with intensivist.

##### At home

- Use of mask especially near construction sites.
- Any water seepage in house should be immediately addressed
- Use of masks and gloves while handling soil.

Use well fit cloth mask and do not use if it is wet. Wash cloth mask daily. Let it completely in sun before reusing.

### Predisposing Factors (Net state of Immunosuppression of the patient)

- ncontrolled diabetes mellitus
- Immunosuppressed state in COVID (Requires Glucovigilance)
- Voriconazole therapy (Breakthrough infections)
- Treatment with corticosteroids and immunomodulators
- Underlying Co-morbidities – post transplant/malignancy
- Prolonged ICU stay on long-standing supplemental oxygen

### Warning Signs

In presence of predisposing factors, as mentioned above:

- Persistent nasal blockage or congestion suggestive of new-onset Sinusitis
- Nasal discharge (blackish/bloody)
- Unilateral swelling over eyelids, proptosis and conjunctival suffusion
- Local pain on the cheek bone
- Unilateral facial pain, numbness or swelling or deviation
- Blackish discoloration over bridge of nose/palate
- Toothache, loosening of teeth, jaw involvement
- Blurred or double vision with pain
- Skin lesion; thrombosis and necrosis
- Chest pain, pleural effusion, haemoptysis, worsening of respiratory symptoms

### Diagnosis

Maintain a high clinical suspicion in the presence of above predisposing factors

- i. Radiological: MRI Brain +/- sinus / orbits with/without MR Angiography
- ii. Lab Diagnosis:
  - Direct microscopy / Fungal smear (KOH) of the affected site, Fungal culture, Histopathology of the affected tissue

### Management

Surgical Intervention / Debridement along with early initiation of appropriate antifungals and control of predisposing factors.

Comprehensive approach is required for appropriate management:

- Infectious Disease - Initiation of appropriate antifungals in an appropriate dosage.
- ENT: Collection of appropriate sample - deep tissue biopsy from sino-nasal crust (and send sample for fungal smear, fungal culture and histopathology)
- Neurology: To assess the degree of focal neurological deficit if any.



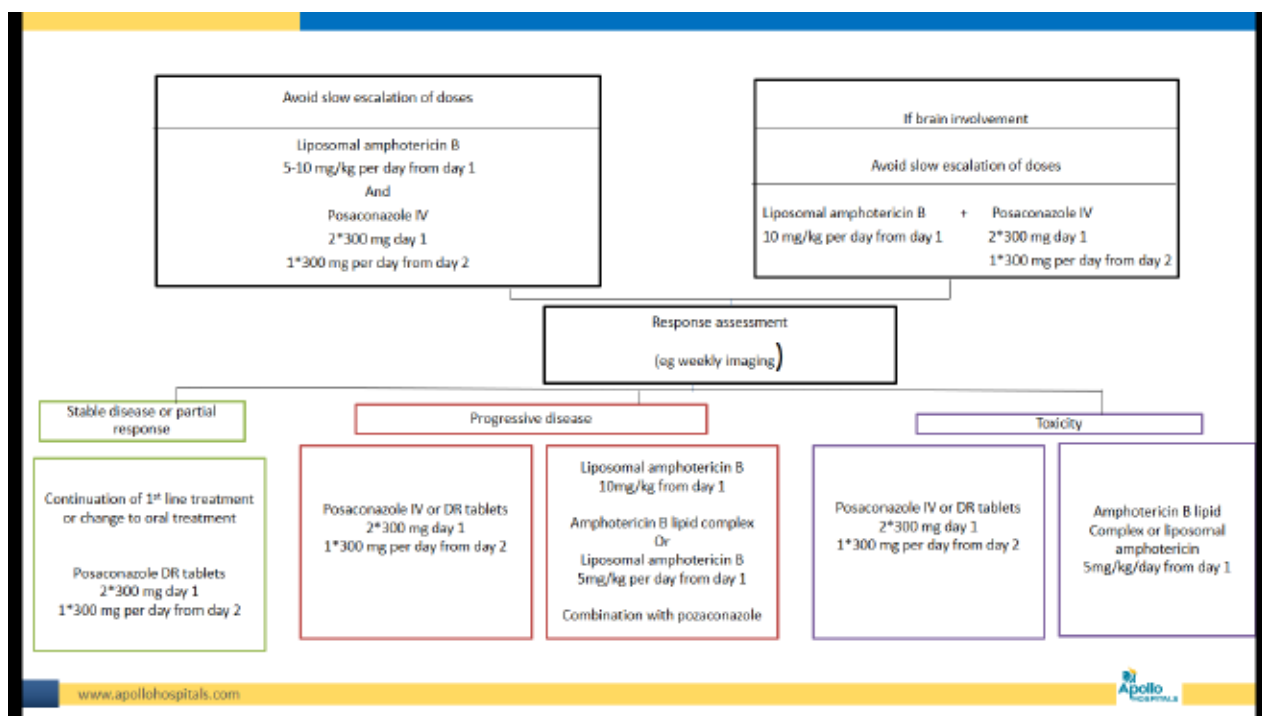
## Ophthalmology:

To look for visual acuity as well as assessment of eyeball involvement (ophthalmoplegia) and in case enucleation is required so as to contain local spread to CNS.

Neurosurgery: To assess CNS involvement (with or without cavernous sinus involvement).

### Algorithm for Management

- 1) Rhino sino-orbital involvement with sparing of CNS
- 2) Rhino sino-orbital cerebral mucormycosis



Government of telangana office of the director of public health and fw Hyderabad (15/05/2021)

The following guidelines are hereby issued to prevent the mucormycosis in COVID-19 patients.

- Better control the sugars during COVID with or without steroids.
- Use steroids judiciously observing correct timing, correct dose & correct duration.
- Use antibiotics / antifungals judiciously.
- Use clean, sterile water for humidifiers during the oxygen therapy.

Often mucormycosis is reported due to poor maintenance of humidifiers. Hence the following SOP is prescribed for strict adherence.

- Always use distilled or sterile water.
- Never use un-boiled tap water nor mineral water.
- Fill up to about 10 mm below the maximum fill line.
- Do not let the water level pass below the minimum fill line.
- The water level checked twice daily and topped up as necessary.
- The water in the humidifier should be changed daily.
- Humidifier should be washed in mild soapy water, rinsed with clean water and dried in air before reuse.
- Once a week (for the same patient) and in between patients, all the components of the humidifier should be soaked in a mild antiseptic solution for 30 minutes, rinsed with clean water and dried in air.

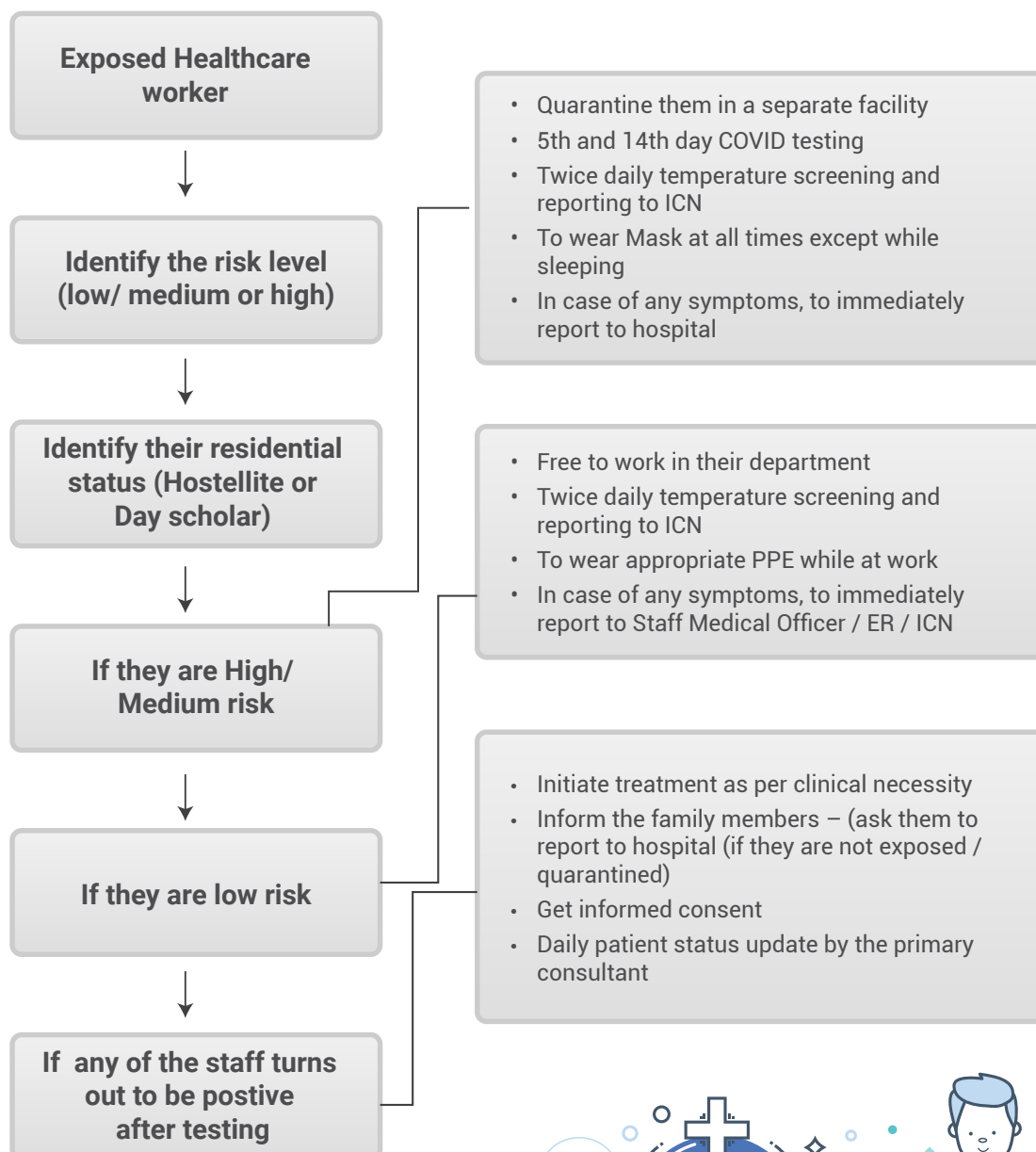


CHAPTER IV  
**EXPOSURE OF HEALTHCARE  
WORKERS**

### “What if” staff is infected?

- Monitor staff health also continuously and allow them proper breaks and help them to ensure they follow all protocols 24/7
- If found positive, treat them well- clinical & psychological
- Have the back up of teams planned well in advance so that staffing is trained, prepared, spoken to and ready as team level 2

## Protocol For Exposed Healthcare Workers



## Prophylaxis For Healthcare Workers In Isolation Ward

The prophylaxis for staff treating suspected/confirmed cases of COVID-19, consists of Hydroxy-chloroquine, which is found to be effective against coronavirus in laboratory studies and in-vivo studies. Its use in prophylaxis is derived from available evidence of benefit as treatment and supported by pre-clinical data. This is as per the recent ICMR guidelines.

The National Taskforce for COVID-19 recommends the use of hydroxy-chloroquine for prophylaxis of SARS-CoV-2 infection for selected individuals as follows:

### Eligible individuals:

Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19

- Asymptomatic household contacts of laboratory confirmed cases.

### Dose:

- Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19: 400 mg twice a day on Day 1, followed by 400 mg once weekly for next 7 weeks; to be taken with meals.
- Asymptomatic household contacts of laboratory confirmed cases: 400 mg twice a day on Day 1, followed by 400 mg once weekly for next 3 weeks; to be taken with meals.

**The drugs have side effects and so should be administered only once prescribed by a physician.**

## Procedures for Taking Remedial Actions against Occupational Exposure to COVID-19 infection

### Occurrence of COVID-19 related occupational exposure

#### Skin exposure

Remove the contaminants with clean tissues or gauze, then apply 0.5% iodophor or 75% alcohol to the skin and let the solution sit for at least 3 minutes for disinfection, thoroughly flush with running water

#### Eye exposure

Flush with plenty of normal saline or WATER

#### Sharp Injury

Wash with running water and follow Accidental inoculation injury protocols

#### Direct exposure of respiratory tract

Immediately leave the isolation area.

Evacuate from the isolation area and enter the designated isolation room

Report to relevant departments

Isolate and observe people with exposures other than intact skin exposure for 14 days. In case of symptoms, report to the relevant departments in a timely manner

## Refer Workplace Safety Checklist

### **Fitness to staff joining after long break after covid -19 duties / quarantine return / long leave/on job covid clearance**

#### **A: To provide fitness to the staff who are joining after break- days after duty in COVID areas**

Heads of departments shall, as a protocol, ensure that their respective staff who are joining after break-days after duty in COVID areas, do not join duty without getting clearance from the respective Head.

#### **For staff joining back in COVID areas:**

A self-declaration shall be filled and submitted to respective head of department who shall then verify the same before posting back to COVID area.

In case there is no relevant history of symptomology, the staff shall be told to join the designated COVID roster.

In case of any positive relevant history of symptomology, a video consult of the staff shall be done with the staff clinic for further management.

Information shall be forwarded to the Human Resource Department.

#### **For staff joining back in non COVID areas:**

RT PCR test shall be done as below:

On day 11 of the break, the respective HODs shall remind OP Billing, through e-mail, to raise the necessary billing for COVID testing of their respective staff with a copy to HRD and staff clinic. The date of reporting for testing, employee number. and UHID of the staff member shall be mentioned.

ii. The list with above details and details of the bill shall be forwarded by Billing to Consultant Microbiology and the respective HOD at least two days prior to testing

iii. On day 13, the HODs shall ensure that their staff report to the designated Sample Collection Area not to the Staff clinic. They should go back to the area of their stay after Sample collection until the report is ready.

iv. If report is negative, the staff shall report to the respective HOD for further deployment. The HOD shall check the physical report.

v. A self-declaration shall be filled by the staff and submitted to respective HOD who shall then verify the same before posting the person back in case of NEGATIVE asymptomatic only.

vi. In case the staff is asymptomatic and has no relevant history, she/he shall be told to resume duty.

vii. In case staff is clinically symptomatic or gives any relevant history, a video consult shall be done with the staff clinic for further management.

viii. For cases where report is positive, the Consultant Microbiology shall raise the alert to the respective

HOD who would contact staff clinic for further guidance including referral to physician(s) - COVID group

ix. All such Information shall be forwarded to the Human Resource Department by the HOD with a copy to staff clinic

#### **B: To provide fitness to the staff who are joining after quarantine for COVID-19 due to high risk exposure to a COVID positive patient**

i. Sample collection of the staff for COVID-19 testing shall be on 12th day of quarantine or earlier if symptomatic. Steps i, ii and iii of point A: 3 shall be followed by Human resource, billing and HOD for sending their staff to designated sample collection area

ii. A self-declaration shall be filled by the staff and submitted to respective HOD who shall then verify the same before posting the person back in case of NEGATIVE asymptomatic only.

iii. All such Information shall be forwarded to the Human Resource Department by the HOD with a copy to staff clinic

#### **C: To provide fitness to the staff who are joining after long leave (7 days or more) after travel outside the city**

i. COVID test by RTPCR shall be advised by the staff doctor for any staff who joins hospital after a period of long leave.

ii. A self-declaration shall be filled and submitted to respective head of department which along with the report of RT PCR test shall be forwarded to Human Resource department

iii. The staff shall not join back after coming from a long leave before adequate quarantine of one week

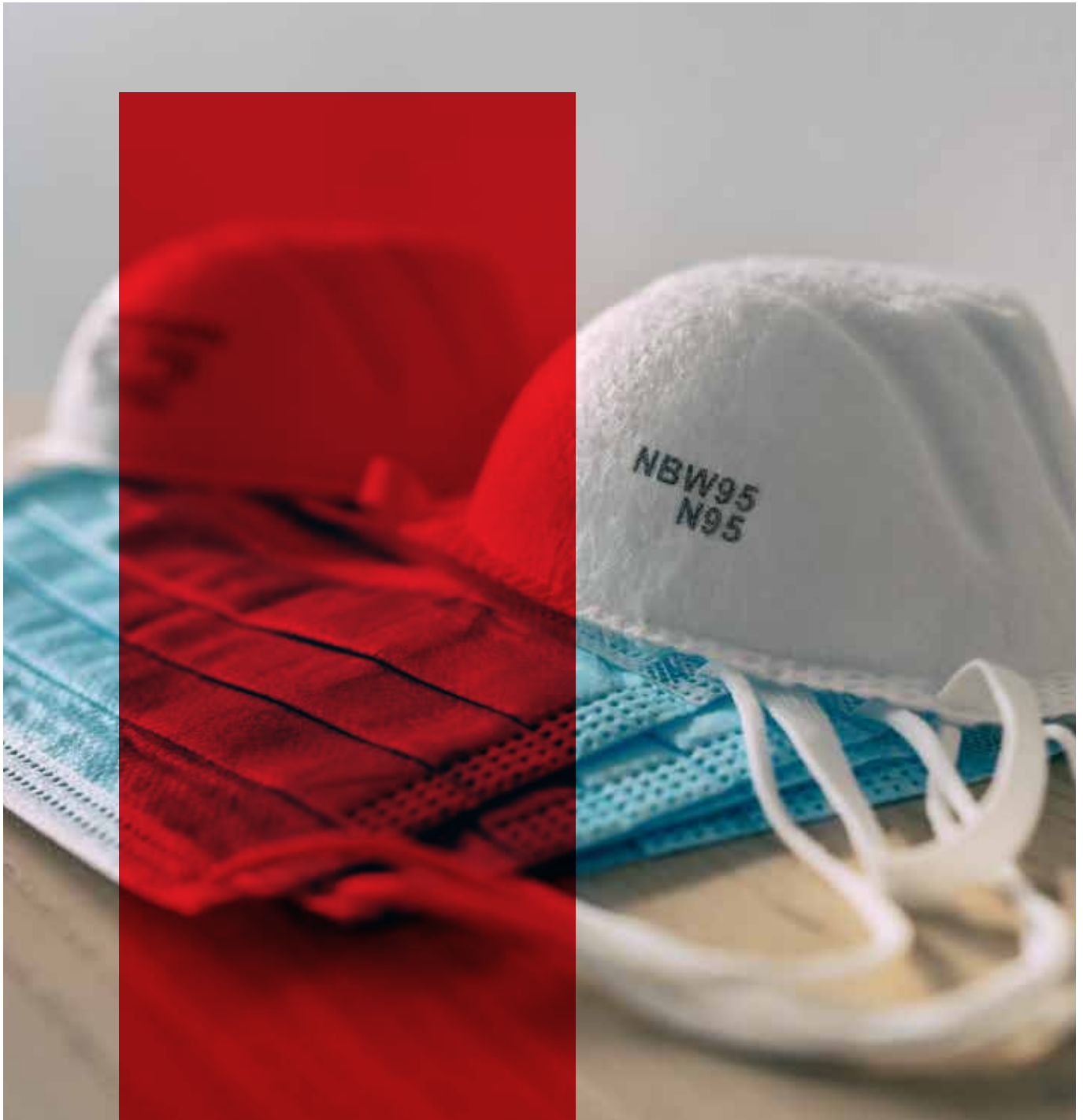
iv. In case of a staff returning after a long leave as above, the staff if asymptomatic for at least 5 days after coming back from travel, shall submit a sample for RT PCR testing on the sixth day. If report is negative, the staff can join back on the eighth day of coming back from long leave.

v. If the Test is POSITIVE, COVID staff shall be treated and managed as per respective protocol following 17 days of quarantine (20 days if the staff is the staff has been hospitalized with severe illness in COVID ICU or is immunosuppressed/immunocompromised)

vi. A self-declaration shall be filled and submitted to respective head of department which along with the report of RT PCR test shall be forwarded to Human Resource department

vii. If the staff is symptomatic, he/she shall undergo COVID RTPCR testing immediately and shall follow guidelines of NEGATIVE or POSITIVE COVID testing results





## CHAPTER V

# HUMAN RESOURCE MANAGEMENT

# Staffing In Times of The Pandemic

## The objectives of the document are to focus on:

1. Prevention of staffing burnout
2. Minimal contact with the patient while keeping in mind that patient care is not compromised
3. Regulate working hours to prevent psychological safety and mental well-being of our staff
4. Staff safety in terms of competency, adherence to standards & PPE
5. Staff welfare in the stressful times including their health and food
6. Post work- stay and quarantine

## Expected Staffing requirements:

- Staffing is required in Fever clinics/ triage areas/ emergency
- Isolation rooms where confirmed cases are there
- Quarantine rooms where suspected cases are there
- Other areas where such patients could be present/ use a service

## Staffing categories:

- Doctors
- Junior doctors
- Nurses
- Leadership members
- Infection control nurses
- Housekeeping
- F&B
- Pharmacy
- Biomedical
- Waste removal
- X Ray technician

## Selection of staff:

- Prepare three sets of staffing for every category
- Every set should have trained staff, in the required numbers, approved by physician on their health status and should be counseled

- When set 1 is off/ infected/ couldn't perform duties- set 2 to be activated
- Set 3 should also be ready to be activated in case set 2 is also on off/ infected/ couldn't perform duties

## Categories of staffing to be strictly avoided for postings here

- Pregnant women
  - Staff with a history of comorbid conditions like anemia, diabetes, symptomatics seasonal flu etc
- \*\* health assessment/ history taking to be done for all staff and should be certified fit for handling such patients by a physician

Prepare three sets of staffing for every category

Every set should have trained staff, in the required numbers, approved by physician on their health status and should be counseled

When set 1 is off/ infected/ couldn't perform duties- set 2 to be activated

Set 3 should also be ready to be activated in case set 2 is also on off/ infected/ couldn't perform duties



## Working hours and post duty

| Nurses  | Doctors  | Housekeeping   | Other staff                          |
|---|--|--|--------------------------------------|
| 6 hour- 6 hour- 12 hour shift (3 shifts)<br>1:4 for suspected/ stable confirmed cases<br>1:1 for ventilated positive cases<br>5 days continuous work then 2 days off<br>After three weeks- 5 days off | 10 days continuous<br>Then 4 days off<br>After a month- 5 days off | 6 hours- 6 hours- 12 hours<br>1 housekeeping per 5 rooms | Fixed staff<br>Should not be rotated |

### Post duty- all staff

- Staff to take shower in the building after finishing up the duty
- Change the scrubs
- Scrubs need to be washed separately by hospital
- Washroom to be cleaned after every staff usage

Staff need to be staying in the hospital premises or in a quarantined/ separate section/ floor in the hostels (not mix with other staff)

These areas need to be supervised and cleaned thoroughly continuously

### Diet / Food for staff

- Dieticians to supervise the food for the staff (doctors, nurses, housekeeping) who are stationed in these areas
- Staff to be given a high protein diet and other important nutrients
- They should not be dehydrated at any point



| Suspected  | Confirmed positive stable  | Confirmed positive unstable   |
|--|--|---|
| <p>All isolation rooms have cameras to monitor<br/>           There is a phone in patient's room if he wants to communicate<br/>           Call bell in the room<br/>           Staff wearing same PPE cannot move across all patients<br/>           Drinking water is available inside the room for the patient daily<br/>           Whoever goes inside once- completes<br/>           Talking to patient<br/>           Asking patient his needs<br/>           Toileting help if required</p> | <p>All isolation rooms have cameras to monitor<br/>           There is a phone in patient's room if he wants to communicate<br/>           Call bell in the room<br/>           Staff wearing same PPE can move across all patients who are confirmed positive<br/>           Drinking water is available inside the room for the patient daily<br/>           Whoever goes inside once- completes<br/>           Talking to patient<br/>           Asking patient his needs<br/>           Toileting help if required</p> | <p>All isolation rooms have cameras to monitor<br/>           Ventilator, Monitor other equipment are connected to screen outside<br/>           Call bell in the room<br/>           Whoever goes inside once- completes<br/>           Talking to patient if applicable<br/>           Asking patient his needs if applicable<br/>           Toileting help if required if applicable</p> |

**Nurse responsibilities:**

- Wear PPE outside when required to enter
- Monitor patient from outside and only go inside once every 6 hours (more only if needed)
- Once nurse goes inside- they should note vitals, give medications, take patient to washroom if required
- Checking blood sugar (6 hourly)
- Drips if any- monitor

**Food for patients**

Food to be kept outside for stable patients and patients could pick it up after they are informed through the phone

**Housekeeping responsibilities:**

- Clean once a day
- Change linen
- Surface disinfection inside room and outside all areas
- Collect waste
- Washroom cleaning

**Others - Identified individuals who will support from outside only:**

- F&B
- Pharmacy
- Biomedical
- Waste removal

**Psychological support**

Consider that factors negatively affecting the psychological well-being of staff are:

- concerns over the contracting the illness
- concerns for safety of their family
- witnessing the death of colleagues
- isolation from family and colleagues
- sense of being underappreciated
- extended length of epidemic

Senior leadership need to speak to them daily after every shift to understand their concerns and motivate them. Be receptive to suggestions from nursing staff and support personnel



## CHAPTER VI Psychological safety of staff and **mental wellbeing of patients**



## Psychological safety of staff and mental wellbeing of patients

### Psychological safety of staff

Create a healthy work, ethos and environment during crises and also to have systems in place to deal with subsequent distress and disorder.

Consider that factors negatively affecting the psychological well-being of staff are:

- concerns over the contracting the illness
- concerns for safety of their family
- witnessing the death of colleagues
- isolation from family and colleagues
- sense of being underappreciated
- extended length of epidemic

Reduce mental health stigma. The best ways of reducing stigma were believed to be raising awareness of mental health issues and telling people that it's quite normal to feel that way and have those feelings.

Educate healthcare workers who are exposed to trauma about the effects of cumulative stress. The training should be delivered either online 'because they can do it at their own convenience' or via educational leaflets 'rather than finding the time to spend on a day course'

The education about psychological trauma may lead to better understanding, better recognition of symptoms in oneself and in others, less judgement, and therefore reduced stigma, and that positive relationships with others in the workplace can have a positive impact on psychology.

Maintain teamwork and effective leadership while at the same time providing individuals the opportunity to provide input into the decisions that affect their lives. Staff often experience severe emotional stress during viral outbreaks. It is often the nursing staff who feels the greatest level of stress due to their constant contact with sick patients, who may not be improving despite the nursing staff's best efforts. Physicians usually cope somewhat better with this situation because they are in a position to make treatment decisions and are less directly involved in implementing patient care.

Be receptive to suggestions from nursing staff and support personnel. Input is empowerment and provides a sense that these critical staff retain some control over their situation. If suggestions are not acted on, clear explanations as to why they were not should be provided and alternatives should be explored.

Administration needs to be supportive of staff and not be seen as pedantic and overly controlling. In cases where staff and support personnel did not feel appreciated or listened to, there was a high degree of dissatisfaction and an increased occurrence of absenteeism and staff strikes, which further reduced personnel in an already-strained system.

Take care of yourself and your loved ones. Healthcare providers are not invulnerable to experiencing their own emotional distress during outbreaks, and this distress can be compounded by caring for sick and distressed patients.

Make sure your basic needs are met, including: eating, drinking, and sleeping; take a break when you need one; check in with loved ones; practice the strategies to reduce distress listed above; and monitor yourself for stress reactions too.

Make efforts to ensure that your office and/or organisation has a viable plan to monitor the course of the outbreak and take rapid and appropriate action if needed.

### Mental well-being of Patients

Medical and mental health clinicians are likely to encounter patients who are experiencing various levels of emotional distress about the outbreak and its impact on them, their families, and their communities. We must consider that COVID-19 patients have long hospital stays and in the early stages they will experience the anguish of having an aggravation of the disease with the possibility of being intubated. Furthermore, the limited staff available will not be able to guarantee them continuous assistance and their relatives as well.

Providers should acknowledge uncertainty about emerging diseases and help patients understand that there is often an emotional component to potential health concerns.

Providers should be cognisant that the symptoms might extend beyond classical mental health symptoms to include relational struggles, somatic, academic, or vocational issues. Every person, including mental health providers, can either react in fear, anger, or despair and regress, or can choose resilience and play as an active part of the solution. In addition, providers should consider the following recommendations for promoting patients' mental wellbeing during emerging infectious disease outbreaks:

**Be informed:** Obtain the latest information about the outbreak from credible public health resources in order to provide accurate information to your patients.

**Educate:** Healthcare providers are on the front lines of medical intervention and in a position to influence patient behaviours for protecting individual, family, and public health. Psycho-education is of utmost importance in the aftermath of disasters. Patient education plays a critical role in both containing the disease and mitigating emotional distress during outbreaks. Depending on the nature of the outbreak, this can range from education about basic hygiene such as hand-washing and cough etiquette to more complex medical recommendations for prevention, diagnosis, and treatment.

Let patients know what you, or your organisation is doing to reduce the risk of exposure.

Correct misinformation. In this age of social media, misinformation can spread quickly and easily, causing unnecessary alarm. If patients present you with inaccurate information related to the outbreak, correct their misconceptions and direct them to vetted public health resources.

Limit media exposure. The excess media exposure to coverage of stressful events can result in negative mental health outcomes. Use trusted media outlets to gather the information you need, then turn them off—and advise your patients to do the same.

Anticipate and counsel about stress reactions. Emotional distress is a common mental condition in the context of uncertain and potentially life-threatening situations, such as COVID-19 epidemic. A good first step for mitigating your patients' stress is to acknowledge that it exists and help normalise it ("I see that you're stressed, and that's understandable. Many people are feeling this way right now.")

Teach patients to recognise the signs of distress, including worry, fear, insomnia, difficulty concentrating, interpersonal problems, avoiding certain situations at work or in daily living, unexplained physical symptoms, and increased use of alcohol or tobacco. This will help them become more aware of the state of their mental health and head off distress before it becomes harder to manage.

Discuss strategies to reduce distress, which can include:

- Being prepared (developing a personal/ family preparedness plan for the outbreak).
- Taking everyday preventive measures (e.g., frequent handwashing).
- Maintaining a healthy diet and exercise regimen.
- Talking to loved ones about worries and concerns.
- Engaging in hobbies and activities you enjoy to improve your mood.
- If a patient is experiencing severe emotional distress or has a diagnosable mental illness, refer for specialized mental health care.





## CHAPTER VII - **Medical record Documentation for Covid 19 suspected/ confirmed cases**



# Medical Record Documentation for Covid 19 Suspected / Confirmed Cases

Refer to Patient Medical Record Checklist

Understanding the fact that treatment of such patients will require a lot of care and safety for patients as well as for our staff, the policy is devised.

## Policy:

- The formats specially designed for the assessment and reassessment of such patients only shall be used.
- These formats could be filled by any healthcare provider while the points could be dictated or verbalized by the doctors/nurses.
- While ordering for medications, doctors have to dictate or verbalize every word of the drug name.
- For any orders written and other assessment points written, proper "read back" has to be done at all times to confirm.
- If anything is documented wrongly, it needs to be corrected by drawing a line and mentioning as an error. Date and time should be documented then too.

## The assessment process:

When a patient gets admitted:

- Doctor needs to complete initial assessment as given in the initial assessment form
- Nurse needs to fill in vitals and other parameters
- Other disciplines (nutritional, functional, psychological, social, etc when applicable) could add their assessment points and care plan on the same form

## Re-assessments:

- For daily assessment daily assessment sheet needs to be filled:
- Doctor needs to fill the daily assessment sheet with care plan
- Nurses could fill the vitals chart / ICU nursing record
- Pain score to be done in every shift and if pain is not bearable then hospital policy to be followed. Inform the doctor and intervene as required. After intervention, measure the pain again after 30 minutes.
- Doctors and nurses need to complete medication chart
- Document drug names in capital letters
- For infusions mention dilution clearly
- For antibiotics mention day of antibiotic usage
- For high alert medications ensure double check is done

- For SOS mention indication below the medication name

## Patient family education/ counseling/ patient updates:

This needs to be captured on the type of discussions/ briefings done with the family/ patient

Document the topic/discussion, who was involved and the outcome (if the patient/ family understood/ were they interactive/ any concerns if there highlight)

## Other formats:

If any other formats are required by the respective doctor or nurse, it could be added to these.

## Special instructions:

- These formats and policy shall apply ONLY to nCOVID19 patients and no other patients
- Medical forms/files should not be taken inside the patient room. The documentation should be completed outside.
- More prints could be taken of forms when required- example medication charts
- Staff who shall take care of these patients in isolation need to be trained on these.
- Appropriate spacing could be also done in the formats if required.



## History And Physical - On Admission

Physician Assessment: Allergies: \_\_\_\_\_ Age (years) \_\_\_\_\_ Height: \_\_\_\_\_ Weight: \_\_\_\_\_ (kgs)

History of travel / exposure in last 1 month:

### History of present illness:

| Presenting complaints:                   | Yes / No | Duration |
|--|----------|----------|
| Fever                                    |          |          |
| Dry cough                                |          |          |
| Shortness of breath                      |          |          |
| Persistent pain or pressure in the chest |          |          |
| Any other:                               |          |          |

Known co-morbidities:  DM  HTN  OTHERS:

**Review of Systems** (List pertinent positives only or encircle 'none'):

**Physical Exam:**

**History for assessing immunocompromised status** (Patient on steroids, chemotherapy or other immune suppressive drugs):



| Current Medications | Dose | Frequency | Route | To be Continued in Hospital |
|---------------------|------|-----------|-------|-----------------------------|
|                     |      |           |       | Yes / No                    |
|                     |      |           |       | Yes / No                    |
|                     |      |           |       | Yes / No                    |
|                     |      |           |       | Yes / No                    |
|                     |      |           |       | Yes / No                    |
|                     |      |           |       | Yes / No                    |
|                     |      |           |       | Yes / No                    |

Provisional Diagnosis:

Plan of Care:

Name:

Sign:

Date / time:

Nursing Assessment:

### Vitals

| Temp (°F) | Pulse | Respiratory Rate | Blood Pressure | Pain Score |
|-----------|-------|------------------|----------------|------------|
|           |       |                  |                |            |
|           |       |                  |                |            |

Pain score:

Fall risk score:

If patient at risk for fall, all precautions taken: Patient & family educated on use of PPE:

Relative/attendant name:

Contact number :

## Diet Plan

| Normal   | Liquid  | Soft  | Cardiac | Vegetarian | Non Vegetarian | Jain   | NBM |
|----------|---------|-------|---------|------------|----------------|--------|-----|
| Diabetic | Hepatic | Renal | Onco    | Low Salt   | Salt Free      | Others |     |

Other Notes and Actions (NUTRITIONAL/FUNCTIONAL/SOCIAL/NURSING/MEDICAL)

Name:

Sign:


Date/time:

## Daily Assessment Sheet

|   |       |                           |   |
|---|-------|---------------------------|---|
| Date:                                       | Time: | Hospital/<br>post-op day: | Symptoms: (√ if applicable)   |
| Brief history:                              |       |                           | Constitutional: <input type="checkbox"/> Fever <input type="checkbox"/> Myalgia<br><input type="checkbox"/> Headache  |
| Comments/Events/Procedures in past 24 hours |       |                           | Upper respiratory: <input type="checkbox"/> Rhinorrhea <input type="checkbox"/> Sore throat   |
|   |       |                           | Lower respiratory:<br><input type="checkbox"/> Dyspnea <input type="checkbox"/> Chest tightness <input type="checkbox"/> Cough<br><input type="checkbox"/> Sputum <input type="checkbox"/> Hemoptysis |
|   |       |                           | Gastrointestinal: <input type="checkbox"/> Nausea <input type="checkbox"/> Vomiting<br><input type="checkbox"/> Diarrhea  |
|   |       |                           | Others:   |

|   |  |
|---|--|
| <p><b>VS:</b></p> <p>T Max :      T current:      HR:      BP:<br/>RR:</p> <p>I/Os: Ventilator/O2 setting:      Intubation day:</p> <p>T/L/D (Tubes, Lines, and Drains):</p> <p><b>PE:</b> Lungs:</p> <p>Heart:</p> <p>Abdomen:</p> <p>Neuro:</p>   | <p><b>LABS:</b></p> <p>Nasopharyngeal swab for COVID-19/ BIOFIRE:</p> <p>CBC:</p> <p>Electrolytes:      Creat:<br/>Mg:</p> <p>LFT:      D-dimer:</p> <p>Coagulation studies:</p> <p>CRP:      LDH:      Procal:<br/>Ferritin:      ESR:</p> <p>Others:</p> |
| <p><b>Problems/Issues:</b></p> <p><input type="checkbox"/> Fever <input type="checkbox"/> Hypoxemia <input type="checkbox"/> Hemothorax<br/> <input type="checkbox"/> Hypertension <input type="checkbox"/> Hypotension <input type="checkbox"/> Pneumonia<br/> <input type="checkbox"/> Pleural effusion <input type="checkbox"/> Pneumothorax<br/> <input type="checkbox"/> Plum edema <input type="checkbox"/> Aspiration <input type="checkbox"/> Acidosis<br/> <input type="checkbox"/> Anemia <input type="checkbox"/> ARDS <input type="checkbox"/> Electrolyte imbalance<br/> <input type="checkbox"/> Empyema <input type="checkbox"/> Resp insufficiency<br/> <input type="checkbox"/> Resp failure <input type="checkbox"/> Renal dysfunction<br/> <input type="checkbox"/> Renal failure <input type="checkbox"/> Sepsis <input type="checkbox"/> Tachycardia<br/> <input type="checkbox"/> Cardiac failure <input type="checkbox"/> Liver dysfunction<br/> <input type="checkbox"/> Liver failure<br/> Others:</p> | <p>Culture reports:</p> <p>Blood(x2):</p> <p>Sputum/ tracheal aspirate:</p> <p>URINE:</p>  |
| <p><b>Radiological findings:</b></p> <p><b>Investigation plan:</b></p> <p><b>Diagnosis:</b></p> <p><b>OTHER NOTES:</b></p>  | <p><b>Assessment/plan:</b></p> <p>Infectious Diseases:<br/> Pulmonology:<br/> Cardiovascular:<br/> Gastrointestinal:<br/> Renal:<br/> Neuro:<br/> General Medicine:<br/> Dvt Prophylaxis:<br/> GI Prophylaxis</p>  |

COVID CCU PROGRESS NOTES



|                     |  |  |
|---------------------|--|--|
| Date                |  |  |
| Date of Symptom     |  |  |
| Date of Isolation   |  |  |
| Date of Deisolation |  |  |

Co-morbidities:

Patient label

**Remdesivir:**  Yes  No Day.....

**Dexa:**  8mg /  16mg Day.....

**Anticoagulation:**

Heparin /  Enoxaparin /  LMWX /  Oral

**Dose:** .....

**Tocilizumab:**  Yes  No

**Baricitinib:**  Yes  No

**Others** .....

**Respiratory System**    ↓   ←   →

**PLAN:** .....

NC /  FM /  NRBM .....

HFNC .....

NIV .....

**Ventilator setting** .....

**Date of Intubation** .....

**Prone:**  Yes /  No Cycles .....

**Sedation / Paralysis** .....

**Antibiotics / Antifungals:** .....

**Covid related (tick if relevant):**

MI /  Myocarditis /  Stroke /  Encephalopathy /  
 Pneumothorax /  Extrapneumothorax /  
 Pulmonary Embolism /  Thrombosis - Arterial / Venous

**Glycemic Control:** .....

**Blood Pressure**    ↓   ←   →

**Vasopressors -** ~~NoreAD~~  / ~~Vaso~~  / ~~Adr~~

**Nutrition:** .....

**Bowel Opening:** .....

**Intake /Output:** .....

**Invasive Lines**

**C-tube:**  Yes /  No Day .....

**A-tube:**  Yes /  No Day .....

**Ex-ls:**  Yes /  No Day .....

**Additional instructions:**

Signature of the Doctor:  
Name of the Doctor:  
Date & Time:

## Medication Chart

(Write in capital letters; for infusions mention dilution, for antibiotics mention day of antibiotic; for high alert medications ensure double check is done for SOS mention indication)

| Time | Drug name Dose | Route | Frequency | Ordered by | Administered by<br>Time & name |
|------|----------------|-------|-----------|------------|--------------------------------|
|      |                |       |           |            |                                |
|      |                |       |           |            |                                |
|      |                |       |           |            |                                |
|      |                |       |           |            |                                |

**Patient Label**

**I.C.U. NURSING RECORD**

Date : \_\_\_\_\_ Day in ICU ;

PREVIOUS DAY

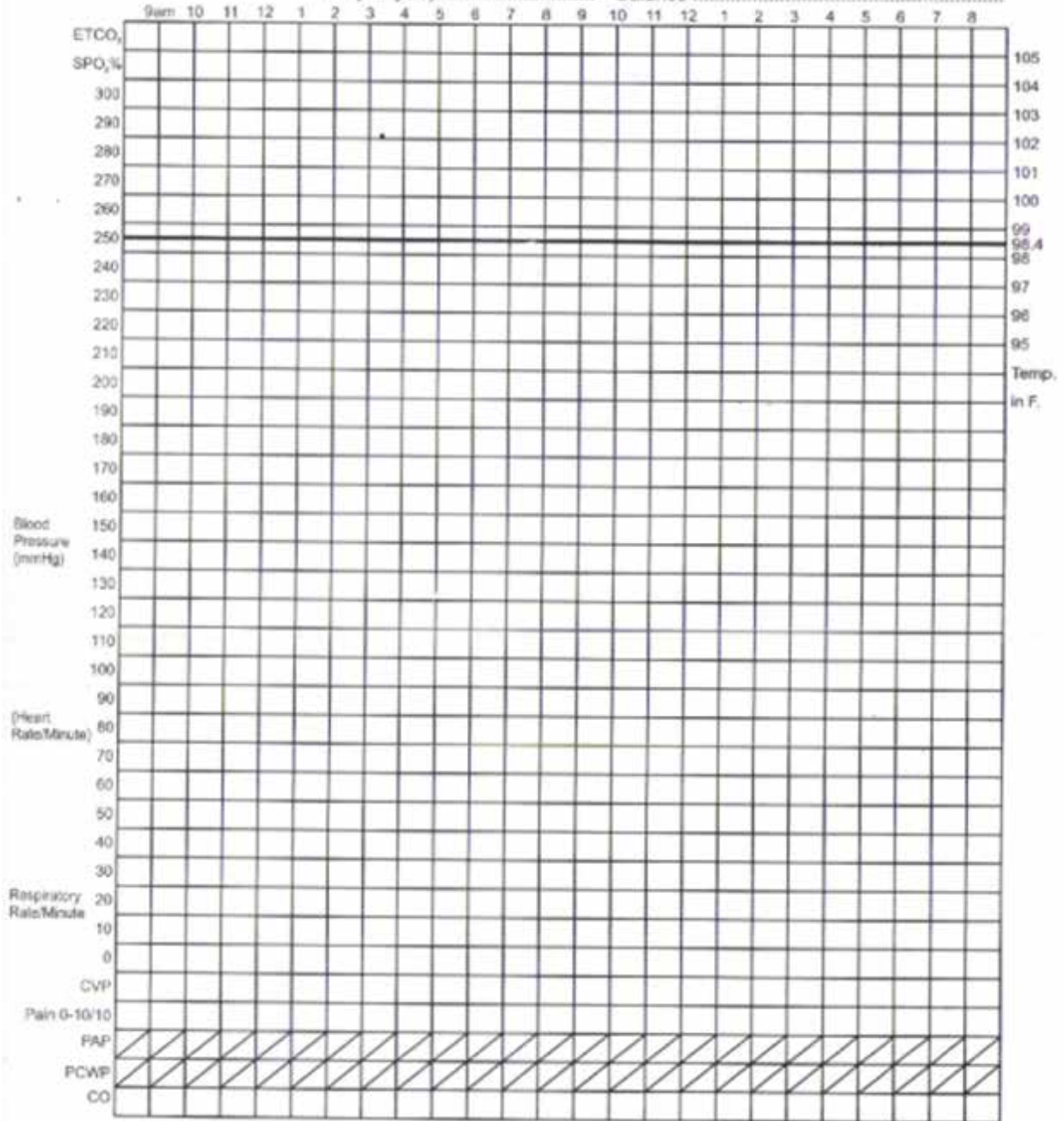
INTAKE ..... Diet .....

OUTPUT ..... Post op. Day .....

Urine ..... Ryles Tube Aspiration .....

Drain ..... Total .....

UF (Dialysis)..... Balance .....



**Pain Score:**

| Time | Pain score | Done by | If more, informed to | Intervention | Re-score pain after intervention |
|------|------------|---------|----------------------|--------------|----------------------------------|
|      |            |         |                      |              |                                  |



## Patient Family Education

| Date | Who Educated/counseled | What Was Discussed | Education Done By | Outcome |
|------|------------------------|--------------------|-------------------|---------|
|      |                        |                    |                   |         |

## Revised discharge policy for covid-19

(updated on 25/04/21)

<http://www.mohfw.gov.in/pdf/FinalGuidanceonManagementofCOVIDcasesversion2.pdf>

### **Revised Discharge Policy for COVID-19**

The revised discharge policy is aligned with the guidelines on the 3 tier COVID facilities and the categorization of the patients based on clinical severity (Available at:

<https://www.mohfw.gov.in/pdf/FinalGuidanceonManagementofCovidcasesversion2.pdf>)

#### **1. Mild/very mild/pre-symptomatic cases**

Mild/very mild/pre-symptomatic cases admitted to a COVID Care Facility will undergo regular temperature and pulse oximetry monitoring. The patient can be discharged after 10 days of symptom onset and no fever for 3 days. There will be no need for testing prior to discharge.

At the time of discharge, the patient will be advised to isolate himself at home and self-monitor their health for further 7 days.

At any point of time, prior to discharge from CCC, if the oxygen saturation dips below 95%, patient is moved to Dedicated COVID Health Centre (DCHC).

After discharge from the facility, if he/she again develops symptoms of fever, cough or breathing difficulty he will contact the COVID Care Centre or State helpline or 1075. His/her health will again be followed up through tele-conference on 14<sup>th</sup> day.

#### **2. Moderate cases admitted to Dedicated COVID Health Centre (Oxygen beds)**

##### **2.1. Patients whose symptoms resolve within 3 days and maintains saturation above 95% for the next 4 days**

Cases clinically classified as “moderate cases” will undergo monitoring of body temperature and oxygen saturation. If the fever resolve within 3 days and the patient maintains saturation above 95% for the next 4 days (without oxygen support), such patient will be discharged after 10 days of symptom onset in case of:

- Absence of fever without antipyretics
- Resolution of breathlessness
- No oxygen requirement

There will be no need for testing prior to discharge.

At the time of discharge, the patient will be advised to isolate himself at home and self-monitor their health for further 7 days.

**2.2. Patient on Oxygenation whose fever does not resolve within 3 days and demand of oxygen therapy continues**

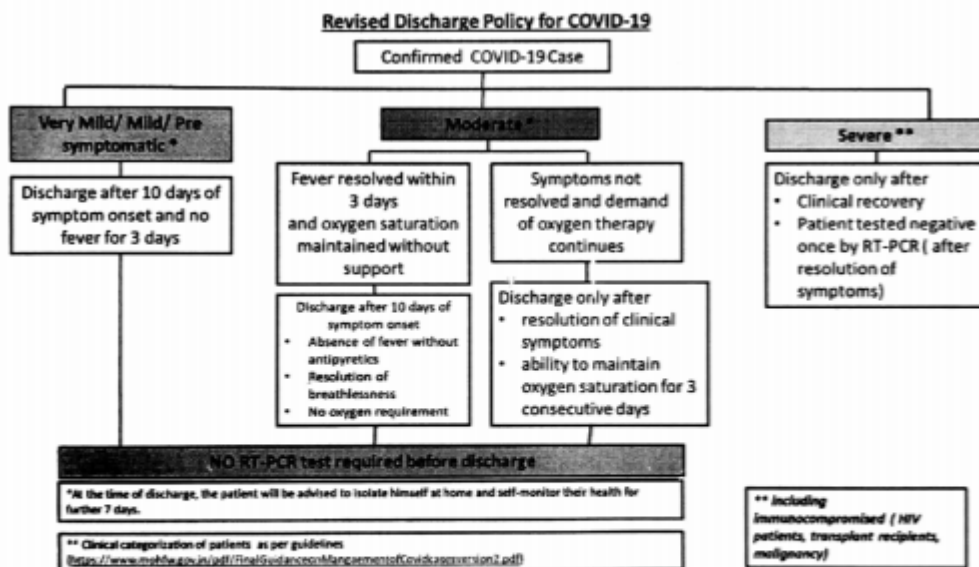
Such patients will be discharged only after

- resolution of clinical symptoms
- ability to maintain oxygen saturation for 3 consecutive days

**3. Severe Cases including immunocompromised (HIV patients, transplant recipients, malignancy)**

Discharge criteria for severe cases will be based on

- Clinical recovery
- Patient tested negative once by RT-PCR (after resolution of symptoms)



### **Frequently Asked Questions (FAQs) on Revised Discharge Policy, dated 8<sup>th</sup> May, 2020**

A revised discharge policy for COVID-19 cases was issued by MoHFW on 8<sup>th</sup> May, 2020. (Available at: <https://www.mohfw.gov.in/pdf/ReviseddischargePolicyforCOVID19.pdf>). The policy was prepared in consultation with ICMR and is in line with the MoHFW's guidelines on the categorization of the patients based on clinical severity and their management in the 3 tier COVID facilities (Available at: <https://www.mohfw.gov.in/pdf/FinalGuidanceonMangaementofCovidcasesversion2.pdf>).

#### **FAQs**

##### **1. What was earlier criteria for discharging COVID-19 patients**

The earlier criteria for discharging RT-PCR positive were (a) chest radiograph has cleared and (b) two consecutive negative test results on RT-PCR.

##### **2. What is the new discharge policy for COVID-19 patients?**

###### For mild/very mild/pre-symptomatic cases

- Patient can be discharged after 10 days of symptom onset and no fever for 3 days
- No need for testing prior to discharge
- Patient will be advised to isolate himself/herself at home & self-monitor his/her health for further 7 days

###### For moderate cases

- Patient can be discharged (a) if asymptomatic for 3 days and (b) after 10 days of symptom onset
- No need for testing prior to discharge
- Patient will be advised to isolate himself/herself at home & self-monitor his/her health for further 7 days

###### For severe cases

- Clinical recovery
- Patient tested negative once by RT-PCR (after resolution of symptoms)

##### **3. Why was the discharge policy changed?**

Several countries have changed the criteria for discharge from 'test based strategy to 'symptom based strategy' or 'time based 'strategy. A review of ICMR laboratory surveillance data also indicated that after initial RT-PCR positive results, patients became negative after a median duration of 10 days. Recent studies have also suggested that the viral load peaks in the pre-symptomatic period (2 days before symptoms) and goes down over the next 7 days.

##### **4. How then it will be established that a patient is cured of the disease?**

Being cured of a disease may have different connotations for general public, treating doctors and the virologists. Unless there is a fear of resurgence of infection and subsequent transmissibility of an infection, resolution of clinical manifestation is usually taken as an evidence for cure.

**5. Is there a risk of transmission from patients discharged based on the revised criteria?**

Available evidence does not indicate any increase in the risk of transmission from patients discharged based on the revised discharge criteria. The revised criterion also specifies that such patient will be advised to isolate himself/herself at home & self-monitor his/her health for further 7 days.

**6. What precautions the patient should undertake during home isolation?**

Such patients should at all times use triple layer medical mask. Patient must stay in the identified room and away from other people in home, especially elderly and those with co-morbid conditions like hypertension, cardiovascular disease, renal disease etc. They should maintain strict personal hygiene and self-monitor his/her health with daily temperature monitoring and report promptly if develops any deterioration of symptom.

**7. Is there a need to get tested after the home isolation period is over?**

No. As per the latest revised discharge policy, there is no need for testing prior to discharge all pre-symptomatic/very mild/mild confirmed cases of COVID-19 after 10 days of symptom onset and no fever for 3 days. Therefore, it stands to reason, that no testing is also needed for patients undergoing home isolation (pre-symptomatic/very mild/mild confirmed cases) after the home isolation period is over.

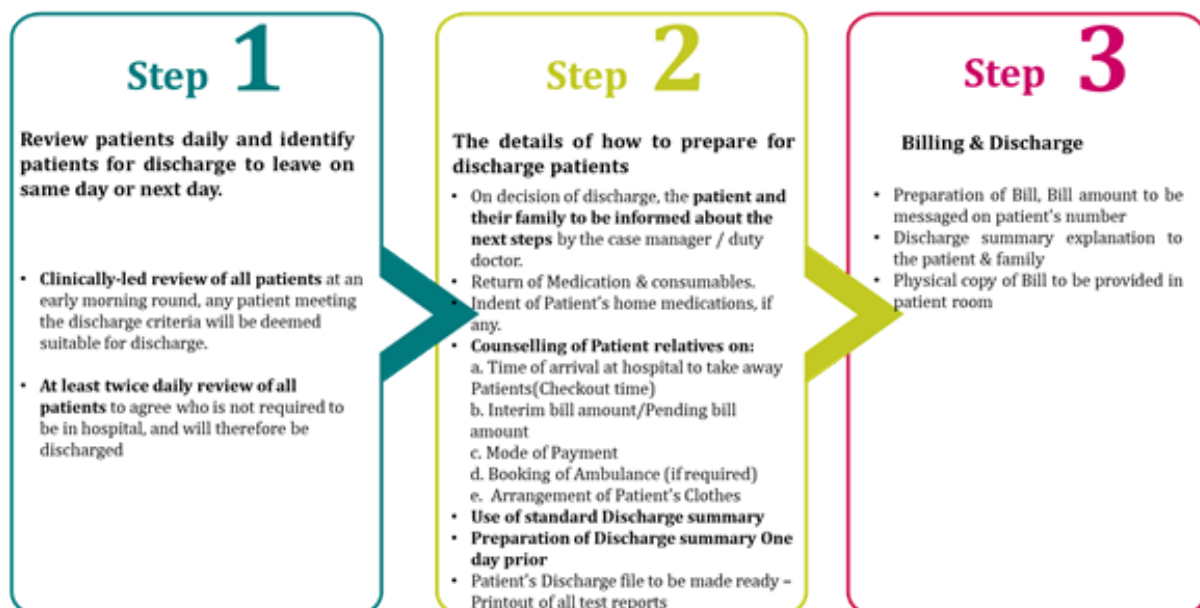
**8. What does the current discharge policy mean for patients who are being home isolated?**

As detailed above, as far as testing is concerned, there is no need for testing after the home isolation period is over. However, (as the current discharge policy advises that patients isolate themselves at home & self-monitor their health for further 7 days after discharge), the period of home isolation would end after 17 (10+7) days of symptom onset and no fever for 10 (3+7) days.

**9. Does this policy apply to those undergoing home or facility quarantine?**

Discharge policy is meant for patients (symptomatic/pre-symptomatic) diagnosed (using RT-PCR testing) to be suffering from COVID-19. Quarantine (home or facility) is meant for asymptomatic/healthy persons who may have been exposed to the COVID-19 infection but are not manifesting any symptoms. Therefore, there is no question of discharge of such persons. However, their stay under quarantine period will remain 14 days from the date of last exposure.

## Speed to discharge process



## Online patient feedback





CHAPTER VIII -  
**PATIENT & FAMILY  
COMMUNICATION/ EDUCATION (PFE)**

## Digital - patient family communication application

In addition to the daily phone call to patient's family member, this needs to be done so that patient's family member can connect and ask as and when they have any questions (and not call again and again unless it's a dire emergency)

## Who should do it from hospital side?

Hospital's identified team member (preferably a clinical staff/ else nonclinical staff who collects all information from the doctor, validates it and updates information correctly)

## What needs to be done?

One time

Register the patient on the app- name/bed number/room number/ phone number/ family member name and number (many things could be picked up from Medmantra once UHID number is added)

## Daily activity

Identify patient name, IP/UHID number and other details

Enter vitals at least once a day - Temp, Pulse, Respiration, SpO2, patient stable/unstable, vitals time and plan of care for that day

BEFORE 5 PM DAILY above information should be entered

Check if any unanswered questions are there and this needs to be answered appropriately

For many standard questions like billing process etc, keep templates ready so that will save time

All questions should be answered within 4 hours

## With Suspected or Confirmed Covid-19

- Be respectful, polite and empathetic
- Be aware that suspected and confirmed cases, and any visitors accompanying them, may be stressed or afraid
- The most important thing you can do is to listen carefully to questions and concerns
- Use local language and speak slowly
- Gather accurate information from the patient: their name, date of birth, travel history, list of symptoms...
- Answer any questions and provide correct information about COVID-19
- You may not have an answer for every question: a lot is still unknown about COVID19 and it is okay to admit that

- Explain the healthcare facility's procedure for COVID-19, such as isolation and limited visitors, and the next steps
- Provide updates to visitors and family when possible

## Communication for our Patients

We understand that this is a difficult time for you and with all the news that is going about COVID, you may be extremely nervous. Don't worry, we are here to take care of you.

1. In your room, we have tried our best to provide you with most of the essential items that you may require.
2. We will be monitoring you closely and ensure that your medications, diet and other support services are offered as clinically needed.
3. Unless clinically not possible, we would request you to wear your mask at all times.
4. In case you are uncomfortable or any clarification is needed, social worker can be contacted who can facilitate a consultation with a psychologist. **OUR HELPLINE NUMBER IS ..... OR ASK YOUR DOCTOR/NURSE TO CONNECT WITH THEM.**
5. We will keep your food outside so that we provide minimal contact.
6. We will not take you out for any investigations unless it is clinically necessary. If required, during transport, please ensure mask is worn at all times.
7. We will be in constant touch with your designated (one) family member to update them about your condition.
8. We know in this challenging time, you would want a loved one to be beside you. Owing to the nature of infection, we would not allow them to visit you. However, if you would like to speak to them or do a video call, please let your nurse know about the same.
9. If you experience any change in condition or require anything, please feel free to ask your nurse and we will do our best in the current circumstances.



## Chapter IX - **COVID & SPECIAL POPULATIONS**



## Special Recommendations For Pregnant Women

Reduce access of pregnant women to prenatal care, limiting only to high-risk cases. There is no evidence of an increased risk of unfavourable maternal or foetal outcomes in the case of COVID-19.

Infants born to mothers with confirmed COVID-19 should be considered as suspects. As such, these infants should be isolated from others. Separation (i.e. in an individual room) of the infant from the mother with COVID-19 confirmed or suspected, until the precautions based on the transmission risk of the mother are suspended.

The decision should be discussed carefully between the caring team and the mother, evaluating risk and benefits of this choice, including the protective potential of colostrum, breast milk and feeding time.

The discharge of mothers after childbirth must follow the recommendations for discharge of COVID-19 or suspected patients. In the case of a woman with suspected SARS-CoV-2 infection or with COVID-19, according to her clinical conditions and desire, breastfeeding should be started and / or maintained directly on the breast or with squeezed breast milk. If mother and child must be temporarily separated



because of mother clinical conditions, one should help the mother to maintain milk production through manual or mechanical/electric squeezing. In a limited series reported to date, the presence of the virus in the breast milk of infected women has not been reported, but anti-SARS-cov2 antibodies have been found. So breast milk would be protective.

A mother with confirmed COVID-19 or ongoing swab samples because symptomatic should take all possible precautions to avoid spreading the virus to the baby, including washing hands before touching the baby and wearing a face mask, if possible during breastfeeding. If using a manual or electric breast pump, the mother must wash her hands before touching the breast pump or parts of the bottle. If possible, have another person administer the milk to the baby.

It is not yet known whether COVID-19 can be transmitted through breast milk. At present, the main concern is not whether the virus can be transmitted through breast milk, but rather whether an infected mother can transmit the virus through respiratory droplets during breastfeeding.

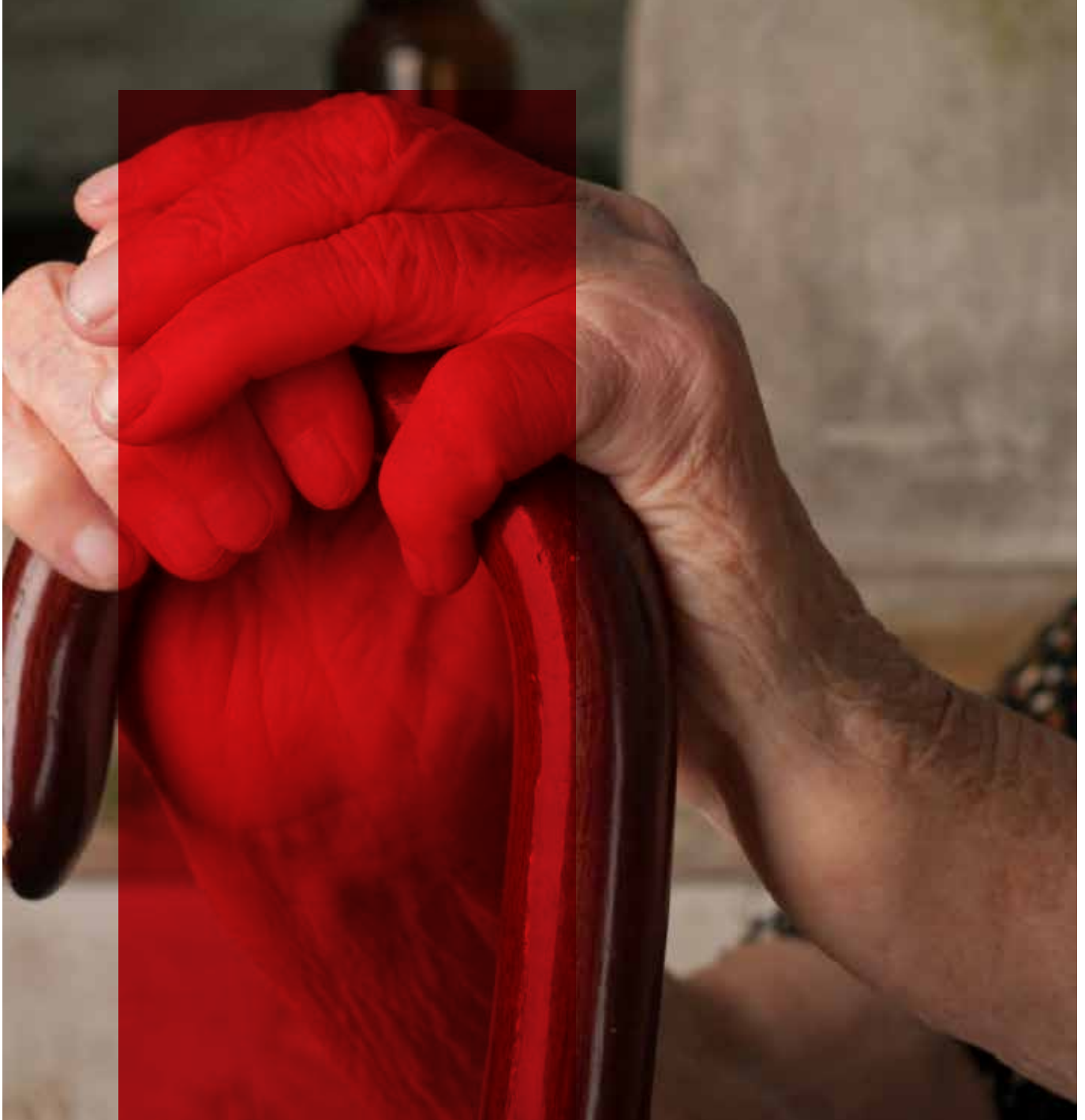
For assisting the delivery of women with confirmed or suspected COVID-19, staff must use the safety precautions provided for non-pregnant patients.

Pregnant women with suspected or confirmed SARS-COV2 infection should be treated with supportive therapies, however taking into account the physiological characteristics of pregnancy.

The use of experimental therapeutic agents outside of a research study should be guided by an individual risk-benefit analysis based on the potential benefit to the mother and the safety of the foetus, with the consultation of an obstetrician specialist and an ethics committee.

The decision to proceed to a pre-term birth is based on many factors: gestational age, maternal conditions and foetal stability and requires a collegial evaluation by obstetric, neonatal and intensive care specialists (depending on the mother's condition).

Positivity in itself to Coronavirus is not an indication for a caesarean section which in these patients should only be performed based on other obstetric or medical indications. In COVID-19 pregnant women, it is useful to be very cautious in inducing maturity of the lung by means of corticosteroids, since these drugs seem to worsen the course of the infection. If possible, evaluate each case with a neonatologist.



Govt advisory  
**for senior citizen**



## Government advisory for senior citizens

Ministry of Social Justice and Empowerment  
 Department of Social Justice and Empowerment  
 Government of India  
 Date of Issue:13.4.2020

### Aged 60 and above particularly those with following medical conditions

- Chronic (long-term) respiratory disease, such as asthma, chronic obstructive pulmonary disease (COPD), bronchiectasis, post tuberculous sequelae, interstitial lung disease
- Chronic heart disease, such as heart failure
- Chronic kidney disease
- Chronic liver disease, such as alcoholic, and viral hepatitis
- Chronic neurologic conditions, such as Parkinson's disease, stroke
- Diabetes
- Hypertension
- Cancer

| Do's  | Don'ts   |
|---|--|
| <ul style="list-style-type: none"> <li>• Stay within the house all the time</li> <li>• Avoid having visitors at home</li> <li>• If meeting is essential, maintain a distance of 1 meter</li> <li>• If living alone, one can consider depending on healthy neighbours for acquiring essentials for home Avoid small and large gatherings at all cost</li> <li>• Remain actively mobile within the house</li> <li>• consider doing light exercise and yoga at home</li> <li>• Maintain hygiene by washing hands. Especially before having meals and after using the washroom. This can be done by washing hands with soap and water for at least 20 seconds</li> <li>• Clean frequently touched objects such as spectacles</li> <li>• Sneeze and cough into tissue paper/handkerchief. After coughing or sneezing dispose of the tissue paper in a closed bin/wash your handkerchief and hands</li> <li>• Ensure proper nutrition through home cooked fresh hot meals, hydrate frequently and take fresh juices to boost immunity</li> <li>• Take your daily prescribed medicines regularly.</li> <li>• Monitor your health. If you develop fever, cough and/or breathing difficulty or any other health issue, immediately contact nearest health care facility and follow the medical advice</li> <li>• Talk to your family members (not staying with you), relatives, friends via call or video conferencing, take help from family members ineeded</li> <li>• Wash your hands before helping the older individual</li> <li>• Cover nose and mouth adequately using a tissue or cloth while attending on the senior citizen</li> <li>• Clean the surfaces which are frequently used. These include a walking cane, walker, wheel-chair, bedpan etc</li> <li>• Assist the older individual and help her/him in washing hands</li> <li>• Ensure proper food and water intake by senior citizens</li> <li>• Monitor his/her health</li> </ul> | <ul style="list-style-type: none"> <li>• Come in close contact with someone who is displaying symptoms of coronavirus disease (fever/cough/breathing difficulty).</li> <li>• Shake hands or hug your friends and near ones</li> <li>• Go to crowded places like parks, markets and religious places</li> <li>• Cough or sneeze into your bare hands</li> <li>• Touch your eyes, face and nose</li> <li>• self-medicate</li> <li>• Go to hospital for routine checkup or follow up. As far as possible make tele- consultation with your healthcare provider</li> <li>• Invite family members and friends at home</li> <li>• Go near senior citizens if suffering from fever/cough/breathing difficulty</li> <li>• Keep senior citizens completely bed-bound</li> <li>• Touch the Senior Citizen without washing hands</li> </ul> |

## ANNEXURE I - CHECKLISTS HOSPITAL ENTRANCES

| Sl no | Actionable   | Yes / No |
|-------|--|----------|
| 1     | Security guards at the entrance need to wear a mask  |          |
| 2     | Similar protocols need to be followed at each entrance   |          |
| 3     | Masks to be worn by the security at the entrance and masks to be made available at the entrance            |          |
| 4     | Security guards that would be doing frisking of baggage to wear gloves too                                 |          |
| 5     | Hand sanitizers available  |          |
| 6     | Thermal scanners available and everybody walking inside the facility should be scanned                     |          |
| 7     | Signage on education, wearing mask, hand hygiene and guide to fever clinic to be made visible at entrances |          |
| 8     | Staff to say "Namaste"   |          |
| 9     | Staff to guide patients either to fever clinic or inside the hospital to the respective areas- handholding |          |

## FEVER CLINIC

|    | Actionable  | Yes/ No |
|----|---|---------|
|    | <b>If patient/ visitor is a suspected case</b>  |         |
| 1  | Space that is identified is rechecked for air conditioning (should not be mixed with other areas of the hospital) |         |
| 2  | PPE availability for staff to wear  |         |
| 3  | Appropriate equipment available as mentioned under the fever clinic section                                       |         |
| 4  | Front desks to have glass partitions made   |         |
| 5  | Staff should always be standing and talking to patients   |         |
| 6  | Digital payment or other methods- information available- display  |         |
| 7  | Hand sanitizers available in reception desk   |         |
| 8  | Reception desks to be clean, organized and should not have unnecessary items kept- Follow 5S strictly             |         |
| 9  | Waiting areas to have chairs that are cleaned every hour with disinfectant  |         |
| 10 | No paper based reading material to be kept  |         |
| 11 | If television screens are available, then use them for education  |         |
| 12 | Entry doors to be kept open so that visitors/ patients don't have to touch the door knobs etc                     |         |
| 13 | Housekeeping is trained and wears PPE   |         |

## OP PHARMACY

| Sl no | Parameters   | Yes / No |
|-------|--|----------|
| 1     | Continuation of social distancing – Foot step signage/any kind of signage on floor   |          |
| 2     | Educational displays to maintain social distancing and cover cough & sneeze  |          |
| 3     | Instructions/ alert stickers pasted on high touch surfaces as “Do Not touch any surface”   |          |
| 4     | Have over the counter system of sale and not walk-in kind of model (if possible), this reduces the risk factor in terms of people touching and selecting products etc. |          |
| 5     | Hand sanitizers to be placed in pharmacy for staff and customers   |          |
| 6     | Staff to mandatorily sanitize their hands after handling cash and bills between customers.<br><br>Digital payment or other methods- information available- display     |          |
| 7     | Implementing token system to avoid queue   |          |
| 8     | Billing & Dispensing counters redesigning to be considered and shall have glass façade to prevent droplets.  |          |
| 9     | Masks to be used all the time.   |          |
| 10    | While receiving drugs delivery, the carton boxes to be removed at entry point and only the contents inside to be brought in to the pharmacy.                           |          |
| 11    | Mandatory screening of staff in case of any respiratory illnesses by staff doctor to be done, and after clearance the staff may join the shift.                        |          |
| 12    | Cleaning and disinfection of all the high touch surfaces to be done periodically- at least every 4 hours   |          |

## DIALYSIS

| Sl no | Actionable   | Yes / No |
|-------|--|----------|
| 1     | Greet every patient saying “Namaste”   |          |
| 2     | Covid 19 testing is mandatory WEEKLY if allowed by the state governments.<br>All existing dialysis patients to be medically screened (including location history, and exposure) before every session when they report for treatment.   |          |
| 3     | Full PPE for the dialysis staff is mandatory. Dialysis personnel, should wear a three-layer surgical facemask. Standard precautions are adhered to at all times.   |          |
| 4     | Any new patient for dialysis must be thoroughly assessed by nephrologist and should be screened whenever patient comes for dialysis.   |          |
| 5     | No attender to be allowed with patient in dialysis area. Patient’s attender is sent back home and asked to come back at the end of dialysis. Alternatively, he/she can wait down in the waiting area. Social distancing to be followed at all times.   |          |
| 6     | Communicate more effectively<br>Weekly schedules to be prepared and work in more shifts if required- Do NOT clutter dialysis department<br>Patients are educated to strictly follow the schedule.<br>Send them the instructions at least a day in advance- email   |          |
| 7     | Distance between beds/chairs is crucial at least 2 meters with adequate space between patient and technician/nurse   |          |
| 8     | All the patients on dialysis are advised to wear three layered mask all the times from the time they start from home.  |          |
| 9     | Patients are asked to disinfect their hands before entering department.  |          |
| 10    | After the dialysis, internal and external disinfection of the machine should be done. External disinfection of Machine is done with 1% hypochlorite.   |          |
| 11    | Clean and disinfect frequently touched surfaces after the dialysis between each patient with 1% hypochlorite. Monitors and trolleys are disinfected with Bacillol 25. This includes bedside tables and lockers, dialysis machines, door knobs, light switches, counter tops, handles, desks, phones, keyboards, toilets, faucets, and sinks etc. |          |
| 12    | Dialysis for any positive/suspected case has to be done either in a negative pressure room or in a separate area with no central air conditioning<br>Staff to wear proper PPE<br>Machine disinfection is critical<br>Waste segregation is also to be looked into<br>Donning and doffing of PPE   |          |

## SAMPLE COLLECTION

|   | Actionable  | Yes / No |
|---|---|----------|
| 1 | Greet every patient saying “Namaste”  |          |
| 2 | Staff should explain the process clearly  |          |
| 3 | PPE Usage - as per the policy   |          |
| 4 | Reception desk should follow similar protocols as described before                                |          |
| 5 | The division between different counters for sample collection to be covered with glass partitions |          |
| 6 | Social Distancing signage marked and followed   |          |
| 7 | Waiting areas protocols remain the same as described before                                       |          |
| 8 | Token system to be followed- if it is not there, use in house developed one as described before   |          |
| 9 | Disinfection protocols to be followed after every 4 hours   |          |

## EMERGENCY

| Sl no | Actionable   | Yes / No |
|-------|--|----------|
| 1     | ER must have a separate entrance.  |          |
| 2     | Mandatory screening of all patients and attendants as per the current guidelines and declaration form to be taken.   |          |
| 3     | Triage of patients to be carried out by qualified and trained personnel.   |          |
| 4     | In case a patient is having any respiratory syndromes and fever at screening/triage: give patient a triple layer surgical mask and direct patient to separate area (an isolation room if available).   |          |
| 5     | Any ER case with respiratory and fever signs to be admitted in an isolated area and sample to be send for Covid 19. If it turns positive case, patient is to be as per existing Covid-19 guidelines by local government. If negative, based on the current clinical status the patient to be shifted in other ICU or ward. |          |
| 6     | Keep at least 2 meter distance between suspected patients and other patients. Follow cough etiquette.  |          |
| 7     | Staff safety: staff has to wear complete PPE at all times. Full cover-up and N95 masks at all times.   |          |
| 8     | ER should not have central air conditioning.   |          |
| 9     | Appropriate precautions to be followed during aerosol generating procedures (Intubation, CPR, Bronchoscopy, Open suction etc) - Full cover-up and N95 masks and protocols as given in red book   |          |
| 10    | Follow revised BLS, ACLS, NALS, PALS, ATLS protocols as defined by competent authorities as given in red book  |          |
| 11    | Holding the patients in ER to be minimized to the extent possible. The holding duration <b>should not be more than 4 hours</b> in any case even if it is in the middle of the night or on a weekend/holiday.   |          |
| 12    | Follow Digital payment method for billing  |          |
| 13    | Disinfection in ER- including beds, equipment door knobs, toilets etc to be done after every patient use   |          |



## ISOLATION ROOM CHECKLIST

|    | <b>Isolation Room check points</b>   | Yes / No |
|----|--|----------|
| 1  | COVID-19 patients should be housed in single rooms.<br>If sufficient single rooms are not available, beds could be put with a spatial separation of at least 2 meter (6 feet) from one another (only positive cases together)  |          |
| 2  | If room is air-conditioned, ensure 12 air changes/ hour and filtering of exhaust air   |          |
| 3  | A negative pressure in isolation room for patient requiring aerosolization procedures (intubation, suction nebulisation)<br>*not be a part of the central air-conditioning   |          |
| 4  | The isolation ward to have a separate toilet with proper cleaning and supplies<br><i>(Even the toilet should have a negative pressure facility and should not be connected to any exhaust/air conditioning/ ventilation that leads to general ventilation of the hospital)</i> |          |
| 5  | Avoid curtains inside the room   |          |
| 6  | Isolation ward to have a separate entry/exit<br><i>(Not be co-located with post-surgical wards/dialysis unit/ labour room)</i>   |          |
| 7  | Double door entry to changing room and nursing station   |          |
| 8  | Signage on the door indicating that the space is an isolation area.  |          |
| 9  | Remove all non-essential furniture and ensure that the remaining furniture is easy to clean  |          |
| 10 | Keep the patient's personal belongings to a minimum  |          |
| 11 | Keep water pitchers and cups, tissue wipes, and all items necessary for attending to personal hygiene within the patient's reach   |          |
| 12 | Non-critical patient-care equipment ( <i>e.g. stethoscope, thermometer, blood pressure cuff, and sphygmomanometer</i> ) dedicated for the patient  |          |
| 13 | Any patient-care equipment that is required for use by other patients to be thoroughly cleaned and disinfected before use  |          |
| 14 | Dedicated Portable X-ray and portable ultrasound equipment for Isolation area  |          |
| 15 | Place an appropriate container with a lid outside the door for equipment that requires disinfection or sterilization   |          |
| 16 | Alcohol-based hand rub, near the point of care and the room door   |          |
| 17 | Storage of minimum imprest stock medicines as per the Red Book   |          |
|    | <b>PPE &amp; Waste Disposal</b>  |          |
| 18 | Staff assigned in isolation area to be trained on donning and doffing of PPE   |          |
| 19 | Separate Donning and Doffing room - Ante room/area   |          |
| 20 | Availability of enough PPE in the changing room  |          |
| 21 | Used PPEs are disposed as per the BMW guidelines in a touch-free bin   |          |
| 22 | Used (i.e. dirty) bins remain inside the isolation rooms   |          |
| 23 | Puncture-proof container for sharps disposal inside the isolation room/area  |          |
| 24 | Inside the Suspect and Confirmed Isolation areas, separate toilets would be demarcated for patients and staff  |          |

| <b>Hand hygiene and Cleaning</b>        |   |  |
|---|---|--|
| 25                                      | Appropriate hand washing facilities and hand-hygiene supplies are available   |  |
| 26                                      | Sink area is stocked with suitable supplies for hand washing  |  |
| 27                                      | Ensure regular cleaning and proper disinfection of common areas, and adequate hand hygiene by patients, visitors  |  |
| 28                                      | Corridors with frequent patient transport to be well-ventilated   |  |
| <b>Access control to Isolation Area</b> |   |  |
| 29                                      | The access to isolation ward is through dedicated lift/guarded stairs   |  |
| 30                                      | Visitors to the isolation facility should be restricted /disallowed   |  |
| 31                                      | For unavoidable entries, they should use PPE according to the hospital guidance, and should be instructed on its proper use and in hand hygiene practices prior to entry into the isolation room/area |  |
| 32                                      | Maintain a Visitor record to the isolation area   |  |
| <b>Staff management in Isolation</b>    |   |  |
| 33                                      | Keep a roster of all staff working in the isolation areas, for possible outbreak investigation and contact tracing  |  |
| 34                                      | Dedicated Doctors, nurses and paramedics posted to isolation facility ( <i>not allowed to work in other patient-care areas</i> )  |  |
| <b>Communication</b>                    |   |  |
| 35                                      | Set up a telephone or other method of communication in the isolation room or area to enable patients to communicate with families and care givers   |  |


## OTHER SUPPORT FUNCTIONS INFECTION CONTROL CHECKLISTS:

Basics related to the use of PPE, signage, social distancing, hand hygiene remains standard for all areas.

## CSSD

| Sl no | Actionable  | Yes / No |
|-------|---|----------|
| 1     | CSSD staff to use PPE as recommended in guidelines (set with shoe cover, face mask, cap, gum boots, eye google/face shield, hand gloves, heavy duty glove at wash area) |          |
| 2     | ICN to visit CSSD at least every alternate day to oversee the compliance  |          |
| 3     | All items going for sterilization should go through disinfection process  |          |
| 4     | Other all policy as per current practice shall continue.  |          |

## CANTEEN/ FOOD COURTS

| Sl no | Actionable  | Yes / No |
|-------|---|----------|
| 1     | All staff in such areas to be trained and supervised to follow the infection control protocols and wear PPE   |          |
| 2     | Surfaces and table tops, counters to be cleaned regularly   |          |
| 3     | Billing process to be followed as explained above   |          |
| 4     | Hospital should place a menu that should have the list of all food items and room delivery numbers  |          |
| 5     | Try as much as possible to do room delivery of food; in disposable containers   |          |
| 6     | Any sit down areas to follow social distancing & disinfection protocols at all times<br> |          |

## HOSPITAL VISITOR POLICY

| Sl no | Actionable   | Yes / No |
|-------|--|----------|
| 1     | A strict visitor policy with rare exceptions.  |          |
| 2     | No children below 16 years to be allowed in the Hospital premises as an attendant.   |          |
| 3     | Only one attendant per patient to be allowed in the hospital.  |          |
| 4     | Attendant need to protect himself by wearing a mask at all times and follow hand hygiene   |          |
| 5     | Attendant should restrict their movement while in the hospital   |          |
| 6     | Attendant should report his medical condition to the doctor/ nurse if he/she is not feeling well at any point of time during the stay            |          |
| 7     | If the patient is in ICU/OT etc and the attendant has to wait in the waiting area then they need to follow social distancing guidelines strictly |          |

## PATIENT MEDICAL RECORD CHECKLIST

|    | <b>Actionable</b>  | <b>Yes / No</b> |
|----|--|-----------------|
|    | <b>Ward/ICU</b>  |                 |
| 1  | The Medical Record of patient must not be taken to the bedside of the patient unless it is mandatory for obtaining signatures of the patient/attendant.  |                 |
| 2  | The record must be stored at designated area at nursing station all the time.  |                 |
| 3  | All staff handling the medical records must ensure that they perform hand-hygiene before and after touching the Medical Records.   |                 |
| 4  | Signatures of the patient wherever mandatory should be taken ensuring that the patient is wearing mask and gloves. The contact time of record with the patient must be minimized. As stated above, signature of attendant, if required will be taken outside the Ward/ICU. Ensure even the attendant wear gloves and mask. |                 |
| 5  | MRD Staff in all shifts must ensure that the scanned copies of all the records are uploaded into system for easy access  |                 |
| 6  | All the computers/printers used throughout the hospital should be disinfected regularly or at least at each shift  |                 |
| 7  | Pens used by staff during documentation to be sanitized after every use.   |                 |
| 8  | All the registers/forms/notepads used in the hospital to be away from the patient/patient care areas.  |                 |
| 9  | If needed only the medication chart can be carried to the bed side.  |                 |
| 10 | The forms or reports once given to Patient/Family should not be collected back at any given time.  |                 |
| 11 | The racks where Patient medical records are stored to be sanitized at each shift by the nurse taking care of those patients  |                 |
|    | <b>On Discharge/Death of positive patient</b>  |                 |
| 12 | Discharge/Death Summary to be handed over to Patient/Attendant in the ziploc packet.   |                 |
| 13 | The Ziploc packets with patient file inside must carry patient label on it.  |                 |
| 14 | The Ziploc packs must be disinfected with 1% Hypochlorite before packing these in Yellow Polybags.   |                 |
| 15 | Discharge advice / instructions are given along with discharge summary for COVID patients at the time of discharge   |                 |
|    | <b>Transport and Storage of Files in MRD</b>   |                 |
| 16 | The file to be transported by staff wearing mask and gloves on a designated trolley for carrying the record.   |                 |
| 17 | Trolley used for shifting of record to be disinfected with 1% Sodium Hypochlorite.   |                 |

## ANNEXURE II

### Real life examples of combining covid19 safety with compassionate care

#### SCENARIO 1

85 year old male with dementia, recurrent episodes of UTI & multiple admissions in the past, comes to the ER at 10 pm with a temperature of 102 degree F. His daughter stays with him & they both haven't gone out of the house for the past 3 weeks. There is no history of coughing, sputum or breathing difficulty.



#### Should he be referred to a designated COVID centre?

- Make a quick clinical assessment of the patient, wearing the PPE.
- Do a CBC, Urine dip & Bedside Chest Xray.
- If WBC count is normal & Chest Xray is abnormal, refer to a Covid centre; otherwise continue to give care at the same centre.

#### SCENARIO 3

A 40 year old female has been admitted for an urgent Spine surgery planned for the next day. The hospital protocol is to do nasopharyngeal swab for COVID-19 prior to urgent & elective surgeries. Who will do the swab & where should the sample be taken in the hospital?



- Each hospital should identify & train a pool of Lab technicians, Nurses, Doctors (3-4) to take swabs for testing for COVID-19 infection.
- A designated area should be identified within the hospital (preferably isolation room or negative pressure room or a well ventilated single room) to collect the samples.

**Key Message:** Sampling For Covid Should Be Done With Utmost Precautions

#### SCENARIO 2

A 25 year old female comes to the ER with fever, cough of 3 days duration and now she complains of breathing difficulty.



#### What should be done?

- Admit at your centre if it is a designated COVID centre.
- If your centre is not a designated COVID centre, stabilize her in the ER & then refer her to the designated COVID centre.

**Key Message In Cases 1 & 2:** Look Into The Pretest Probability Of A Patient With Fever To Have Covid-19 Infection, Before Making Hospital Transfer Decisions

#### SCENARIO 4

A 40 year old male has been admitted in the ICU with bouts of hemoptysis (400-500ml) & a temperature of 99.8 degree F. He denies local/international travel & all his family members are doing well. His Xray chest shows mediastinal widening with normal lung shadows. The admitting physician has ordered a CT Scan of the chest with contrast. However, the Radiologist insists on COVID testing, citing exposure risk to the CT scan team. What should be done?



- Test for COVID even though the pretest probability is low.
- Follow standard precautions & get the CT scan done with PPE for the radiology team.
- Clean the CT scan suite as per the hospital protocol.



## ANNEXURE III

### Collection of specimens for laboratory diagnosis

Guidance on specimen collection, processing, transportation, including related biosafety procedures, is available on <https://mohfw.gov.in/media/disease-alerts>

The adequate specimen for Real Time-Polymerase Chain Reaction (RT-PCR) testing is nasopharyngeal and oropharyngeal sampling. Prefer lower respiratory tract (LRT; expectorated sputum, endotracheal aspirate, or bronchoalveolar lavage) when readily available (for example, in mechanically ventilated patients). Quality of RT-PCR testing is a crucial issue. Both pre-analytical and analytical variables should be carefully considered, and a validation process should be performed according to ISO 15189 (3 protocols).

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

#### Specimen labelling and processing:

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

## Laboratory specifications

<https://www.cdc.gov/coronavirus/2019-ncov/lab/lab-biosafety-guidelines.html>

<https://www.cdc.gov/coronavirus/2019-ncov/lab/biosafety-faqs.html>

<https://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf?ua=1>

## Laboratory design and facilities

- The laboratory must be separated from the areas that are open to unrestricted traffic flow within the building. Additional separation may be achieved by placing the laboratory at the blind end of a corridor, or constructing a partition and door or access through an anteroom (e.g. a double-door entry or basic laboratory – Biosafety Level 2), describing a specific area designed to maintain the pressure differential between the laboratory and its adjacent space. The anteroom should have facilities for separating clean and dirty clothing and a shower may also be necessary.
- Anteroom doors may be self-closing and interlocking so that only one door is open at a time. A break-through panel may be provided for emergency exit use.
- Surfaces of walls, floors and ceilings should be water-resistant and easy to clean.
- A hand-washing station with hands-free controls should be provided near each exit door.
- There must be a controlled ventilation system that maintains a directional airflow into the laboratory room. A visual monitoring device with or without alarm(s) should be installed so that staff can at all times ensure that proper directional airflow into the laboratory room is maintained.
- Air may be high-efficiency particulate air (HEPA) filtered, reconditioned and recirculated within that laboratory.
- All HEPA filters must be installed in a manner that permits gaseous decontamination and testing.
- Biological safety cabinets should be sited away from walking areas and out of crosscurrents from doors and ventilation system.
- An autoclave for the decontamination of contaminated waste material should be available.
- Backflow-precaution devices must be fitted to the water supply. Vacuum lines should be protected with liquid disinfectant traps and HEPA filters, or their equivalent.

## Sample collection

Area for sample collection shall be carried out in a designated Negative pressure isolation room  
There shall be independent air handling facility

through use of exhaust fans and appropriate HEPA filters.

The personnel shall wear entire PPE while collecting sample.

## Sample type

Sample types are the following:

Essential Samples:

- Throat swab (oropharyngeal swab)
  - Nasal swab (nasopharyngeal swab)
- These shall be Dacron or Polyester flocked swabs placed in the same viral transport medium
- Serum (2 samples – acute and convalescent)

## Other samples:

- Bronchoalveolar lavage in a sterile container
- Tracheal aspirate in a sterile container
- Nasopharyngeal aspirate or nasal wash in sterile container
- Sputum (well coughed out- from the lower respiratory tract) in sterile container

For transport of samples for viral detection, use VTM (viral transport medium) containing antifungal and antibiotic supplements. Avoid repeated freezing and thawing of specimens

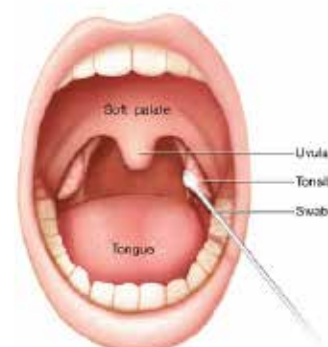
## Procedure:

Materials required for swab collection:

Sterile Dacron/Nylon flocked swab  
Viral Transport Medium (3 ml sterile VTM)

Procedure for Oropharyngeal swab:

- Hold the tongue out of the way with a tongue depressor.
- Use a sweeping motion to swab posterior pharyngeal wall and tonsillar pillars
- Have the subject say “aahh” to elevate the uvula.
- Avoid swabbing soft palate and do not touch the tongue with swab tip.
- Put the swab in VTM



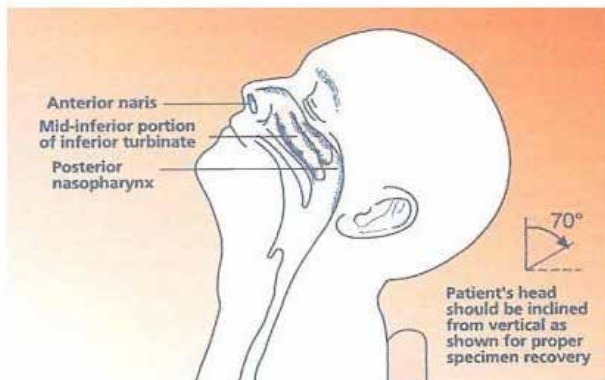
## Procedure for Nasopharyngeal swab

### Materials

Sterile Dacron/Nylon flocked swab  
Viral Transport Medium (3 ml sterile VTM)

### Procedure:

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



### Temperature requirements

For Transport to Lab (48 - 72 hours): Store at 2-80C  
Storage till testing: Nasopharyngeal and oropharyngeal swab (Dacron or Polyester flocked swabs) at 2-80C for ≤72 hours. For other samples, at -70 °C for >72hours .

### Ppe requirements:

Personal protective equipment's (Full Body Suite, Powder free gloves, face shield, N95 Masks Shoe Covers.) need to be used and all biosafety precautions should be followed so as to protect individuals and the environment.

### Removal and discard

Removal (Doffing) of disposable Gloves:

- Pinch and hold the outside of the glove near the wrist area.
- Peel downwards, away from the wrist, turning the glove inside out.
- Pull the glove away until it is removed from the hand and hold the inside-out glove with the gloved hand.
- Safe removal of mask., don't touch the front side of mask, remove from the bottom, back side and keep in

yellow back.

- Safe removal of full suite
- Safe removal of face shield .
- Safe removal of Shoe Covers

All the PPE Materials should be discard in Yellow Cover and tag the cover tightly bring the cover to laboratory  
Disinfection of ppe:

- All the PPE materials which receives in the lab are to be Autoclaved according to BMW 2016 guideline.
- After Autoclave handover the discarding materials to the RESPECTIVE AGENCY.

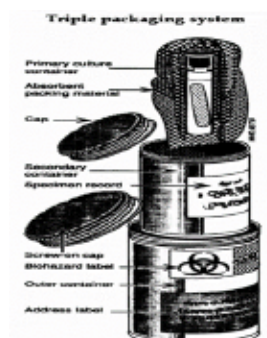
### Sample packing

Packaging of the specimen shall be carried out inside a biosafety Cabinet. The packaging consists of three layers as follows.

**1.1.Primary receptacle:** A labelled primary watertight, leak-proof receptacle containing thespecimen. The receptacle is wrapped in enough absorbent material to absorb all fluid in case of breakage.

**1.2.Secondary receptacle:** A second durable, watertight, leak-proof receptacle to enclose and protect the primary receptacle(s). Several wrapped primary receptacles may be placed in one secondary receptacle. Sufficient additional absorbent material must be used to cushion multiple primary receptacles. The second outer container shall be wiped well with disinfectant before placing it inside third container.

**1.3.Outer shipping package.** The secondary receptacle is placed in an outer shipping package, such as a vaccine-carrier/ice-box which protects it and its contents from physical damage and water while in transit. The minimum dimensions of the outer container should be 10 x 10 x 10 cm (length x width x height)]



### Specific Features of each container:

| Primary Container  | Secondary Container  | Outer Container/<br>Packaging Box   |
|--|--|---|
| <ul style="list-style-type: none"> <li>• Watertight and leak proof</li> <li>• Cap correctly and securely closed.</li> <li>• Keep in upright position during transport</li> </ul> | <ul style="list-style-type: none"> <li>• Watertight</li> <li>• Several clinical specimens may be placed into one secondary container</li> <li>• Containers have to be cleansed and disinfected if they are to be re-used</li> </ul> <p>E.g.: Disposable, zip-lock plastic bags; Large centrifuge tubes (50 ml) with screw caps</p> | <ul style="list-style-type: none"> <li>• Made of strong material that can be cleansed and disinfected</li> <li>• Should have the Biohazard warning label</li> <li>• A content list in a sealed plastic bag inside the transport box may also be included</li> </ul> |

### Transport

In case of transportation to external lab for confirmation / quality control or otherwise, coordination with respective local surveillance officer shall be carried out.

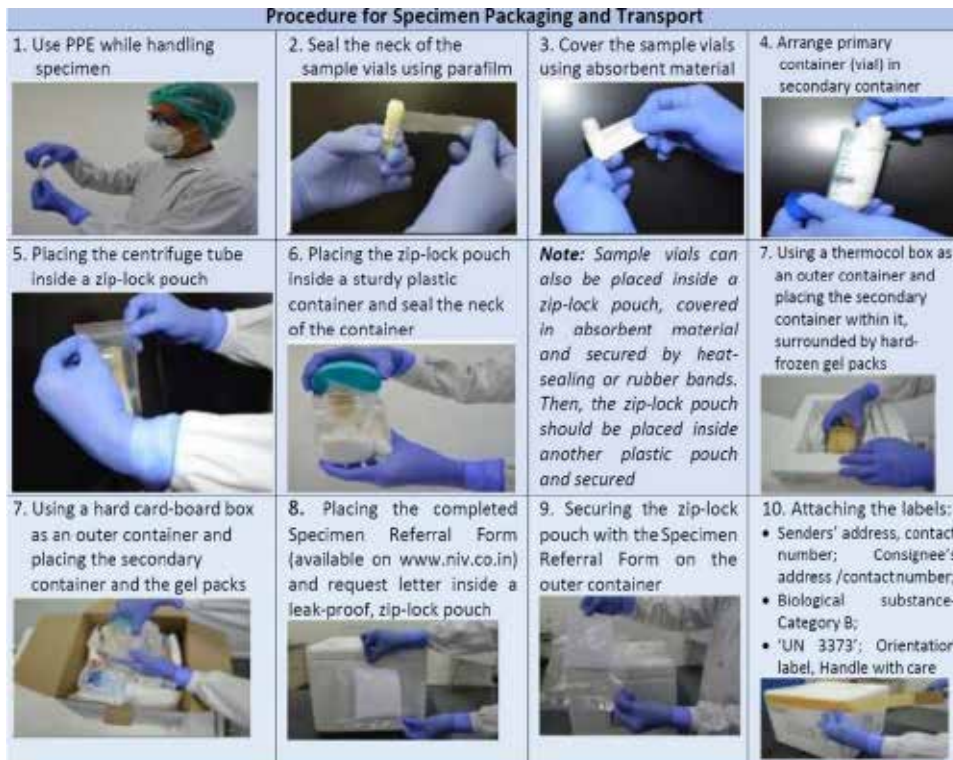
Precautions for Transport:

- Adequate cushioning materials inside the box to absorb shocks during transport
- Adequate absorbing material to absorb any spillage should it occur
- Do not stick the request form on the specimen
- Specimen request forms should be put into a separate plastic bag
- The outer container, secondary containers and specimen racks for transport should be thoroughly cleansed and disinfected periodically (i.e. at least daily) and when contaminated.

Please follow WHO guidelines and IATA guidelines for sample packaging and Transport Classification of Infectious substance is as under:

Category A: An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals. -N 2814 for Infectious substances which cause disease in humans or both in humans and animals.





UN 2900 for Infectious substances which cause disease only in animals

Category B: An infectious substance which does not meet the criteria for inclusion in Category A.

Infectious substances in Category B shall be assigned to UN 3373

### 1. SARS-cov-2 virus infectious/potentially infectious material falls under category b

- The original samples should be packed, labeled and marked, and documented.
- Standard triple packing to be followed.
- Samples to be sent on 2-8 °C with, (4 ice packs) However using cold packs is acceptable.
- Sender should provide prior intimation about shipment of samples to the nearest certified laboratory.

### 2. Labeling requirements

- Sender's, name, address and telephone number
- Whom to contact in case of emergency with telephone number
- Receiver's name, address and telephone number
- Proper shipping name (e.g. "BIOLOGICAL SUBSTANCE, CATEGORY B")
- UN number e.g. 337
- Temperature storage requirements
- Quantity of ice pack is to be 4 inside the container
- Arrow mark to indicate upright direction

### 3. Responsibility of the sender

- Make advance arrangements with the carrier-that the shipment will be accepted for appropriate transport
- that the shipment (direct transport if possible) is undertaken by the most direct routing
- Prepare necessary documentation, including permits, dispatch and shipping documents of shipment
- Notify the receiver in advance of transportation arrangements and expected date of delivery



## ANNEXURE IV

### Management of covid-19 in children Ministry of Health & Family Welfare, Government of India

MANAGEMENT OF COVID-19 IN CHILDREN

Ministry of Health and Family Welfare, Government of India

**CLINICAL FEATURES**



- Majority of children with covid infection may be asymptomatic or mildly symptomatic
  - Common symptoms include- fever, cough, breathlessness/shortness of breath, fatigue, myalgia, rhinorrhoea, sore throat, diarrhea, loss of smell, loss of taste etc
- Few children may present with gastrointestinal symptoms and atypical symptoms
- A new syndrome named multi system inflammatory syndrome has been described in children. Such cases are characterized by:
  - Unremitting fever > 38°C
  - Epidemiological linkage with SARS CoV - 2
  - Clinical features suggestive of Multi System Inflammatory Syndrome

MANAGEMENT OF COVID-19 IN CHILDREN

Ministry of Health and Family Welfare, Government of India

**ASYMPTOMATIC AND MILD CASES**



- Asymptomatic children are usually identified while screening, if family members are identified
  - Require monitoring for development of symptoms & subsequent treatment according to assessed severity
- Children with mild disease may present with sore throat, rhinorrhoea, cough with no breathing difficulty. Few children may have gastrointestinal symptoms
  - They do not need any investigations
- These children can be managed at home with home isolation & symptomatic treatment
- Children with underlying comorbid conditions including congenital heart disease, chronic lung diseases, chronic organ dysfunction, obesity may also be managed at home

MANAGEMENT OF COVID-19 IN CHILDREN

Ministry of Health and Family Welfare, Government of India

**MILD CASES TREATMENT: HOME ISOLATION** (1/2)




- For Fever:** Paracetamol 10-15 mg/kg/dose; may repeat every 4-6 hours
- For Cough:** Throat soothing agents like warm saline gargles in older children & adolescents
- Fluids & feeds:** Ensure oral fluids to maintain hydration, and nutritious diet
- Antibiotics:** Not indicated

MANAGEMENT OF COVID-19 IN CHILDREN

Ministry of Health and Family Welfare, Government of India

**SEVERE COVID-19 CASES** (1/4)




- Children with SpO2 level less than 90% are categorized as having severe Covid-19 infection
  - They may have severe pneumonia, Acute Respiratory Distress Syndrome, Septic Shock, Multi-organ dysfunction syndrome, or pneumonia with cyanosis
  - Clinically, such children may present with grunting, severe retraction of chest, lethargy, somnolence, seizure
  - Such children should be admitted in Dedicated Covid Hospital/ Secondary/ Tertiary level healthcare facility
  - Few children may require HDU/ICU care & should be assessed for:
    - thrombosis, hemophagocytic lymphohistiocytosis (HLH) & organ failure

MANAGEMENT OF COVID-19 IN  
**CHILDREN**

Ministry of Health and Family Welfare, Government of India myGov

**SEVERE COVID-19 CASES** (2/4)



**Investigations:** Complete blood counts, liver and renal function tests, Chest X-ray

**Treatment:** Intravenous fluid therapy


- Corticosteroids: Dexamethasone 0.15 mg/kg per dose (max 6 mg) twice a day. Equivalent dose of methylprednisolone may be used for 5-14 days depending on clinical assessment
- Antiviral agents: Remdesivir granted for EUA\*, to be used in a restricted manner within three days of onset of symptoms after ascertaining that child's renal & liver functions are normal & to be monitored for side effects
- Suggested doses (body weight based):
  - >40 kg: 300 mg on 1st day then 100 mg once daily for 4 days
  - 3.5 to 4 kgs: 5mg/kg on the 1st day, 2.5 mg/kg once daily for 4 days
  - No role of Hydroxychloroquine, Favipiravir, Ivermectin, lopinavir/ritonavir, Umifenovir

\*Emergency Use Authorization

MANAGEMENT OF COVID-19 IN  
**CHILDREN**

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**SEVERE COVID-19 CASES** (3/4)



Children may need organ support in case of organ dysfunction: e.g. Renal Replacement Therapy

**Management & Treatment of Acute Respiratory Distress Syndrome (ARDS):**

- Mild ARDS: High Flow Nasal Oxygenation, Non-invasive ventilation may be given
- Severe ARDS: Mechanical ventilation may be given with low tidal volume
- If the child does not improve clinically even then, may consider (if available) High Frequency Oscillatory Ventilation, Extracorporeal Membrane Oxygenation
- Awake prone position may be considered in older hypoxemic children if they tolerate.

MANAGEMENT OF COVID-19 IN  
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**SEVERE COVID-19 CASES** (4/4)



If the child develops septic shock or myocardial dysfunction then he/she may require:


- Crystalloid bolus administration: 10 to 20 ml/kg over 30 to 60 minutes; be cautious if cardiac dysfunction is there
- Early inotrope support with monitoring of fluid overload like any other cause of shock

MANAGEMENT OF MIS\*  
IN CHILDREN & ADOLESCENTS  
TEMPORALLY RELATED TO COVID-19

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\*Multisystem Inflammatory Syndrome

**DIAGNOSTIC CRITERIA** (1/2)



Children and adolescents, 0-19 years of age with fever  $\geq$  3 days AND two of these:


- Rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs
- Hypotension or shock
- Rash or bilateral non-purulent conjunctivitis or muco-cutaneous inflammation signs
- Evidence of coagulopathy (by PT, PTT, elevated d-Dimers)
- Acute gastrointestinal problems (diarrhoea, vomiting, or abdominal pain)





AND \_\_\_\_\_

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IN CHILDREN & ADOLESCENTS  
TEMPORALLY RELATED TO COVID-19  
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## DIAGNOSTIC CRITERIA (2/2)





-  Elevated markers of inflammation such as ESR, C-reactive protein, or procalcitonin  
AND \_\_\_\_\_
-  No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes  
AND \_\_\_\_\_
-  Evidence of COVID-19 (RT-PCR, antigen test or serology positive), or likely contact with patients with COVID-19  
\_\_\_\_\_
-  Investigations: as listed above in criteria and investigations to rule out common differential diagnoses

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## TREATMENT (1/3)



-  Drugs to be used in case the child has cardiac dysfunction, shock, coronary involvement, multi organs dysfunction
  - Steroids: Methylprednisolone 1 to 2 mg/kg per day
  - Intravenous Immunoglobulin 2 g/kg over 24 to 48 hours
  - Antimicrobials
-  The child needs appropriate supportive care, preferably in ICU. In absence of cardiac dysfunction, shock, coronary involvement, multi organs dysfunction, one may use steroids or IVIG

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IN CHILDREN & ADOLESCENTS  
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## TREATMENT (2/3)






-  If the child does not improve with the above treatment or deteriorates, options include:
  - Repeat IVIg
  - High dose corticosteroid (Methylprednisolone 10 to 30 mg/kg/day for 3 to 5 days)
  - Aspirin: 3 mg/kg/day to 5 mg/kg/day max 81 mg/day (if thrombosis or Coronary Aneurysm Score is >2.5)
  - Low Molecular Weight Heparin (Enoxaparin):
    - 1 mg/kg twice daily subcutaneously
    - Clotting Factor Xa should be between 0.5 to 1 (if patient has thrombosis/Coronary aneurysm score > 10 or LVEF < 30%)

**MANAGEMENT OF MIS\***  
IN CHILDREN & ADOLESCENTS  
TEMPORALLY RELATED TO COVID-19  
\*Multisystem Inflammatory Syndrome

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## TREATMENT (3/3)



-  Steroids have to be tapered over 2 to 3 weeks while monitoring inflammatory markers  
\_\_\_\_\_
-  For children with cardiac involvement,
  - Repeat ECG 48 hourly & repeat ECHO at 7 to 14 days and between 4 to 6 weeks (and after 1 year if initial ECHO was abnormal)

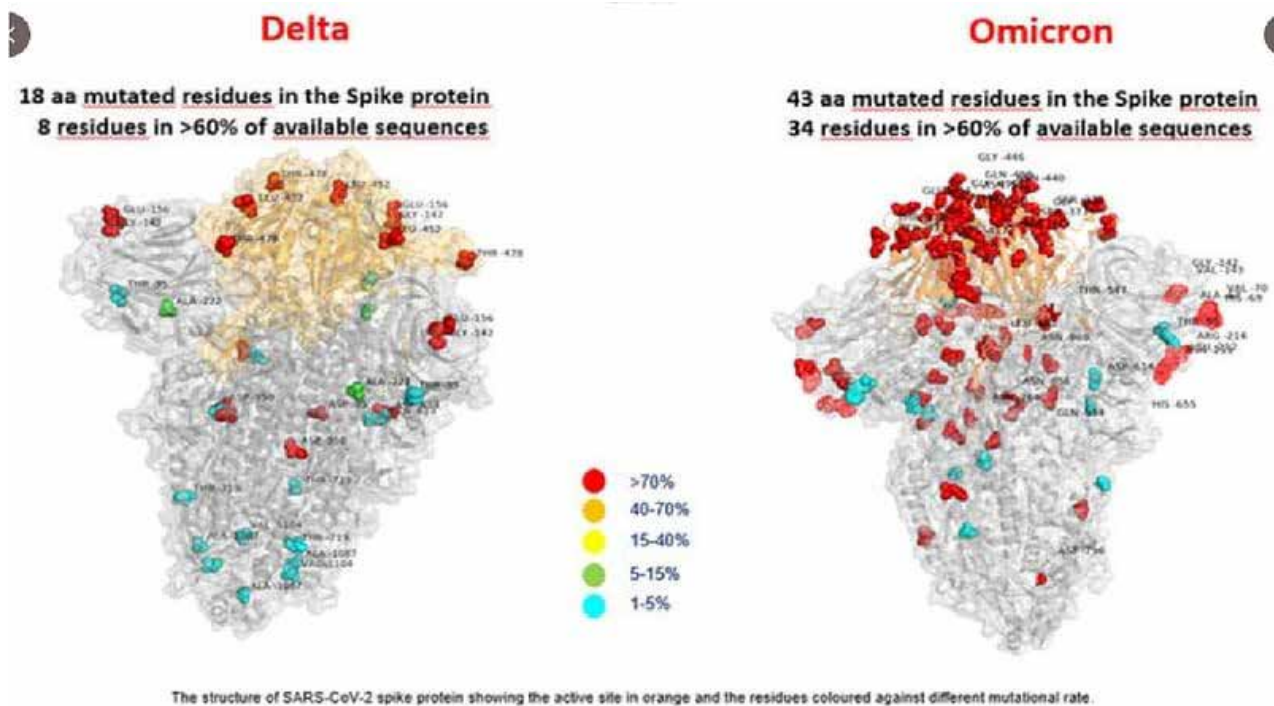


## ANNEXURE V

### New SARS CoV-2 Variant Omicron

On 26 November 2021, WHO designated the variant B.1.1.529 a variant of concern (VOC), on the basis of advice from WHO's Technical Advisory Group on Virus Evolution. The variant has been given the name Omicron.

Omicron is a highly divergent variant with a high number of mutations, including 26-32 in the spike, some of which are concerning and may be associated with immune escape potential and higher transmissibility. However, there are still considerable uncertainties.



### Risk Status

- Given mutations that may confer immune escape potential and possibly transmissibility advantage, the likelihood of potential further spread of Omicron at the global level is high.
- Depending on these characteristics, there could be future surges of COVID-19, which could have severe consequences, depending on a number of factors including where surges may takeplace.
- Hence ,the overall global risk related to the new VOC Omicron is assessed as very high.

## Priority actions needed

Ensure the follow up of Early warning systems

- Indicators of rapid growth
- growth rate
- effective reproduction number
- case incidence
- test positivity proportion

## Indicators related to disease severity and pressure on health care systems

- bed occupancy of general ward and intensive care unit

## When recording case data, particular attention should be paid to

- cases' vaccination status and date of vaccination
- history of previous SARS-CoV-2 infection
- symptoms/clinical presentation
- clinical severity/outcome
- The epidemiological studies and sequencing of specimens can be targeted to those with particular individual-level characteristics
- suspected reinfections,
- clinical characteristics like severity, Age etc
- immunocompromised patients
- suspected vaccine breakthrough
- Part of usual clusters and super-spreader events.

## Guidelines for Laboratories

- The variant of concern Omicron belongs to Pango lineage B.1.1.529, Nextstrain clade 21K, GISAID clade GR/484A, is characterized by 45-52 amino acid changes, including 26-32 the spike protein<sup>4</sup> compared to the reference strain.
- Most diagnostic tests continue to work and can detect the variant of concern Omicron.
- S gene dropout or S gene target failure (SGTF) due to deletion at Spike position 69-70, similar to the detection of the Alpha variant, has been reported.
- Confirmation of Omicron by sequencing is recommended.



## Instructions:

• RT-PCR kit to be used for the samples referred from the following suspected cases of COVID 19

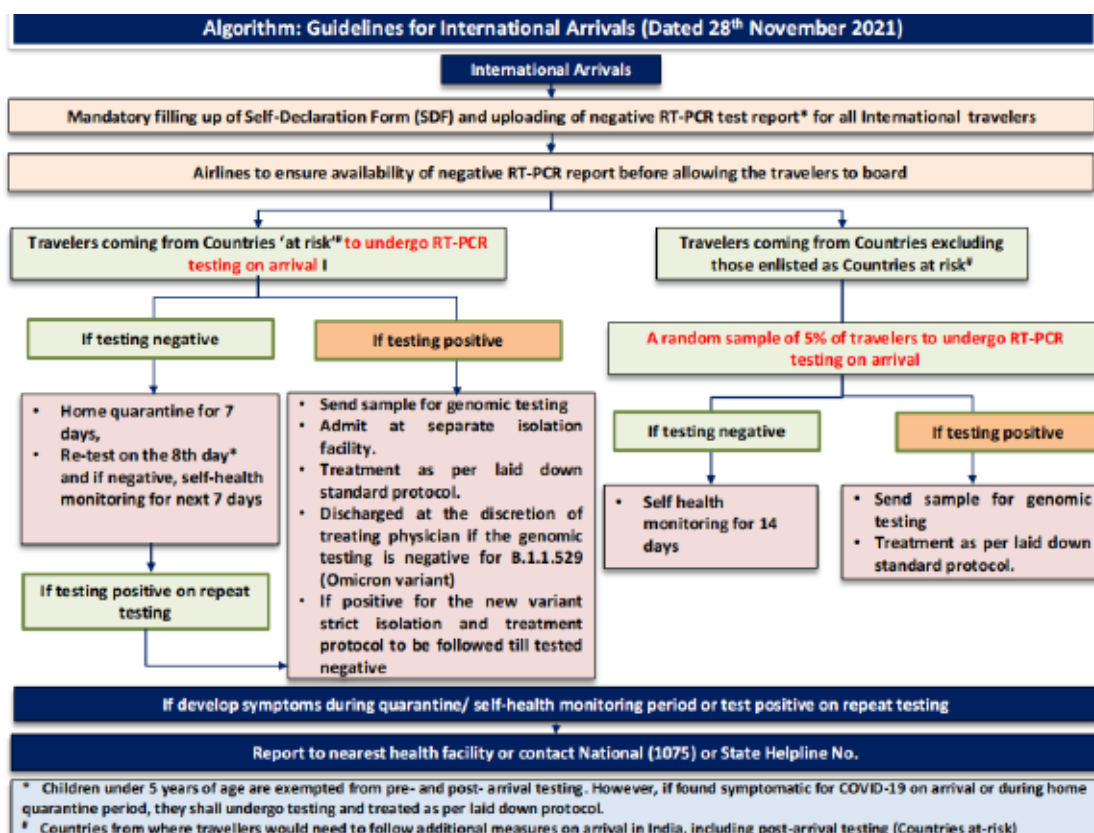
- Reinfection Cases
- Post Vaccination Infection/ Vaccine Breakthrough Infections
- Community Clusters
- Family Clusters
- Paediatric Cases
- Yong Adults with SARI/Severity of Illness
- COVID 19 Deaths without Comorbidities
- International Travellers

• Any sample with S gene dropout/ S gene Target Failure (SGTF) in the recent past (since 15th October 2021), should be immediately referred to State Public Health Laboratory for sequencing confirmation of Omicron Variant

• All foreign travelers tested Positive for COVID 19 should be subjected to genomic sequencing

• Universal masking and COVID appropriate behaviour to be strictly followed.

## Guidelines for International travellers



## ANNEXURE VII

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