



# THE RED BOOK

VERSION 2 (APRIL 2021)

POWERED BY

**APOLLO HOSPITALS GROUP**



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Out patient screening:  
**Fever clinic**

## Fever Clinic

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.

Fever could be due to multiple reasons and one of them could possibly be a viral infection like nCOVID19.

### 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- consult room

Fever clinic need to be set up in a place that is away from the main traffic of the hospital building/ areas preferably with a separate entrance. If you do not have such an area, then please DO NOT start fever clinic. This is to ensure that we are not mixing the patient flow address the paranoia of regular patients.

- 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

### Personal Protective Equipment (PPE)

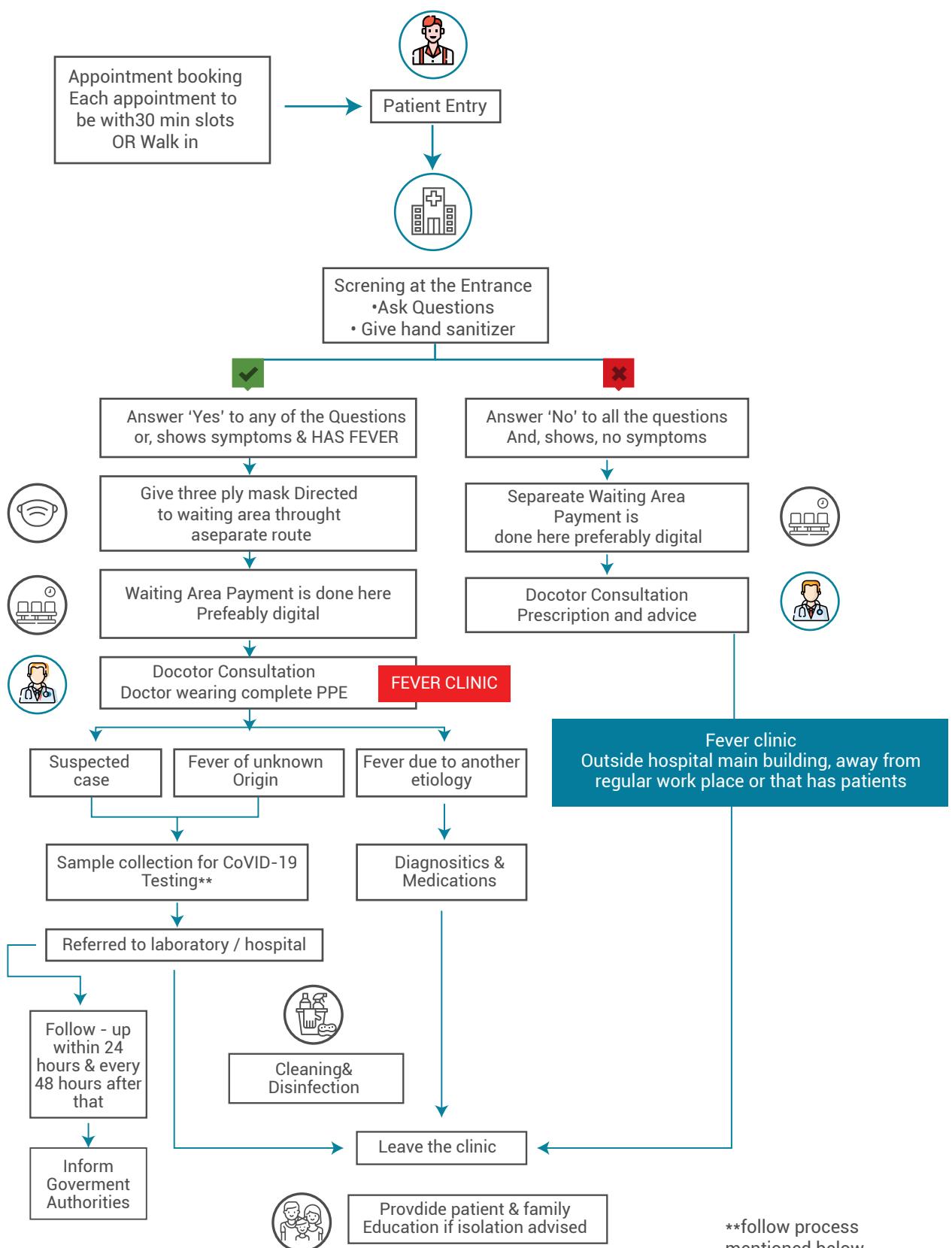
- Hand rub
- Medical Face masks- N95
- Gloves
- Caps, gowns, shoe covers

### Surface Disinfectants:

1% Sodium Hypochlorite



## Process Map



## Responsibilities: Front Office Executive (FOE)

- FOE to ensure that he/she is wearing mask and gloves through clinic operating hours
- FOE needs to initiate billing post receipt of payment only through digital mode
- Team to ensure patient documents are received via soft mode, printed and kept ready for collection by diagnostic team

## Responsibilities: Doctor

- The doctor will be a trained GP/AFP/Internal Medicine qualified doctor
- Doctor to ensure that he/she is wearing protective gear as per the Covid -19 protocols while inside consult/isolation room,
- Doctor to be inside the consult/isolation room through the session –Minimum from 9am to 1 pm
- Doctor to ensure hand sanitization protocols are followed by both – doctor & patient
- Doctor to dispose protective gear at the end of each examination session in the Fever Clinic room
- Hand sanitization protocols to be followed after discarding gear

## Responsibilities: Nurse

- Nurse to ensure to wear PPE kit inside the sterile room only
- Sample packing to be done as per defined protocols
- Nurse to be inside the sample collection room through the session – Minimum from 9am to 1 pm
- Hand sanitization protocols to be followed after discarding gear

## Responsibilities: House Keeping Staff

- Housekeeping staff to ensure that they use the sterile room to wear PPE kit and completes surface cleaning activity after each patient visit in consult/isolation room
- Housekeeping staff to enter sample collection room through staff entry way and disposes bio medical waste along with their own kit. They need to follow bio medical waste disposal protocols

## Clinical protocols for fever clinics

- a. The doctor will be a trained GP/AFP/Internal Medicine qualified doctor.
- b. The doctor will be wearing PPE for the encounter.
- c. 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:
- i. nCOVID 19
  - ii. Fever due to another etiology
  - iii. 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.



## 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°F - 100°F	100°F-102°F	102°F -104°F	> 104°F
3.	Breathing Difficulty	No (Breathless while climbing steps)	Mild (Breathless while walking on level ground)	Moderate (Breathless even while sitting)	Severe
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	Highb	High BP+ Diabetes Mellitus, chronic lung condition	Reduced Immunity
10.	Status 48hrs	Improved	No change	Worsened	Worsened a Lot
11.	Age	15 to 50 Yrs	5 to 15 Yrs	0 to 5 Yrs	> 50 Yrs
15.	Sense of smell tatste	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 constantly
Predominantly Amber	Caution	Exercise Extreme Caution	Stay at home Follow all Quarantine SOPs Notify medical authorities on telephone
Predominantly Red	Danger	Immediate Medical Attention Needed	Visit hospital immediately. May require COVID 19 testing. May require hospitalization

**Note:**

- If your ticks cover more than three Amber Boxes, interpret the case as being in 'Amber Zone'.
- If your ticks cover even a single Red Box, interpret the case as being in 'Red Zone'.

### Notes for physicians (excerpts from important publications)

Updated case definition need to be followed as per MOHFW, Govt of India which is available on the website [www.mohfw.gov.in](http://www.mohfw.gov.in)

Many of the most common symptoms of novel coronavirus disease (COVID-19) are similar to those of common flu or cold. So, it is also suggested knowing which common symptoms of flu or cold are not symptoms of COVID-19. COVID-19 infection seems to rarely cause a runny nose. Rhinorrhea ("runny nose") is not a symptom of COVID-19 and nasal congestion ("stuffy nose") is reported only by 4.8% of patients.

The most common COVID-19 symptoms are: fever (88%), dry-cough (68%), fatigue (38%), thick sputum production (34%), shortness of breath (19%), arthromyalgia (15%), sore throat (14%), headache (13.6%), chills (11%), nausea/vomiting (5%), nasal congestion (4.8%), diarrhoea (3.7%). Data from a series of 55,924 laboratory confirmed cases of COVID-19 in China in the period up to February 2020.

Beware of patients with gastrointestinal symptoms. Nausea / vomiting and / or diarrhoea can be present

in about 9% of cases. These symptoms have so far been one of the most frequent causes of omission or diagnostic delays.

Vital signs measurements (do not forget respiratory rate, please) and blood gas analysis in ambient air, if SpO<sub>2</sub> <94%, at triage or as soon as possible, are essential to correctly assess patients coming to the emergency room.

Do not rely only on PO<sub>2</sub> <60 for the diagnosis of respiratory failure, always calculate the P / F, especially in young subjects.

Define a "COVID-19 profile" for the rapid order entry of blood tests, including the following tests: blood count, C-RP, creatinine, blood glucose, albumin, AST ALT, bilirubin, pneumococcal and legionella urinary agents, PT-INR, troponin and procalcitonin.

Chest X-rays have limited sensitivity in early stages of COVID-19 pneumonia. CT scan is more sensitive, but raises logistical problems. If ultrasounds competencies are available, use chest US, but disinfect US probes after contact with every COVID-19 suspected patient.

Monolateral lung infiltrates do not exclude COVID-19. They have been described in 25% of cases. The most common reported laboratory abnormalities in

COVID-19 patients are: Lymphopenia (35-75%), increased C-RP (75-93%), LDH (27-92%), ESR (up to 85% of cases), hypoalbuminemia (50-98%) and anaemia (41-50%). Data from a systematic revision of literature.

The following negative prognostic factors have been reported: leukocytosis, neutrophilia, increased procalcitonin, LDH, AST, ALT, total bilirubin, creatinine, troponin, d-dimer, PT and hypoalbuminemia, lymphopenia. Even thrombocytopenia is associated with severe disease (15, 16). Severe lymphopenia and lymphocytes count fall during the first 4 days since hospital admissions have been associated with a higher mortality. Increased white blood cell count, neutrophil count and procalcitonin could reflect bacterial superinfection, while increased d-dimer and PT a diffuse intravascular coagulation (DIC), reported in up to 75% of patients who died.

History of smoking, respiratory failure, maximum body temperature on admission  $\geq 37.3^{\circ}\text{C}$ , albuminemia <4 mg/dl would be risk factors for disease progression (severe or critical disease/death). Results from a multivariate analysis on a small sample (OR ranging from 7 to 15).

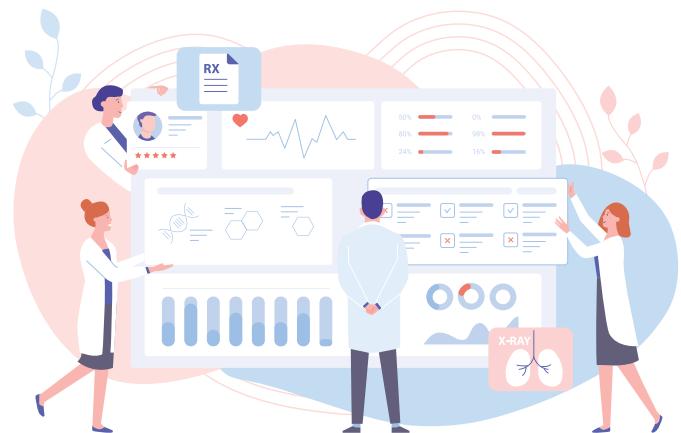
Do not forget other respiratory infections (legionella, pneumococcus, mycoplasma, chlamydia, other respiratory viruses) even if during epidemics, so look for other pathogens and consider antibiotics. During epidemics it is important to avoid availability bias that means diagnose all infections due to epidemic agents. WHO recommends investigating other pathogens, as co-infections have been reported.

Use disease severity stratification for the choice of the treatment setting (home, ordinary, sub-intensive or intensive care unit). WHO distinguishes 6 clinical syndromes associated with COVID-19: uncomplicated

Disease, mild pneumonia, severe pneumonia, ARDS, sepsis and septic shock. Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, headache, muscle pain or malaise. These patients do not have any signs of dehydration, sepsis or shortness of breath and can be treated at home.

Pay attention to elderly people and immunocompromised subjects as they can present vague and/or atypical symptoms. Immediately notify the Public Health Officials of COVID-19 positive patients (use infectious disease notification forms).

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:

- For all asymptomatic individuals who have undertaken international travel in the last 14 days
  - They should stay in home quarantine for 14 days,
  - They should be tested only if they become symptomatic (fever, cough, difficulty in breathing),
  - All family members living with a confirmed case should be home quarantined.
- All symptomatic contacts of laboratory confirmed cases.
- All symptomatic health care workers.
- All hospitalized patients with Severe Acute Respiratory Illness (fever and cough and / or shortness of breath).
- Asymptomatic direct and high-risk contacts of a confirmed case should be tested once between day 5 and day 14 of coming in his/her contact.



Definition of a  
**Contact**

## Updated 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.



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

\* 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 for2019-nCoV"

### Laboratory Specifications

<https://www.cdc.gov/coronavirus/2019-ncov/lab/lab-biosafety-guidelines.html>  
<https://www.cdc.gov/coronavirus/2019-ncov/lab/bio-safety-faqs.html>  
<https://www.who.int/csr/resources/publications/bio-safety/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.

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*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 for2019-nCoV"*

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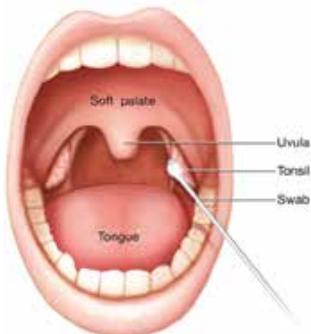
## Procedure:

### 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



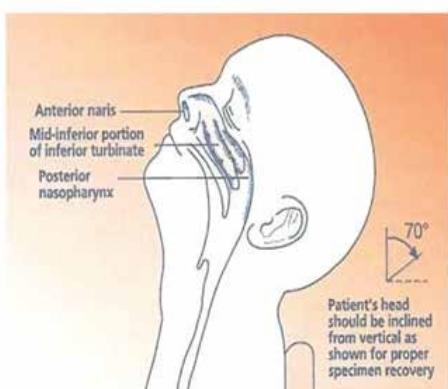
### Procedure for Nasopharyngeal swab:

#### 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 2-8°C

**Storage till testing:** Nasopharyngeal and oropharyngeal swab (Dacron or Polyester flocked swabs) at 2-8°C 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

*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.***

## 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 the specimen. 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/ 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)</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>

### With screw caps

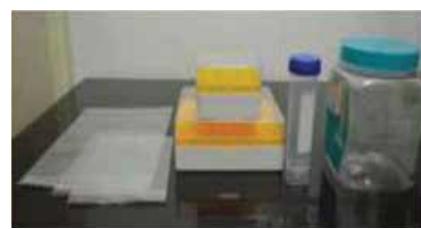
#### Requirements for Clinical samples collection, Packaging and Transport



1. Sample vials and virus Transport Medium (VTM)



2. Adsorbent material (Cotton, tissue Paper), Paraffin, seizer, cello tape



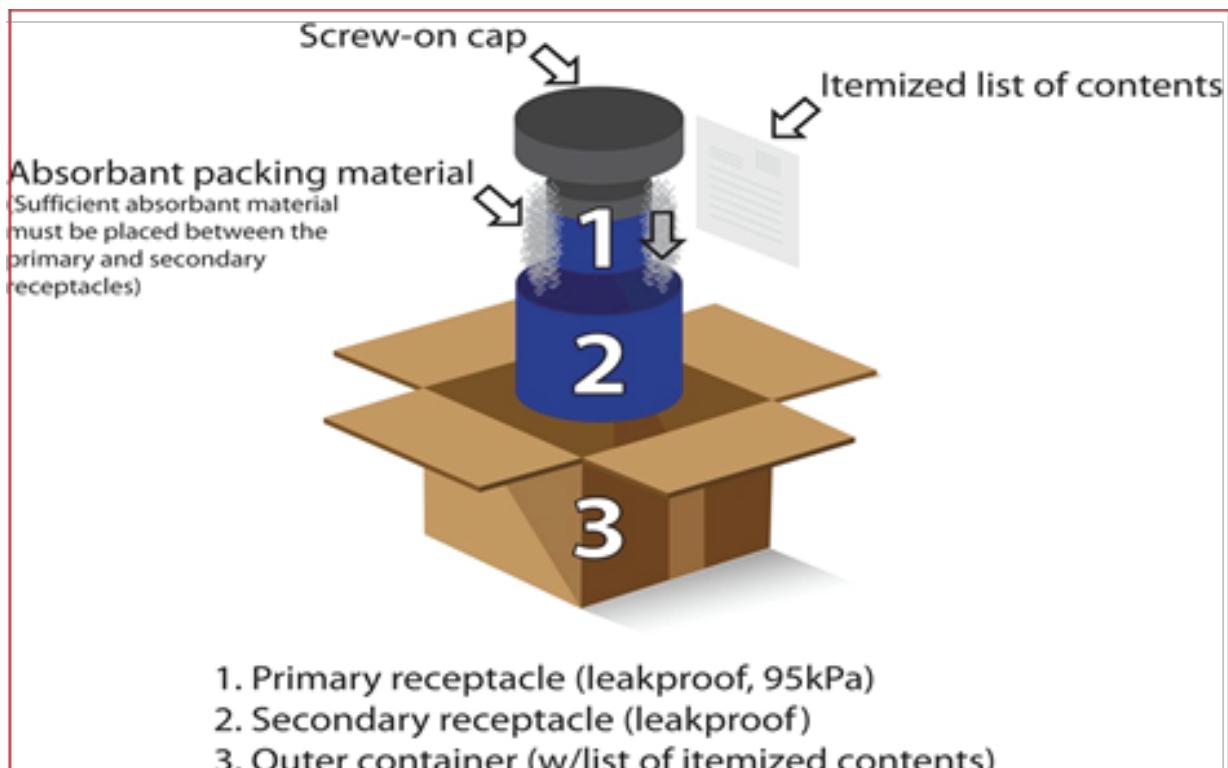
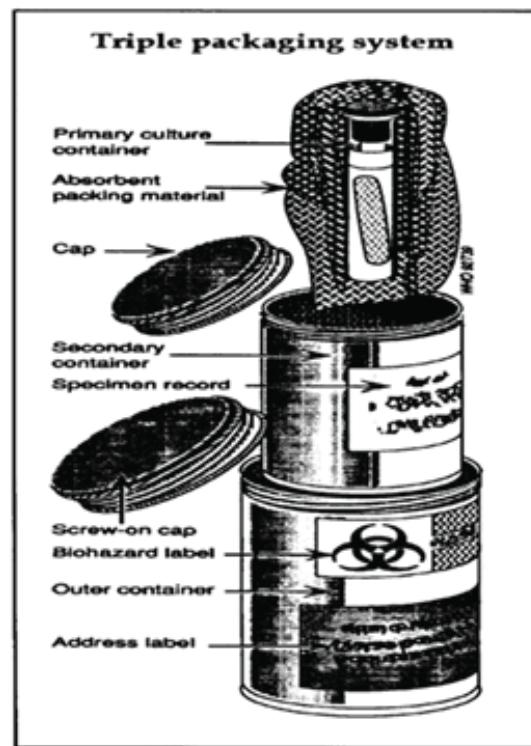
3. A leak - proof secondary container (e.g. ziplock pouch, cryobox, 50ml. centrifuge tube, plastic container)



4. Hand - frozen Gel Packs



5. A suitable outer container (e.g., themocol box, ice - box, hand =board box)  
(Minimum dimentions: 10 x 10 x 10cm)



## Procedure for specimen packaging and transport



1. Use PPE While handling Specimen
2. Seal the neck of the sample vials using parafilm
3. Cover the sample vials using absorbent material
4. Arrange primary container (vial) in secondary container



5. Placing the centrifuge tube inside a zip-lock pouch
6. Placing the zip - lock pouch inside a study plastic container and seal the neck of the container
7. Using a thermocol box as an outer container and placing the secondary container within it, surrounded by hard frozen gel packs
8. Using a hard card - board bo as an outer container and placcing the secondary container and the gel packs



9. Placing the completed specimen Referral form (available on [www.niv.co.in](http://www.niv.co.in)) and request letter inside a leak proof, zip - lock pouch
10. Securing the zip-lock pouch with the specimen Referral from on the outer container
11. Attaching the lables  
Senders address, contact numer, consignee's Biological sustance catergory B UN3373 Orientaiion lable Handle with care

**Note :** Sample vials can also be palce inside a zip-lock pouch, covered in absorbent material and secured by heat sealing or rubber bands, Then the zip-lock pouch should be placed inside another plastic pouch and secured.

## 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
- Notify the receiver in advance of transportation arrangements and expected date of delivery of shipment





Non-clinical  
**Management protocols**

# Non Clinical Management Protocols

## Elective Procedure For Patients – Admission

### Please note:

ALL ADMISSIONS HAVE TO HAPPEN AT BED SIDE.  
 For all elective admissions, patient directly comes to the hospital, is received by the point of contact and taken to the room (to avoid multiple touch points).  
 Billing also inside the patient room only.

## Policy For Radiology Department For Suspected And Confirmed Covid Cases

### CT Scan

Avoid CT scan in view of pandemic. Infection control in the CT suite is also critically important because high rate of presumed hospital-related transmission of COVID-19 (41.3%) was reported.

In exceptional cases, the following should be practised:

- Pathway for patient transfer
- The corridor should be cleared of patient traffic
- Surgical mask must be provided to 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.

### 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

- Portable 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.

## Policy on surgery for suspected or confirmed covid patients

### Setting Up of Operating Theatre

Identify Operation Theatre with separate AHU for suspected;/ confirmed cases (when it couldn't be avoided considering risk to life)



### **Please Note:**

Switch off the positive pressure pre (30 minutes before surgery), intra i.e. throughout the surgery and as long as patient is in OT. Switch on positive pressure after thorough cleaning/ disinfection of respective OT, after 30 minutes.

### **Patient flow into the Operating Theatre (OT)**

- Patient should be given a surgical mask and brought to OT through the pre identified route.
- Minimise exposure to staff and other patient's enroute.

### **Staffing**

Staff in the operating room should be kept to a minimum, but should ideally consist of at least:

- Experienced anesthetist wearing full PPE for intubation (as recommended for COVID Patients).
- Surgical, Nursing and Support staff- as per requirement.

### **Protocols for Anaesthetists**

- Regional anesthesia is preferred over general anesthesia, wherever feasible. However, any patient with active cough, general anesthesia is preferred.
- Intubation should be done using Rapid Sequence Intubation.
- It is preferable to use Video laryngoscope for intubation.
- All breathing circuits must be fitted with an appropriate, high efficiency hydrophobic HME filter.
- Place an extra filter on the expiratory limb of the breathing circuit at the machine end. This will protect the anesthetic machine should the circuit accidentally be attached directly to the airway without an HME filter, either during pre-oxygenation or after intubation.
- Suctioning to be minimized and closed suction circuit to be used.
- After surgery, the anesthetic breathing circuit, the canister of soda lime are discarded.

### **General Instructions**

- No unnecessary items should be brought into the operating theatre, this includes personal items such as cell phones and pens.
- Disposable caps and shoe covers should be worn and discarded after each case. Disposable pens should be provided in the room.
- All equipment or instruments should be dedicated i.e. to be used only in the dedicated OT.
- Doffing and Donning sequence of PPE to be followed. Doffing should be done in the dedicated OT room just prior to the exit door.
- Only the materials necessary for the case should be within the room and all disposables should be discarded at the end of the case.
- Have a large yellow bin for contaminated waste and separate bin (not yellow) to place soiled reusable equipment temporarily until cleaned
- Smoke evacuation for energy sources (Do not use Diathermy)

### **Transport**

Transfer the patient with utmost precautions. Healthcare workers should wear the appropriate PPE while transferring the patient.

### **Cleaning Protocol**

- OT housekeeping should wear entire PPE.
- All disposable waste generated should be collected and put in yellow bin.
- Linen is sprayed with 1% hypochlorite and put in separate double yellow covers.
- Spray 1% hypochlorite on all surfaces. Leave it for 30 minutes.
- Mop the room with 1% hypochlorite.
- Spray Bacillocid and leave for 1 hour.
- Send disposable waste to BMW in separate.
- Send soiled linen to laundry.
- Ambulance shall also be disinfected as per the protocols when involved in the process.



# Operational protocol for covid-19 cases and assorted recommendations for resumption of elective surgeries during covid era

## Aim:

- Concern for the safety of Healthcare personnel
- Concern for safety of non-infected patients
- Access to tests for corona virus , and Variability of test performance
- Protocols to do emergency and semi emergent cases.
- Protocols for Anesthesia Clinics and SOP
- Need for PPE and calculation of PPE burn rate. Need to create trail of PPE for confirmed and suspect cases
- Complex infection control principles during and after elective procedures

## Background and Uncertainties:

- Corona virus transmission from person to person is beyond doubt through droplet transmission i.e. transmission through droplets which traverse up to 3 feet in air, but probability of an extended droplet transmission i.e. up to 6 feet has been suspected and has not been conclusively ruled out.
- Any procedure needing proximity to the patient and needs prolonged significant contact (defined as contact within 3 feet proximity for 15 minutes or more) increases the risk of infection.
- Laparoscopic surgery possibly increases the risk of aerosolization
- Guidelines from across the world had uniformly recommended cessation of laparoscopic surgeries across all specialties in view of risk of aerosolization of the virus which had been isolated from the intestinal lining and secretions: but CDC and SAGES (society of American gastrointestinal & endoscopic surgeons), though recommend against laparoscopic surgeries, have updated their recommendations and advice a thorough assessment of the facility, OT and engineering controls before deciding on the need for such surgeries and if well designed program is available, to run such program with constant and thorough evaluation and re-evaluation
- Documented viremia also has added to the presumptive theories that virus from the blood vessels might get aerosolized during laparoscopic surgeries: anecdotal experiences and experimentations with various types of CO<sub>2</sub> absorbing filters claiming minimizing risk of aerosolization are yet to be certified and validated by a reliable authority

- Once aerosolized (by virtue of intubation, laparoscopy or any suction), any organism: mycobacterial or viral can not only persist in the atmosphere and traverse a distance of 6 feet or more, but also recirculate in a closed environment like the operating room for an unspecified period.
- The need for general anesthesia (an aerosol generating procedure) increases the risk of prolonged exposure to the airborne virus, if the patient is infected.

It is safe to presume that any individual entering the health care is infected unless and until proven otherwise and it's essential to take all precautions to avoid any sort of breach in infection prevention and infection control and keep the staff safe

In this regard following are the summarized aspects of infection control essential to prevent acquisition of infection and ensure a smooth, uninterrupted surgical pathway flow:

1. Robust and active screening system at OPD & ER levels
2. Segregation of COVID SUSPECT & CONFIRMED cases from NON-COVID cases by identifying designated wards and ICU for management
3. Protocol driven OT program ensuring selection of right cases for surgery, effective application of infection control strategies and efficient OT disinfection protocols
4. Aggressive, effective, safety oriented and result driven PPE training program for all staff
5. Vigilant and bias-free monitoring of the PPE training & utilization and immediate correction of errors
6. Continuous and dynamic calculation of PPE BURN RATE to ensure avoidance of PPE overuse and misuse

## In simple terms, every possible effort will be made to:

- Prevent mixing of infected and non-infected patients
- Educate and train the entire OT team for effective PPE use
- Ensure constant PPE availability and ensure PPE is effectively used by staff for a COVID SUSPECT or CONFIRMED case till discharge

## SCREENING 1:

- Ensure all patients needing and willing for elective procedures pass through the LEVEL 2 screening system or the ER screening system
- Follow the **COVID RISK pre-test probability score** mentioned below

PARAMETERS	SCORE
Fever	2
Fever in the last 15 days	1
Cough	1
Breathlessness	1
Close contact with COVID 19 in past 16-30 days*	1
Close contact with COVID 19 within in past 15 days	2
Resident of a containment zone/ Hot spot**	2
Radiological evidence of bilateral particularly basal ground glassing or opacities ***	2
Radiological evidence of well-defined consolidation	-1
Hypoxia (SPO2: <94%)	2
Any one symptom with neutrophil-lymphocyte ratio >3.13 or significant lymphopenia (L <15)	1
Raised corona specific IgM (currently unavailable)	2
Raised corona specific IgG (currently unavailable)	-5
Clear alternate/ other diagnosis established beyond doubt ****	-5

{Note: Apart from CXR and CBC not all tests listed here are mandatory and can be considered in the screening tool, if available}

A score of 4 or more should be considered as high risk for COVID and PPE trail should be initiated + DEFER ELECTIVES

[Note: The above score is not validated as of yet and is only a screening tool for COVID]

\*Close contact is any family member staying under the same roof or any person who was in a proximity of 3 feet or less with the current patient for a duration of at least 15 minutes

\*\*Follow updated information from government every day. Ideal to have a printout daily and post it at triage area

\*\*\*Reporting of the CXR or the CT chest to be done by radiologist on call. Radiology team to decide on compatible features

\*\*\*\*Insist on meticulous use of ECG/ TROP/ NT pro BNP + ECHO in all cases with a strong background history of any cardiac illness or those presenting with dyspnea as presentation, but without fever.

If an alternate diagnosis like UTI/ cellulitis or abscess/ intra-abdominal infection or bleed as cause of fever is clearly established, fast track the admission process

## Screening 2 - pre-procedure covid checklist prior to surgery / procedure

### 1. Elective surgery (including LSCS):

- a. Fill COVID check list
- b. If COVID check list is positive, defer surgery for 2 weeks and refer to physician/ fever clinic
- c. If COVID check list is negative, operate

- d. CT chest is optional (as per discretion of the physician/ ID), to be avoided in children and pregnancy
- e. DMS office to be intimated 24hrs prior to procedure for final approval

## 2. Emergency /urgent surgery (including LSCS):

- a. Fill COVID check list
- b. Proceed with surgery without waiting, with full COVID precautions in OT
- c. If symptom checklist is positive, shift to COVID ward/ isolation room post op, and involve physician on call or ID physician.
- e. If symptom checklist is negative, shift to single room post op and follow droplet and contact precautions

Note: If patient needs to be shifted to recovery room/ surgical HDU, maintain 6 feet distance between each bed and follow droplet and contact precautions.

### Selection of cases:

A core committee consisting of surgeons (designated from each department), anesthesiologists and administration should be constituted to decide on the eligibility of cases to be taken up for surgery and to ensure prevention of overload of the system with elective cases, leading to collapse of the screening system (and possibility of an infected case scraping through)

- If and only if the above score is <2, no fever with no CXR changes it is considered as very low risk for COVID and proceed with surgery with no additional PPE or alternate PPE (guidelines provided elsewhere): ensure these are the patients requiring a short duration hospital stay of <3 days to further ensure reduced risk of infectivity
- If score is 3 (but not 4 or above), then strongly consider open surgery and/ or use of PPE in operating room with alternate PPE in recovery room and wards (N95 masks/ Gloves/ disposable gowns chargeable to the patient) till patient is discharged
- Do have a declaration form signed by the patient opting for any elective procedure, stating the risk of possible exposure to any COVID case (in spite of aggressive screening), the need for PPE, the additional cost of PPE being billed to the patient and need for staff to wear PPE throughout the patient's hospital stay
- If any COVID confirmed case is to be taken up for an emergency surgery, a policy document will then be provided to the surgeons: ideal to inform ER, ICU & ID teams along with office of DMS, of such case to initiate the COVID case management pathway.
- COVID positive case shall be taken up for surgery only if the surgery entails saving life or limb and in that instance it shall be treated as an emergency case and all necessary precautions taken.

### Anesthesia protocol for covid-19, suspected & asymptomatic patients.

Anaesthesiologist interaction with patients with COVID 19 can occur in Accident and Emergency Department/Trauma Centre for emergency airway management; Critical Care/Intensive Care Units; Pre Anaesthetic Check Up (PAC) Clinics and Pain Clinics; Perioperative Anaesthesia Care; and Anaesthesia at remote locations: endoscopy, ECT, Radiology (MRI) etc., The anaesthesiologists have to take care of the patients as well as themselves.

**Aerosol Generating Procedures (AGP)** – During AGP not only the anesthesia care providers but all surgical team members should don full contact, droplet and airborne PPE, for the full duration of the case.

- Laryngoscopy, intubation and extubation
- Upper GI endoscopy
- ERCP
- Oral maxillo facial procedures
- Laparoscopy
- Craniotomy

**Procedures under regional anesthesia and Monitored anesthesia care (MAC)** – During procedures under regional anesthesia, standard PPE may be worn that includes an N95 mask, gloves, a cap, and goggles / face shield. However, the anesthesia provider(s) should consider donning full PPE if conversion to general anaesthesia is likely.

### Pre Anaesthetic Check Up (PAC) Clinics

There is no role for PAC clinic as elective cases are not done during the pandemic state. So guidelines given in this regard is based on the literature available. Hence these Guidelines may be used as recommendations:





- During this pandemic every patient scheduled for surgery should be considered as COVID 19 positive and anesthesiologists should be aware of this.
- All patients will be screened by the physician prior to coming to PAC. A detailed PAC & examination to be done with specific questions related to the underlying disease. The practice of eliciting history is necessary as part of our evaluation even though physician may have already cleared the patient for Surgery.
- Ensure you have protective equipment (N95 Mask, Gloves, Face shield) before evaluation of airway and physical examination of suspect/ asymptomatic patients. Maintain at least 3 feet distance from the patient. Limit the complete examination process to less than 15 minutes.

### **Preoperative assessment:**

**History and Examination:** As per the routine pre anaesthetic evaluation protocol, you may also include Covid probability score or Covid Checklist pre op evaluation and assessment.

### **Physical examination and investigation:**

Apart from routine examination, look for:

- a) Crepitations and wheezing on auscultation
  - b) Look for leukopenia, lymphocytosis and lymphopenia from complete blood count
  - c) Look for consolidations on chest x-ray
  - d) If CT-thorax available, look for presence of multi-lobar ground glass appearance
- All of the above work up would have been done by the clinician in the screening block before giving

clearance, still, as part of our work up and planning, to go through the above and document it.

Wash your hands with alcohol-based sanitizer or soap and water following the consultation.

One attendant per patient only shall be allowed and with mask on.

Airway assessment is an important part of the evaluation. It is necessary to predict any difficult intubation. It is accepted that MACOCHA (Malampatti, obstructive sleep apnoea, c-spine movement, mouth opening, coma, hypoxaemia.) of airway assessment is performed. This is just a guide. Other parameters of difficult airway predictors to be part of the examination wherever necessary.

Peri Operative Anaesthesia Care:

### **All suspected covid 19 patients to be wearing n 95 mask.**

- Dedicated Operation Theatres (which will be identified in due course as the requirement arises) be used for all suspected COVID 19 patients. Till such time, such cases can be scheduled as the last case of the day.
- COVID 19 suspect patients should be wheeled directly in to the operation theatre without waiting in the OT holding area.
- Laminar flow and the functional high efficiency filters are available and adequate air exchange is maintained to reduce contamination as per guidelines.
- All monitors and equipments should be covered with transparent drapes to prevent equipment contamination. At the end of the procedure, this may be discarded.
- Dedicated Pre op & Post op ward / ICU are identified for COVID suspects and patients shall be shifted there.
- Separate rooms/areas within the OT complex to be designated for donning & doffing of PPE.

### **Intra Operative:**

- Standard routine anaesthesia monitoring to be instituted.
- Prefer regional anaesthesia, where ever possible. A surgical mask or N95 mask must be applied to the patient throughout the length of stay in the operating room. In case supplementary oxygen is needed, the oxygen mask with Viral filter is applied over the surgical mask or N95 mask.

- Staff inside the OT shall be limited to a minimum and excessive movement into and out of OT is strictly prohibited.
- SIGN IN is done followed by induction.

## For General anaesthesia

### Planning:

- All equipments and drugs required for the anaesthetic management to be placed in a tray.
- Use 2 high quality Heat and Moisture Exchange Filters (HMEFs)--First, between tracheal tube and breathing circuit; and the second between expiratory limb and anaesthesia machine.
- Ensure Scavenging system is Operational.

### Conduct of Anaesthesia:

- Pre oxygenate for five minutes with 100% oxygen. Attach Viral /HME filter at the patient end of the mask.
- DO NOT DO BAG MASK VENTILATION UNLESS REALLY REQUIRED. If manual ventilation is required, apply small tidal volumes.
- The choice of induction drugs is dictated by haemodynamic considerations.
- Rapid sequence induction and tracheal intubation to be done in the first attempt. Immediately inflate the tracheal tube cuff before connecting the ventilator circuit and then start ventilation.
- The Laryngoscope blade can be re sheathed with the glove turned over with a plastic sheet after use. (Optional). IT IS IDEAL TO USE VIDEO LARYNGOSCOPE TO AVOID / REDUCE AEROSAL CONTAMINATION OF THE INTUBATOR.
- Avoid FIBROOPTIC INTUBATION IN COVID POSITIVE PATIENTS.
- If warranted, use technique which minimise aerosolization.
- If patient is being transferred from ICU, consider intubation in the ICU with full PPE precautions.
- Supraglottic airway devices should be used only in 'cannot ventilate' situations. This will avoid manual mask ventilation and provide rescue oxygenation.
- Atleast 20 mins should elapse after intubation before anyone is allowed into the theatre.

### Avoid the following to prevent Aerosolization

- i. High flow Oxygen
- ii. Patient coughing– hence necessary to give adequate dose and time to achieve complete paralysis.
- iii. Manual Ventilation

### Extubation & Postoperative period

- Tracheal extubation should be done on table, as far as possible. Following surgery except anaesthesiologist and assistant, all the other personnel shall leave the OT. Anaesthesiologist will be in full PPE as during intubation for protection of contamination. After tracheal extubation, keep the patient in the OR for at least 20 mins before transferring out to the designated ward. No one will enter the OT upto 20 minutes post extubation. If the patient is kept intubated, a single patient use Ambu bag with HME filter attached must be used during transfer to the intensive care unit/ ward. Ensure the ICU/ward is prepared to receive the patient and the patient transfer shall be through a green corridor if required.
- During transfer, the team should wear proper PPE outside the operating room. The patient should be covered with one disposable operating sheet and then transferred through a dedicated lobby and elevator. The patient must wear a surgical mask or N95 mask during transfer.
- Surface cleaning of all the passageways and the elevator should be done.
- Breathing circuit, mask, tracheal tube, HME filters, soda lime to be discarded after every patient use. Water trap to be changed if it becomes potentially contaminated.
- All used items on the drug trolley& airway equipment to be sealed in a double zip locked plastic bag & must then be removed for decontamination and disinfection.
- Do not touch your hair/face after removing PPE before washing your hands.
- A minimum of 1 to 1.5 hour is planned between cases to allow OT staff to send the patient back to the ward, conduct thorough decontamination of all surfaces, screens, keyboard, cables, monitors and anaesthesia machine with VIKRON.
- All personnel caring for /handling/ transferring the patient should wear N 95 Mask, Face Shield & a Gown while with the patient.
- House Keeping and nursing personnel handling the contaminated material should wear full PPE during the cleaning process.
- Recovery room nurses should wear PPE during their shift.



## Procedures under regional anaesthesia and monitored anaesthesia care (MAC)

- It is recommended to adopt regional anaesthesia for surgical procedures where possible during this pandemic. During procedures under regional anaesthesia, PPE should be worn that includes an N95 mask, gloves, cap, and, goggles / face shield. However the anesthesia provider(s) should don full PPE (additional hood) if conversion to general anaesthesia becomes necessary.
- During monitored anaesthesia care (MAC), anaesthesiologist should be with N95mask, and gown all the time. If intervention is necessary, depending on the nature of intervention, one should use of goggles or face shield. Use of coverall hood is mandatory, if definitive airway is to be managed.
- In case supplementary oxygen is provided, the oxygen mask with viral filter is applied over the surgical mask or N95 mask with flow rate of < 5-6 LPM.

## Conversion of MAC to general anaesthesia

- Anaesthesia provider should don full PPE.
- There are no recommendations for use of LMA in these situations. However, as coughing can increase the risk of aerosolisation, insertion of LMA should be done under deep sedation or neuromuscular blockade.<sup>12</sup>
- It is preferred to do rapid sequence intubation. Supraglottic airway devices is reserved for emergency management of airway during CICO situation to prevent hypoxemia.

## Regional anaesthesia

- Similar to the protocol of shifting the patient to the OT planned for general anaesthesia, patients planned for regional block should be shifted to OT and block performed in the OT.
- Senior anaesthesiologist should perform the block with PPE. Only necessary equipments and minimum personnel should be present in the OT.
- The ultrasound machine should be covered with the transparent plastic sheet to prevent equipment contamination. Only the specific probe should be made available and the other frequency probe should be removed. The probe should be covered with the sterile plastic sheet and following the procedure should be disposed taking care not to contaminate the surrounding area.
- Oxygen supplementation if required should be administered at low flow rates over the face mask with viral filter. If sedation administered EtCO<sub>2</sub> monitoring to be done by attaching the tubing on to the viral filter.
- To avoid emergency conversion to GA due to failed block, one should test for the efficacy of the block. Anaesthesiologist should don PPE as required for intubation.

- Anaesthesiologist should be prepared for airway intervention if needed. Emergency airway management should be done with PPE.
- The plastic sheets covering the ultrasound machine should be removed and discarded in clearly labelled biohazard bins.
- The ultrasound machine should be wiped with disinfectant wipes before using on the next patient.

## Care of Obstetric Patients

- The recommendations from obstetric anaesthesia association and Royal College of anaesthetists advocate same precautions to be taken as is done for the general surgery procedures.
- There is no contraindication for regional anaesthesia – both epidural or subarachnoid block. A precaution to be followed in covid positive patients is to check for platelet count. It is reported that one-third of the patients had thrombocytopenia of <50,000.
- If general anaesthesia is necessary, then same precautions outlined above for general surgery to be followed. Full PPE to be worn.



## Summary guidance from PHE/RCoA/AAGBI/RCOG relevant to obstetric anaesthetists

<b>Antenatal /postnatal ward /clinic</b>	Consultation/assessment >2 m distance from patient	FRSM, eye protection
<b>Labour ward</b>	Consultation/assessment if not in labour/1 <sup>st</sup> stage labour e.g. consent for epidural analgesia	Apron, gloves, FRSM, eye protection
	Consultation/assessment in 2 <sup>nd</sup> /3 <sup>rd</sup> stage labour e.g. attending PPH	Apron, FRDG, gloves, FRSM, eye protection
	Epidural insertion	Apron, sterile FRDG, sterile gloves, FRSM, eye protection
<b>Theatre</b>	Caesarean section with neuraxial anaesthesia <sup>1</sup> (low risk of GA, e.g. elective CS for breech)	Apron, sterile <sup>2</sup> FRDG, sterile gloves, FRSM, eye protection
	Caesarean section with neuraxial anaesthesia (but higher risk of GA <sup>3</sup> e.g. Category 1 CS)	Apron, sterile FRDG, sterile gloves, <b>FRSM or FFP3</b> , eye protection
	Caesarean section with general anaesthesia	Apron, FRDG, gloves, FFP3, eye protection
<b>Non-CS obstetric theatre cases</b>	Trial of instrumental delivery in theatre, removal of retained placenta (with regional anaesthesia)	Apron, sterile FRDG, sterile gloves, FRSM, eye protection
	<b>Any other case requiring general anaesthesia</b>	Apron, FRDG, gloves, FFP3, eye protection

FRSM – Fluid resistant surgical mask, FRDG – fluid resistant disposable gown, AGP – Aerosol generating procedure, FFP mask – Filtering face piece respirator.

## Operating Room Suggestions:

### General:

AVOID Aerosol generating procedures:

1. High flow nasal masks
2. Nebulizations
3. Awake fibreoptic intubations
4. Nasogastric tube placements
5. Non-invasive ventilation
6. Bag masking
7. Open suctioning

Caution when using ultrasonic devices as the potential for aerosol generation may be higher. Employ electrosurgical and ultrasonic devices in a manner that minimizes surgical smoke production with low power settings and avoidance of prolonged activation

### Specific:

- Minimize the number of personnel required during surgery:
- The operating room personnel including Surgeons and Anesthetists should not be stepping out of OT during the surgery. And especially if already donned with PPE.
- Senior Anesthesiologist only shall intubate the patient; no students or registrars are allowed unless assisting surgery.
- OT should be stocked with all the equipment, instruments, drugs, sutures etc before starting the Regional anaesthesia to be preferred over GA
- Only the anaesthesiologist, senior technician

should be inside the OT at that time of intubation and extubation. Also the Anaesthetist who starts the case shall ensure completion of the case.

- The surgical team is advised to enter the OT only after 20 minutes of intubation. The surgical team should exit the OT before extubation
- Ensure doffing of the PPEs in designated areas only, under observer's supervision: ensure a good shower in the designated area post doffing, before changeover to scrub or own clothes and move out of the OT complex
- Patient to be observed in OT for at least 15-20 minutes to minimize risk of cough and aerosolization outside the OT
- As soon as patient is shifted out of the OT, the doors have to be tightly closed and OT is left unused for 30 minutes with AC and air exchange on, before surface cleaning is initiated.
- Equipments are cleaned as per existent OT infection control policy, using BACILLOL or VIRKON
- Housekeeping in charge of surface cleaning should have disposable gown, rubber gloves or disposable gloves and N95 mask: wet mopping with VIRKON
- At least 15-20 minutes interval after the cleaning, should be ensured before next case is wheeled in: 1 to 1.5 hrs time gap to be ensured between successive cases
- Avoid or Ensure minimum stay of the patient in recovery room or ensure a faster shift out to the ward
- Ensure adequate PPE at all times.

### OT Ambience:

- Temperature control and regulation will be ensured inside the OTs to make sure a comfortable working environment with the PPE.
- All Operation theatres are enabled with adequate air exchanges and HEPA filters.

## Revised guidelines for dialysis of covid – 19 patients

Government of India  
Ministry of Health & Family Welfare  
Updated on 07.04.2020

### General Guidance for Dialysis Unit

1. Adequate medical supplies such as dialysate, dialyzers and tubing, catheters, fistula needles, disinfectant and medicines etc. must be ensured in adequate quantity
2. A sign board should be posted prominently in the local understandable language as well as Hindi and English asking patients to report any fever, coughing or breathing problem in dialysis unit and waiting area. The information including images for education can be obtained on the International Society of Nephrology website <https://www.theisn.org/covid-19>
3. All hemodialysis units should educate their personnel in hemodialysis units; including nephrologists, nurses, technicians, other staff and all patients undergoing MHD along with their care givers about COVID 19
4. All universal precautions must be strictly followed.
5. All staff should strictly follow hand hygiene (seven steps) with soap and water for 20 second before handling any patient and in between two patients. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. If hands are visibly soiled or dirty, they should be first washed with soap and water and then an alcoholic hand rub used. Avoid touching your eyes, nose, and mouth with unwashed hands.
6. Medical and support staff treating infected patients should be monitored for COVID infection at the dialysis facility and should take necessary action if found infected.
7. Dialysis units should organize healthcare workers shift duties in a way that work of dialysis unit is not affected.
8. All hemodialysis units should be aware of the testing, triage and notification policy recommended by the Union Ministry of health and Family welfare and those by State/ UT Health Departments as well as District health authorities.

9. The dialysis unit staff should be trained for donning and doffing of Personal Protective Equipment (PPE) to be used for dialysis of COVID-19 positive patients.
10. All staff should be trained for cough etiquette, hand hygiene and proper use and disposal of mask, gown and eye glasses and the need to protect themselves.
11. All patients on dialysis, suspected of COVID – 19 should be tested with RT – PCR test as per Government of India protocol.
12. Patients with suspected or positive COVID-19 should be referred to COVID-19 care team as per local guidelines.

## Guidelines for hemodialysis

### I. For Patients

#### a. Before Arrival to Dialysis Unit

1. All units should instruct their patients to recognize early symptoms of COVID-19 (recent onset fever, Sore throat, Cough, recent Shortness of breath/dyspnea, without major interdialytic weight gain, rhinorrhea, myalgia/bodyache, fatigue and Diarrhea)and contact dialysis staff before coming to dialysis center. The unit needs to make necessary arrangement for their arrival in the screening area.
2. Patients, who are stable on MHD may be encouraged to come to the unit alone without any attendant

#### b. Screening Area

1. We recommend that dialysis unit should have a designated screening area, where patients can be screened for COVID-19 before allowing them to enter inside dialysis area. Where this is not possible, patients may wait away from the dialysis unit until they receive specific instructions from the unit staff.



2. The screening area should have adequate space to implement social distancing between patients and accompanying persons while waiting for dialysis staff.  
In screening area, every patient should be asked about:
  - Symptoms suspected of COVID-19 as above.
  - History of contact with a diagnosed case of COVID 19
  - History of contact with person who has had recent travel to foreign country or from high COVID-19 prevalence area within our country as notified by the Central and State/ UT governments respectively.
3. Patients with symptoms of a respiratory infection should put on a facemask before entering screening area and keep it on until they leave the dialysis unit. Dialysis unit staff should make sure an adequate stock of masks is available in screening area to provide to the patients and accompanying person if necessary.
4. There should be display of adequate IEC material (posters etc.) about COVID – 19 in the screening area.

### c. Inside Dialysis Unit

1. Suspected or positive COVID-19 patients should properly wear disposable three-layer surgical mask throughout dialysis duration.
2. Patients should wash hands with soap and water for at least 20 seconds, using proper method of hand washing. If soap and water are not readily available, a hand sanitizer containing at least 60% alcohol can be used.
3. Patients should follow cough etiquettes, like coughing or sneezing using the inside of the elbow or using tissue paper.
4. Patients should throw used tissues in the trash. The unit should ensure the availability of plastic lined trash cans appropriately labeled for disposing of used tissues. The trash cans should be foot operated ideally to prevent hand contact with infective material.
5. There should be display of adequate IEC material (posters etc.) about COVID – 19 in the dialysis area.

## II. For Dialysis Staff

### a. Screening Area

1. The unit staff should make sure an adequate stock of masks and sanitizers are available in screening area to provide to the patients and accompanying person if necessary

### b. During Dialysis

1. It should be ensured that a patient or staff in a unit does not become the source of an outbreak.

2. Each dialysis chair/bed should have disposable tissues and waste disposal bins to ensure adherence to hand and respiratory hygiene, and cough etiquette and appropriate alcohol based hand sanitizer within reach of patients and staff.
3. Dialysis personnel, attendants and caregivers should also wear a three-layer surgical facemask while they are inside dialysis unit.
4. Ideally all patients with suspected or positive COVID-19 be dialyzed in isolation. The isolation ideally be in a separate room with a closed door, but may not be possible in all units. The next most suitable option is the use of a separate shift, preferably the last of the day for dialyzing all such patients. This offers the advantage of avoiding long waiting periods or the need for extensive additional disinfection in between shifts. The next suitable option is to physically separate areas for proven positive and suspected cases. Where this is also not possible, we suggest that the positive or suspected patient may be dialyzed at a row end within the unit ensuring a separation from all other patients by at least 2 meters.
5. Staff caring for suspected or proved cases should not look after other patients during the same shift.
6. Dialysis staff should use of all personal protective equipment (PPE) for proven or strongly suspected patients of COVID-19. Isolation gowns should be worn over or instead of the cover gown (i.e., laboratory coat, gown, or apron with incorporate sleeves) that is normally worn by hemodialysis personnel. If there are shortages of gowns, they should be prioritized for initiating and terminating dialysis treatment, manipulating access needles or catheters, helping the patient into and out of the station, and cleaning and disinfection of patient care equipment and the dialysis station. Sleeved plastic aprons may be used in addition to and not in place of the PPE recommended above.
7. Separating equipments like stethoscopes, thermometers, Oxygen saturation probes and blood pressure cuffs between patients with appropriate cleaning and disinfection should be done in between shifts.



8. Stethoscope diaphragms and tubing should be cleaned with an alcohol-based disinfectant including hand rubs in between patients. As most NIBP sphygmomanometer cuffs are now made of rexine they should also be cleaned by alcohol or preferably hypochloritebased (1% Sodium Hypochlorite) solutions however the individual manufacturer's manuals should be referred to.
9. Staff using PPE should be careful of the following issues:
  - While using PPE, they will not be able to use wash room so prepare accordingly
  - After wearing eye shield, moisture appears after some time and visibility may become an issue. Therefore, machine preparation can be done in non-infected area before shifting to near the patient
  - If dialysis is to be done bed-side in the hospital, portable RO should be properly disinfected with hypochlorite (1% Sodium Hypochlorite) solution between use of two patients

## Disinfection and disposal practices in dialysis unit

- Bed linen should be changed between shifts and used linen and gowns be placed in a dedicated container for waste or linen before leaving the dialysis station. Disposable gowns should be discarded after use. Cloth gowns should be soaked in a 1% hypochlorite solution for 20 minutes before sluicing and then be transported for laundering after each use.
- Inside dialysis unit, clean and disinfect frequently touched surfaces at least thrice daily and after every shift. This includes bedside tables and lockers, dialysis machines, door knobs, light switches, counter tops, handles, desks, phones, keyboards, toilets, faucets, and sinks etc.
- It is recommended that solutions for disinfection be composed either of hypochlorite, alcohol, formaldehyde or glutaraldehyde for disinfection of surfaces in accordance with the manufacturer's instructions. Almost all common disinfectant solutions are effective in killing the virus on surfaces, the key is effective and frequent cleaning.

### Bleach solution

Mix 1 liter of Medichlor with 9 liters of water. This solution can be used for upto 24 hours after which it should be discarded and a fresh solution prepared. As an alternative 10 Grams of household bleaching powder can be dissolved in a liter of water and used for a period of 24 hours.

### Alcohol based solutions

- Ensure solution has at least 60% alcohol. Appropriate commercially available solutions include Aerodasin a mixture of isopropanol, glutaraldehyde and ethanol or lysoformin a mixture of formaldehyde and glutaraldehyde can be used.
- Wear unsterile but clean disposable gloves when cleaning and disinfecting surfaces. Gloves should be discarded after each cleaning. If reusable gloves are used, those gloves should be dedicated for cleaning and disinfection of surfaces for COVID-19 and should not be used for other purposes. Clean hands by above method immediately after gloves are removed.
- For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces. After cleaning, launder items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely.
- Wear disposable gloves when handling dirty laundry from an ill person and then discard after each use. Do not shake dirty laundry. This will minimize the possibility of dispersing virus through the air.
- Clean and disinfect clothes buckets or drums according to guidance above for surfaces. If possible, consider placing a bag liner that is either disposable (can be thrown away) or can be laundered.



## Dialysis of covid – 19 Patient with acute kidney injury (AKI)

A small proportion of patients (~5%) of COVID – 19 develops AKI. The disease is usually mild but a small number may require RRT (Renal Replacement Therapy). In addition, even smaller proportion of patients with secondary bacterial infection will have septic shock, drug nephrotoxicity or worsening of existing CKD severe enough to require RRT (Renal Replacement Therapy).

- It is suggested that all modalities of RRT may be used for patients with AKI depending on their clinical status.
- Patient admitted in other ward of the hospital with AKI should be preferably given bed-side dialysis rather than shifting patient in main dialysis unit.
- In such situation portable reverse osmosis water in a tank will serve the purpose for the dialysis.
- If more dialysis is expected in selected area, dialysis machine may be left in the same area for future dialysis.
- Ideally, this procedure should happen in COVID – 19 dedicated hospital/ ward.

### Peritoneal Dialysis

#### 1. Patients already on CAPD

Patients who are already receiving peritoneal dialysis (PD) treatment have the relative advantage over patients who are receiving hospital or satellite-based haemodialysis treatment as they will not be exposed to hospital environment. This will reduce their exposure to infection. However, they should arrange their delivery of supply well in time to avoid missing dialysis exchanges.

- Used dialysis bags and tubing should be properly disposed using 1% hypochlorite solution first and disposed in a sealed bag. Used dialysis fluid should be drained in the flush.

#### 2. New patient planned for CAPD

- It will be difficult to maintain a service that can commence new patients on PD, mainly through a lack of healthcare worker to insert PD catheter and to provide the intensive training required.

Therefore, initiation of new patient should be avoided, unless the resources are available and the facility is equipped.

#### 2. Acute PD

- Use of acute peritoneal dialysis can be lifesaving and should be used as and when required and, in the setting, where hemodialysis facility is not available. Health care worker should use all precautions while initiating acute PD and discard used consumables properly.

## Personal Protective Equipments (PPE)

Personal protective equipment must be used while dialyzing COVID-19 positive patients.

These include:

- Shoe covers
- Gown
- Surgical cap or hood
- Goggles or eye shields
- Mask: Ideally all masks should be N95 respirators with filters.

However, as the life of such masks is approximately 6-8 hours and they can be uncomfortable over a long term and are also in short supply, they should be prioritized for aerosol generating procedures, namely intubation, open suction and bronchoscopy. Surgical triple layer masks and cloth masks can be used as alternatives for all other procedures.

### Screening for Day Care Dialysis Patients

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

Temperature screening using the thermal gun is done.



Check list for signs and symptoms of cold/fever/cough/travel ling/ attending any event in group/ contact with suspected/positive patient history is filled up.

## Isolation Beds in Dialysis Unit

Separate areas / corner areas (preferably rooms with separate air flow/ ventilation) to be identified and dedicated for the dialysis of suspected COVID patients (low probability). The dialysis machines, monitor and all the equipment required for dialysis are made available in each of these two rooms. This equipment is dedicated and not to be moved out from these identified rooms.

- The equipment and the room are disinfected as per the protocol
- Dedicated and trained staff perform the dialysis for the patient.
- The staff will wear the PPE as per the protocol.
- The used consumables to be discarded as per the protocol.

The health of the patients undergoing dialysis in the isolation rooms is closely monitored during each dialysis visit.

## Dialysis for Suspected or Confirmed COVID Cases in COVID Ward

- Suspected or positive COVID-19 patients should wear disposable three-layer surgical mask throughout dialysis duration.
- Dialysis to be done by the dedicated machine only.
- The dialysis for these patients is performed by the dedicated and trained technicians.
- Disinfect the dialysis machine before entering into the room
- The type of dialysis for these patients would be CRRT or SLED.
- Technician should doff in the patient room and discard PPE inside the room
- The dialysis machine to be decontaminated as per the protocol.
- The dialysis technicians to wear the PPE as per the protocol.
- The used consumables to be discarded as per the protocol.

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*Separate areas / corner areas (preferably rooms with separate air flow/ ventilation) to be identified and dedicated for the dialysis of suspected COVID patients (**low probability**). The dialysis machines, monitor and all the equipment required for dialysis*

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## Sample Communication That Could Be Sent To All Dialysis/ Chemotherapy / Radiotherapy Patients

We at Dialysis unit are always there to take care of you. However, we are requesting you to follow the below mentioned guidelines strictly.

- Inform staff over phone , if you have any of the symptoms like Either Cough , Fever, sore throat or breathing difficulty. You need to also let us know if you have been in contact with any person who has been sick.
- Cooperate with our staff during screening process & don't hide any information. (Hiding information will keep every one's life at risk & and even your loved ones').
- Visit Dialysis clinic with prior Appointment. We have reduced the number of dialysis to allow social distancing, so when you come here, you may have to wait for a while.
- We also want to make sure that the cleaning of the bed and the machine has been done appropriately to receive you.
- Don't take any medications without doctor's advice.
- Always wear mask either you are in home or in dialysis clinic
- Visiting hours are restricted at our dialysis clinics. So try to come alone if you are feeling well. If visitors accompany you they will not be allowed to enter the dialysis unit. They may have to wait outside.
- We are not allowing any Patient to take food inside dialysis clinic. So, please have food before entering into clinic for treatment.
- Leave from clinical area once your treatment got over without waiting in Hospital premises. While visiting, please avoid touching the areas like handles, door knobs, switches, staircases, doors etc as much as possible.
- Stay at home. Avoid close contact with others
- Our staff are trained experts in infection control and are taking extra precautions during this time to make dialysis a safe process for you in these unprecedented times.
- Contact our staff for any further clarifications / any support during this COVID19 Situation.

Please note that the above mentioned steps are temporary and we are doing this only to ensure that you are safe. Let's work together for a safe dialysis experience.

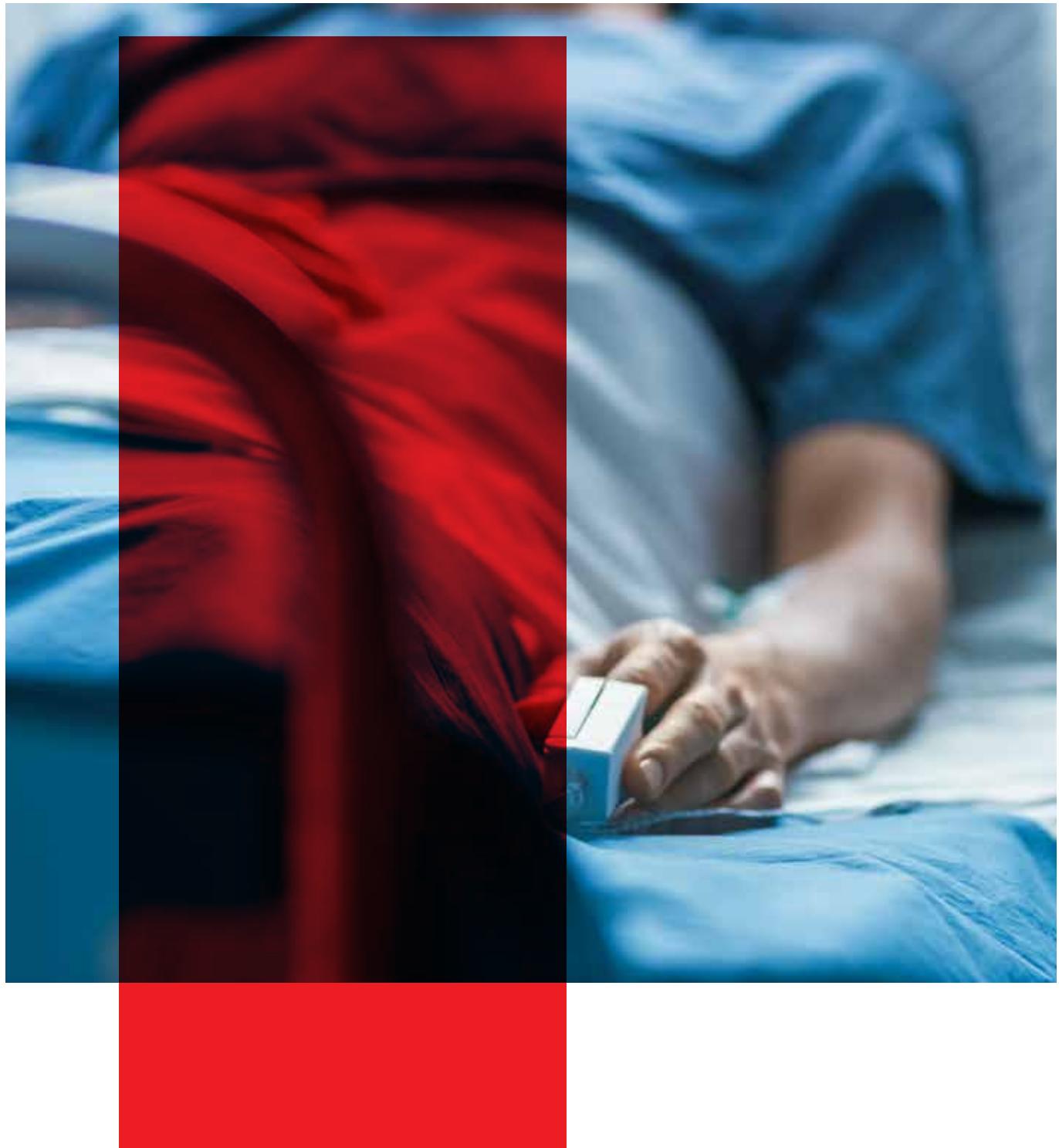


Requisite to be fulfilled to  
**Avoid transmission**

## Requisite To Be Fulfilled To Avoid Unknown Covid Transmission In Hospital

1. Health care workers to wear triple layered mask all the time while handling patient or coming in contact with patient within 3 feet.
2. Other non-health care workers like dietician, F and B staff, security talk at a distance of more than 3 feet away from the patients.
3. Hand hygiene after touching the patient and follow 5 moments of hand hygiene.
4. Patients with fever, cough, coryza, sore throat, dyspnoea, myalgia, GI symptoms. Conjunctivitis, loss of taste or smell, myo/pericarditis. Any febrile illness > 72 hrs without clinically overt localization to be admitted in a private ward or keep more than 6 feet distance between each bed.
5. Provide the above mentioned patient with triple layered mask
6. Disinfection of all rooms with 1% Sodium Hypochlorite solution.
7. Patient who is suspected to be at high risk (History, clinic radiological procedure) should be shifted to COVID isolation ward.
8. Patient who is suspected to be at low risk to be isolated in single rooms.
9. Sample collection in a private room only with appropriate PPE.
10. Risk stratification if there was a contact.
11. Ask staff continuously - How they did they travel to work
12. In emergency, every patient has to be treated as a suspect case so staff has to wear complete PPE at all times and patient should wear mask unless it's not possible.
13. Chest x ray to be imp for every admission
14. For admission: Any Patient should not be admitted in sharing rooms- single rooms only (if required- upgrade)- also keeping in mind that we are not opening unnecessary ward/floors/ ICUs.
15. Suspected cases cannot be kept in rooms where central air conditioning is there
16. ICU cases to be kept at least 10 feet away from each other (preferably as much far away as possible) with adequate and 24/7 supervision
17. Housekeeping staff to wear mask and gloves at all times and the mask should not be hanging around their necks
18. F&B staff should not enter patient rooms and nurses should hand over the food
19. Patient attendants when in the hospital should wear a mask at all times- strict adherence and compliance to all infection prevention protocols needs to be done- patient/family education
20. Every patient should identify only ONE attendant who should be available at all times
21. Screening of attendants should be done like visitors daily





Patient admission in  
**isolation area**

## 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.

## Inter-Facility Transfer and Movement of Inpatients

1. With immediate effect, 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.
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

## 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

### Place:

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.





Infrastructural and process  
**Flow modifications**

## Minimum Imprest Medicine Stock For Isolation Ward

(Quantities could be decided based on the predictive requirement)

PARTICULARS	STRENGTH	QUANTITY
Normal Saline 0.9%	500ml	6
RL	500ml	6
<b>INJECTIONS</b>		
Adenosine	6mg	4
Adrenaline	1ml	15
Atropine Sulphate	1ml	15
Avil	2ml	2
Betaloc	5ml	2
Buscopan	1ml	2
Calcium Gluconate	10ml	2
Cordarone	3ml	7
Deriphyllin	2ml	2
Dexamethasone	2ml	5
Dobutrex	250mg	4
Dopamine	5ml	
Dynapar AQ	75mg	6
Fevastin	2ml	5
Glycopyrrrolate	1ml	4
Heplock	10ml	2
Hydrocortisone	100mg	5
Labetalol	20mg/4ml	2
Lasix	2ml	10
Levipil	500mg	2
Midazolam	5ml	4
Nitroglycerine	5ml	2
Nor Adrenaline	2ml	7
Pantoprazole	40mg	2

PARTICULARS	STRENGTH	QUANTITY
Perfalgan	100ml	5
Perinorm	2ml	2
Propofol	10ml	2
Rantac	2ml	5
Serenace	1ml	2
Sodium Bicarbonate	25ml	10
Solumedrol	40mg	2
Tramazac	2ml	2
Vasopressin	1ml	2
Vecuron	4mg	4
Verapamil	2ml	2
Vit K	1ml	1
Water for injection	10ml	10
Xylocaine 2%	30ml	2
Zofer	2ml	4
<b>TABLETS</b>		
Dolo	650mg	15
Dulcoflex	5mg	10
Disprin		4
Sorbitrate	5mg	5
<b>INHALERS</b>		
MDI Levolin Inhaler		5
<b>SYRUPS</b>		
Ascoril	100ml	1
Reswas	120ml	1
Zerotuss	100ml	2
<b>REFRIGERATOR</b>		
Atracurium	2.5ml	9
Human Actrapid	40iu	1
Novorapid	100IU/ml	1
Lorazepam	2ml	1
Succinyl Choline	10ml	2
<b>NARCOTICS</b>		
Fentanyl	2ml	5
Fentanyl	10ml	5

\*\* Respules/ nebulization should not be done

## Other items: (quantities could be decided based on the predictive requirement)

PARTICULARS	STRENGTH	QUANTITY
Bain Circuit	Adult	4
Bain Circuit	Paed.	1
Cathy		2
Goggles		150
GOWNS		50
Humidifier tubings	A	2
ICU utility Kit		5
Living Spring		1
N95 FACE MASK		50
Personnel protective kit		100
Safe Mitten		10
Ventilator Circuit	Adult	4
Ventilator Circuit	Paed.	1
3 way Connecter		3
3-Way Extension		5
Arterial Cannula	20g	1
IV Cannula	16g	4
IV Cannula (Pro-Safety)	18g	4
IV Cannula (Pro-Safety)	20g	4
IV Cannula (Pro-Safety)	22g	2
Q-Syte Double Lumen		3
Q-Syte Triple Lumen		3
Blood Sets		1
IV Set		10
A-Line Syringe	3ml	5
Syringes	10ml	5
Syringes	5ml	5
Syringes	2ml	5
Syringes	1ml	5
Insulin Syringe	40 Unit	6

PARTICULARS	STRENGTH	QUANTITY
Posiflush	3ml	5
Posiflush	5ml	5
Syringes	20ml	5
Syringes	50ml	6
Bladder wash syringe	50ml	1
Foleys Catheter	14	1
Foleys Catheter	16	1
Freka Cannula	100cm	1
Infant feeding tube	size 5	2
Suction Catheters	No 12	5
Suction Catheters	No 14	10
Surgical gloves	7	5
Surgical gloves	7.5	5
Surgical gloves	6	5
Surgical gloves	6.5	5
High concentrated mask		5
Nasal Cannula	A	2
Nasal Cannula	P	1
Oxygen Mask	A	6
Oxygen Mask	P	1
Nebulization Mask with T Piece		2
Nebulization Mask	A	6
Nebulization Mask	P	1
Recovery Kit		1
NasoPharyngeal AirWay	no-6	1
NasoPharyngeal AirWay	no-7	1
NasoPharyngeal AirWay	no-8	1
Pressure Monitor Line	male-male	2
Pressure Monitor Line	Male-Female	6
Ryles Tube	14	2
Ryles Tube	16	2
Tegaderm	8*10.5cm	6
Tegaderm	1683	5

PARTICULARS	STRENGTH	QUANTITY
Tegaderm	10*12cm	3
ECG Electrodes		10
Sodium Phosphate enema	100ml	2
Uro meters		2
Urobag	Adult	2
Xylocaine jelly 2%	30gm	5
Yankur suction set		4
Y-Connector		3
Cetroxix	Double lumen	1
Cetroxix	Triple lumen	2
Leader Cath	18	1
Leader Cath	20	1
Px 260		2
Ethicon 2-0	2-0	2
Ethicon 3-0	3-0	2
IV FLUIDS		
10% Dextrose	500ml	2
5% Dextrose	500ml	2
DNS	500ml	6
25% Dextrose	100ml	2
Normal Saline 0.9%	100ml	6
EMERGENCY TRAY		
Airway	no-0	2
Air way	no-1	2
Air way	no-2	2
Airway	no-3	2
Airway	no-4	2
Bougie		1
Catheter mount		2
DC Termometer		3
Disposable Laryngoscope with blade	Adult	2
Disposable Laryngoscope with blade	Paed.	1
ET Tubes	2.5	2

PARTICULARS	STRENGTH	QUANTITY
ET Tubes	3	2
ET Tubes	3.5	2
ET Tubes	4	2
ET Tubes	4.5	2
ET Tubes	5	2
ET Tubes	5.5	2
ET Tubes	6	2
ET Tubes	9	2
ET Tubes (Sacett)	6.5	2
ET Tubes (Sacett)	7	2
ET Tubes (Sacett)	7.5	2
ET Tubes (Sacett)	8	2
ET Tubes (Sacett)	8.5	2
HME with bacterial Viral filter	Adult	5
Laryngeal Mask Airway	2.5	1
Laryngeal Mask Airway	3	1
Laryngeal Mask Airway	3.5	1
Laryngeal Mask Airway	4	1
Laryngeal Mask Airway	4.5	1
Stylet	No-4	1
Suction Catheters	NO 14	4



## Isolation Room

	Isolation Room check points	Y	N	Remarks
1	COVID-19 patients should be housed in single rooms. 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) *not be a part of the central air-conditioning			
4	The isolation ward to have a separate toilet with proper cleaning and supplies (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)			
5	Avoid curtains inside the room			
6	Isolation ward to have a separate entry/exit (Not be co-located with post-surgical wards/dialysis unit/SNCU/labour room)			
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 (e.g. stethoscope, thermometer, blood pressure cuff, and sphygmomanometer) 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 BMWW guidelines in a touch-free bin			
22	Used (i.e. dirty) bins remain inside the isolation rooms			

<b>Isolation Room check points</b>		<b>Y</b>	<b>N</b>	<b>Remarks</b>
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 (not allowed to work in other patient-care areas)			
<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			

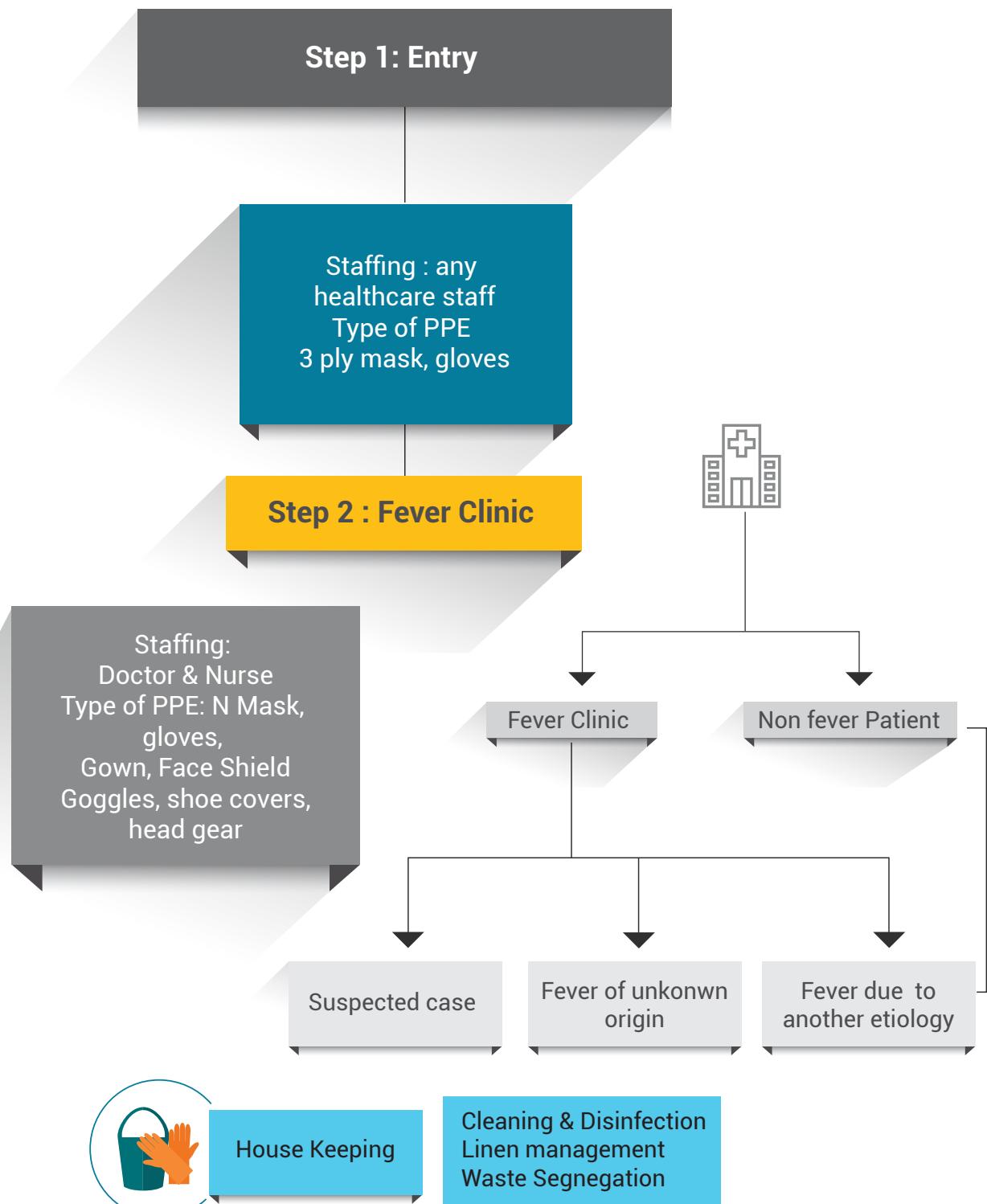




Infection prevention  
**and control measures**

# Infection prevention and control measures for patients with suspected or confirmed covid - 19 infection

Ppe usage at stages:



## Covid-19 related personal protection management

S. No	Patient care activities/areas	Risk of exposure	Triple layered mask	N-95 Mask	Glove	Gown/Coverall	Goggles	Head cover	Shoe cover
1	Provide medical mask for patients with respiratory symptoms if tolerated	Moderate risk	✓	✗	✗	✗	✗	✗	✗
2	Triage area in OPD	Moderate risk	✗	✓	✓	✗	✗	✗	✗
3	Help desk/Registration counter	Moderate risk	✓	✗	✗	✗	✗	✗	✗
4	Temperature recording station	Moderate risk	✗	✓	✓	✗	✗	✗	✗
5	Holding area/Waiting area	Moderate risk	✗	✓	✗	✗	✗	✗	✗
6	Doctors chamber in OPD	Moderate risk	✗	✓	✓	✗	✗	✗	✗
7	Clinical management in isolation rooms	Moderate risk	✗	✓	✓	✓	✓	✓	✓
8	ICU facility/Critical care ward where aerosol generating procedures are done	High risk	✗	✓	✓	✓	✓	✓	✓
9	SARI ward - attending to severely ill patients of SARI	High risk	✗	✓	✓	✓	✓	✓	✓
10	Sample collection/Sample testing for COVID-19	High risk	✗	✓	✓	✓	✓	✓	✓
11	Dead body packing	High risk	✗	✓	✓	✓	✓	✓	✓

S. No	Patient care activities/areas	Risk of exposure	Triple layered mask	N-95 Mask	Glove	Gown/Coverall	Goggles	Head cover	Shoe cover
12	Physical examination of patient with respiratory symptoms		✗	✓	✓	✓	✓	✓	✓
13	Physical examination of patient without respiratory symptoms		✓	✗	✓	✓	✓	✗	✗
14	Dead body transport Mortuary dead body handling		✓	✗	✓	✓	✗	✗	✗
15	Mortuary - While performing autopsy		✗	✓	✓	✗	✗	✗	✗
16	Sanitary staff		✗	✓	✓	✗	✗	✗	✗
17	CSSD/Laundry - Handling linen of COVID-19 patients		✗	✓	✓	✗	✗	✗	✗
18	Visitors attending OPD		✓	✗	✗	✗	✗	✗	✗
19	Visitors accompanying patients in IP facility		✓	✗	✗	✗	✗	✗	✗
20	Supportive services - Administrative Financial engineering security, etc.		✗	✗	✗	✗	✗	✗	✗
21	Any activity that does not involve contact with COVID-19 patients		✗	✗	✗	✗	✗	✗	✗
22	Entering the isolation area, but not providing direct assistance		✓	✗	✓	✗	✗	✗	✗

S. No	Patient care activities/areas	Risk of exposure	Triple layered mask	N-95 Mask	Glove	Gown/Coverall	Goggles	Head cover	Shoe cover
24	Cleaning isolation area, ambulance & ICUs etc.	Moderate risk	✓	✗	✓	✓	✓	✓	✓
25	Transporting suspected COVID19 patients to the referral health care facility	Moderate risk	✓	✗	✓	✓	✓	✗	✗
26	Ambulance driver while transferring the Covid-19 patient (involved only in driving)	Low risk	✗	✗	✗	✗	✗	✗	✗
27	Assisting with loading or unloading patient with suspected COVID-19	Moderate risk	✓	✗	✓	✓	✓	✗	✗
28	In-person interview of suspected or confirmed COVID-19 patients without direct contact	Low risk	✓	✗	✗	✗	✗	✗	✗

\*\* 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



# Additional Guidelines On Rational Use Of Personal Protective Equipment (Setting Approach For Health Functionaries Working In Non-covid Areas) Updated On 01.05.2020



1. About this guideline: This guideline is for health care workers and others working in Non COVID hospitals and NonCOVID treatment areas of a hospital which has a COVID block. These guidelines are in continuation of guidelines issued previously on 'Rational use of Personal Protective Equipment' (<https://www.mohfw.gov.in/pdf/GuidelinesonrationaluiseofPersonalProtectiveEquipment.pdf>). This

guideline uses "settings" approach to guide on the type of personal protective equipment to be used in different settings.

2. Rational use of PPE for Non COVID hospitals and Non-COVID treatment areas of a hospital which has a COVID block The PPEs are to be used based on the risk profile of the health care worker. The document describes the PPEs to be used in different settings

## 2.1. Out Patient Department

No.	Setting	Activity	Risk	Recommended PPE	Remarks
1.	Help desk/ Registration counter	Provide information to patients	Mild risk	1.Triple layer medical mask 2.Latex examination gloves	Physical distancing to be followed at all times
2.	Doctors chamber	Clinical management	Mild risk	•Triple layer medical mask •Latex examination gloves	No aerosol generating procedures should be allowed
3.	Chamber of Dental/ENT doctors/ Ophthalmology doctors	Clinical management	Moderate risk	• N-95 mask • Goggles • Latex examination gloves + face shield	Aerosol generating procedures anticipated.  Face shield, when a splash of body fluid is expected
4.	Pre-anesthetic check-up clinic	Pre-anesthetic check-up	Moderate risk	• N-95 mask • Goggles* • Latex examination gloves	• Only recommended when close examination of oral cavity/dentures is to be done
5.	Pharmacy counter	Distribution of drugs	Mild risk	• Triple layer medical mask • Latex examination gloves	Frequent use of hand sanitizer is advised over gloves.
6.	Sanitary staff	Cleaning frequently touched surfaces/ Floor	Mild risk	• Triple layer medical mask • Latex examination gloves	Frequent use of hand sanitizer is advised over gloves.

## 2.2. In-patient Department (Non-COVID Hospital & Non-COVID treatment areas of a hospital which has a COVID block)

No.	Setting	Activity	Risk	Recommended PPE	Remarks
7.	Ward/individual rooms	Clinical management	Mild risk	<ul style="list-style-type: none"> <li>• Triple layer medical mask</li> <li>• Latex examination gloves</li> </ul>	Patients stable. No aerosol generating activity.
8.	ICU/ Critical care	Critical care management	Moderate risk	<ul style="list-style-type: none"> <li>• N-95 mask</li> <li>• Goggles</li> <li>• Nitrile examination gloves +Face shield</li> </ul>	Aerosol generating activities performed.  Face shield, when a splash of body fluid is expected
9.	Ward/ICU /critical care	Dead body packing	Low Risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	Aerosol generating activities performed.  Face shield, when a splash of body fluid is expected
10.	Labor room	Intra-partum care	Moderate risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Face shield</li> <li>• Sterile latex gloves</li> <li>N-95 mask*</li> </ul>	Patient to be masked in the Labor room *If the pregnant woman is a resident of containment zone
11.	Operation Theater	Performing surgery, administering general anaesthesia	Moderate risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Face shield (-wherever feasible)</li> <li>• Sterile latex gloves + Goggles</li> <li>N-95 mask*</li> </ul>	Patient to be masked in the Labor room *If the pregnant woman is a resident of containment zone
12.	Sanitation	Cleaning frequently touched surfaces/ floor/ changing linen	Low Risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	

## 2.3. Emergency Department (Non-COVID)

No.	Setting	Activity	Risk	Recommended PPE	Remarks
1.	Emergency	Attending emergency cases	Mild risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	No aerosol generating procedures are allowed
2.		Attending to severely ill patients while performing aerosol generating procedure	High risk	Full complement of PPE (N-95 mask, coverall, goggle, Nitrile examination gloves, shoe cover)	

## 2.4. Other Supportive/ Ancillary Services

No.	Setting	Activity	Risk	Recommended PPE	Remarks
1.	Routine Laboratory	Sample collection and transportation and testing of routine (nonrespiratory) samples	Mild risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	
2.		Respiratory samples	Moderate Risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	
3.	Radiodiagnosis, Blood bank, etc.	Imaging services, bloodbank services etc.	Mild risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	
4.	CSSD/Laundry	Handling linen	Mild risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	No aerosol generating procedures are allowed
5.	Other supportive services incl. Kitchen	Administrative Financial Engineering** and dietary** services,etc.	Low risk	<ul style="list-style-type: none"> <li>• Face cover</li> </ul>	** Engineering and dietary service personnel visiting treatment areas will wear personal protective gears appropriate to that area

## 2.5. Pre-hospital (Ambulance) Services

No.	Setting	Activity	Risk	Recommended PPE	Remarks
1.	Ambulance Transfer to designated hospital	Transporting patients not on any assisted ventilation	Low risk	<ul style="list-style-type: none"> <li>• Triple Layer medical mask</li> <li>• Latex examination gloves</li> </ul>	No aerosol generating procedures are allowed
2.		Management of SARI patient	High risk	Full complement of PPE (N-95 mask, coverall, goggle, latex examination gloves, shoe cover)	While performing aerosol generating procedure
3.		Driving the ambulance	Low risk	Full complement of PPE (N-95 mask, coverall, goggle, latex examination gloves, shoe cover)	Driver helps in shifting patients to the emergency

### Points to remember while using PPE

1. Standard precaution to be followed at all times
2. PPEs are not alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes which must be followed at all times.
3. Always follow the laid down protocol for disposing off PPEs as detailed in infection prevention and control guideline available on website of MoHFW.

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/GuidelinestobefollowedondetectionofsuspectorconfirmedCOVID19case.pdf>)



Areas	Doctors	Nurses	HK staff	Technician (BME, Dialysis etc)	Front office staff	Ambulance driver	Transport staff	F&B staff	Security staff	Diagnostic		Billing staff
										Radiology	Sample collection	
Screening Areas					E				D			
ER Triage and Isolation	A	A				B	B			A	A	
OPD	E	E			E							
ID Ward	A	A	A	A	E	A	A	E	E	A	A	E
Lab	B		B	B	E							E
Sample Collection Areas				D								
Radiology High Risk	B		B		E					B		E
OT-High Risk	A	A	A	A	E		A		E			
Cath Lab-High Risk	A	A	A	A			A		E			E
Dialysis-High Risk	A	A	A	A			A					
Endoscopy/Bronchoscopy	A	A		A								

Category A	N 95, Goggles, Water resistant Gown, Double Gloves, Shoe cover and Hood
Category B	N 95, Goggles, Water resistant Gown, Double Gloves
Category C	Tripple layered mask and Double Gloves, Shoe cover and Hood
Category D	Tripple layered Mask and Gloves
Category E	Tripple layered Mask

Please Note- High Risk - While handling Confirmed or Suspected Covid Patient

## Cleaning & Disinfection:

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

Product	Available chlorine	Ipercent
Sodium hypochkxite - liquid bleach	3.5%	1 pan bleach to 2.5 pans water
Sodium Mpoc!dance - liquid	5%	1 part bleach to 4 pans water
NaDCC (sodium dichloroisocyanurate) powder	60%	17 wants 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 g 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

At triage	<p>Give suspect patient a triple layer surgical mask and direct patient to separate area, an isolation room if available.</p> <p>Keep at least 1meter distance between suspected patients and other patients. Instruct all patients to cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others. Perform hand hygiene after contact with respiratory secretions</p>
Apply droplet precautions	<p>Droplet precautions prevent large droplet transmission of respiratory viruses. Use a triple layer surgical mask if working within 1-2 metres of the patient. Place patients in single rooms, or group together those with the same etiological diagnosis.</p> <p>If an etiological diagnosis is not possible, group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation. When providing care in close contact with a patient with respiratory symptoms (e.g. coughing or sneezing), use eye protection (facemask or goggles), because sprays of secretions may occur.</p> <p>Limit patient movement within the institution and ensure that patients wear triple layer surgical masks when outside their rooms</p>
Apply contact precautions	<p>Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing / interfaces).</p> <p>Use PPE (triple layer surgical mask, eye protection, gloves and gown) when entering room and remove PPE when leaving.</p>
	<p>If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers).</p> <p>If equipment needs to be shared among patients, clean and disinfect between each patient use.</p> <p>Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands.</p> <p>Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches).</p>
Apply airborne precautions when performing an aerosol generating procedure	<p>Ensure adequate room ventilation. Avoid movement of patients or transport. Perform hand hygiene.</p> <p>Ensure that healthcare workers performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95). (The scheduled fit test should not be confused with user seal check before each use.)</p> <p>Whenever possible, use adequately ventilated single rooms when performing aerosol-generating procedures, meaning negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second/patient in facilities with natural ventilation.</p> <p>Avoid the presence of unnecessary individuals in the room. Care for the patient in the same type of room after mechanical ventilation commences</p>

## Notes:

1. All staff at the healthcare facilities must wear medical surgical 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, bronchofibroscopy, laryngoscopy, etc.) must upgrade their surgical masks to medical protective masks (N95) based on Level I protection
3. Staff must wear a protective face screen based on Level II protection while collecting respiratory specimens.

### 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 Virkon (quaternary ammonium compound), and alternatively, 1 % sodium hypochlorite.
- Disinfection in public areas outside the triage and Isolation areas is to be done using Virex solution, especially as a precaution during this outbreak.

### Disinfection for Floor and Walls

- (1) Visible pollutants shall be completely removed before disinfection and handled in accordance with disposal procedures of blood and bodily fluid spills;
- (2) Disinfect the floor and walls with 1000 mg/L chlorine-containing disinfectant through floor mopping, spraying or wiping;
- (3) Make sure that disinfection is conducted for at least 30 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 infections

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 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

## Liquid 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 trolleys 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.

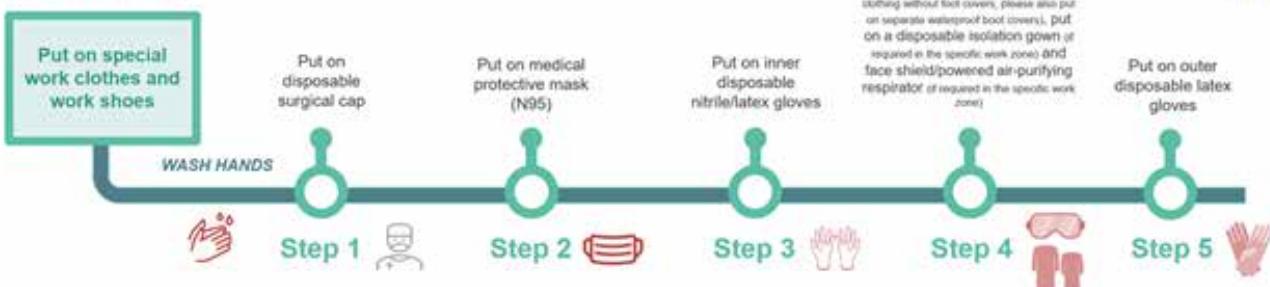
The Equipments in the OT could be covered by the transparent drapes too , while operating on all suspect or confirmed cases.



# Guidance on Donning and Removing Personal Protective Equipment (PPE)

## Donning

(Protocol for Donning normal PPE)



## Doffing

(Protocol for Removing PPE: The following sequence to be followed)



*Use Safe Work Practices to Protect Yourself and Limit the Spread of Contamination*

Keep hands away from face

Limit surfaces touched

Change gloves when torn or contaminated

Perform hand hygiene

- First put on special work clothes and work shoes
- Wash hands
- Put on a disposable surgical cap (Pull on Hood over the hair so as to contain all the hair inside from front and back)
- Put on a medical protective mask (N95)
- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Place over nose, mouth and chin
- Perform a fit check –Inhale: Mask should collapse –Exhale : Check for leakage around face
- Put on inner disposable nitrile/latex gloves
- Put on goggles and protective clothing (Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back) and face shield
- Put on disposable latex gloves
- Donning completed

### Protocol for Donning normal PPE:

Put on special work clothes and work shoes - Wash hands Put on disposable surgical cap - Put on medical protective mask (N95) - Put on inner disposable nitrile/latex gloves - Put on goggles and protective clothing (note: if wearing protective clothing without foot covers, please also put on separate waterproof boot covers), put on a disposable isolation gown (if required in the specific work zone)

and face shield/powerd air-purifying respirator(if required in the specific work zone) Put on outer disposable latex gloves

### Protocol for Removing PPE: The following sequence to be followed

1. Gloves
  - Hand-hygiene
2. Gown
  - Hand-hygiene
3. Goggles or Face shield
  - Hand-hygiene
4. Mask
  - Hand-hygiene
5. Cap / Hood
  - Hand-hygiene
6. Shoe-covers
  - Hand-hygiene-use alcohol-based hand-rub Wash hands with soap and water

*Use Safe Work Practices to Protect Yourself and Limit the Spread of Contamination*

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

## 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.



## 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 0.05% iodophor for disinfection

#### Sharp Injury

Squeeze blood out from proximal end to distal end. Flush the wound with running water

#### Direct exposure of respiratory tract

Immediately leave the isolation area. Gargle with plenty of normal saline or 0.05% iodophor. Dip a cotton swab into 75% alcohol, and wipe in a circular motion the nasal cavity gently

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

## Reprocessing of N95 masks

All N95 masks used in hospital except those used on Confirmed COVID 19 cases and Pulmonary TB cases, will henceforth be reprocessed.

### Instructions at each facility

- ▶ Mark a dot on the blue strap of N95 mask after use. A SMS (blue colored) pouch will be provided to each HCW using the mask. Keep the mask in the pouch and put in tray
- ▶ These masks will be collected by housekeeping in the evening and send to CSSD.
- ▶ This pouch with mask will be wrapped again in CSSD in another SMS cover (blue packing cover) and held together with autoclave compatible tapes. One set can contain singly packed upto 20 masks only.
- ▶ Autoclave at 121 degree centigrade 15 min.
- ▶ Send to respective department for reuse.
- ▶ Up to 5 reuses is permitted.
  - \*DO NOT REUSE MODEL 3M 1860- CHECK WITH PURCHASE DEPARTMENT
  - \*\*DO NOT REUSE IF WET/SOILED
 Mention name/ department so you can get your mask back



## Handling of dead bodies

The guidelines for handling dead bodies of patients expiring from Covid 19 have been laid down by the MOHFW, Govt of India. These are:

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

Standard infection prevention control practices will be followed at all times.

These include: 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.

### Removal of the body from the isolation room or area

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

- The health staff who handled the body will remove personal protective equipment and will perform hand hygiene.
- Provide counselling to the family members and respect their sentiments.

### Environmental cleaning and disinfection

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

### Handling of dead body in Mortuary

- Mortuary staff handling COVID 19 dead body should observe standard precautions.
- Dead bodies should be stored in cold chambers maintained at approximately 4°C.
- The mortuary must be kept clean. Environmental surfaces, instruments and transport trolleys should be properly disinfected with Virex/ 1% sodium hypochlorite solution.
- After removing the body, the chamber door, handles and floor should be cleaned with Virex/ sodium hypochlorite 1% solution

### Embalming

- Embalming of dead body will not be allowed.





Discharge standards  
**and follow-up plan**

# Discharge standards and follow-up plan for covid-19 patients

## Discharge standards

1. Body temperature remains normal for at least 3 days (ear temperature is lower than 37.5 )
2. Respiratory symptoms are significantly improved
3. The nucleic acid is tested negative for respiratory tract pathogen twice consecutively (sampling interval more than 24 hours); the nucleic acid test of stool samples can be performed at the same time if possible
4. Lung imaging shows obvious improvement in lesions
5. There is no comorbidities or complications which require hospitalization
6. SpO2 > 93% without assisted oxygen inhalation
7. Discharge approved by multi-disciplinary medical team

## Medication after discharge

Generally, antiviral drugs are not necessary after discharge. Treatments for symptoms can be applied if patients have mild cough, poor appetite, thick tongue coating, etc. Antiviral drugs can be used after discharge for patients with multiple lung lesions in the first 3 days after their nucleic acid are tested negative.

## Home isolation

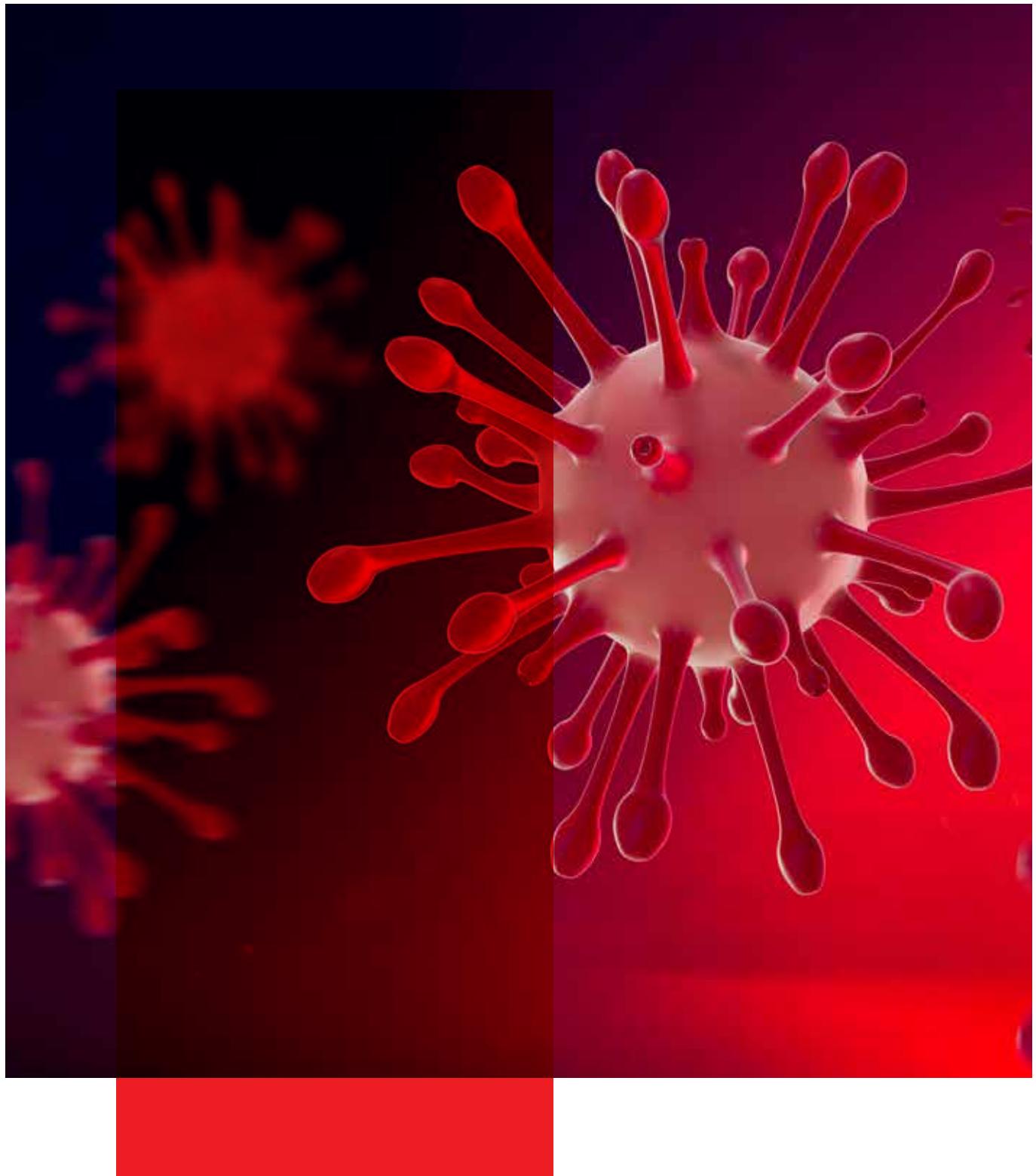
Patients must continue two weeks of isolation after discharge. Recommended home isolation conditions are:

1. Independent living area with frequent ventilation and disinfection
2. Avoid contacting with infants, the elderly and people with weak immune functions at home
3. Patients and their family members must wear masks and wash hands frequently
4. Body temperature are taken twice a day (in the morning and evening) and pay close attention to any changes in the patient's condition

## Follow-up

- A specialized doctor should be arranged for each discharged patient's follow-ups.
- The first follow-up call should be made within 48 hours after discharge.
- The next follow-up will be carried out 1 week, 2 weeks, and 1 month after discharge. Examinations include liver and kidney functions, blood test, nucleic acid test of sputum and stool samples, and pulmonary function test or lung CT scan should be reviewed according to the patient's condition.
- Follow-up phone calls shall be made 3 and 6 months after discharge.





Recommendations for blood  
**establishments regarding the**  
**novel coronavirus disease**

# Recommendations for blood establishments regarding the novel coronavirus disease (covid-2019)

## 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

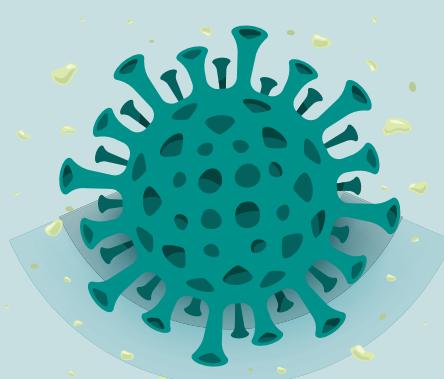
- 2.4 If a donor reports his/her symptoms or diagnosis of COVID-2019 when his/her blood and blood components have been transfused, immediately inform the related hospital and report to health authorities.

## 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.





Staffing in times  
**of the pandemic**

# 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 off/ infected/ couldn't perform duties



Nurses	Doctors	Housekeeping	Other staff
No fresher should be selected for postings	No fresher should be selected for postings	No fresher should be selected for postings	No fresher should be selected for postings
Staff that is selected should have appropriate competency and be trained to handle such patients	Staff that is selected should have appropriate competency and be trained to handle such patients	Should be trained in infection control, hand washing, donning & doffing PPE	Should be trained in infection control, hand washing, donning & doffing PPE
Suspected & stable patients- could be more than a year trained nurses with adequate training in donning & doffing of PPE (should be trained in BLS)	Should be BLS trained		
Confirmed positive unstable cases- could be more than 2 year trained nurses with competency of handling ICU level patients including use of ventilators etc (should be trained in BLS & preferably ACLS)	Need to have a system for handling any code related emergencies		

### 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

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

### 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

### Nurses: ICN

ICN / designee (one trained nurse to be present always to ensure nurses are donning and doffing PPE in the right manner every time)

### 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

### "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



Prophylaxis for healthcare workers  
**in an isolation ward**

## 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:

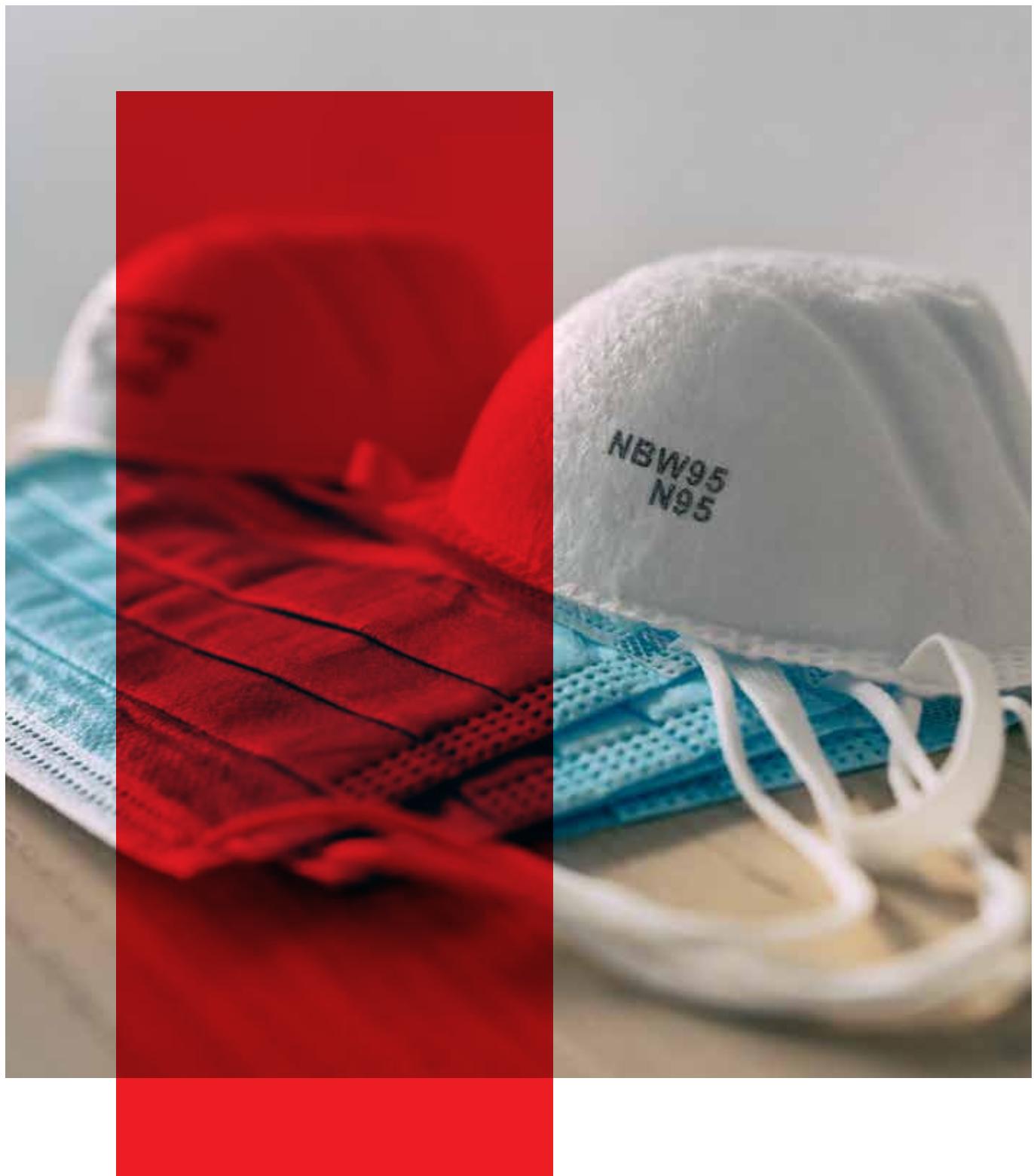
- Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19
- Asymptomatic household contacts of laboratory confirmed cases

### 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.

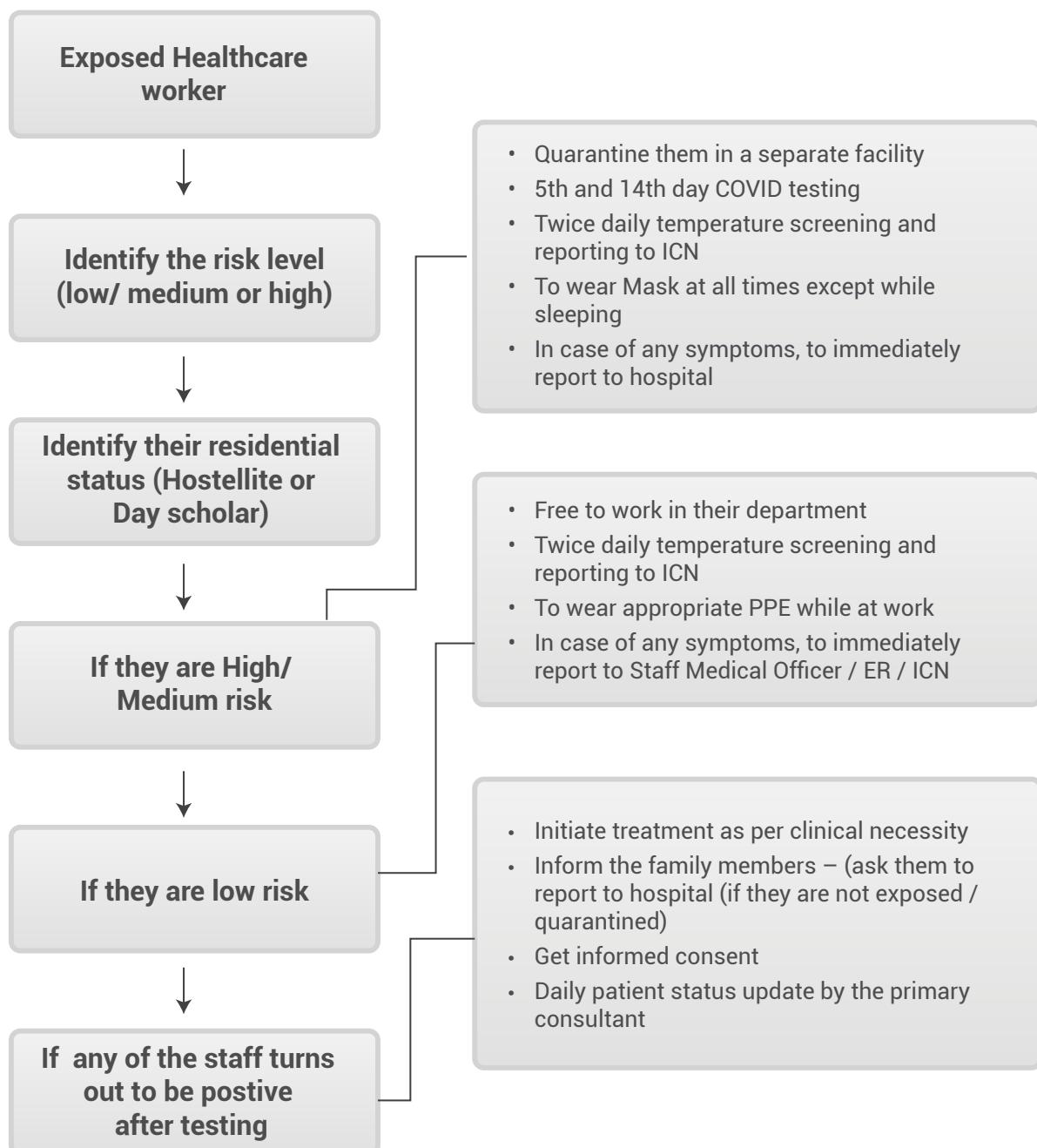
**The drugs have side effects and so should be administered only once prescribed by a physician.**





Protocol for exposed  
**healthcare workers**

## Protocol For Exposed Healthcare Workers



## Contact tracing

When more no of staff have been identified as exposed. Close contact definition: A contact is a person who experienced any one of the following exposures during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case:

1. Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes;
2. Direct physical contact with a probable or confirmed case
3. House hold contact
3. Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment;
4. A person who was in a closed environment (e.g. classroom, meeting room, hospital waiting room, etc.) with a COVID-19 case for 15 minutes or more and at a distance of less than 2 metre

5. A contact in an aircraft sitting within two seats (in any direction) of the COVID-19 case, travel companions or persons providing care, and crew members serving in the section of the aircraft where the index case was seated (if severity of symptoms or movement of the case indicate more extensive exposure, passengers seated in the entire section or all passengers on the aircraft may be considered close contacts).





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.





Important reminders -  
**social distancing**

## Important reminders

- List down the essential items/ resources required and ensure availability
- Evaluate the closing stock at the moment and for how many days do we have in place to get a clear picture on the current status.
- Understand and prioritize scenarios and have back up plans more ICU patients, More COVID ventilated cases, More suspected cases, more regular cases needing isolation, staff shortages, food/ water/fuel shortages, women in labour who is infected and coming for delivery, any other cases that we may

receive in emergency and is infected, code blue/resuscitation for any such and precautions to be taken, etc.

- Rearrange chairs in OPD and lobby with a minimum four feet distance between each chair.
- Remove chairs from canteens/ food courts and other public areas.
- Please complete signage for queuing areas.





Policy on medical record  
**Documentation for Covid 19  
suspected/ confirmed cases**

# Policy on medical record documentation for ncovid 19 suspected/ confirmed cases

## Purpose:

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.

## Responsibility:

All healthcare providers

## 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.

***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)

## 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 :

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

<p><b>VS:</b></p> <p>T Max : T current: HR: BP: 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: Heart: Abdomen: Neuro:</p>	<p><b>LABS:</b></p> <p>Nasopharyngeal swab for COVID-19/ BIOFIRE: CBC: Electrolytes: Creat: Mg: LFT: D-dimer: Coagulation studies: CRP: LDH: Procalc: Ferritin: ESR: Others:</p>
<p><b>Problems/Issues:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fever <input type="checkbox"/> Hypoxemia <input type="checkbox"/> Hemothorax</li> <li><input type="checkbox"/> Hypertension <input type="checkbox"/> Hypotension <input type="checkbox"/> Pneumonia</li> <li><input type="checkbox"/> Pleural effusion <input type="checkbox"/> Pneumothorax</li> <li><input type="checkbox"/> Plum edema <input type="checkbox"/> Aspiration <input type="checkbox"/> Acidosis</li> <li><input type="checkbox"/> Anemia <input type="checkbox"/> ARDS <input type="checkbox"/> Electrolyte imbalance</li> <li><input type="checkbox"/> Empyema <input type="checkbox"/> Resp insufficiency</li> <li><input type="checkbox"/> Resp failure <input type="checkbox"/> Renal dysfunction</li> <li><input type="checkbox"/> Renal failure <input type="checkbox"/> Sepsis <input type="checkbox"/> Tachycardia</li> <li><input type="checkbox"/> Cardiac failure <input type="checkbox"/> Liver dysfunction</li> <li><input type="checkbox"/> Liver failure</li> </ul> <p>Others:</p>	<p>Culture reports: Blood(x2): Sputum/ tracheal aspirate: URINE:</p>
<p><b>Radiological findings:</b></p> <p><b>Investigation plan:</b></p>	<p><b>Assessment/plan:</b></p> <p>Infectious Diseases: Pulmonology: Cardiovascular:</p>



Diagnosis:	Gastrointestinal: Renal: Neuro:
OTHER NOTES:	General Medicine: Dvt Prophylaxis: GIProphylaxis

## 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)

<b>Patient Label</b>	<b>I.C.U. NURSING RECORD</b>																								
		Date : _____ Day in ICU : _____																							
		PREVIOUS DAY																							
		INTAKE ..... Diet .....																							
		OUTPUT ..... Post op. Day .....																							
		Urine ..... Ryles Tube Aspiration .....																							
		Drain ..... Total .....																							
		UF (Dialysis) ..... Balance .....																							
		9am	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
		ETCO <sub>2</sub>													105										
		SPO <sub>2</sub> %													104										
		300													103										
		290													102										
		280													101										
		270													100										
		260													99										
		250													98.4										
		240													98										
		230													97										
		220													96										
		210													95										
		200													Temp.										
		190													in F.										
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		60																							
		50																							
		40																							
		30																							
		(Heart Rate/Minute)																							
		Respiratory Rate/Minute																							
		Blood Pressure (mmHg)																							
		CVP																							
		PAP																							
		PCWP																							
		CO																							

**Pain Score:**

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



## Patient Family Education

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



Special recommendations  
**for pregnant women**

## 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.

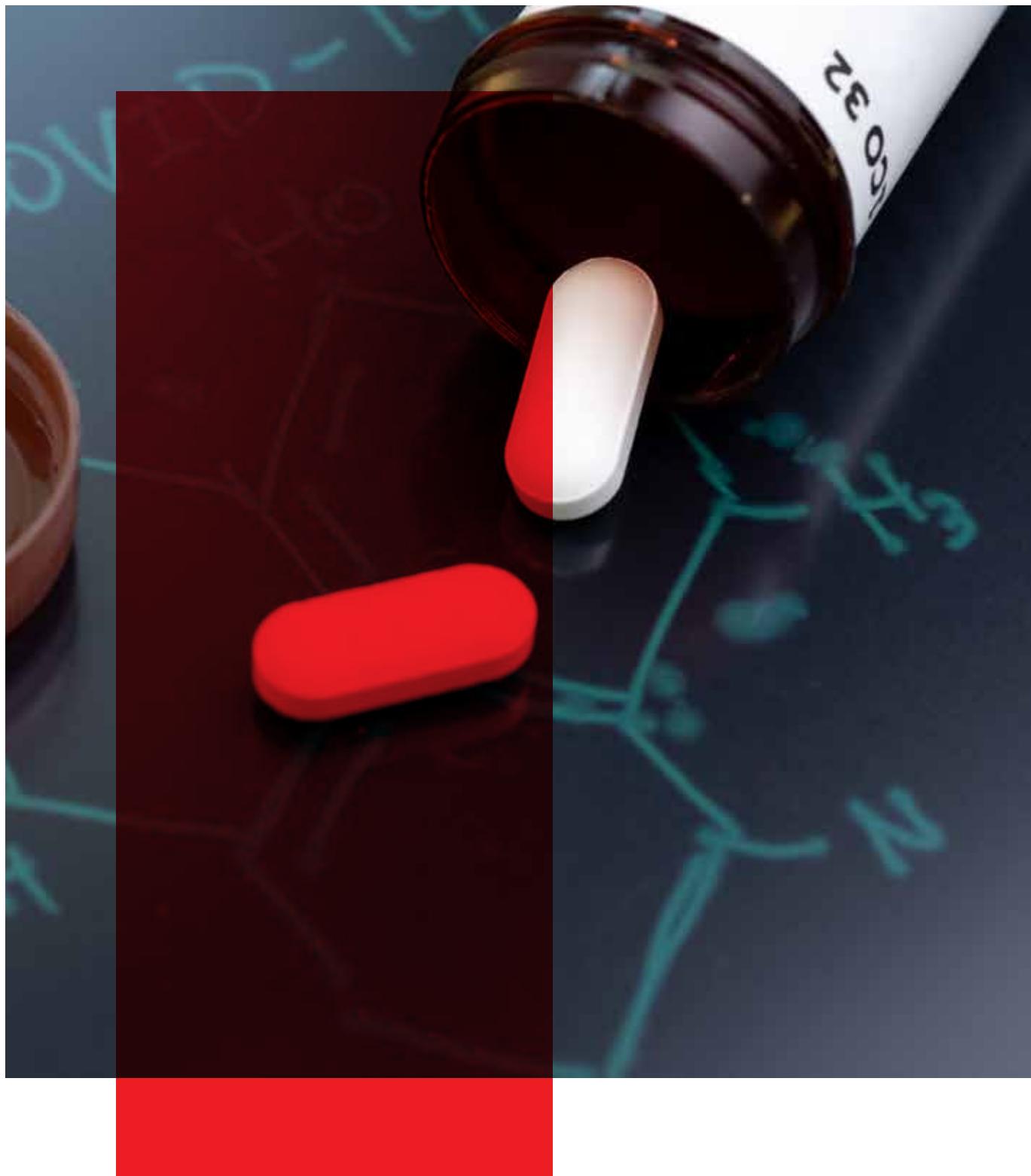
For assisting the delivery of women with confirmed or suspected COVID-19, staff must use the safety precautions provided for non-pregnant patients. Pregnant women with suspected or confirmed SARS-COV2 infection should be treated with supportive therapies, however taking into account the physiological 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.

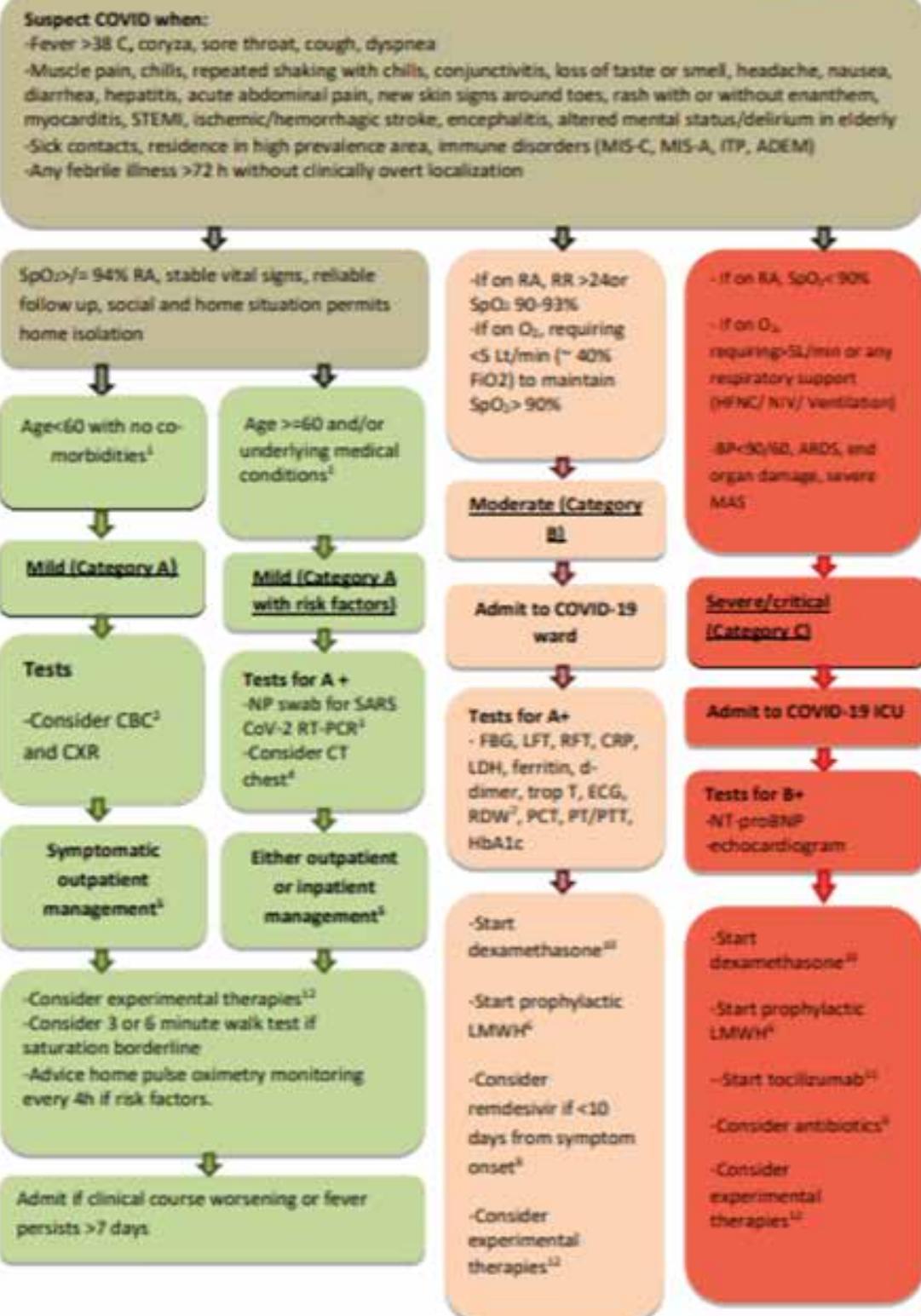


# Clinical Care Investigation and **Treatment Protocol For Covid 19**

# Clinical Care

## Investigation & Treatment Protocol

### Investigation and treatment protocol for COVID 19



<sup>1</sup>Increased risk with: 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. Possibly increased risk with: asthma (moderate-to-severe), cystic fibrosis, hypertension, immunocompromised state from blood or bone marrow transplant/immune deficiencies/HIV/use of corticosteroids/use of other immunosuppressants, CVA, overweight (BMI 25-30), neurologic conditions such as dementia, liver disease, pulmonary fibrosis, thalassemia, type 1 diabetes mellitus, solid organ malignancy, obstructive sleep apnea, psychiatric disease

<sup>2</sup> 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.

<sup>3</sup>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. Serology for SARS CoV-2 may be considered for PCR negative individuals with late presentations 2 weeks after of onset of symptoms, MIS-C or COVID related auto-immune syndromes. Govt rules need to be followed in decisions on testing.

<sup>4</sup>CT chest (without contrast) is more sensitive than RT-PCR for the diagnosis of febrile patients with COVID-19 and is indicated as a diagnostic aid in patients at high risk for clinical progression 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.

<sup>5</sup>Patients treated on outpatient basis should be advised regarding home isolation, warning signs and need for close follow up. Govt should be notified for all positive cases and advice followed regarding site of care and isolation.

<sup>6</sup>Start prophylactic dose LMWH (eg enoxaparin or equivalent) for all admitted patients. Dose is 40 mg for Cat B and 1mg/kg for Cat C given sc q24h. Contra-indications: active bleeding or a platelet count of 1mcg/ml, especially >6 times normal, suggests

DVT/PE. Start therapeutic anticoagulation for proven or strongly suspected DVT or PE 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 for 4 weeks or equivalent).

<sup>7</sup>RDW>14.5% at diagnosis or a rise in RDW during hospitalization predicts increased mortality.

<sup>8</sup>Remdesivir: dose is 200 mg iv on day 1 followed by 100 mg once daily for 4 more days. Does not reduce mortality. Reduces duration of hospital stay and improves oxygenation inpatients requiring oxygen, but not on high flow O<sub>2</sub>/NIV/HFNC/mechanical ventilation. Benefit greater if started early in disease (<10 days). Avoid co-administration of HCQ (reduces efficacy).

<sup>9</sup>Community acquired bacterial pneumonia complicating COVID is uncommon, unlike influenza. 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.

<sup>10</sup>Dexamethasone: dose is 8 mg once daily iv/po for 7-10 days (or till discharge if earlier). Alternatives are hydrocortisone 50 mg IV q8h or methylprednisolone 32 mg/day. Consider adding a single dose of ivermectin 12mg to prevent Strongyloides hyper-infection. In patients continuing to remain severely hypoxic after dexamethasone course over, re-assess need for continued steroids after CTPA.

<sup>11</sup>Tocilizumab: administer single dose within 24 h of worsening in patients with CRP>75 requiring FiO<sub>2</sub>>0.4/HFNC rate >30 l/mt/higher levels of respiratory support who have increasing hypoxemia/hypotension despite steroids. Dose is single infusion of 400 mg iv or 8 mg/kg (not to exceed 800 mg of total dose). Avoid if infection present or suspected.



<sup>12</sup>Experimental therapies for COVID:

**Cochicine:** consider for high risk patients >65 within 24 h of positive test. Dose is 0.5 mg bd for 3 days, then od till clinical illness resolves. Convalescent plasma: consider plasma with high antibody titers for high risk patients presenting within 3 days of symptom onset (>75 y or >65y with co-morbidities). Dose is 200-250 ml followed by a second dose if needed 24 h later.

**Baricitinib:** consider in combination with remdesivir for Cat C patients for whom dexamethasone cannot be used. Dose is 4-mg (either orally [two 2-mg tablets] or through a nasogastric tube) for 14 days or until hospital discharge.

#### Note:

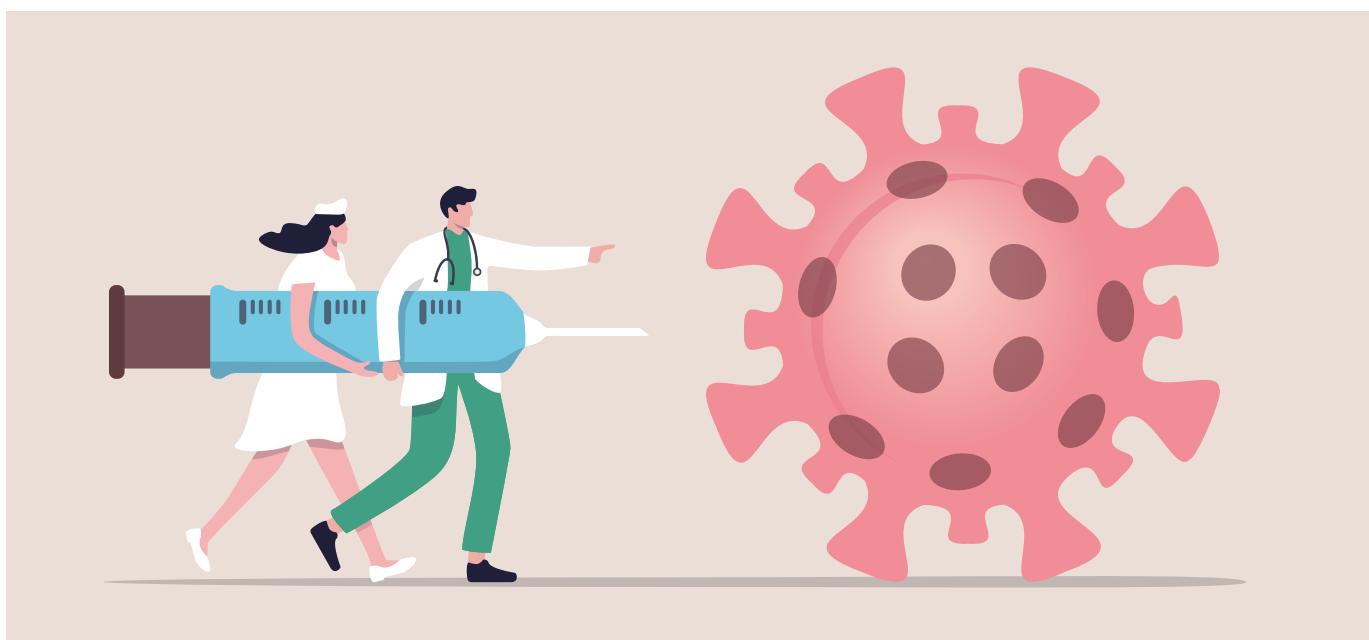
1. This guideline will be updated as more information and research comes in
2. An informed consent is required wherever newer/unlicensed tests and therapies are used

#### Abbreviations

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

#### Compiled by

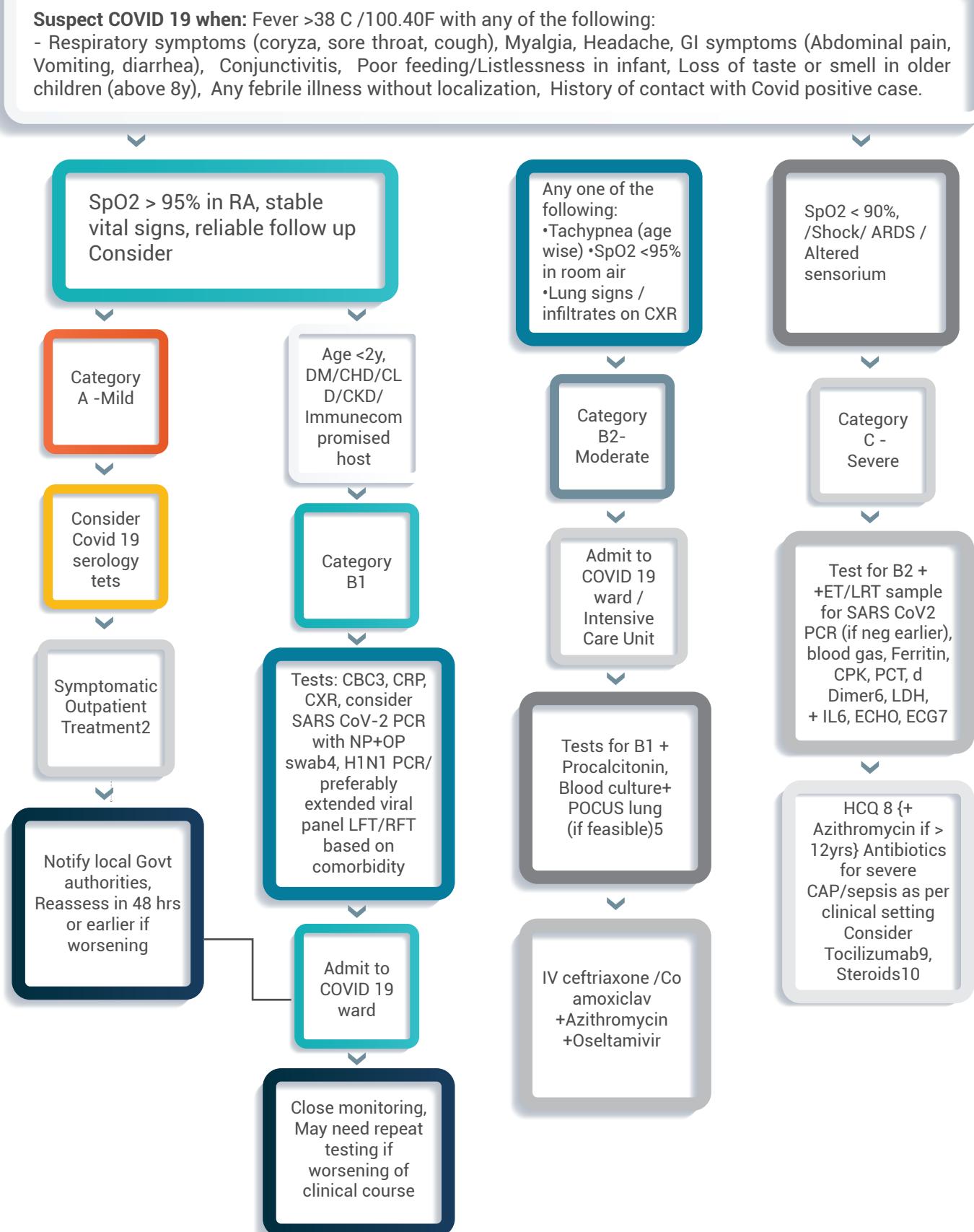
- Dr. Babu Abraham, Chennai.  
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Management protocol  
**for pediatric Covid 19**

## Management Protocol For Pediatric Covid 19



1. A positive serology would need follow up PCR testing and negative serology may need repetition after 10 days (see ICMR guideline)
2. 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.
3. 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
4. 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. Document two negative testing 24 hours apart in a patient with clinico-radiological resolution before discharge
5. CT scan though is more sensitive than CXR and USG, it should not be used for confirmation of diagnosis. Its use is discouraged due to risk of radiation exposure and occupational risk.
6. D-dimer >1mcg/ml predicts poor prognosis at an early stage. LMWH is controversial and may be considered in patients with very high d-dimer levels (>6 times normal)
7. Daily ECG (to monitor QTc)
8. HCQ is used at the dose of 7 to 8mg/kg/dose BID on day 1 (max 400mg/day) followed by 7-8mg/kg OD (max. 200mg/day) from day 2 to day 5. Contraindications for hydroxychloroquine:

QTc>500msec; drug interactions; myasthenia gravis; porphyria; retinal pathology; epilepsy. Perform basic biochemistry and ECG daily if initial QTc> 450 msec. Avoid quinolones and macrolides if possible or monitor QTc closely if these are needed.

9. Tocilizumab may be considered in > 2 years if IL-6 levels are elevated at the dose of 4-8 mg/kg
10. 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. The role of Steroids is controversial. Consider Methylprednisolone 1-2 mg/kg per day in divided doses.

#### **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
- Treatment experiences are based on in-vitro data and very minimal clinical experience
- 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





## Pediatric ICU / **HDU management**

## 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 (procalcitonin, 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 (<i>I<sup>st</sup> preference</i>)</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> =/≥ 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: Worsening ROX &lt;4.88 (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 (<b>NOT standalone NIV machine</b>)</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>

• Monitor and document SaO<sub>2</sub> and saturation/ FiO<sub>2</sub> ratio (SF): Aim for oxygen saturation > 92% and SF > 265
 

- Consider awake proning if hypoxia persists
- Consider low dose dexmedetomidine infusion in the event of irritability
  - Perform blood gases Q 4-8H if elevated CO<sub>2</sub> is of concern
  - Maintain negative fluid balance if BP and MAP stable

#### **Responders**

- Respiratory distress improved
- Heart rate and respiratory rates decrease by 20%
- FiO<sub>2</sub> requirements < 0.5

*Continue therapy, monitor for worsening and secondary infections*

#### **Non-responders: consider Intubation**

#### **Indications for intubation**

- Persistent or Worsening respiratory distress, SpO<sub>2</sub> <88-90% on HFNC/NIV with Fio<sub>2</sub> >0.6
- Contraindications to NIV (Hemodynamic instability, altered mental status)
- Progressive hypercapnia, rising pCO<sub>2</sub>, pH <7.35 (most patients are hypocapneic)
- Drowsiness, fatigue
- Refractory shock with need for high dose pressors, cardiac dysfunction, Lactic acidosis
- Consider for multi-organ failure
- CNS issues: encephalopathy seizures with inability to maintain airway ± hypoventilation
- Timely intubation in the presence of experienced personnel for high risk children\*

\*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.

- 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:  $\text{FiO}_2 < 0.6$ , 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  $\text{SpO}_2 > 88\%$
- Consider dead space effect for persistent poor compliance, hypoxemia and elevated airway pressures: may need to decrease PEEP and minimize airway pressures
- Target- O<sub>2</sub> sats >88%, pH > 7.15 (if RV dysfunction or PHT present, aim for pH 7.3)
- Limit Driving pressure <15cmH<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 HFV
- 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

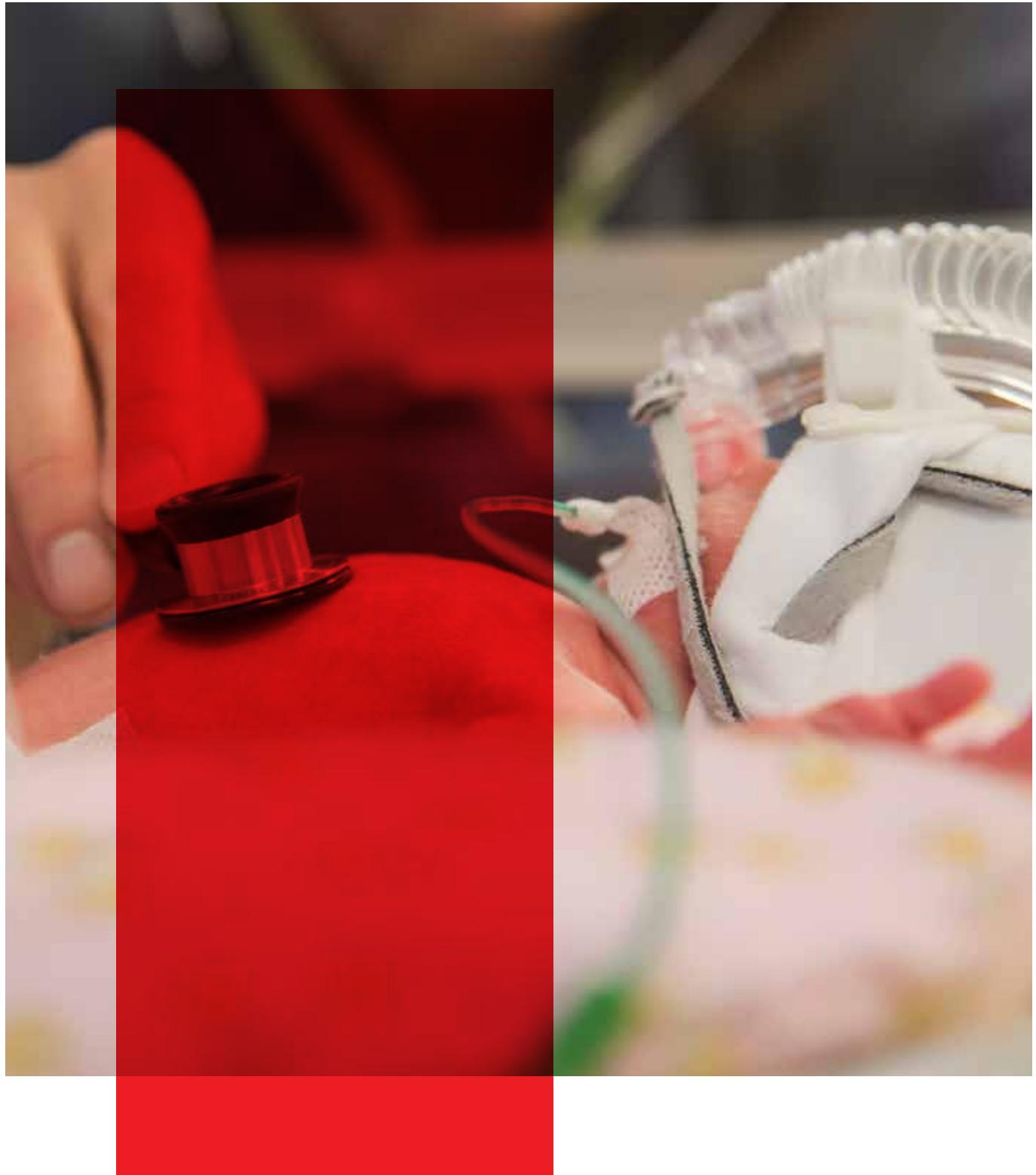
- Consider Azithromycin
- Consider tocilizumab\*, Consider steroids(methylprednisolone)

### # 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**

# 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	1. Daily CBC – monitor lymphocyte count 2. RT PCR for Nasopharyngeal swab and anal swab on day 2,4,6/7 3. Daily CXR if on the ventilator 4. d-Dimer / IL – 6? Useful in neonate as a disease predictor 5. ? Use for Hydrexylchloroquine at a dose of 5 mg / kg / d÷2 (Not approved in 1 month of age)	

1. Use of full PPE by all healthcare providers is mandatory. Donning and Doffing done step wise in designated areas.
2. Neonatal resuscitations undertaken atleast 2 meters away from mother
3. Follow standard NRP guidelines – to provide PPV, use only self inflating bag & mask and NOT 'T - piece'
4. Commonly used neonatal resuscitation equipment to be readily available in disposable grab bags so as to avoid taking the whole trolley
5. Obtain & save cord blood for COVID – 19 IgM & IgG
6. All babies needing respiratory support nursed in an incubator and try and place the expiratory limb of the circuit inside incubator if possible
7. Breast feeding is permissible in COVID positive mother
8. Equipment and isolation areas cleaned according to hospital policy for COVID patients



# Management Protocol for Pediatric Covid 19, Apollo Hospitals

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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

Senior citizens above the age of 60 years face an increased risk in COVID times. This is an advisory for Senior Citizens and their caregivers on how to protect them from increased health risk during this period.

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> </ul>

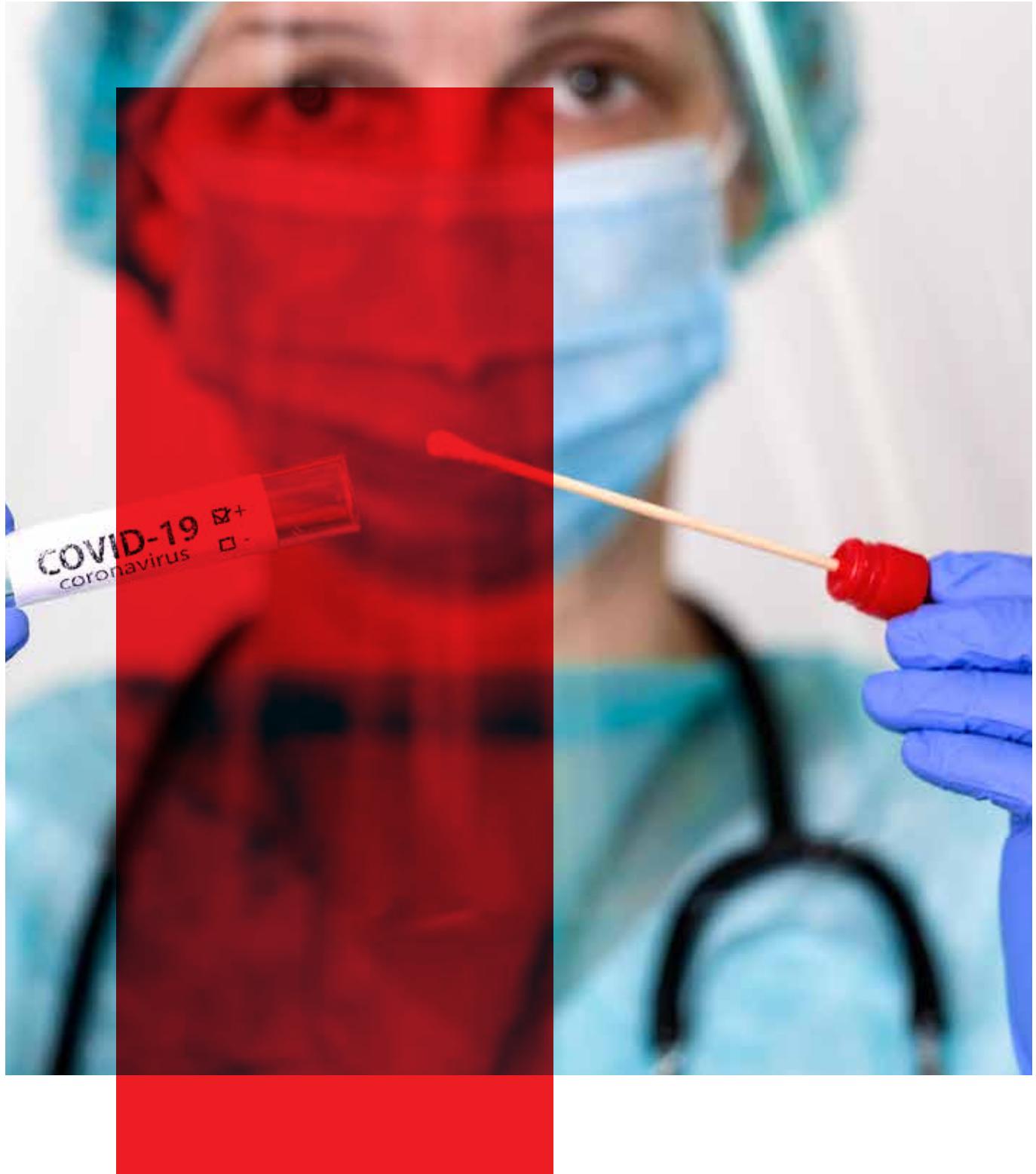
## Advisory for senior citizens on mental well-being

Do's	Don'ts
<ul style="list-style-type: none"> <li>• Communicate with relatives at home</li> <li>• Communicate with neighbours, provided social distancing is followed, and gathering of people is avoided</li> <li>• Provide a peaceful environment</li> <li>• Rediscover old hobbies like painting, listening to music, reading</li> <li>• Make sure to access and believe only the most reliable sources of information</li> <li>• Avoid tobacco, alcohol and other drugs to avoid loneliness or boredom</li> <li>• If you have an already existing mental</li> </ul>	<ul style="list-style-type: none"> <li>• Isolate yourself</li> <li>• Confine oneself in a room</li> <li>• Follow any sensational news or social media posts.</li> <li>• Spread or share any unverified news or information further</li> </ul>

### Contact helpline in case of

- Change in mental status, such as excessively drowsy during the day, not responding, speaking inappropriately
- New onset of inability to recognise relative which he/she could do before





Clinical **protocols**



## Clinical Protocols

**Government Of India, Ministry Of Health & Family Welfare  
Directorate General Of Health Services  
March 31, 2020**

### Case definition:

- All symptomatic contacts of laboratory confirmed cases  
or
- All symptomatic healthcare personnel (HCP)  
or
- All hospitalized patients with severe acute respiratory illness ( SARI) (fever AND cough and/or shortness of breath)
- or
- Asymptomatic direct and high risk contacts of a confirmed case (should be tested once between day 5 and day 14 after contact)

Symptomatic refers to fever/cough/shortness of breath. Direct and high-risk contacts include those who live in the same household with a confirmed case and HCP who examined a confirmed case.

### Confirmed case

A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms

### Clinical features

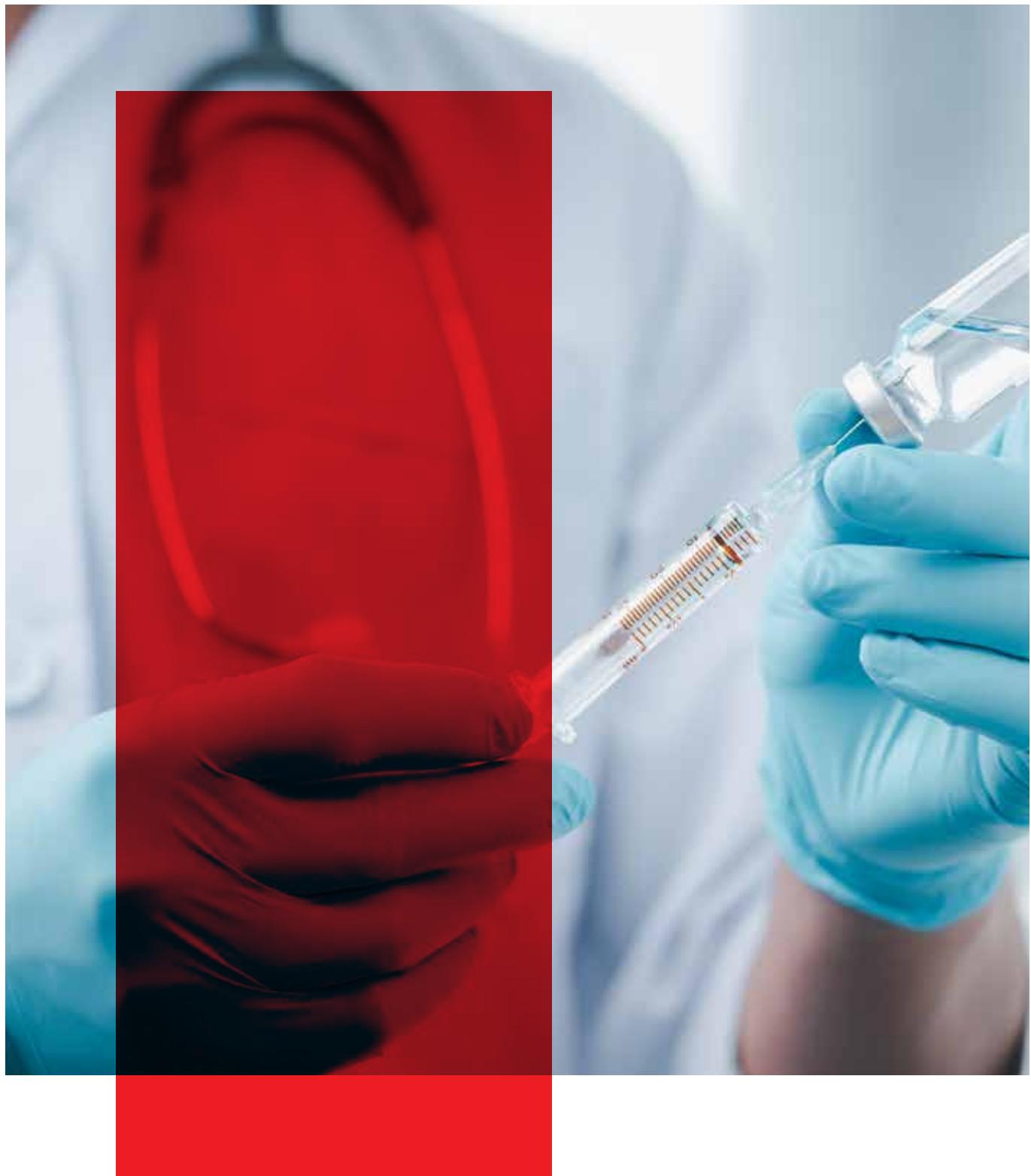
COVID-19 may present with mild, moderate, or severe illness; the latter includes severe pneumonia, ARDS, sepsis and septic shock. Early recognition of suspected patients allows for timely initiation of IPC (see Table 1). Early identification of those with severe manifestations (see Table 1) allows for immediate optimized supportive care treatments and safe, rapid admission (or referral) to intensive care unit



**Table 1: Clinical syndromes associated with COVID-19 infection**

<b>Uncomplicated illness</b>	Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, headache. The elderly and immunosuppressed may present with atypical symptoms.
<b>Mild pneumonia</b>	Patient with pneumonia and no signs of severe pneumonia.  Child with non-severe pneumonia has cough or difficulty in breathing/ fast breathing: (fast breathing - in breaths/min): <2 months, ≥60; 2–11 months, ≥50; 1–5 years, ≥40 and no signs of severe pneumonia
<b>Severe pneumonia</b>	Adolescent or adult: fever or suspected respiratory infection, plus one of the following; respiratory rate >30 breaths/min, severe respiratory distress, SpO <sub>2</sub> <90% on room air  Child with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO <sub>2</sub> <90%; severe respiratory distress (e.g. grunting, chest in-drawing); signs of pneumonia with any of the following danger signs: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions. Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): <2 months ≥60; 2–11 months ≥50; 1–5 years ≥40. The diagnosis is clinical; chest imaging can exclude complications.
<b>Acute Respiratory Distress Syndrome</b>	<b>Onset:</b> new or worsening respiratory symptoms within one week of known clinical insult. <b>Chest imaging (radiograph, CT scan, or lung ultrasound):</b> bilateral opacities, not fully explained by effusions, lobar or lung collapse, or nodules.  <b>Origin of oedema:</b> respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of oedema if no risk factor present. <b>Oxygenation (adults):</b> <ul style="list-style-type: none"> <li>• Mild ARDS: 200 mmHg &lt; PaO<sub>2</sub>/FiO<sub>2</sub> ≤ 300 mmHg (with PEEP or CPAP ≥5 cm H<sub>2</sub>O, or non-ventilated)</li> <li>• Moderate ARDS: 100 mmHg &lt; PaO<sub>2</sub>/FiO<sub>2</sub> ≤ 200 mmHg with PEEP ≥ 5 cm H<sub>2</sub>O, or non-ventilated)</li> <li>• Severe ARDS: PaO<sub>2</sub>/FiO<sub>2</sub> ≤ 100 mmHg with PEEP ≥ 5 cm H<sub>2</sub>O, or non-ventilated)</li> <li>• When PaO<sub>2</sub> is not available, SpO<sub>2</sub>/FiO<sub>2</sub> ≤ 315 suggests ARDS (including non-ventilated patients)</li> </ul>

	<p>Oxygenation (children; note OI = Oxygenation Index and OSI = Oxygenation Index using SpO<sub>2</sub>)</p> <ul style="list-style-type: none"> <li>• Bilevel NIV or CPAP <math>\geq 5</math> cm H<sub>2</sub>O via full face mask: PaO<sub>2</sub>/FiO<sub>2</sub> <math>\leq 300</math> mmHg or SpO<sub>2</sub>/FiO<sub>2</sub> <math>\leq 264</math></li> <li>• Mild ARDS (invasively ventilated): <math>4 \leq OI &lt; 8</math> or <math>5 \leq OSI &lt; 7.5</math></li> <li>• Moderate ARDS (invasively ventilated): <math>8 \leq OI &lt; 16</math> or <math>7.5 \leq OSI &lt; 12.3</math></li> <li>• Severe ARDS (invasively ventilated): <math>OI \geq 16</math> or <math>OSI \geq 12.3</math></li> </ul>
<b>Sepsis</b>	<p><b>Adults:</b> life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection, with organ dysfunction. Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia.</p> <p><b>Children:</b> suspected or proven infection and <math>\geq 2</math> SIRS criteria, of which one must be abnormal temperature or white bold cell count</p>
<b>Septic Shock</b>	<p><b>Adults:</b> persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP <math>\geq 65</math> mmHg and serum lactate level <math>&lt; 2</math> mmol/L</p> <p><b>Children:</b> any hypotension (SBP <math>&lt;</math>5th centile or <math>&gt;2</math> SD below normal for age) or 2-3 of the following: altered mental state; bradycardia or tachycardia (HR <math>&lt;90</math> bpm or <math>&gt;160</math> bpm in infants and HR <math>&lt;70</math> bpm or <math>&gt;150</math> bpm in children); prolonged capillary refill (<math>&gt;2</math> sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia</p>

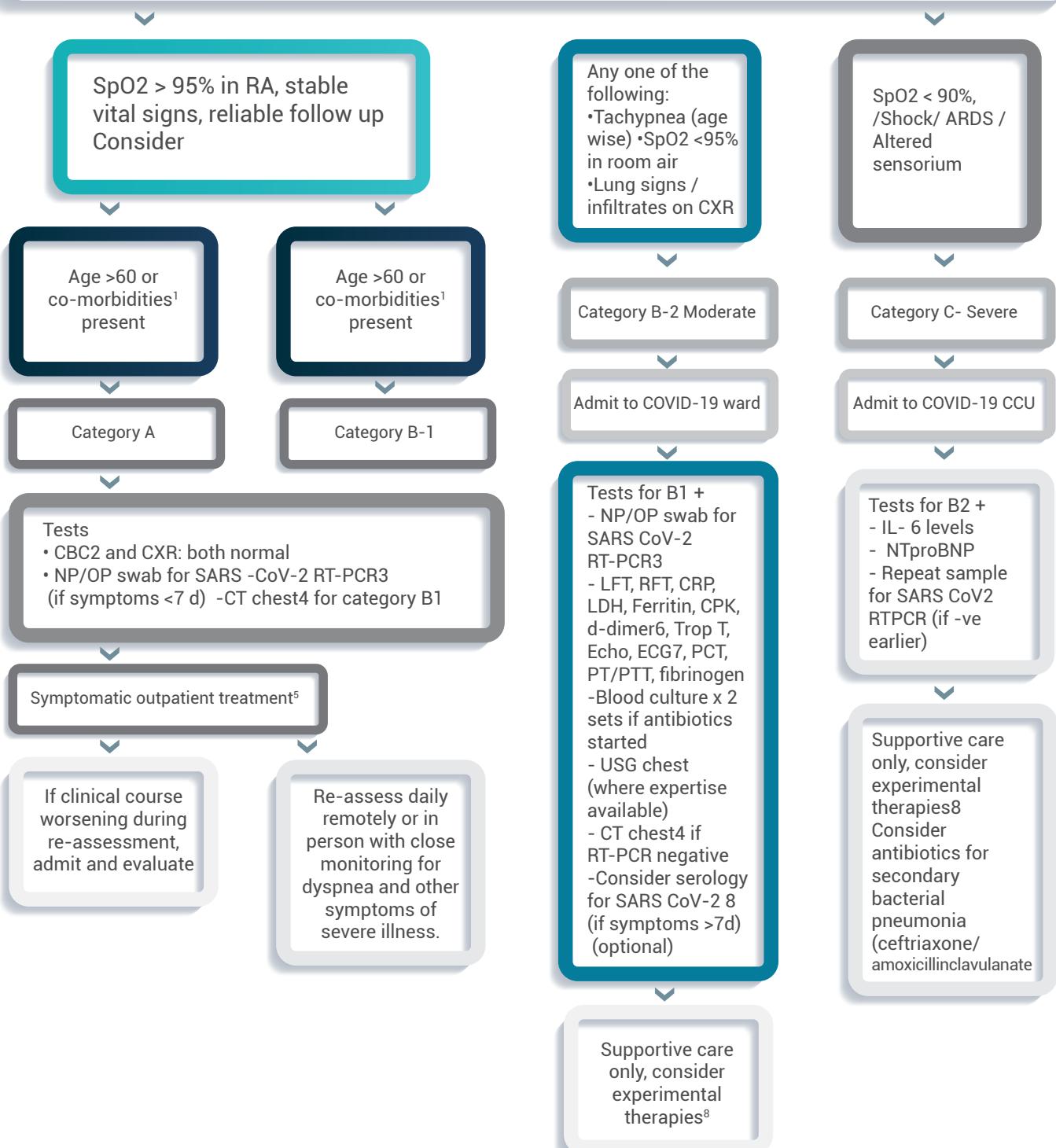


## Investigation and treatment **protocol for Covid 19**

## Investigation and treatment protocol for covid 19

**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 older children (above 8y), Any febrile illness without localization, History of contact with Covid positive case.



<sup>1</sup>Diabetes mellitus, hypertension, chronic kidney/liver/lung/heart disease, immune suppression/PLHIV

<sup>2</sup>Lymphocytopenia is a risk factor for progression to severe disease, monitor trend of lymphocyte count. Neutrophil lymphocyte ratio >3.13 is an independent risk factor for severe disease.

<sup>3</sup>Testing in A and B1 categories is for public health and clinical purposes. 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 suspicion is high. Document two negative tests 24 hours apart in a patient with clinico-radiological improvement before discharge.

<sup>4</sup>A positive serology requires follow up PCR testing and negative serology may need repetition after 10 days as per ICMR guideline

<sup>5</sup>Patients treated on outpatient basis should be advised regarding home quarantine and warning signs and advised need for close follow up.

<sup>6</sup>Start prophylactic dose LMWH unless there is active bleeding or a platelet count of <25×10<sup>9</sup>/L. dimer >1mcg/ml predicts poor prognosis. LMWH is especially indicated in patients with very high ddimer levels (>6 times normal)

<sup>7</sup>Daily ECG (to monitor QTc) if on therapy that affects QTc

<sup>8</sup>Experimental therapies for COVID:

Hydroxychloroquine (HCQ): Dose of 400 mg bd on day one followed by 200 mg bd for 5-7 days. Contraindications: QTc>500msec. myasthenia gravis, porphyria, retinal pathology, epilepsy. Pregnancy is not a contra-indication. Perform basic biochemistry and ECG daily if initial QTc> 450 msec. Avoid quinolones and other drugs that prolong QTc if possible or monitor QTc closely if these are needed.

Azithromycin: Dose of 500mg on day1, 250 mg on day 2-day 5.

Tocilizumab: Dose of 4-8 mg/kg or 400mg iv once, can repeat another dose in 12 hours (not to exceed 800mg of total dose)

Corticosteroids: Methylprednisolone 1mg/kg/day for 5 days or equivalent

Convalescent plasma therapy as per nationally defined protocol

Other agents not available in India: Remdesivir, Favipiravir.

### Note:

1. This guideline will be updated as more information and research comes in
2. Consider getting an informed consent wherever newer/unlicensed tests are used

### Abbreviations

RFT: renal function test, LFT: liver function test, RVP: respiratory viral panel, NP/OP: naso/oropharyngeal, CXR: chest X ray, PCT: procalcitonin, LMWH: low-molecular-weight heparin

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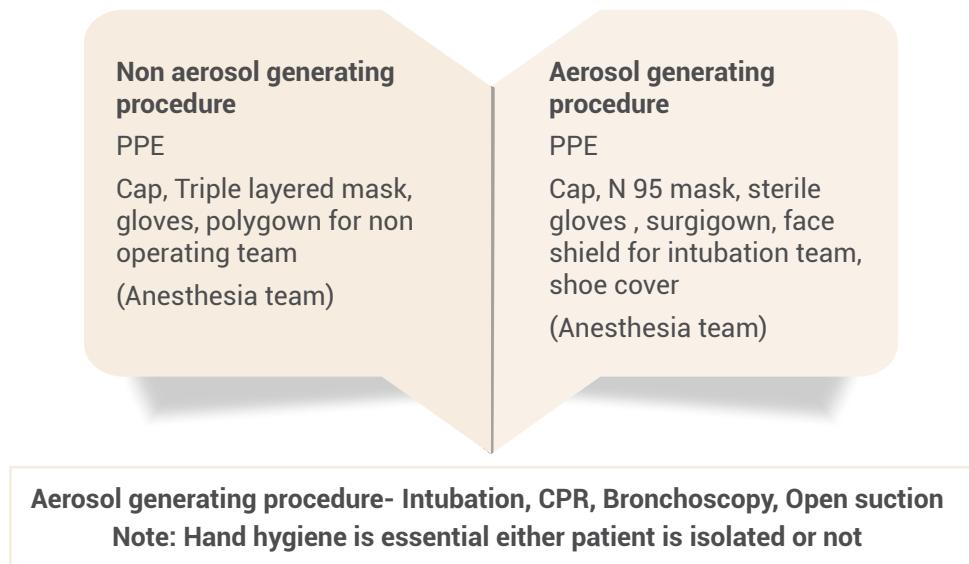




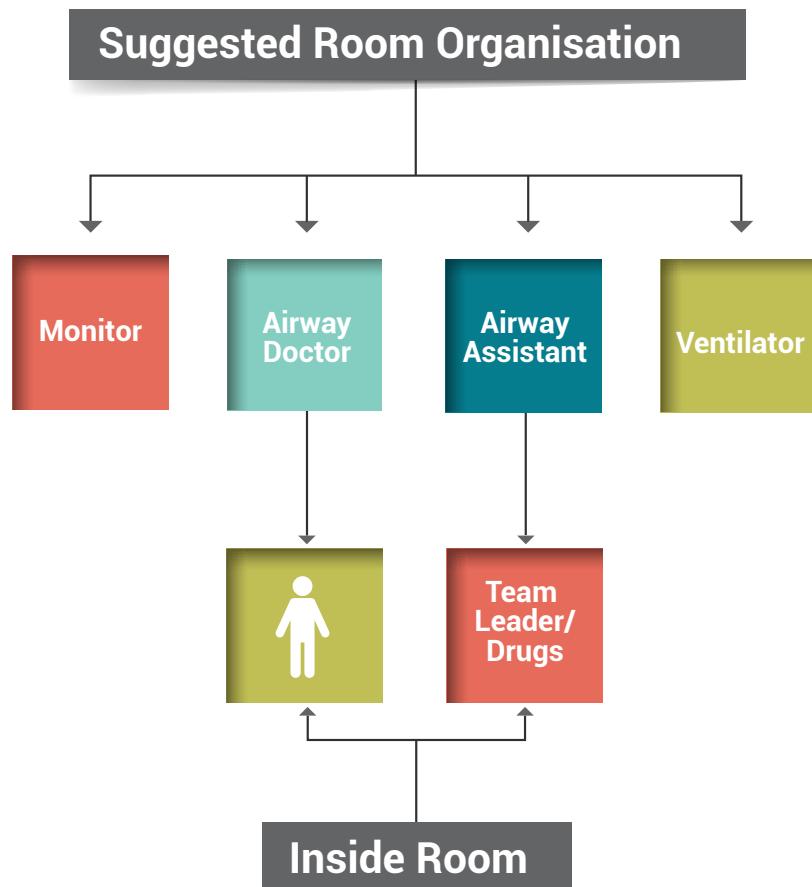
Interim protocol-emergency  
**procedure on suspected**  
**covid 19 patient**

## Interim Protocol

### A) Emergency Procedure On Suspected Covid 19 Patient



### 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

### 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)

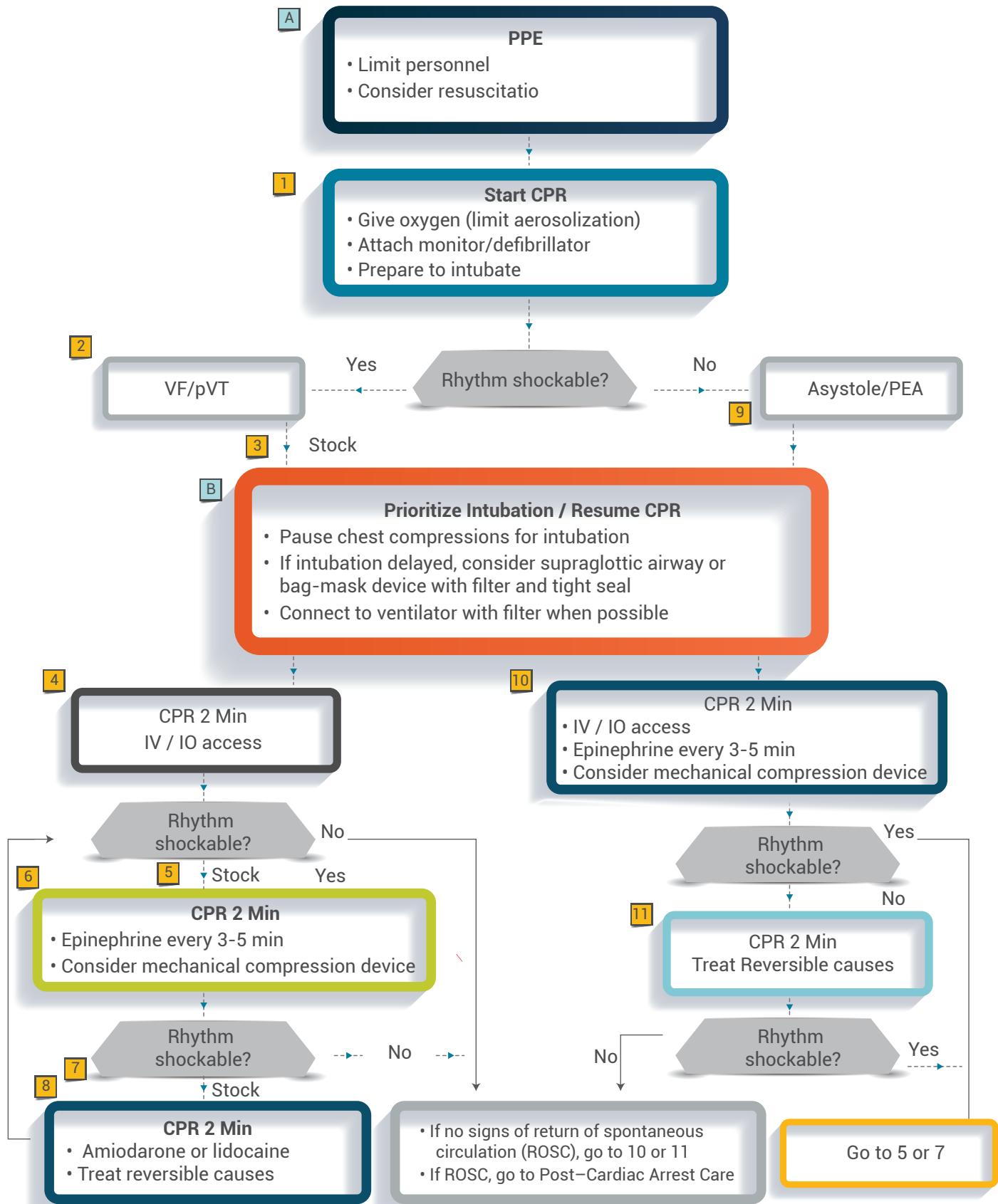




ACLS cardiac arrest algorithm  
**for suspected or confirmed  
covid-19 patients**

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

2020 American Heart Association

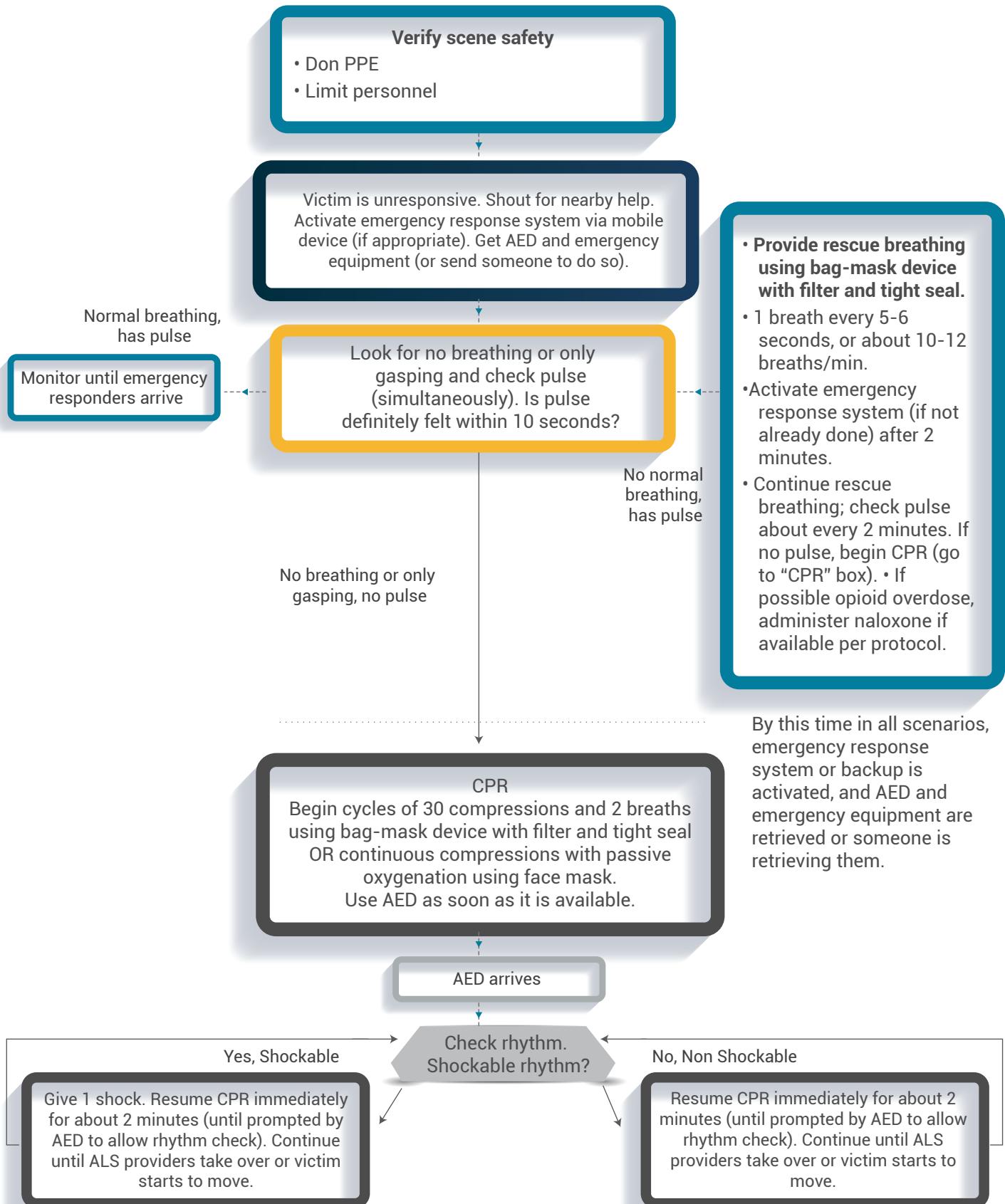




BLS healthcare provider adult cardiac  
**arrest algorithm for suspected or  
confirmed Covid-19 patients**

# 2020 American Heart Association

(Updated April 2020)



## Immediate implementation of appropriate IPC measures

Infection prevention control (IPC) is a critical and integral part of clinical management of patients and should be initiated at the point of entry of the patient to hospital (typically the Emergency Department). Standard precautions should always be routinely applied in all areas of health care facilities. Standard precautions include hand hygiene; use of PPE to

avoid direct contact with patients' blood, body fluids, secretions (including respiratory secretions) and non-intact skin. Standard precautions also include prevention of needle-stick or sharps injury; safe waste management; cleaning and disinfection of equipment; and cleaning of the environment.

**Table 2: How to implement infection prevention and control measures for patients with suspected or confirmed COVID - 19 infection**

<b>At triage</b>	<p>Give suspect patient a triple layer surgical mask and direct patient to separate area, an isolation room if available. Keep at least 1meter distance between suspected patients and other patients. Instruct all patients to cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others.</p> <p>Perform hand hygiene after contact with respiratory secretions</p>
<b>Apply droplet precautions</b>	<p>Droplet precautions prevent large droplet transmission of respiratory viruses.</p> <p>Use a triple layer surgical mask if working within 1-2 metres of the patient. Place patients in single rooms, or group together those with the same etiological diagnosis.</p> <p>If an etiological diagnosis is not possible, group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation. When providing care in close contact with a patient with respiratory symptoms (e.g. coughing or sneezing), use eye protection (face-mask or goggles), because sprays of secretions may occur. Limit patient movement within the institution and ensure that patients wear triple layer surgical masks when outside their rooms</p>
<b>Apply contact precautions</b>	<p>Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing/interfaces). Use PPE (triple layer surgical mask, eye protection, gloves and gown) when entering room and remove PPE when leaving.</p> <p>If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use. Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands . Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches).</p>
<b>Apply airborne precautions when performing an aerosol generating procedure</b>	<p>Ensure adequate room ventilation. Avoid movement of patients or transport.</p> <p>Perform hand hygiene</p> <p>Ensure that healthcare workers performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95). (The scheduled fit test should not be confused with user seal check before each use.) Whenever possible, use adequately ventilated single rooms when performing aerosol-generating procedures, meaning negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second/patient in facilities with natural ventilation. Avoid the presence of unnecessary individuals in the room. Care for the patient in the same type of room after mechanical ventilation commences</p>

## Early supportive therapy and monitoring

- a. Give supplemental oxygen therapy immediately to patients with SARI and respiratory distress, hypoxaemia, or shock: Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO<sub>2</sub> ≥ 90% in non-pregnant adults and SpO<sub>2</sub> ≥ 92–95 % in pregnant patients. Children with emergency signs (obstructed or absent breathing, severe respiratory distress, central cyanosis, shock, coma or convulsions) should receive oxygen therapy during resuscitation to target SpO<sub>2</sub> ≥94%; otherwise, the target SpO<sub>2</sub> is ≥90%. All areas where patients with SARI are cared for should be equipped with pulse oximeters, functioning oxygen systems and disposable, single- use, oxygen-delivering interfaces (nasal cannula, simple face mask, and mask with reservoir bag). Use contact precautions when handling contaminated oxygen interfaces of patients with COVID – 19.
- b. Use conservative fluid management in patients with SARI when there is no evidence of shock: Patients with SARI should be treated cautiously with intravenous fluids, because aggressive fluid resuscitation may worsen oxygenation, especially in settings where there is limited availability of mechanical ventilation.
- c. Give empiric antimicrobials to treat all likely pathogens causing SARI. Give antimicrobials within one hour of initial patient assessment for patients with sepsis: Although the patient may be suspected to have COVID - 19, Administer appropriate empiric antimicrobials within ONE hour of identification of sepsis. Empirical antibiotic treatment should be based on the clinical diagnosis (community-acquired pneumonia, health care-associated pneumonia [if infection was acquired in healthcare setting], or sepsis), local epidemiology and susceptibility data, and treatment guidelines. Empirical therapy includes a neuraminidase inhibitor for treatment of influenza when there is local circulation or other risk factors, including travel history or exposure to animal influenza viruses. Empirical therapy should be de-escalated on the basis of microbiology results and clinical judgment
- d. Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials unless they are indicated for another reason: A systematic review of observational studies of corticosteroids administered to patients with SARS reported no survival benefit and possible harms (avascular necrosis, psychosis,

diabetes, and delayed viral clearance). A systematic review of observational studies in influenza found a higher risk of mortality and secondary infections with corticosteroids; the evidence was judged as very low to low quality due to confounding by indication. A subsequent study that addressed this limitation by adjusting for time-varying confounders found no effect on mortality. Finally, a recent study of patients receiving corticosteroids for MERS used a similar statistical approach and found no effect of corticosteroids on mortality but delayed lower respiratory tract (LRT) clearance of MERS-CoV. Given lack of effectiveness and possible harm, routine corticosteroids should be avoided unless they are indicated for another reason. See section F for the use of corticosteroids in sepsis.

- e. Closely monitor patients with SARI for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis, and apply supportive care interventions immediately: Application of timely, effective, and safe supportive therapies is the cornerstone of therapy for patients that develop severe manifestations of COVID – 19.
- f. Understand the patient's co-morbid condition(s) to tailor the management of critical illness and appreciate the prognosis: During intensive care management of SARI, determine which chronic therapies should be continued and which therapies should be stopped temporarily.
- g. Communicate early with patient and family: Communicate pro-actively with patients and families and provide support and prognostic information. Understand the patient's values and preferences regarding life-sustaining intervention



## Management of failure and ARDS

- Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy. Patients may continue to have increased work of breathing or hypoxemia even when oxygen is delivered via a face mask with reservoir bag (flow rates of 10-15 L/min, which is typically the minimum flow required to maintain bag inflation; FiO<sub>2</sub> 0.60-0.95). Hypoxemic respiratory failure in ARDS commonly results from intrapulmonary ventilation-perfusion mismatch or shunt and usually requires mechanical ventilation.
- High – flow nasal catheter oxygenation or non – invasive mechanical ventilation: When respiratory distress and/or hypoxemia of the patient cannot be alleviated after receiving standard oxygen therapy, high – flow nasal cannula oxygen therapy or non – invasive ventilation can be considered. If conditions do not improve or even get worse within a short time (1 – 2 hours), tracheal intubation and invasive mechanical ventilation should be used in a timely manner. Compared to standard oxygen therapy, HFNO reduces the need for intubation. Patients with hypercapnia (exacerbation of obstructive lung disease, cardiogenic pulmonary oedema), hemodynamic instability, multi-organ failure, or abnormal mental status should generally not receive HFNO, although emerging data suggest that HFNO may be safe in patients with mild-moderate and non-worsening hypercapnia<sup>25</sup>. Patients receiving HFNO should be in a monitored setting and cared for by experienced personnel capable of endotracheal intubation in case the patient acutely deteriorates or does not improve after a short trial (about 1 hr).
- NIV guidelines make no recommendation on use in hypoxemic respiratory failure (apart from

cardiogenic pulmonary oedema and post-operative respiratory failure) or pandemic viral illness (referring to studies of SARS and pandemic influenza). Risks include delayed intubation, large tidal volumes, and injurious transpulmonary pressures. Limited data suggest a high failure rate when MERS patients received NIV. Patients receiving a trial of NIV should be in a monitored setting and cared for by experienced personnel capable of endotracheal intubation in case the patient acutely deteriorates or does not improve after a short trial (about 1 hr). Patients with hemodynamic instability, multiorgan failure, or abnormal mental status should not receive NIV

- Recent publications suggest that newer HFNO and NIV systems with good interface fitting do not create widespread dispersion of exhaled air and therefore should be associated with low risk of airborne transmission.
- Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions. Patients with ARDS, especially young children or those who are obese or pregnant, may de-saturate quickly during intubation. Pre-oxygenate with 100% FiO<sub>2</sub> for 5 minutes, via a face mask with reservoir bag, bag-valve mask, HFNO, or NIV. Rapid sequence intubation is appropriate after an airway assessment that identifies no signs of difficult intubation.
- Implement mechanical ventilation using lower tidal volumes (4–8 ml/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure <30 cmH<sub>2</sub>O). This is a strong recommendation from a clinical guideline for patients with ARDS, and is suggested for patients with sepsis-induced respiratory failure. The initial tidal volume is 6 ml/kg PBW; tidal volume up to 8 ml/kg PBW is allowed if undesirable side effects occur (e.g. dyssynchrony, pH <7.15). Hypercapnia is permitted if meeting the pH goal of 7.30–7.45. Ventilator protocols are available. The use of deep sedation may be required to control respiratory drive and achieve tidal volume targets.
- In patients with severe ARDS, prone ventilation for >12 hours per day is recommended. Application of prone ventilation is strongly recommended for adult and paediatric patients with severe ARDS but requires sufficient human resources and expertise to be performed safely.
- Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion.
- In patients with moderate or severe ARDS, higher PEEP instead of lower PEEP is suggested. PEEP



titration requires consideration of benefits (reducing atelectrauma and improving alveolar recruitment) vs. risks (end-inspiratory overdistension leading to lung injury and higher pulmonary vascular resistance). Tables are available to guide PEEP titration based on the FiO<sub>2</sub> required to maintain SpO<sub>2</sub>. A related intervention of recruitment manoeuvres (RMs) is delivered as episodic periods of high continuous positive airway pressure [30–40 cm H<sub>2</sub>O], progressive incremental increases in PEEP with constant driving pressure, or high driving pressure; considerations of benefits vs. risks are similar. Higher PEEP and RMs were both conditionally recommended in a clinical practice guideline. In patients with moderate- severe ARDS (PaO<sub>2</sub>/FiO<sub>2</sub><150), neuromuscular blockade by continuous infusion should not be routinely used.

- In settings with access to expertise in extracorporeal life support (ECLS), consider referral of patients with refractory hypoxemia despite lung protective ventilation. ECLS should only be offered in expert centres with a sufficient case volume to maintain expertise and that can apply the IPC measures required for COVID – 19 patients
- Avoid disconnecting the patient from the ventilator, which results in loss of PEEP and atelectasis. Use in-line catheters for airway suctioning and clamp endotracheal tube when disconnection is required (for example, transfer to a transport ventilator).

### **Management of septic shock**

- Recognize septic shock in adults when infection is suspected or confirmed AND vasopressors are needed to maintain mean arterial pressure (MAP) ≥ 65 mmHg AND lactate is < 2 mmol/L, in absence of hypovolemia. Recognize septic shock in children with any hypotension (systolic blood pressure [SBP] <5th centile or >2 SD below normal for age) or 2-3 of the following: altered mental state; tachycardia or bradycardia (HR <90 bpm or >160 bpm in infants and HR <70 bpm or >150 bpm in children); prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.
- In the absence of a lactate measurement, use MAP and clinical signs of perfusion to define shock. Standard care includes early recognition and the following treatments within 1 hour of recognition: antimicrobial therapy and fluid loading and vasopressors for hypotension. The use of central venous and arterial catheters should be based on resource availability and individual patient needs. Detailed guidelines are available for the management of septic shock in adults and children.
- In resuscitation from septic shock in adults, give at least 30 ml/kg of isotonic crystalloid in adults in the

first 3 hours. In resuscitation from septic shock in children in well-resourced settings, give 20 ml/kg as a rapid bolus and up to 40-60 ml/kg in the first 1 hr. Do not use hypotonic crystalloids, starches, or gelatins for resuscitation.

- Fluid resuscitation may lead to volume overload, including respiratory failure. If there is no response to fluid loading and signs of volume overload appear (for example, jugular venous distension, crackles on lung auscultation, pulmonary oedema on imaging, or hepatomegaly in children), then reduce or discontinue fluid administration. This step is particularly important where mechanical ventilation is not available. Alternate fluid regimens are suggested when caring for children in resource-limited settings.
- Crystalloids include normal saline and Ringer's lactate. Determine need for additional fluid boluses (250-1000 ml in adults or 10-20 ml/kg in children) based on clinical response and improvement of perfusion targets. Perfusion targets include MAP (>65 mmHg or age- appropriate targets in children), urine output (>0.5 ml/kg/hr in adults, 1 ml/kg/hr in children), and improvement of skin mottling, capillary refill, level of consciousness, and lactate. Consider dynamic indices of volume responsiveness to guide volume administration beyond initial resuscitation based on local resources and experience. These indices include passive leg raises, fluid challenges with serial stroke volume measurements, or variations in systolic pressure, pulse pressure, inferior vena cava size, or stroke volume in response to changes in intrathoracic pressure during mechanical ventilation.
- Administer vasopressors when shock persists during or after fluid resuscitation. The initial blood pressure target is MAP ≥65 mmHg in adults and age-appropriate targets in children.
- If central venous catheters are not available, vasopressors can be given through a peripheral IV, but use a large vein and closely monitor for signs of extravasation and local tissue necrosis. If extravasation occurs, stop infusion. Vasopressors can also be administered through intraosseous needles.
- If signs of poor perfusion and cardiac dysfunction persist despite achieving MAP target with fluids and vasopressors, consider an inotrope such as dobutamine.

### **Other therapeutic measures:**

For patients with progressive deterioration of oxygenation indicators, rapid worsening on imaging and excessive activation of the body's inflammatory response, glucocorticoids can be used for a short period of time (3 to 5 days). It is recommended that dose should not exceed the equivalent of methylprednisolone 1 – 2mg/kg/day. Note that a larger dose of glucocorticoid will delay the removal of coronavirus due to immunosuppressive effects. For pregnant severe and critical cases, pregnancy should be preferably terminated. Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are essential. Patients

often suffer from anxiety and fear and they should be supported by psychological counseling.

### **Prevention of complications**

Implement the following interventions (Table 3) to prevent complications associated with critical illness. These interventions are based on Surviving Sepsis or other guidelines, and are generally limited to feasible recommendations based on high quality evidence.

**Table 3: Prevention of complications**

	<b>Interventions</b>
<b>Anticipated Outcome Reduce days of invasive mechanical ventilation</b>	<ul style="list-style-type: none"> <li>Use weaning protocols that include daily assessment for readiness to breathe spontaneously</li> <li>Minimize continuous or intermittent sedation, targeting specific titration endpoints (light sedation unless contraindicated) or with daily interruption of continuous sedative infusions</li> </ul>
<b>Reduce incidence of ventilator associated pneumonia</b>	<ul style="list-style-type: none"> <li>Oral intubation is preferable to nasal intubation in adolescents and adults</li> <li>Keep patient in semi-recumbent position (head of bed elevation 30–45°)</li> <li>Use a closed suctioning system; periodically drain and discard condensate in tubing</li> <li>Use a new ventilator circuit for each patient; once patient is ventilated, change circuit if it is soiled or damaged but not routinely</li> <li>Change heat moisture exchanger when it malfunctions, when soiled, or every 5–7 days</li> </ul>
<b>Reduce incidence of venous thromboembolism</b>	Use pharmacological prophylaxis (low molecular-weight heparin [preferred if available] or heparin 5000 units subcutaneously twice daily) in adolescents and adults without contraindications. For those with contraindications, use mechanical prophylaxis (intermittent pneumatic compression devices).
<b>Reduce incidence of catheter related bloodstream infection</b>	Use a checklist with completion verified by a real-time observer as reminder of each step needed for sterile insertion and as a daily reminder to remove catheter if no longer needed
<b>Reduce incidence of pressure ulcers</b>	Turn patient every two hours
<b>Reduce incidence of stress ulcers and gastrointestinal bleeding</b>	<ul style="list-style-type: none"> <li>Give early enteral nutrition (within 24–48 hours of admission)</li> <li>Administer histamine-2 receptor blockers or proton-pump inhibitors in patients with risk factors for GI bleeding. Risk factors for gastrointestinal bleeding include mechanical ventilation for ≥48 hours, coagulopathy, renal replacement therapy, liver disease, multiple co-morbidities, and higher organ failure score</li> </ul>
<b>Reduce incidence of ICU-related weakness</b>	<ul style="list-style-type: none"> <li>Actively mobilize the patient early in the course of illness when safe to do so</li> </ul>

## Specific therapy

NO SPECIFIC ANTIVIRALS have been proven to be effective as per currently available data. However, based on the available information (uncontrolled clinical trials), the following drugs may be considered as an off - label indication in patients with severe disease and requiring ICU management:

- Hydroxychloroquine (Dose 400mg BD – for 1 day followed by 200mg BD for 4 days)

In combination with

- Azithromycin (500 mg OD for 5 days)

These drugs should be administered under close medical supervision, with monitoring for side effects including QTc interval.

The above medication is presently not recommended for children less than 12 years, pregnant and lactating women.

**These guidelines are based on currently available information and would be reviewed from time to time as new evidence emerges.**





# 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. References.

- Epstein J, Burnout T. Points to consider in the preparation and transfusion of COVID-19 convalescent plasma. ISBT working party on global blood safety, March 2020
- COVID-19 Convalescent plasma collection: Donor eligibility, processing, labelling and distribution. AABB, updated on 04/04/2020
- Malik V. Drugs and Cosmetics Act, 1940. 13th ed. Lucknow (2001), India: Eastern Book Company
- Shen C et al. JAMA. Published online March 27. doi:10.1001/jama.2020.4783
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- Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Corona virus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Centre for Disease Control and Prevention. JAMA. Published online February 24, 2020. doi:10.1001/jama.2020.2648



- Menis M, Sridhar G, Selvam N, Ovanesov MV, Divan HA, Liang Y, et al. Hyperimmune globulins and same-day thrombotic adverse events as recorded in a large healthcare database during 2008–2011. Am J Hematol. 2013; 88:1035–40 Available from:  
<http://doi.wiley.com/10.1002/ajh.23559>. [cited 2020 Feb 15].
- Procedure manuals of automated apheresis machines.

## 4. Definition

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

## 5. 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
  - a. 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.
  - b. Report / written documentation may be hand carried by the potential donor
6. 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.
7. SARS-CoV-2 neutralizing antibody titers if feasible should be performed. A titer of  $\geq 160$  may be acceptable

#### 8. 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.

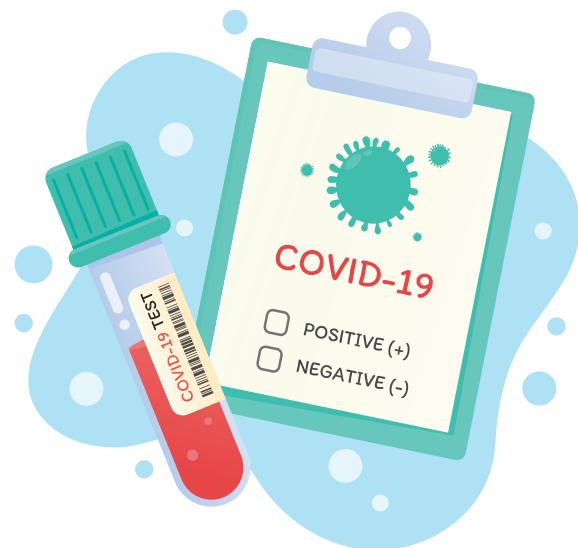
7. Plasma collected may be divided into desired number of aliquots (200-250 ml per aliquot)

#### 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  $-40^{\circ}\text{C}$  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. CCP 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

#### **6. 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.





Standard operating procedure  
**for ophthalmology**

# Standard Operating Procedure For Ophthalmologist

## General considerations:

1. For elective office visits, consider offering elective office visits remotely, via telemedicine if possible, in order to decrease the office density of patients, and provide needed care to patients who are less willing or unable to travel
2. Visual alerts such as signs and posters at entrances and in strategic places providing instruction on hand hygiene, respiratory hygiene, and cough etiquette
3. Present Screening protocol (portico): Pre-screen all patients for high risk exposure or symptoms. Patients should be asked about history of fever in addition to coryza, sore throat, cough, dyspnea, myalgia, GI symptoms, and conjunctivitis, loss of taste or smell, myocarditis/pericarditis. Any febrile illness >72 h without clinically overt localization, family members or close contacts with similar symptoms, any contact with a confirmed case of COVID-19, and recent travel to hot spot areas in the city, state or country at entry point screening by the organization. Self-declaration form to be signed by patient and attender
4. If positive for any high risk exposure or clinical symptoms appointment will be deferred at the entry point and patient would be directed to fever clinic and General physician from fever clinic would coordinate with the primary consultants
5. Second triage at the clinical assessment area is mandatory before reaching the consultant in his OP room
6. OP consultation of doctors should be scheduled in a staggered manner to prevent crowding in OP areas
7. All patients should wear at least a cloth mask at the entry point as it's a part of mask India movement and to hand hygiene before entering the hospital
8. Self-declaration form from each patient and attender
9. Glass partition at all OP counters.
10. Consultations strictly on appointment basis.
11. For walk-in patients, secretary of concerned OP to be informed and sent for appointment.
12. Patients to be sent inside the hospital only 15 minutes prior to their appointment time.
13. Only one attender per patient.
14. Priority to be given to patients with appointment
15. Patients should be seated at least 3 feet apart in waiting areas
16. Avoid aerosol generating procedure in OP area

17. Patient and attender should be seated at least 3 feet away from consultation desk.
18. Appointments for all investigations to be fixed by the secretary.
19. Disinfect the waiting hall and most-touched surfaces three times a day with Virex 256 solution as the systems will be incompatible with 1% Sodium hypochlorite solution. Mopping and cleaning of chairs in the waiting hall should be done with 1% Sodium hypochlorite solution.
20. Disinfect personal items like stethoscope, lenses, indirect and direct ophthalmoscopes, pen, and torches, and other such items. etc with alcohol arranged in OP areas between patients.

## Special consideration:

1. To decrease the risk of viral spread, ophthalmologists should inform their patients to refrain from talking during the slit-lamp examination.
2. To use slit lamp barrier
3. Doctors should wear triple layered mask while handling patient. Hand hygiene with alcohol based hand rub or hand washing with soap and water in between patient is mandatory. Face shield should be worn during examination of patient



4. Tonometer tip cleaning: The virus causing COVID-19 is an enveloped virus. 70% alcohol solutions are effective in disinfecting tonometer tips from SARS-CoV-2. Use single-use, disposable tonometer tips if available.
5. Multidose eye drops: For diagnostic eye drops required for ophthalmic examinations, multidose eye drop containers should be kept in cabinets or other closed spaces away from anywhere that could become contaminated during a patient encounter. As should always be the case, care must be taken not to touch the eyelashes or ocular surface with the tip of the eye drop bottle, and the examiner's hands should be disinfected immediately after touching the patient's face.
6. Slit-lamp barriers or breath shields: These can be designed indigenously by cutting out a transparent plastic sheet of an appropriate thickness. The slit lamp touch-contact parts should be cleaned by alcohol wipes after examining every patient and the barriers should be changed for each patient. Barriers can be washed with soap water, dried and reused
7. The retinal examination should be done in patients who need it, strictly with an indirect ophthalmoscope. Avoid direct ophthalmoscopy and contact lens-based fundus examination
8. Gonioscopy and visual field examination should be avoided unless mandatory

*Doctors should wear triple layered mask while handling patient. Hand hygiene with **alcohol based hand rub or hand washing with soap and water in between patient is mandatory.***





Communicating with  
**patients with suspected or  
confirmed Covid-19**

## Communicating with Patients 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





Patient and family  
**Education material**

# Patient and family Education (PPE) material

## PFE TYPE 1: HOME ISOLATION

### Steps to be taken for home isolation:

1. Link each person under home isolation with a healthcare provider
  2. Review the current health status of contacts for progression of symptoms
- The patients and the house hold members should be educated on –
- Personal hygiene
  - Basic infection prevention and control measures, on how to care for the suspected infected member of the family as safely as possible.
  - To prevent spread of infection to house hold contacts
  - The patient and family should be provided with ongoing support ,education and monitoring

### General Principles for patients during home isolation:

- Place the patients in a well-ventilated single room
- Limit the number of care takers of the patient
- Ideally assign one person who is in a good health without risk conditions.
- No VISITORS
- House hold members should stay in a different room
- If different room is not possible maintain the distance of at least one m from the ill person(example Sleep in a separate bed)
- Limit the movement of the patients and minimize shared space
- Ensure that shared spaces (example-kitchen, bathroom) are well ventilated (Keep windows open).

### Precautions by care givers and hand hygiene:

- The care giver to wear a medical mask fitted tightly when in room with the ill person
- Mask should not be touched or handled during use.
- If the mask gets wet or dirty with secretions, it must be changed immediately.
- Discard the mask after use and perform hand hygiene after removal of the mask.
- Perform hand hygiene following all contacts with ill person or their immediate environment
- Hand hygiene should also be performed before and after preparing food, before eating, after using the toilet and whenever hands look dirty.
- If hands are not visibly soiled, alcohol based hand rub can be used.
- Perform hand hygiene using soap and water when hands are visibly soiled.
- When using soap and water, disposable paper

towels to dry hands is desirable. If not available, use the dedicated cloth towels and replace them when they become wet.

### Respiratory hygiene and handling other biological waste:

- Respiratory hygiene should be practiced by all, especially ill persons
- Respiratory hygiene: cover mouth and nose during coughing or sneezing using medical masks, cloth masks, tissues followed by hand hygiene.
- Discard materials use to cover the mouth or nose or clean them appropriately after use(example wash handkerchiefs using regular soap or detergents and water)
- Avoid direct contacts with oral or respiratory secretions and stool
- Use disposable gloves to provide oral or respiratory care and when handling stool, urine and waste.
- Perform hand hygiene before and after removing gloves

### Common objects at home and cleaning and disinfecting:

- Avoid exposure to ill person or contaminated items (examples sharing tooth brushes, Cigarettes, eating utensils, drinks, towels, wash cloths or bed linen)
- Eating utensils and dishes should be cleaned with soap/detergents and water and may be reused.
- Clean and disinfect frequently touched surfaces daily with regular house hold disinfectants containing of diluted bleach solutions (one-part bleach to 99 part water)
- Clean and disinfect bathroom and toilet surfaces at least once daily with regular house hold disinfectant containing 1% diluted bleach solutions.
- Clean cloths, bed cloths, bath and hand towel of ill persons using regular laundry soap and water or machine wash at 60-90-degree C with common house hold detergent and dry thoroughly.
- Place contaminated linen into a laundry bag. Don't shake soiled laundry and avoid direct contact of the skin and clothes with the contaminated materials.
- Use disposable gloves and protective clothing (Plastic apron)
- when cleaning or handling surfaces, clothing or linen soiled with body fluids. Perform hand hygiene before and after removing gloves.

### Disposal of biological waste:

- Gloves, tissues, masks and other waste generated during the care of ill person should be placed in a lined container in the ill person's room.
- Waste may be disposed at a sanitary land fill and not an unmonitored open dump
- Additional measures may be needed to prevent unhygienic reuse of waste
- Institutional guidelines of biological waste disposal will be useful

### Transportation to health facilities:

- People under home isolation /Quarantine to be instructed not to travel themselves to any hospitals if they develop symptoms
- They need to travel in special transportation services arranged by the hospital or any local agents who know how to transfer a suspected COVID-19 patients.

## PFE Type 2: Covid –VE

Advise to suspected patients whose COVID-19 testing is Negative at the time of Discharge

- Advice for home Quarantine for minimum of 14 days
- Separate yourself from other people in your home as much as possible including using a separate bathroom, if possible.
- Please do self- monitoring for fever and other warning signs like shortness of breath, cough and sore throat
- Please call up primary care physician or emergency in case you become symptomatic.

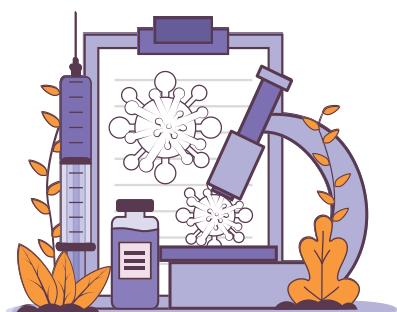
## PFE Type 3: Close Contacts With Covid +ve

Patient and Family Education Booklet for house hold member/Partners/Caregivers

Recommended precautions for household members, intimate partners and care givers who had close contact with a confirmed COVID-19 patient/a patient under investigation for COVID 19:

- Household members should stay in another room or be separated from the patient as much as possible. Household members should use a separate bathroom, if available.
- Prohibit visitors unless it is essential
- Perform hand hygiene frequently. Wash your hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Wear a disposable facemask and gloves if you have to touch or have contact with the patient's blood, stool, or body fluids, such as saliva, sputum, nasal mucus, vomit, urine.

- Throw out disposable facemasks and gloves after using them. Do not reuse.
- When removing, first remove and dispose of gloves. Then, immediately clean your hands with soap and water or alcohol-based hand sanitizer. Next, remove and dispose of facemask, and immediately clean your hands again with soap and water or alcohol-based hand sanitizer.
- Avoid sharing household items. You should not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items.
- Clean all "high-touch" surfaces, such as counters, table tops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them.
- Wash laundry thoroughly.
  - Immediately remove and wash clothes or bedding that have blood, stool, or body fluids on them.
  - Wear disposable gloves while handling soiled items and keep soiled items away from your body. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after removing your gloves.
  - You can use your washing machine if available. Dry the clothes thoroughly.
- Place all used disposable gloves, facemasks, and other contaminated items in a closed container before disposing of them with other household waste. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after handling these items. Soap and water should be used preferentially if hands are visibly dirty.
- Household members should care for any pets in the home. Do not handle pets or other animals while sick.
- Seek advice of your physician and have prophylaxis if indicated. Monitor your health; Seek advice of your physician right away if you develop symptoms suggestive of COVID-19 (e.g., fever, cough, shortness of breath)



## 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. Please note that we may have cameras in your room to monitor you from outside. So please be aware when you are changing clothes. Please ask your doctor/nurse about the location of these cameras.
5. 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.**
6. We will keep your food outside so that we provide minimal contact.
7. 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.
8. We will be in constant touch with your designated (one) family member to update them about your condition.
9. 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.
10. 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.



## Communication for Patient Family / Attendants

Minding our minds during the COVID-19

These can be difficult times for all of us as we hear about spread of COVID-19 from all over the world, through television, social media, newspapers, family and friends and other sources. The most common emotion faced by all is Fear. It makes us anxious and can even possibly make us think, say or do things that we might not consider appropriate under normal circumstances.

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.**

## Important Information (For Patient Family)

The team of experts at Apollo Hospitals, Hyderabad would like to inform you that:

- Your patient is being admitted in the ID ward.
- He/She will be staying in a single room and will be closely monitored.
- He/She will be provided with all medication, diet and other needs as required.
- No visitors are permitted for adult patients and hence no visitor pass will be issued. We understand that this will be difficult for our patients and their loved ones, but this is strictly to prevent the spread of the disease and a step to promote safety.
- Attendant(s)/family members are not allowed to be in the Health city campus. They are requested to strictly be at home.
- Please assign only 01 person, in good health, for needful requirement of your patient. Provide his/her mobile number to be contacted in case of any such need.
- Please be informed that ALL admissions to the ID ward will be CASH basis only. A deposit will be collected at the time of admission. Only if, pre-authorization is approved, insurance facility can be availed. If insurance gets approved, the deposit paid during admission, will be refunded after deducting the consumables/NMEs not covered under insurance scheme.

- The Doctor will update the patient condition every day through video call once a day and as and when required based on the patient condition. In case you further need any information, call to the numbers you are provided at the time of admission. Please minimise the call so that the staff can focus on patient care.
- Your point of contact to know anything about your patient /issues/discuss concerns that you may have will be ..... and he/she could be reached at .....
- The staff taking care of your patient would be using the recommended personal protection.
- No mobile phones will be allowed with the patient. We will try to connect you to your patient in certain situations.

## Covid Testing and Reporting

The COVID-19 testing and reporting is being done at Government designated hospital(s). The reports will be informed to you as and when it is made available to us. The duration of the report availability can range from 1-3 days.

## Billing / Insurance / Payments

You are expected to be in Home quarantine. Hence you will be informed via phone by the Billing manager and the pharmacist for advance /on-line payment.

## Consent

The patient condition will be explained and the treatment plans will be discussed with you. We will provide treatment as per patient clinical condition. However in the current situation we might not be in a condition to take written consents for procedures but will seek your verbal consent. All emergency procedures will be done as and when necessary for the patient.

## Precautions

- In case of any change in your or your family or the contacts health condition (fever, cough, running nose, breathing difficulty, pain abdomen, diarrhoea, others), please inform us at the earliest, so that we immediately take care of you.
- It is also strictly advised for a home quarantine and you will not move out of your house or mix with any family members.
- Please provide us atleast one phone number so as to help us to connect to you.

## Notification

As mandated by the State and Central Government, the patient details will be notified to all the concerned authorities.

## Request

It is a very unfortunate situation the world is going through. We at Apollo are committed to combat this disease. Our Doctors, Nurses, Paramedical and Technical staff will do their best for your patient to recover. The inherent risk to the lives of the clinical and non-clinical staff is well understood and undertaken. Request your support and your prayers and we are committed to provide the best medical care to your dear ones.

### For Help Contact

- |                         |                 |
|-------------------------|-----------------|
| • Billing assistance    | - Name (Number) |
| • Feedback / Grievances | - Name (Number) |

## Standard Operating Procedure for Ophthalmologist

### General considerations:

1. For elective office visits, consider offering elective office visits remotely, via telemedicine if possible, in order to decrease the office density of patients, and provide needed care to patients who are less willing or unable to travel
2. Visual alerts such as signs and posters at entrances and in strategic places providing instruction on hand hygiene, respiratory hygiene, and cough etiquette
3. Present Screening protocol (portico): Pre-screen all patients for high risk exposure or symptoms. Patients should be asked about history of fever in addition to coryza, sore throat, cough, dyspnea, myalgia, GI symptoms, and conjunctivitis, loss of taste or smell, myocarditis/pericarditis. Any febrile illness >72 h without clinically overt localization, family members or close contacts with similar symptoms, any contact with a confirmed case of COVID-19, and recent travel to hot spot areas in the city, state or country at entry point screening by the organization. Self-declaration form to be signed by patient and attender

4. If positive for any high risk exposure or clinical symptoms appointment will be deferred at the entry point and patient would be directed to fever clinic and General physician from fever clinic would coordinate with the primary consultants
  5. Second triage at the clinical assessment area is mandatory before reaching the consultant in his OP room
  6. OP consultation of doctors should be scheduled in a staggered manner to prevent crowding in OP areas
  7. All patients should wear at least a cloth mask at the entry point as it's a part of mask India movement and to hand hygiene before entering the hospital
  8. Self-declaration form from each patient and attender
  9. Glass partition at all OP counters.
  10. Consultations strictly on appointment basis.
  11. For walk-in patients, secretary of concerned OP to be informed and sent for appointment.
  12. Patients to be sent inside the hospital only 15 minutes prior to their appointment time.
  13. Only one attendant per patient.
  14. Priority to be given to patients with appointment
  15. Patients should be seated at least 3 feet apart in waiting areas
  16. Avoid aerosol generating procedure in OP area
  17. Patient and attender should be seated at least 3 feet away from consultation desk.
  18. Appointments for all investigations to be fixed by the secretary.
  19. Disinfect the waiting hall and most-touched surfaces three times a day with Virex 256 solution as the systems will be incompatible with 1% Sodium hypochlorite solution. Mopping and cleaning of chairs in the waiting hall should be done with 1% Sodium hypochlorite solution.
  20. Disinfect personal items like stethoscope, lenses, indirect and direct ophthalmoscopes, pen, and torches, and other such items. etc with alcohol arranged in OP areas between patients.
3. Doctors should wear triple layered mask while handling patient. Hand hygiene with alcohol based hand rub or hand washing with soap and water in between patient is mandatory. Face shield should be worn during examination of patient
  4. Tonometer tip cleaning: The virus causing COVID-19 is an enveloped virus. 70% alcohol solutions are effective in disinfecting tonometer tips from SARS-CoV-2. Use single-use, disposable tonometer tips if available.
  5. Multidose eye drops: For diagnostic eye drops required for ophthalmic examinations, multidose eye drop containers should be kept in cabinets or other closed spaces away from anywhere that could become contaminated during a patient encounter. As should always be the case, care must be taken not to touch the eyelashes or ocular surface with the tip of the eye drop bottle, and the examiner's hands should be disinfected immediately after touching the patient's face.
  6. Slit-lamp barriers or breath shields: These can be designed indigenously by cutting out a transparent plastic sheet of an appropriate thickness. The slit lamp touch-contact parts should be cleaned by alcohol wipes after examining every patient and the barriers should be changed for each patient. Barriers can be washed with soap water, dried and reused
  7. The retinal examination should be done in patients who need it, strictly with an indirect ophthalmoscope. Avoid direct ophthalmoscopy and contact lens-based fundus examination
  8. Gonioscopy and visual field examination should be avoided unless mandatory



### Special consideration:

1. To decrease the risk of viral spread, ophthalmologists should inform their patients to refrain from talking during the slit-lamp examination.
2. To use slit lamp barrier

## ANNEXURE 1

### Guidelines for testing of patients for COVID 19 infection

**INDIAN COUNCIL OF MEDICAL RESEARCH**  
**DEPARTMENT OF HEALTH RESEARCH**  
**Revised Strategy of COVID19 testing in India**  
**(Version 3, dated 20/03/2020)**

#### Background

WHO declared an outbreak of febrile respiratory illness of unknown etiology in December 2019 from Wuhan, Hubei province of China. Since its emergence, the disease rapidly spread to neighboring provinces of China as well as to 182 other countries. Infection is spread through droplets of an infected patient generated by coughing and sneezing or through prolonged contact with infected patients.

Currently, India has witnessed cases of COVID19 mostly related to travel and local transmission from imported cases to their immediate contacts. Community transmission of the disease has not been documented till now. Once community transmission is documented, the above testing strategy will undergo changes to evolve into stage appropriate testing strategy.

Advisory for testing are being reviewed and updated periodically (09/03/2020, 16/03/2020 and 20/03/2020). The testing strategy is reviewed by the National Task Force constituted by Secretary DHR & DG, ICMR and Chaired by Prof. V. K. Paul, Member, NITI Aayog.

#### Objectives

- To contain the spread of infection of COVID19.
- To provide reliable diagnosis to all individuals meeting the inclusion criteria of COVID19 testing.

#### Current testing strategy:

- i. All asymptomatic individuals who have undertaken international travel in the last 14 days:
  - a. They should stay in home quarantine for 14 days.
  - b. They should be tested only if they become symptomatic (fever, cough, difficulty in breathing)
  - c. All family members living with a confirmed case should be home quarantined
- ii. All symptomatic contacts of laboratory confirmed cases.
- iii. All symptomatic health care workers.
- iv. All hospitalized patients with Severe Acute Respiratory Illness (fever AND cough and/or shortness of breath).
- v. Asymptomatic direct and high-risk contacts of a confirmed case should be tested once between day 5 and day 14 of coming in his/her contact. - Direct and high-risk contact include those who live in the same household with a confirmed case and healthcare workers who examined a confirmed case without



## Annexure 2

### Sample dispatch form for Covid 19

<b>NATIONAL CENTRE FOR DISEASE CONTROL, DELHI PATIENT PROFORMA FOR 2019-nCoV TESTING</b>																																					
State:	District:	Name of Nodal Officer	Mobile No*																																		
Email ID:																																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Name:</td> <td>Age/sex:</td> </tr> <tr> <td>Name of the Hospital:</td> <td>Ward/OPD/ICU:</td> </tr> <tr> <td>Patient ID No.:</td> <td>Patient Resi. Address:</td> </tr> <tr> <td>Date of Hospital visit:</td> <td>Date of hospital admission:</td> </tr> </table>						Name:	Age/sex:	Name of the Hospital:	Ward/OPD/ICU:	Patient ID No.:	Patient Resi. Address:	Date of Hospital visit:	Date of hospital admission:																								
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Date of Hospital visit:	Date of hospital admission:																																				
<b>Clinical symptoms (Pl mention beside each symptom if date of onset is different):</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Date of symptoms onset:</td> </tr> <tr> <td>Fever:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Chills:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Duration:</td> <td><input type="checkbox"/> &lt;7days <input checked="" type="checkbox"/> &gt;7days</td> </tr> <tr> <td>Cough:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Productive:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Sore Throat:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> </tr> <tr> <td>Breathlessness:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Myalgia:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Headache:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> </tr> <tr> <td>Nausea:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Vomiting:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td>Abdominal pain:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> </tr> <tr> <td>Diarrhea:</td> <td><input checked="" type="checkbox"/> Y <input type="checkbox"/> N</td> <td colspan="4">Any other symptom: (Pl mention with date of onset).....</td> </tr> </table>						Date of symptoms onset:		Fever:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Chills:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Duration:	<input type="checkbox"/> <7days <input checked="" type="checkbox"/> >7days	Cough:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Productive:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Sore Throat:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Breathlessness:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Myalgia:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Headache:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Nausea:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Vomiting:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Abdominal pain:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Diarrhea:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	Any other symptom: (Pl mention with date of onset).....			
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<b>Clinical signs</b>																																					
<b>Presence of any co-morbidities in the patient: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N (Pl mention the details below):</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Lung Disease.....</td> <td>/Hypertension.....</td> <td>/Heart disease.....</td> <td>/ Kidney Disease.....</td> <td>/</td> </tr> <tr> <td>Liver Disease.....</td> <td>/Blood Disorders.....</td> <td>/Diabetes.....</td> <td>/Metabolic Disorder.....</td> <td>/</td> </tr> <tr> <td>Cancer.....</td> <td>/Immunocompromised.....</td> <td>/Pregnancy (Pl mention trimester).....</td> <td>/</td> <td>/</td> </tr> <tr> <td colspan="5">Any other.....</td> </tr> </table>						Lung Disease.....	/Hypertension.....	/Heart disease.....	/ Kidney Disease.....	/	Liver Disease.....	/Blood Disorders.....	/Diabetes.....	/Metabolic Disorder.....	/	Cancer.....	/Immunocompromised.....	/Pregnancy (Pl mention trimester).....	/	/	Any other.....																
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Cancer.....	/Immunocompromised.....	/Pregnancy (Pl mention trimester).....	/	/																																	
Any other.....																																					
<b>History of possible exposure to 2019-nCoV:</b> <p>International Travel: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Country *(China/other): ..... Place(Wuhan/other): .....      Duration of stay: ..... Date of departure: .....      Date of arrival to India: .....</p> <p>*In case of travel to multiple countries, even transiently (pl mention details).....</p> <p>H/o exposure to a confirmed/ suspected case of 2019-n CoV: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Date: .....      H/o exposure to any person with above symptoms who has further H/o of exposure to a confirmed case of 2019-nCoV: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Date: .....      Is the person, a health care worker Y/N .....      If HCW, H/o of treating a unusual cluster of cases with above mentioned symptoms: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Date: .....</p>																																					
<b>Differential Diagnosis:</b> .....																																					
<b>Treatment History (Pl mention the details of any chronic medication also):</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Indication</td> <td>Name of the drug</td> <td>Date of administration</td> <td>Duration</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>						Indication	Name of the drug	Date of administration	Duration																												
Indication	Name of the drug	Date of administration	Duration																																		
<b>Investigation details and findings:</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Hematological: .....</td> <td>Microbiological: .....</td> </tr> <tr> <td>Radiological: .....</td> <td>Any other: .....</td> </tr> </table>						Hematological: .....	Microbiological: .....	Radiological: .....	Any other: .....																												
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Radiological: .....	Any other: .....																																				
<b>Details of the sample:</b> <p>Type of sample (Pl tick, including more than one type): Nasopharyngeal swab/ Oropharyngeal swab/ Nasopharyngeal aspirate / BAL/ Tracheal Aspirate / Sputum / Serum/      Any other (Pl mention): .....</p> <p>Date of sample collection: ..... Date of sending sample: ..... Date of sample receipt: .....</p>																																					
<b>Remarks:</b> <p>*: For conveying results of testing</p>																																					

## Annexure 3

### Recommendation for empiric use of hydroxy-chloroquine for prophylaxis of SARS-CoV-2 infection

([https://icmr.nic.in/sites/default/files/upload\\_documents/HCQ\\_Recommendation\\_22March\\_final\\_MM.pdf](https://icmr.nic.in/sites/default/files/upload_documents/HCQ_Recommendation_22March_final_MM.pdf))

#### Background:

Hydroxy-chloroquine 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. The following recommendation for the use of hydroxy-chloroquine as a prophylactic agent against SARS-CoV-2 infection is based on these considerations, as well as risk-benefit consideration, under exceptional circumstances that call for the protection of high-risk individuals.

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.

#### Exclusion/contraindications:

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

#### Key considerations:

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

- The prophylactic use of hydroxychloroquine to be coupled with the pharmacovigilance for adverse drug reactions through self-reporting using the Pharmacovigilance Program of India (PvPI) helpline/app.
- If anyone becomes symptomatic while on prophylaxis he/she should immediately contact the health facility, get tested as per national guidelines and follow the standard treatment protocol.
- All asymptomatic contacts of laboratory confirmed cases should remain in home quarantine as per the national guidelines, even if they are on prophylactic therapy.
- Simultaneously, proof of concept and pharmacokinetics studies be taken up expeditiously. Findings from these studies and other new evidence will guide any change in the recommendation.



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