# ALL INDIA INSTITUTE OF MEDICAL SCIENCES PATNA

## Standard Operating Procedure & Hand Book

## For

## COVID-19

## MANAGEMENT

## COVID 19 Management protocol
## (Version 3: 8th July 2020)

| | | | |
|---|---|---|---|
| | **Policy / Procedure:--** | **SOP Of COVID-19 Management (AIIMS Patna)** | |
| | **Version No/ Issue Date:-** | **3.0 / 08/07/2020** | |

| | |
|---|---|
| **DOCUMENT NO.** | **AIIMS/PATNA/MS/2020/COVID SOP 4** |
| **NO. OF PAGES** | **85** |
| **DATE CREATED** | **08/07/2020** |
| **DATE IMPLEMENTED** | **08/07/2020** |

| | |
|---|---|
| **PREPARED BY** | **Dr. Lokesh Tiwari**<br>Signature:<br>Designation : Deputy Medical Superintendent |
| **REVIEWD BY** | **Dr. C M Singh**<br>Signature:<br>Designation : Medical Superintendent |
| **APPROVED BY** | **Dr. P K Singh**<br>Signature<br>Director |
| **RESPONSIBILITIES OF UPDATING** | **Dr. Lokesh Tiwari**<br>Signature<br>Deputy Medical Superintendent |

This guideline is update of previous guideline in light of currently available national guidelines and evidence. Clinical management updates are inserted based on decisions made in meeting of experts called by nodal officer on 25th June 2020 chaired by honorable director. Certain policy decisions are updated based on video conference meeting of honorable director with state health authorities on 7th July 2020.

## Index

## Part A: Administrative Aspects

### 1. Overall Planning

- There is a central **Core Team** for administrative decisions and clinical guidance as needed.
- **Training team:** team of consultants, nurses and other healthcare workers to ensure that every health care provider involved in care of suspected or confirm corona infection is oriented and trained on various aspects of care, responsibilities and safety of themselves & other HCWs. Training is ongoing as per training schedule. All healthcare workers involved in covid roster must ensure that they undergo necessary orientation and training before their duty to ensure safety of themselves and others.
- **Clinical Teams:** There are 8 teams constituted for clinical management of Covid 19 patients
  1. **Team A**: responsible to run flu Corner at DGB
  2. **Team B1:** Initially team was responsible for sampling of all suspected cases. Team continues to provide training and support to other HCWs on sampling to ensure capacity building.
  3. **Team B2**: Responsible for stable suspected patients at covid isolation area.
  4. **Team B3**: Responsible for management of covid suspected pediatric patients (Pediatric covid isolation at DGB)
  5. **Team C and D:** Jointly responsible for care of sick patients admitted at COVID ICUs and covid step down areas. Team C will provide consultation for acutely sick patients admitted in any other covid area also. Team D is responsible for areas admitting stable COVID confirm cases. This area is named as **"Covid treatment area".** Team C and team D will also provide consultation for patients needing additional treatment in covid isolation area.
  6. **Team E**: Responsible for post death management
  7. **Team F:** For lab tests to confirm corona positivity (RT PCR)

1. Flu corner will run at DGB Emergency D block ground floor and will do only clinical screening for COVID 19 based tool provided as annexure. (it may change as per ICMR guidelines from time to time, current one is attached)
2. No attendant (family member) will be allowed with walking adult patients to accompany in flu corner. Single attendant may be allowed in case of sick adult or child in flu corner.
3. Flu corner team will classify patients as **COVID 19 suspect yes** or **No**
4. **Suspect No** will be sent home with treatment advice if needed.
5. **Suspect Yes** cases need to be provided 3-layer face mask and admitted under COVID 19 Category at dedicated registration counter in DGB.
6. Mild and very mild cases (Fever/ URTI) to be admitted in **covid isolation area** under **team B2**. Patient will be shifted using dedicated corridor and lift in DGB.
7. Lab confirmed positive but asymptomatic cases brought from outside / mild and very mild suspected cases should preferably be discussed with state administration for admission/ isolation/ quarantine at designated centers other than AIIMS Patna.
8. Covid 19 confirmed cases referred from other covid hospitals should have genuine reason for referral, duly acknowledged by the medical superintendent of the referring hospital

before accepting at AIIMS Patna. Preferably pre-referral communication should be made with MS office.

9. Clinically unstable, moderately sick (RR 15-30 / min, SpO2 90-94%) or severely sick (RR > 30/min, SpO2 < 90% in room air) COVID 19 suspect patients will be admitted in Covid treatment area i.e. B6B, A6B, C6A or C6B based on clinical and laboratory covid status.
10. Pediatric patients suspected as covid 19 should be admitted in pediatric covid isolation (DGB) under team B3. Laboratory confirm pediatric covid cases should be shifted to covid confirm area (C5A, C5B, D5A, D5B, C3A, C3B for stable and C6B or C6A for unstable) depending on level of sickness. Resident posted in pediatric covid isolation may be contacted for additional advice as needed.
11. Any case already admitted in isolation area needing further consultation and getting unstable should also be shifted to treatment area.
12. Sampling will be done as per sampling protocol provided by team B1.
13. Lab testing at AIIMS Patna or liaising with another lab (if needed) will be done by team F
14. In hospital contact tracing for all laboratory confirm cases will be done as per guideline attached. Classification of contacts for risk assessment and treatment advise will be given centrally.
15. Laboratory negative clinically stable patients should be discharged home with 14 days quarantine advice.
16. Laboratory negative cases still needing treatment in hospital should be managed in covid treatment area or they may be shifted to primary department in non covid block. Such patients being transferred to non covid block should be discharged from covid category in HIS and readmitted under general category in non-covid block.
17. Laboratory confirm covid case who have improved will be discharged with advice as per current discharge protocol given in this document.
18. In case of any COVID 19 related death **Team E** must be informed immediately for post death management. Same has to be informed to MS office also through official communication by respective teams.

**Instructions regarding Covid Admission in HIS**

- Patients admitted only through flu clinic in covid area will be admitted under covid category
- If patient is being transferred to non covid area from covid block, they should be discharged from covid category first and then readmitted under general category in HIS
- Covid category is valid only for current admission in covid block, for any other hospital visit, follow up or admission in non covid block general category should be created.
- HIS committee to make most of the hospital work for covid patients (admission, monitoring, lab request, discharge etc) paperless as far as possible.

**Routine Hospital Services during Covid Pandemic**

Routine services of hospital will be managed as per govt guidelines. For emergency services identified manpower will bear PPE as per recommendation for that area. In case of surgery, covid test should be done before surgery. In case of emergency surgery or patients needing

intubation in ICUs, recommended PPE should be used during procedure. Further corona lab test should be done. Patients being admitted in non covid area should be initially manged in respective holding areas designated for the departments till lab test for covid is negative.

***Scheme for isolation in COVID Block***

*General scheme for isolation of suspected and confirmed cases is based on the algorithm issued by MoHFW.*

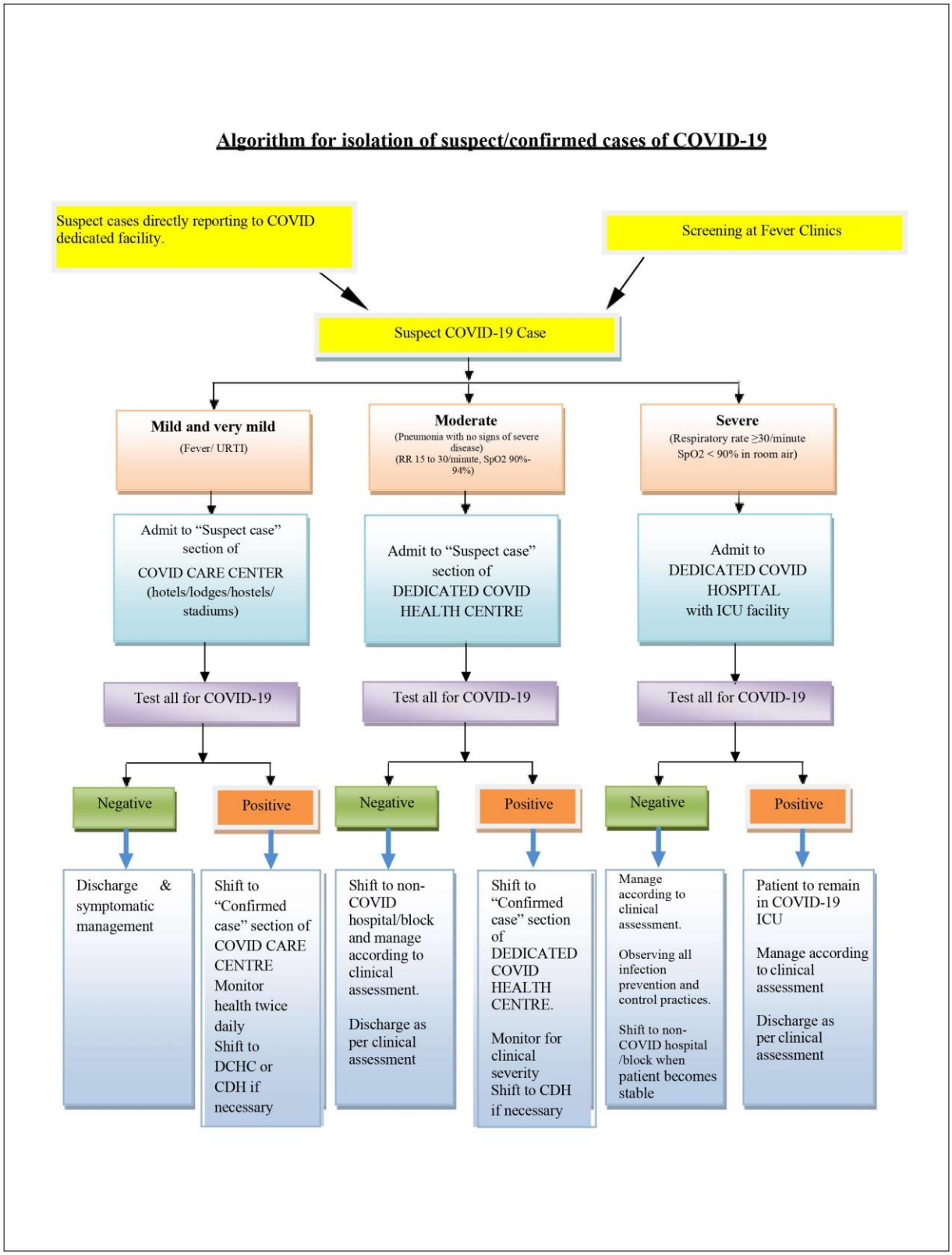
***Area for patient management***

| ***Activity*** | ***Physical location*** | ***Type of cases*** | ***Number of beds*** |
|---|---|---|---|
| *Flu Clinic (Screening)* | *DGB (Emergency block)* | *OPD* | |
| *Pediatric Isolation (suspected cases)* | *DGB Cubicles* | *Cubicle 1 for sick Cubicle 2 & 3 for stable* | *8* |
| *Covid Isolation area (For Suspected cases)* | *D6A & D6B* | *Very mild and mild* | *30 (rooms)* |
| | *D1A & D1B* | | *60* |
| *Isolation (for stable confirm cases)* | *C5A & C5B*<br>*D5A & D5B*<br>*C3A & C3B*<br>*D3A*<br>*C1A* | *Very mild, mild and moderate* | *60*<br>*60*<br>*60*<br>*30*<br>*30* |
| *ICU for suspected cases* | *B6B* | *Moderate and severe* | *08* |
| *ICU for positive cases*<br>*Step down for positive cases* | *C6B*<br>*C6A* | *Moderate and severe* | *08*<br>*15* |
| *Transit ICU for suspected but lab negative cases* | *A6B (CTVS)* | *Moderate and severe* | *08* |
| ***Holding Areas***<br>*T3*<br>*T4*<br>*Trauma HDU*<br>*Medicine (**AGA**)*<br>*OBG (**BGB**)*<br>*Pediatrics **DGB*** | <br>*18*<br>*18*<br>*05*<br>*22*<br>*10*<br>*10* | | *83* |
| ***Total Beds*** | | | ***460*** |

**Area for Health Care Workers**

| **Activity** | **Physical location** | **Type of cases** | **Number of beds** |
|---|---|---|---|
| Changing area for HCW during their duty | *6th floor OT changing area.* | Only for HCW; No patients | |

| | | | |
|---|---|---|---|
| Transit accommodation/ quarantine for HCW | Hostel 1 (for faculty) Hostel 11 (Other HCW) | Only for HCW; No patients | 100 rooms |



**Composition of Covid Teams and their responsibilities**

**Core Team:** For administrative decisions and guidance on clinical issues as needed

- Prof P K Singh Director
- Prof C M Singh: Medical Superintendent
- Dr Sanjiv Kumar (Addl Prof CTVS): Nodal Officer
- Dr Lokesh Tiwari (HoD Pediatrics and DMS)
- Dr Kranti Bhavana (HoD ENT)
- Dr Ravi Kirti (HoD Medicine)

**Team A** C&FM and Physiology
**Dr Neeraj Agarwal, Dr Sanjay Pandey**

1. Clinical Screening of flu patients following latest case definitions.
2. Admission at designated Registration Counter in Red corridor (DGA).
3. Transport of the patient (with surgical mask) accompanied by one hospital attendant to 5th or 6th floor depending up triage severity through red corridor only. Use 1st Lift between Block D&C for patients.
4. Maintenance of record of all patients attending flu corner
5. Handing over to ward Nurse by Attendant.
6. Reporting of census up to 4 p.m.

**Team B1:**
**Dr Kranti Bhavana, Dr Bhartendu Bharti**

1. Sampling, storage and transport of samples
2. Maintenance of record related to sampling done and reports

**Team B2:**
**Dr Anup Kumar, Dr Prashant Singh**

**Team B3:**
**Dr Lokesh Tiwari, Dr Arun Prasad**

**Team C:**
**Dr Umesh Bhadani, Dr Nishant Sahay**

**Team D:**
**Dr Ravikirti, Dr Deependra Rai**

**Responsibilities of Clinical teams**

1. Duty rosters with contingency plans
2. Admission formalities.
3. Filling up of requisition form, coordination with other teams for sample collection, packing, transport of sample and record keeping.
4. Tracking of Result from lab/ MS Office.
5. Clinical notes, other samples, management plan & execution.
6. Data entry according to line listing format.
7. Transfer to next area or discharge as per protocol.
8. Inventory management, Infection control measures (BMW, laundry & Diet) rational utilization of resources (PPE, N95 masks, number of doctors & Nurses for the day).
9. Ensuring duty roster of doctors, Nurses & other staff.
10. Liaising with Central Team.
11. Reporting of census to MS upto 3 p.m.

12. Disposal formalities on outcome (Discharge/Transfer/Death)
13. Counselling of patients attendants at defined time and place/ telephonic counselling at least once.

**Team E**
**Dr Amit Patil, Dr Ashok Rastogi**
Post death management & formalities of patients admitted as covid suspected or Confirm

**Team F**:
**Dr Binod Pati, Dr Asim Sarfraz**

**Team for training on BMW management and practice of prevention of infection**
Dr Sudeep Kumar (Ortho)
Dr Asim sarfraz (Microbiology)
Dr Abhishek Mishra (CFM)
Mr Vishanth (ICN)
Miss Priyanka Elizabeth (Nursing Tutor)
Miss Pooja Thakur (Nursing Tutor)
Mrs Keerthi Mohanan (Nursing Tutor)

**Specific contact details**

- State help line number 104
- Dr C M Singh (Medical Superintendent): 9931733280
- Dr Sanjiv Kumar Sinha (Nodal Officer COVID 19): 7004761296
- Dr Lokesh Tiwari (Deputy MS): 9631638095
- Dr Yogesh Saxena (Deputy MS) (7759835573)
- Dr Prashant Singh (DMS): 8809645678
- Dr Anil Kumar (Deputy MS) (9835699103):
- Dr Kranti Bhavana (9472232752):
- Dr Binod Kumar Pati (9855227189): Lab Investigation (RT PCR)
- Logistic issues related to MS office: Mr Ashwani Kumar (8210736068),
- Availability of monitors and ventilators in Covid area: Dr Ajeet Kumar (9312501413)
- Line listing, contact tracing and record keeping of all covid 19 patients: Mr Rathish Nair (7766905578)
- Nursing duty roster CUG: 8544423507
- Floor management/ inventory checklist: Mr Hansmukh Jain (7739363939)
- Scrub /dress / laundry related issues SNO Mrs Anisha Mary (7012152068) / Shweta Kumari SI (9835648397)
- Cleaning protocol, Handling of Biomedical waste and sanitary services: HICC & Shweta Kumari SI (9835648397)
- House-keeping & CHS services and runners: Mr Rajiv Chandel (8709033622)
- Diet related issues: Archana Meenakshi (Dietician) 7903936118
- Training of HCWs before entering in red corridor: Mr Vishanth (ICN) 9400996370
- Transport: Mr Jaychand (9801135187)
- Local support on transit accommodation and bathing facility: Mr Rajesh 7739803414
- Security CUG: 8544423534;
- Assistant Security Officer: 8789364288

- Site in charge Sampoorna for support staff (carpenter/ plumber/ electrician/ lift operations: 6200440583
- JE for AC related issues: 8544423510
- JE electrical: 7488080837 (Mr Rahul) 9576132124 (Miss Manjubala)

**COVID-19 Duty guideline for vulnerable Healthcare Workers (HCWs), Pregnant HCWs, HCWs with other Pre-existing conditions.**

Protection of Healthcare Workers (HCWs) is a mandate of utmost importance and this guideline is issued to ensure the same and also to address various concerns of HCWs involved in the COVID-19 duties.

The following HCWs should NOT be on active duty in COVID-19 units.

1. HCWs who are solid organ transplant recipients
2. HCWs with specific cancers and are under any stage of their treatment
3. HCWs who have has Bone Marrow or Stem cell transplants in last one year or who are still taking immunosuppression drugs.
4. HCWs with severe respiratory conditions including Cystic Fibrosis, Asthma, COPD and Pulmonary Tuberculosis.
5. HCWs with inborn errors of metabolism that significantly increase the risk of infections.
6. HCWs on immunosuppression therapies
7. HCWs who are pregnant with heart disease (congenital or acquired)
8. HCWs over 65 years of age
9. HCWs with other medically managed pre-existing diseases are unlikely to be at greater risk of acquiring COVID-19 virus infection compared with other HCWs if the appropriate Personal Protective Equipment (PPE) is used as per guidelines.
10. Pregnant HCWs shall be allocated to patients, and duties, that have reduced exposure to patients with, or suspected COVID-19 infection. It is recommended to avoid rostering pregnant HCWs to COVID-19 specific units/wards and will be deployed to lower risk areas/units/wards.

Application for exemption of duties along with supporting documents (verified by concerned faculty of the institute) to be submitted through proper channel for consideration.

Faculty, Residents ⟶ Dean

Hospital Staff ⟶ Medical Superintendent

**Precautions for students, resident doctors and nurses in hostels caring for COVID-19 patients**

- To avoid meeting friends, colleagues, working staff in hostel. In case of unavoidable circumstances use face mask while meeting them. Maintain social distance of at least 1 meter.
- Students may take their food to their rooms.
- Soap should be kept in room and used as per standard advise.
- Common bathroom to be clean.
- Residents using common toilets can wipe seats after coming in body contact after each use.
- Daily clothes used by the residents to be washed themselves and not to be given to laundry.
- Avoid library and common meeting places, do not use reading room in library.
- Avoid any kind of travel outside hostel/ city unless absolutely indicated.
- Avoid public transport.
- Visitors are not allowed inside the hostel premises.

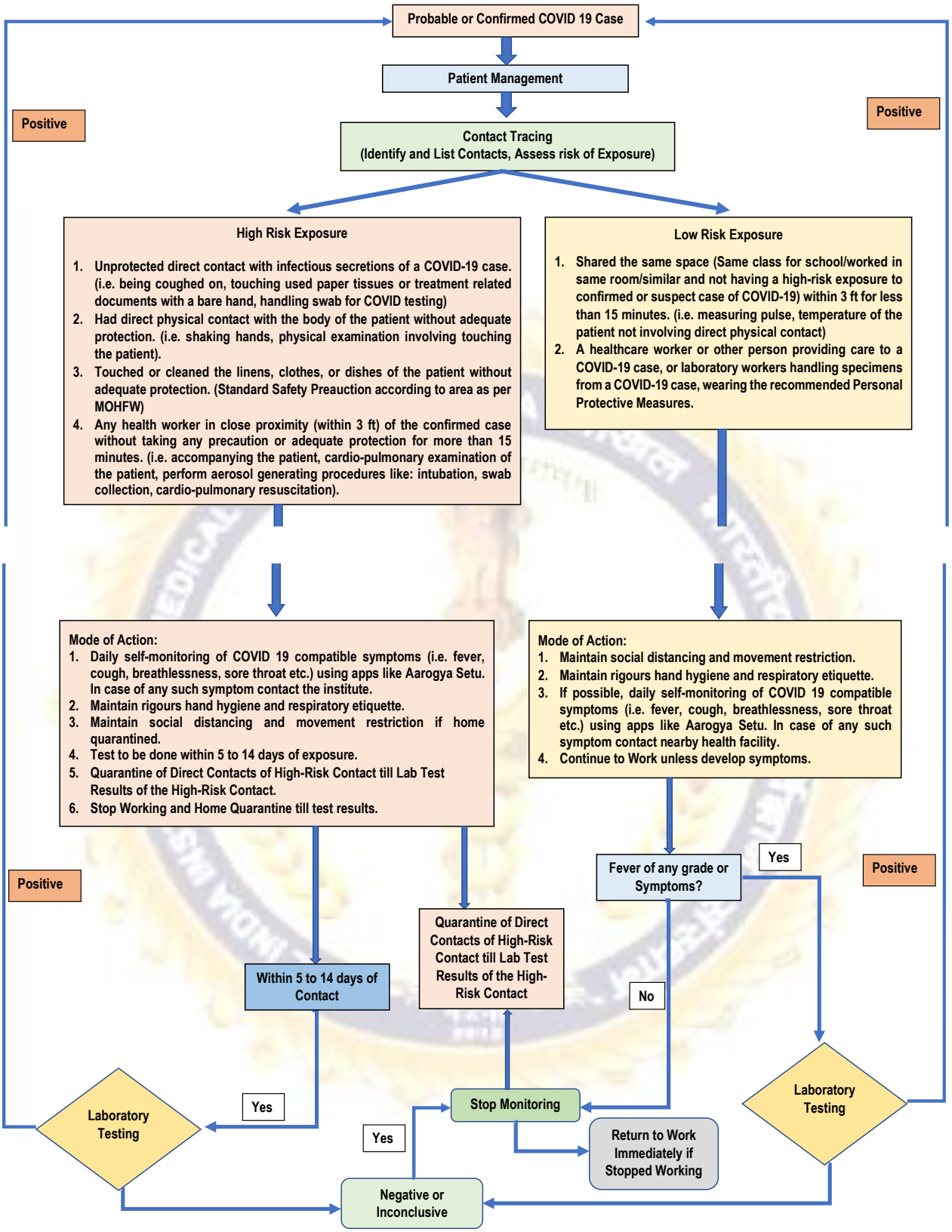
## 2. Actions to be taken when a patient is suspected as COVID-19 in Non Covid area

1. Any patient already admitted at AIIMS Patna and later suspected as Covid 19 by primary treating team, he/she should be isolated in primary area, masked if clinical condition allows and only a dedicated healthcare worker should attend this case, following due precautions.
2. Lab test should be sent in consultation with team B1.
3. If lab test is negative, continue treatment in primary area or discharge home based on clinical status.
4. **If Covid 19 lab test is positive**: He/she should be discharged from normal category and re-admitted under Covid category in HIS, shift to designated covid block (treatment area) under team C or team D as per his/her clinical status. This patient will further be dealt as per covid protocol and exercise for contact tracing to identify primary source will be concluded.
5. Follow appropriate standard precautions while transporting the patient
6. This should be followed by disinfection procedures at the primary area.
7. All contacts of this patient (other patients being managed in the same room or ward, healthcare workers who have attended to him/her, support staff who may have come in close contact, caretaker/visitors etc.). Their details must also be shared with the nodal officer and central team.
8. Contact person for reporting such cases for line listing and contact tracing is Mr Rathish Nair (7766905578) and mail the filled form to drrathishr@aiimspatna.org and nodalcovid19@aiimspatna.org
9. HCWs will be risk stratified (high risk vs low risk). High risk contacts will be home quarantined and admitted for covid testing b/w 5$^{th}$ to 14$^{th}$ day. If lab test is negative they will be discharged and they can return to work. If lab test is positive, they will be dealt as per covid management protocol.

**Actions to be taken when a suspect/confirmed COVID-19 HCW is identified**

HCWs developing respiratory symptoms (e.g. fever, cough, shortness of breath) should report to Team A (Flu clinic) for assessment. If considered as suspected case of COVID-19, admission and covid 19 lab test will be done. Depending on test result, action will be initiated as per current protocol.

Algorithm of Contact Tracing of Probable or Confirmed COVID19 Case: (Healthcare Workers)



## AIIMS Patna Contact Tracing Form

<table>
<tr><td></td><td>Patient Details:</td></tr>
<tr><td>Name:</td><td>Name:</td></tr>
<tr><td>Age:</td><td>Age:</td></tr>
<tr><td>Sex:</td><td>Sex:</td></tr>
<tr><td>Contact Number:</td><td>Contact Number:</td></tr>
<tr><td>Address:</td><td>Address:</td></tr>
<tr><td rowspan="2">Department:</td><td>CR Number:</td></tr>
<tr><td>Date of Admission:</td></tr>
<tr><td>Designation:</td><td>Time of Admission:</td></tr>
<tr><td>Duty Area:</td><td>Presenting Symptoms:</td></tr>
<tr><td>Date and Time of Contact:</td><td>Time of onset of Symptom:</td></tr>
<tr><td rowspan="2">Details of Standard Safety Precaution taken during the Contact:<br>Single Gloves: Yes/No<br>Double Gloves: Yes/No<br>Surgical Mask: Yes/No<br>Cloth Mask: Yes/No<br>N95 Mask: Yes/No<br>Splash proof Apron: Yes/No<br>Hood / Headgear: Yes/No<br>Goggles/ Face shield: Yes/No<br>Foot cover: Yes/No</td><td>Criteria under which admitted:<br>Cat 1: Symptomatic international traveller in last 14 days<br>Cat 2: Symptomatic contact of lab confirmed case<br>Cat 3: Symptomatic healthcare worker<br>Cat 4: Hospitalized SARI (Severe Acute Respiratory Illness) patient<br>Cat 5a: Asymptomatic direct and high-risk contact of lab confirmed case<br>Cat 5b: Asymptomatic healthcare worker in contact with confirmed case without adequate protection<br>Cat 6: Symptomatic Influenza Like Illness (ILI) patient in hospital/ MoHFW identified clusters<br>Others……<br>(Please select “others" only if the patient doesn’t fall in any other category)</td></tr>
<tr><td>Current Status: Serious / Stable / Died</td></tr>
<tr><td>Details of Procedures Performed on the patient: None</td><td>Date and Time of COVID 19 Positive Report:</td></tr>
<tr><td colspan="2">Narrative</td></tr>
<tr><td colspan="2">Impression: (To be Filled by Officials)<br>Weather taking Standard Safety Preauction according to area of duty during the contact as per MOHFW? Yes/ No<br>Quarantine Required?<br>Yes/ No<br>Additional Comments: (If Any)</td></tr>
</table>

## Part B: Clinical Aspects

*Document is indicative for guidance purpose, clinical and administrative responsibility regarding individual case management lies with respective teams.

## 1. General Instructions for Health care workers (Covid Warriors)

**Training:** All health care providers must first go through the training before they enter the Covid corridor. As training is going on since April, it is expected that all HCWs must have gone through the training. HCW is responsible to go through necessary training and information on scheduled training sessions may be obtained from Mr Vishanth ICN (9400996370).

**Prophylaxis and Social Distancing while on Covid duty:** As per ICMR guideline all HCWs working with COVID suspect or confirm patients are advised to take prophylaxis as below:
Tab Hydroxychloroquine 400 mg twice on day 1 followed by 400 mg weekly for 7 weeks to be taken with meal.
Asymptomatic household contacts of laboratory confirm cases: 400 mg twice on day 1 followed by 400 mg weekly for next 3 weeks with meal.
Contraindications: age below 15 years, persons with known case of retinopathy or hypersensitivity to hydroxychloroquine/ 4-aminoquinoline compounds. For any concerns please contact **team D**

They must maintain strict social distancing during entire covid outbreak period and keep record of any social interaction. If symptomatic they must report to Flu corner immediately for further advise.

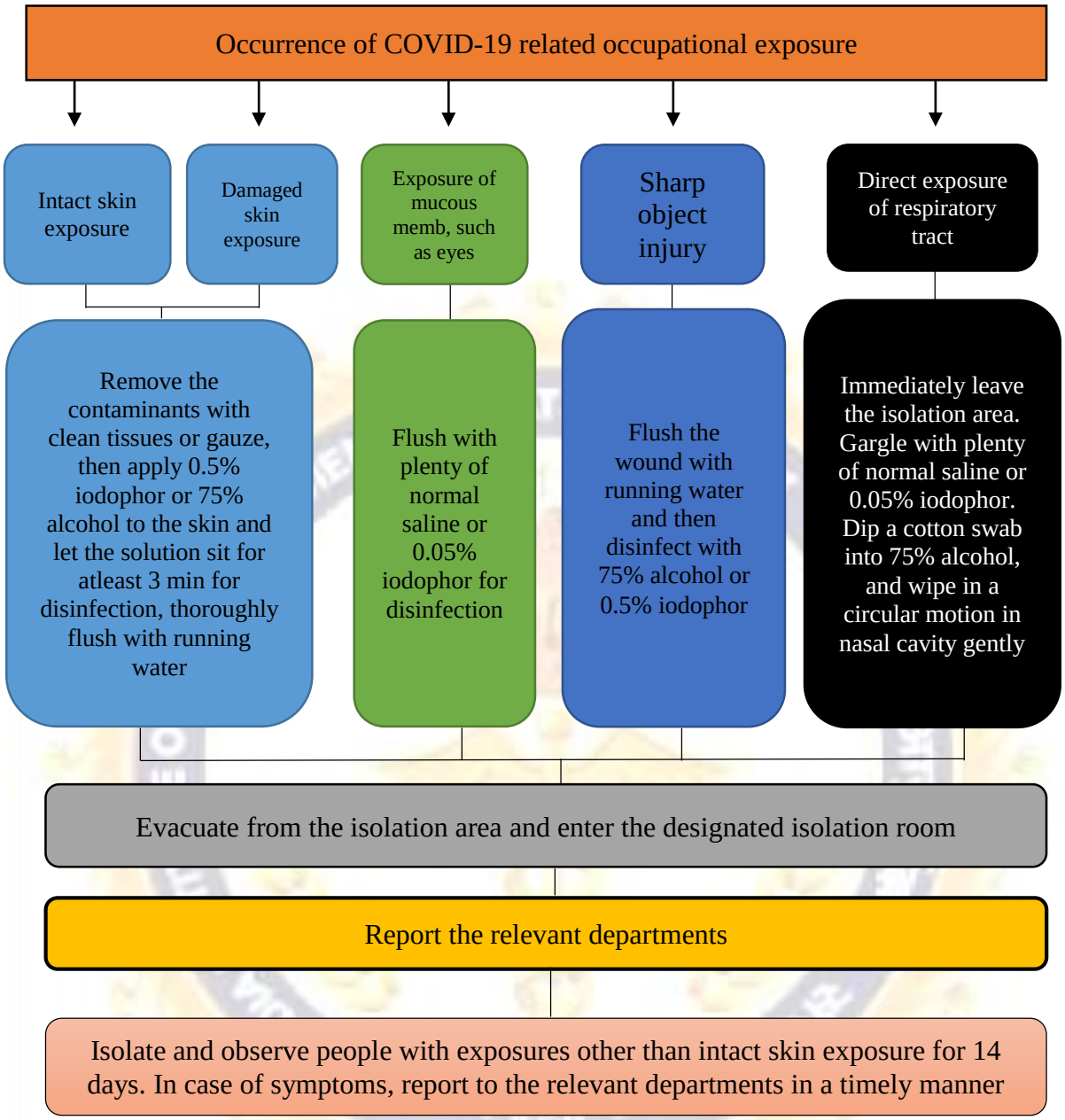
**Transit accommodation and bathing facility** for faculties is arranged in Hostel no 1 and for others at Hotel no 11. Contact Person: Mr Rajesh 7739803414, faculty incharge Dr Anil Kumar (9835699103)

**Movement in Red Corridor (Covid Block)**

1. Health care worker reaches to 6$^{th}$ floor pharmacy and gets his scrub and PPE issued and moves to OT changing rooms. From here they will be free to move around in the CORONA area.
2. While going back one can remove the PPE kit in doffing area at 6$^{th}$ floor and move to changing rooms. If they want to take bath they can go to hostel (hostel 1 for faculties and hostel 11 for others) and take a bath before wearing their formal clothes and discard that scrub/ OT dress in the designated area which then can be removed by the laundry team in a proper sealed bag sprayed with hypochlorite solution.
3. If they are going to hostel for bathing facility, they are advised to walk to the hostel and not take vehicles before taking shower. This helps in virus shedding and also prevents your vehicle to get infected.

4. Once in the covid isolation block, kindly do not roam around in other designated areas after you have donned the PPE kit.
5. For collecting diet /clean linen, HA/CHS in PPE will come to lift and collect from there in trolleys. Diet/ Linen delivery boy will not enter CORONA area.
6. For disposal the HA/CHS will put the sealed packets of laundry/waste etc to the dirty lift area and put it there. All the packets should be well sealed and hypochlorite sprayed on them. Collection by laundry and BMW dept. will be done from the only.
7. Articles which come out from Covid isolation area should be properly sprayed with hypochlorite solution.

## 2. Procedures for taking remedial actions against occupational exposure to COVID-19




1. **Skin Exposure** : The skin is directly contaminated by a large amount of visible bodily fluids, blood secretions or fecal matter from the patients.
2. **Mucous membrane exposure**: Mucous membranes, such as the eyes and respiratory tract are directly contaminated by visible bodily fluids, blood secretions or fecal matter from the patients.
3. **Sharp object injury:** Piercing of the body by sharp objetcs that were directly exposed to the patients bodily fluids, blood secretions or fecal matter.
4. **Direct exposure of the respiratory tract**: Falling of a mask, exposing the mouth or nose to a confirmed patient (1 meter away) who is not wearing a mask.

## 3. CLINICAL SCREENING

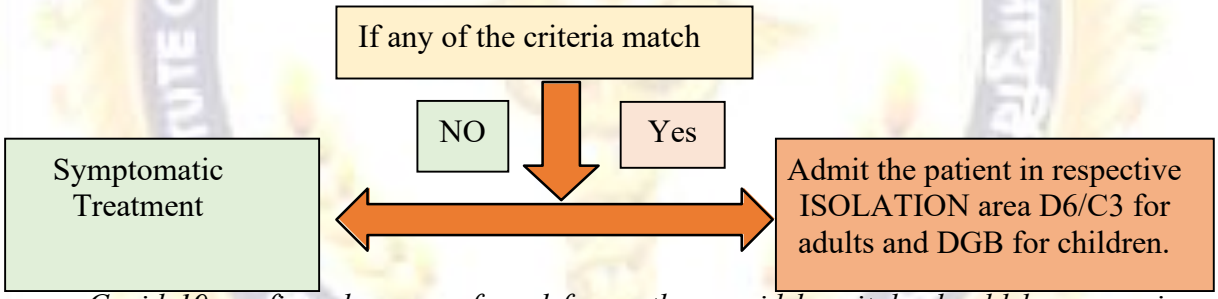
Flowchart for FLU Clinic, AIIMS Patna based on ICMR Revised Testing guidelines

At Screening Desk

**Patients with any of the following criteria would fall under Covid 19 suspect case needing laboratory confirmation**

1. All symptomatic individuals who have undertaken international travel in the last 14 days
2. All symptomatic contacts of laboratory confirmed cases
3. All symptomatic health care workers
4. All patients with Severe Acute Respiratory Illness (fever AND cough and/or shortness of breath)
5. 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 adequate protection as per WHO recommendations.
6. All symptomatic ILI (fever, cough, sore throat, runny nose) **In hotspots/cluster (as per MoHFW) and in large migration gatherings/ evacuees centres**

   a) Within 7 days of illness – rRT-PCR
   b) After 7 days of illness – Antibody test once it is available (If negative, confirm by rRT-PCR)




- *Covid 19 confirmed cases referred from other covid hospitals should have genuine reason for referral, duly acknowledged by the medical superintendent / principal of the referring hospital before accepting at AIIMS Patna. Pre-referral communication should be made with MS office/ Nodal officer.*
- *Following cases should be discussed with state administration for admission/ isolation/ quarantine at designated centers other than AIIMS Patna.*
  1. *Lab confirmed positive but asymptomatic cases brought from outside*
  2. *Asymptomatic lab confirmed cases giving undertaking for home isolation*
  3. *Asymptomatic direct and high-risk contacts of a confirmed case.*
  4. *Suspected cases with mild and very mild symptoms*
  5. *Patients coming from areas outside Patna should come through informing concerned district authority.*
  6. *Positive cases admitted at AIIMS Patna who have clinically improved but waiting for discharge (candidates for home isolation on declaration)*

*Civil surgeon (9470003600) / Nodal officer (9835037184/ DPM Patna 9473191891)*

**Flu Clinic AIIMS Patna:**

Symptoms: Fever + Cough +/- Breathing Difficulty

| | | | |
|---|---|---|---|
| 1 | International travel / Domestic travel in the last 14 days | Symptomatic | Isolation Ward |
| | | Asymptomatic | Home Quarantine for 14 Days (Along with other family members) |
| 2 | Contacts of Confirmed Case | Symptomatic | Isolation Ward |
| 3 | Direct and High-risk contacts (Living in a same Household with Case) of a confirmed case [Within 5-14 Days of Contact] | Asymptomatic | State Isolation centres |
| 4 | Healthcare Workers | Symptomatic | Isolation Ward |
| 5 | Healthcare workers who examined a confirmed case without Adequate PPE (As per WHO Norms) [Within 5-14 Days of Contact] | Asymptomatic (As per contact tracing and risk stratification advise) | Isolation Ward |
| 6 | All patients with Severe Acute Respiratory Illness (SARI) | Symptomatic | Isolation Ward/ ICU |
| 7 | In hotspots / clusters (as per MoHFW) and in large migration gatherings / evacuated centres: Influenza Like Illness (ILI) fever, cough, sore throat, runny nose | Symptomatic | Isolation Ward |

**Case Classification**

**Suspect case**

1. A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), AND a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset;

   OR

2. A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID-19 case in the last 14 days prior to symptom onset;

   OR

3. A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath; AND requiring hospitalization) AND in the absence of an alternative diagnosis that fully explains the clinical presentation.

**Probable case**

1. A suspect case for whom testing for the COVID-19 virus is inconclusive. OR
2. A suspect case for whom testing could not be performed for any reason

**Confirmed case**

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

**Clinical Features**

COVID-19 patients reporting to various Covid treatment facilities have reported the following signs and symptoms:

- Fever
- Cough
- Fatigue
- Shortness of breath
- Expectoration
- Myalgia
- Rhinorrhea, sore throat, diarrhoea
- Loss of smell (anosmia) or loss of taste (ageusia) preceding the onset of respiratory symptoms has also been reported

**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.

**Risk factors**

The major risk factors for severe disease are:

- Age more than 60 years (increasing with age).
- Underlying non-communicable diseases (NCDs): diabetes, hypertension, cardiac disease, chronic lung disease, cerebro-vascular disease, chronic kidney disease, immune-suppression and cancer

## 4. *Guidelines for Home Isolation of very mild/ pre-symptomatic/ asymptomatic COVID-19 cases*

*(Based on guidelines issued by GoI MoHFW 2nd June 2020)*

***Scope:*** *Applicable for very mild/ pre-symptomatic/ asymptomatic COVID-19 cases only*

1. *For AIIMS Patna employees (HCWs) / EHS registered patients at the time of presentation (Suspected or lab confirmed).*
2. *Lab confirm covid patients admitted at AIIMS Patna who have become asymptomatic/ mildly symptomatic and want discharge from hospital.*
3. *Very mild/ pre-symptomatic/ asymptomatic COVID-19 cases visiting flu clinic*

***HCW of AIIMS Patna/ EHS Patient:*** *If the patient agrees to monitor his health and regularly inform his health status to nodal officer directly / through their department heads, such patients may be allowed home isolation. The patient will fill in an undertaking on self-isolation (attached) and shall follow home quarantine guidelines. Covid sample for such patients will be taken by designated sampling team at flu clinic between 11:00 am to 1.00 pm and they may be allowed home isolation. They need to keep a track of their lab result and seek medical attention immediately as advised below.*

***All other patients****: should regularly inform their health status to the District Surveillance Officer/ Civil surgeon office, who will facilitate further follow up by the surveillance teams, such patients may be allowed home isolation in consultation with district surveillance officer. List of such patients with contact details should be provided to DSO through nodal officer. Civil Surgeon office Patna: 9470003600*

***Patients eligible for home isolation***

1) *The person should be clinically assigned as a very mild/pre-symptomatic/asymptomatic case by the treating medical officer.*
2) *Such cases should have the requisite facility at their residence for self-isolation and also for quarantining the family contacts.*
3) *Patients suffering from immune compromised status (HIV, Transplant recipients, Cancer therapy etc) are not eligible for home isolation.*
4) *Elderly patients aged more than 60 years and those with co-morbid conditions such as Hypertension, Diabetes, Heart disease, Chronic lung/liver/ kidney disease, Cerebro-vascular disease etc shall only be allowed home isolation after proper evaluation by the treating medical officer.*
5) *A care giver should be available to provide care on 24 x7 basis. A communication link between the caregiver and hospital is a prerequisite for the entire duration of home isolation.*
6) *The care giver and all close contacts of such cases should take Hydroxychloroquine prophylaxis as per protocol and as prescribed by the treating medical officer.*
7) *Download Arogya Setu App on mobile (available at: https://www.mygov.in/aarogya-setu-app/) and it should remain active at all times (through Bluetooth and Wi-Fi)*
8) *The patient will fill in an undertaking on self-isolation and shall follow home quarantine guidelines.*

***Undertaking on self-isolation***

*I ..... S/W of ....., resident of .....*

*being diagnosed as a confirmed/suspect case of COVID-19, do hereby voluntarily undertake to maintain strict self-isolation at all times for the prescribed period. During this period, I shall monitor my health and those around me and interact with the assigned surveillance team/with the call center (104), in case I suffer from any deteriorating symptoms or any of my close family contacts develops any symptoms consistent with COVID-19.*

*I have been explained in detail about the precautions that I need to follow while I am under self- isolation.*

*I am liable to be acted on under the prescribed law for any non-adherence to self-isolation protocol.*

*Signature*_____

*Date*_____

*Contact Number* _____

*Countersignature by Treating Medical Officer*

***When to seek medical attention***

*Civil surgeon (9470003600) / Nodal officer (9835037184/ DPM Patna 9473191891)*

*Patient / Care giver will keep monitoring their health. Immediate medical attention must be sought if serious signs or symptoms develop. These could include*

i. *Difficulty in breathing,*
ii. *Dip in oxygen saturation (SpO2 < 95%)*
iii. *Persistent pain/pressure in the chest,*
iv. *Mental confusion or inability to arouse,*
v. *Slurred speech/seizures*
vi. *Weakness or numbness in any limb or face*
vii. *Developing bluish discolorations of lips/face*

***When to discontinue home isolation***

*Patient under home isolation will stand discharged after 10 days of symptom onset and no fever for 3 days. Thereafter, the patient should isolate at home and self-monitor their health for further 7 days. There is no need for testing after the home isolation period is over.*

## 5. Respiratory Sample Collection from Suspected COVID 19 Cases

(As per recent guidelines issued by ICMR and MoHFW)

**General guidelines:**

- Health care providers should contact their local/state health department immediately to notify them of patients who meet the updated / recent case definition for COVID 19 as given by the health authorities, Government of India available on the website www.mohfw.gov.in.
- Complete the standard requisition form for each specimen submitted. Ensure restricted entry of visitors or attendants during sample collection.
- Appropriate clinical sample should be collected by laboratory personnel/ health care worker trained in specimen collection following all biosafety and biosecurity precautions and using personal protective equipment (PPEs) with latex free purple nitrile gloves while collecting the sample from the patient.
- Ensure proper disposal of all waste generated (yellow bin)
- Clinical samples need to be sent to the Govt of India designated laboratory ensuring standard triple packaging for transportation.
- Combined throat (ie oropharyngeal swab) and nasal swab should be sent for patients who are not on mechanical ventilator (alternatively nasopharyngeal swab may be sent). For mechanically ventilated patients, lower respiratory tract aspirate (BAL) is the preferred sample.

**Sample collection technique**

**Upper respiratory tract**

**Oropharyngeal swab (e.g. throat swab):** Tilt patient's head back 70 degrees. Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, teeth, and gums. Use only synthetic fibre swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media.

**Nasopharyngeal swab**: Tilt patient's head back 70 degrees. Insert flexible swab through the nares parallel to the palate (not upwards) until resistance is encountered or the distance is equivalent to that from the ear to the nostril of the patient. Gently, rub and roll the swab. Leave the swab in place for several seconds to absorb secretions. Slowly remove swab while rotating it. The nasopharyngeal and oropharyngeal swabs should be placed in the same tube to increase the viral load.

**Combined nasal & throat swab:** Tilt patient's head back 70 degrees. While gently rotating the swab, insert swab less than one inch into nostril until resistance is met at turbinates. Rotate the swab several times against nasal wall and repeat in other nostril using the same swab. Place tip of the swab into sterile viral transport media tube and cut off the applicator stick. For throat swab, take a second dry polyester swab, insert into mouth, and swab both tonsillar pillars & the posterior pharynx. Avoid touching tongue, teeth and gums. Place tip of swab into the same tube and cut off the applicator tip. Separate swabs for throat and nose should be taken, but same viral transport medium tube be used to increase the viral load**.**

**Lower respiratory tract**

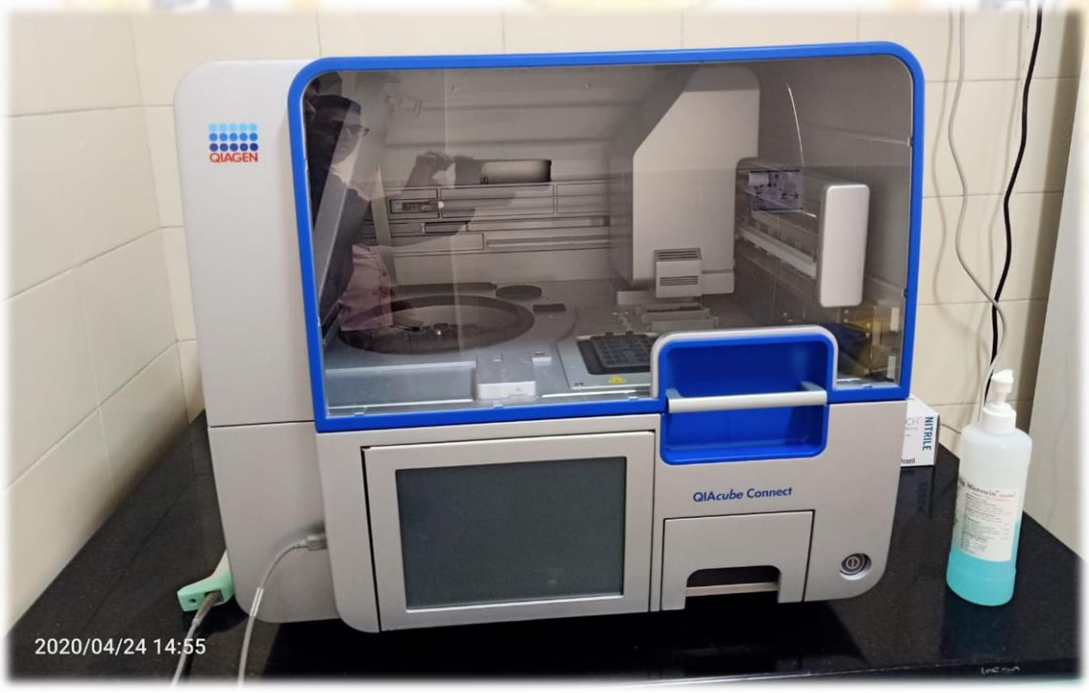
Collect 2-3 mL of Bronchoalveolar lavage, tracheal aspirate or sputum into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container which has to be mixed with the viral transport medium and transported on ice.

**Packaging:** Sample should be collected in a proper container that should be sealed and made leak-proof using parafilm and absorbent material. It must be appropriately labelled and secured in a zip-lock pouch with absorbent material such as tissue paper. The zip-lock container should further be placed in sturdy plastic container and its neck should be sealed. Disinfect the zip-lock pouch and secondary container by wiping with surface disinfectant and pack it further in 'bio hazard labeled thermocol box/hard card board box' with hard frozen gel packs. Properly seal the box and secure ziplock pouch with test requisition form on the outer surface of the container. Label the box as shown in figure below and transport to the designated laboratory. Test Requisition Form should be sent attached with specimen box as explained above or a scanned copy through e-mail (if such arrangement is done with the laboratory) so as to minimize the risk of transmission through fomites.

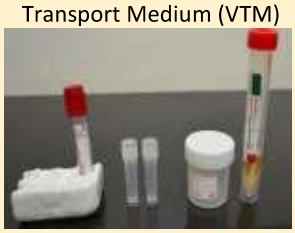
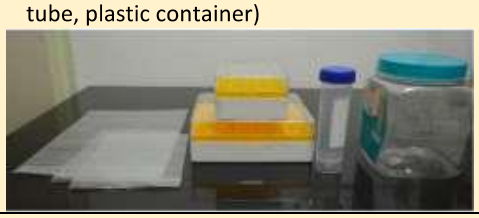
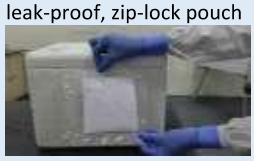
**Storage:** Store specimens at 2-8°C for up to 72 hours after collection. If a delay in testing or shipping is expected, store specimens at -80°C.

**Nodal collection point:** all samples collected from any area in the hospital (isolation, CCU, peripheral) should come to isolation 6$^{th}$ floor with filled forms in duplicate. Register to be maintained by D6B nursing incharge. From here the transport person receives the sample box and takes it to lab/ transport ambulance designated for sample transport.

**Dispatch time:** 12:00 mid-day and 4:00 pm daily

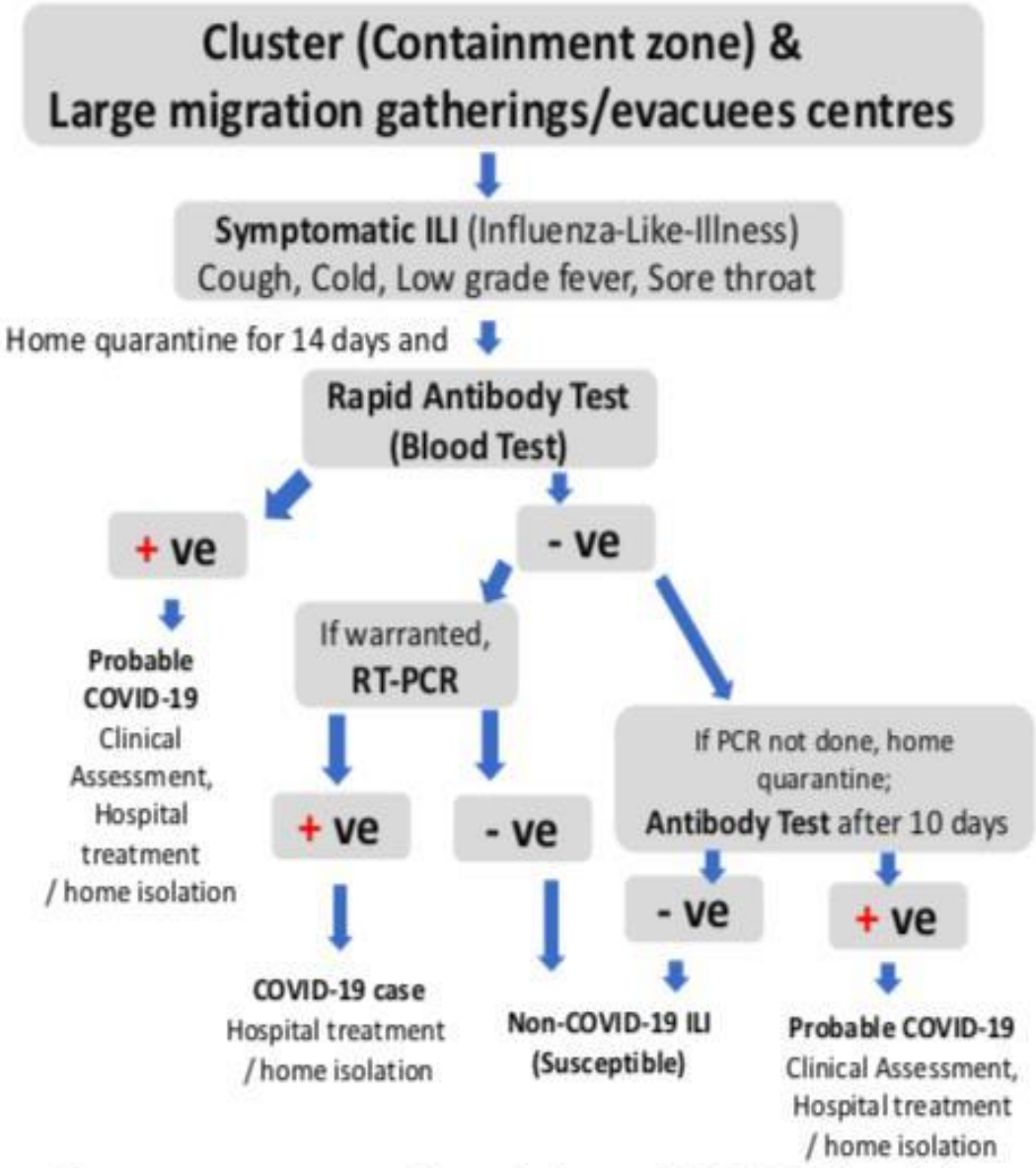


## Specimen Collection, Packaging and Transport Guidelines for 2019 novel Coronavirus (2019-nCoV)

| **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, 50 mL centrifuge tube, plastic container)  | |
| 4. Hard-frozen Gel Packs   | 5. A suitable outer container (e.g., thermocol box, ice-box, hard-board box) (minimum dimensions: 10 x 10 x 10 cm)  | | |
| **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 sturdy plastic container and seal the neck of the container  | ***Note:*** *Sample vials can also be placed inside a zip-lock pouch, covered in absorbent material and secured by heat-sealing or rubber bands. Then, the zip-lock pouch should be placed inside another plastic pouch and secured* | 7. Using a thermocol box as an outer container and placing the secondary container within it, surrounded by hard-frozen gel packs  |
| 7. Using a hard card-board box as an outer container and placing the secondary container and the gel packs  | 8. Placing the completed Specimen Referral Form (available on www.niv.co.in) and request letter inside a leak-proof, zip-lock pouch  | 9. Securing the zip-lock pouch with the Specimen Referral Form on the outer container  | 10. Attaching the labels:<br>• Senders' address, contact number; Consignee's address /contact number;<br>• Biological substance-Category B;<br>• 'UN 3373'; Orientation label, Handle with care  |

# STRATEGY FOR USE OF RAPID ANTIBODY BASED BLOOD TEST

(4 April, 2020)




**If symptoms worsen, refer to designated COVID-19 hospitals**

अखिल भारतीय आयुर्विज्ञान संस्थान पटना
ALL INDIA INSTITUTE OF MEDICAL SCIENCES PATNA

No. 70 /AIIMS/Pat/Dir./2020 Date: 8th July, 2020

**CIRCULAR**

To further strengthening the covid patient care area following is to be ensured by all concerned:

**Nodal Faculty (Medical) to ensure following:-**

1. Duty roster of doctors (SR, JR and Faculty)
2. Implementation of Roster
3. Trouble shooting
4. Ensure counselling of all the patients admitted under their area
5. Counselling & update is to be done by the faculty on duty during specified time of IPD entrance.
6. Critical incidences are to be recorded for the purpose of improving the system.

**Each area will have separate Nodal Nursing Officer who will ensure following:**

1. Ensure complete medical supplies in the ward.
2. Ensure equipment functioning
3. Provide complete data of all the patient admitted in the format provided by **Dr. Sanjeev Kumar(Annexure – I)**
4. Ensure presence of Paramedical staff in the ward.
5. Trouble shooting
6. Critical incidences are to be recorded for the purpose of improving the system.

**Enclosure: Patient details format**

**(Prabhat Kumar Singh)**
**DIRECTOR**

Copy to:

1. Medical Superintendent, AIIMS Patna.
2. Chief Nursing Officer, AIIMS Patna
3. Nodal Officer, Covid-19, AIIMS Patna
4. Dr. Lokesh Kumar Tiwari, DMS, AIIMS Patna
5. Nodal Faculty, Covid-19, AIIMS Patna
6. Ward in Charge, All covid area, AIIMS Patna
7. PPS to Director, AIIMS Patna

Office: Phone/Fax- 0612-2451109, Email – director@aiimspatna.org

## Covid Patients Details

| S. No. | Patient Name | CR No. | Age | Sex | Blood Group | Address | Contact No. | Date of Admission | Date of Discharge/ Death | Covid status (Yes/No) | Symptom Status Symptomatic / Asymptomatic | Comorbidities | Ward No. | Bed No. | On O2/ Ventilator details | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

## 6. Suggested Clinical Management

Should be decided by treating team on case to case basis in light of latest guidelines by ICMR or MoHFW

***Early supportive therapy***

*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 nCoV*

***Oxygen Support:***

- *Target SpO2 :92-96% (88-92% in patients with COPD)*
- *Preferred device for oxygenation: preferably non- rebreathing face mask*
- *Awake proning may be used*

***Clinical monitoring:*** *All cases should have standard clinical and laboratory monitoring as per level of sickness. At least following parameters must be recorded 6 hourly (more frequent in unstable patients)*

- *Temperature*
- *Heart Rate*
- *Respiratory Rate*
- *SPO2*
- *AVPU Score*

*ECG as base line and 2-4 hrs after first dose should be recorded in patients receiving hydroxychloquine.*
*Additional monitoring as per ICU protocol in unstable/ sick / ventilated patients.*

***Laboratory Monitoring:***
*Screening lab test in all*

- *CBC with differentials*
- *Liver and renal function tests*
- *S Ferritin level*
- *Covid 19 RT PCR/ Rapid antigen test*

*CBC, LFT, KFT should be done all cases and special tests as below should be done in covid 19 positive cases at interval of every 48 to 72 hrs (moderate to severe cases).*

- *S. Ferritin level*
- *D-dimer*
- *PT/aPTT, INR*
- *CRP*
- *Procalcitonin*

*Consider ABG, LDH, Trop I, IL-6 (once available) and other tests as appropriate on case to case basis. Efforts should be made to record daily progression on pulmonary artery pressure (Right Ventricular Artery Pressure) with the help of portable echo/ USG.*

***Initial Therapy:***

- *Symptomatic and supportive treatment (antipyretics, antibiotics, etc.)*
- *Anticoagulation: Treatment dose of LMWH (e.g. enoxaparin 1 mg/kg twice daily SC) in symptomatic patients (suspected or confirm cases); Prophylactic dose of LMWH (enoxaparin 1mg/kg per day OD SC) in all admitted cases not needing treatment dose. Contraindications should be looked as end stage renal disease, active bleeding, emergency surgery.*
- *Dexamethasone 6 mg (0.1 to 0.2 mg/kg) preferably within 48 hours of admission or if oxygen requirement is increasing for 5-10 days.*
- *Methyl prednisolone pulse therapy as rescue drug in severe cases.*
- *Azithromycin 500 mg OD (age appropriate dose for children) for URI like symptoms and add amoxicillin plus clavulinic acid 625 mg TDS if LRTI is suspected*

**Management of hypoxemic respiratory failure and ARDS**

**Early oxygen therapy**

Give supplemental oxygen therapy immediately to patients with Severe Covid and respiratory distress, hypoxaemia, or shock: Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO2 ≥ 90% in non-pregnant adults and SpO2 ≥ 92- 96% 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 SpO2≥ 94%. Use contact precautions when handling contaminated oxygen interfaces of patients with COVID – 19. Use contact precautions when handling contaminated oxygen interfaces of patients with nCoV infection

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; FiO2 0.60-0.95). Hypoxemic respiratory failure in ARDS commonly results from intrapulmonary ventilation- perfusion mismatch or shunt and usually requires mechanical ventilation.

***Early self-proning in awake, non-intubated patients*** *Any COVID-19 patient with respiratory embarrassment severe enough to be admitted to the hospital may be considered for rotation and early self-proning.*

- *Care must be taken to not disrupt the flow of oxygen during patient rotation*
- *Typical protocols include 30–120 minutes in prone position, followed by 30–120 minutes in left lateral decubitus, right lateral decubitus, and upright sitting position (Caputo ND, Strayer RJ, Levitan R. Academic Emergency Medicine 2020;27:375–378)*

***High – Flow Nasal Cannula oxygenation (HFNO):*** *Considering high aerosol generation and frequent failures, NIV mode is generally discouraged. High – Flow Nasal Cannula oxygenation (HFNO) can be considered when respiratory distress and/or hypoxemia of the patient cannot be alleviated after receiving standard oxygen therapy. 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. 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). If conditions do not improve or even get worse within a short time, tracheal intubation and invasive mechanical ventilation should be used in a timely manner.*

**Invasive Mechanical Ventilation**: Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions.

Implement mechanical ventilation using lower tidal volumes (4–8 ml/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure <30 cmH2O). 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. dys-synchrony, pH <7.15). Hypercapnia is permitted if meeting the pH goal of 7.30-7.45. 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 16-18 hours per day is recommended but requires sufficient human resources and expertise to be performed safely. (Refer to Annexure-I)
- 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 FiO2 required to maintain SpO2.
- 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).

***Prone Ventilation***

***Requirements for safe prone positioning in ARDS***

- *Preoxygenate the patient with FiO2 1.0*
- *Secure the endotracheal tube and arterial and central venous catheters*
- *Adequate number of staff to assist in the turn and to monitor the turn*
- *Supplies to turn (pads for bed, sheet, protection for the patient)*
- *Knowledge of how to perform the turn as well as how to supine the patient in case of an emergency*

***Contraindications to prone ventilation***

- *Spinal instability requires special care*
- *Intra cranial pressure may increase on turning*
- *Rapidly return to supine in case of CPR or defibrillation*

***When to start proning?***

*• P/F ratio <150 while being ventilated with FiO2 >0.6 and PEEP >5 cm H2O*

***When to stop proning?***

*• When P/F exceeds 150 on FiO2 > 0.6 and > 6 PEEP*

***What portion of the day should patients be kept prone?***

- *As much as possible (16-18 hours a day)*
- *Adult patients with severe ARDS receive prone positioning for more than 12 hours per day (strong recommendation, moderate-high confidence in effect estimates)*

*(ATS-ERS Guideline. Am J Respir Crit Care Med;2017;195(9):1253-1263)*

**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 two of the three 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.

- 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 individual patient needs.
- 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 raising test, 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 agents (Nor epinephrine/ epinephrine) 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.
- **Sepsis Control:** 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 nCoV, administer appropriate

empiric antimicrobials within ONE hour of identification of sepsis. Empiric 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. Empiric 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. Empiric therapy should be de-escalated on the basis of microbiology results and clinical judgment

***Investigational Therapies***
*(As per updated MoHFW guidelines)*

***Convalescent plasma*** *(Off Label) may be considered in patients with moderate disease who are not improving (oxygen requirement is progressively increasing) despite use of steroids. Special prerequisites while considering convalescent plasma include:*

- *ABO compatibility and cross matching of the donor plasma*
- *Neutralizing titer of donor plasma should be above the specific threshold (if the latter is not available, plasma IgG titer (against S-protein RBD) above 1:640 should be used)*
- *Recipient should be closely monitored for several hours post transfusion for any transfusion related adverse events*
- *Use should be avoided in patients with IgA deficiency or immunoglobulin allergy*

***Dose****: Dose is variable ranging from 4 to 13 ml/kg (usually 200 ml single dose given slowly over not less than 2 hours*

*Currently, following drugs should only be used in a defined subgroup of patients. These are not available at hospital pharmacy but can be purchased from outside:*

***Remdesivir*** *(under Emergency Use Authorization) may be considered in patients with moderate disease (those on oxygen) with none of the following contraindications:*

- *AST/ALT > 5 times Upper limit of normal (ULN)*
- *Severe renal impairment (i.e., eGFR < 30ml/min/$m^2$ or need for hemodialysis)*
- *Pregnancy or lactating females*
- *Children (< 12 years of age)*

*Dose: 200 mg IV on day 1 followed by 100 mg IV daily for 5 days*
***Tocilizumab*** *(Off Label) may be considered in patients with moderate disease with progressively increasing oxygen requirements and in mechanically ventilated patients not improving despite use of steroids. Long term safety data in COVID 19 remains largely unknown. Special considerations before its use include:*

- *Presence of raised inflammatory markers (e.g., CRP, Ferritin, IL-6)*

- *Patients should be carefully monitored post Tocilizumab for secondary infections and neutropenia*
- *Active infections and Tuberculosis should be ruled out before use.*

***Dose:*** *8mg/kg (maximum 800 mg at one time) given slowly in 100 ml NS over 1 hour; dose can be repeated once after 12 to 24 hours if needed*

***Repurposed or off-label therapies***

***Hydroxychloroquine****: This drug has demonstrated in vitro activity against SARS-CoV2 and was shown to be clinically beneficial in several small single center studies though with significant limitations. Nonetheless, several large observational studies with severe methodologic limitations have shown no effect on mortality or other clinically meaningful outcomes. As such, the evidence base behind its use remains limited as with other drugs and should only be used after shared decision making with the patients while awaiting the results of ongoing studies. As is the case with other antivirals, this drug should be used as early in the disease course as possible to achieve any meaningful effects and should be avoided in patients with severe disease. An ECG should ideally be done before prescribing the drug to measure QTc interval (and HCQ avoided if QTc is >500 ms)*

***Dose:*** *400 mg BD on day 1 followed by 400mg daily for next 4 days.*

***Communicate early with patient and family:*** *Communicate proactively with patients and families and provide support and prognostic information. Understand the patient's values and preferences regarding life-sustaining interventions.*

**Indications for dialysis:**

Keep low threshold for dialysis as fluid overload and acidosis are detrimental in ARDS. Bedside dialysis to be preferred. General indications for dialysis are as below

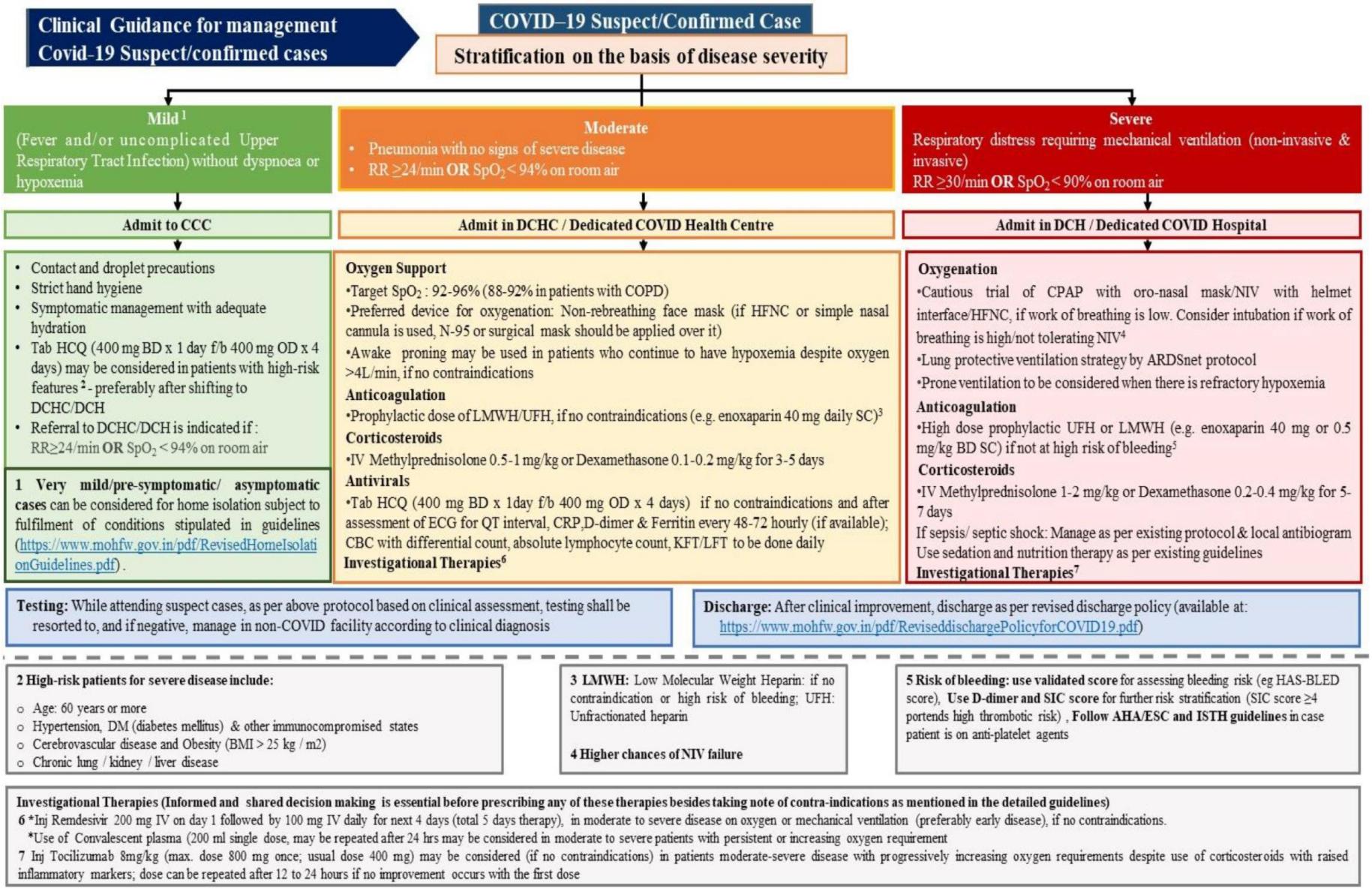
Urine output < 400 ml/24 hours

Refractory hyperkalemia

Fluid overload

Uremic encephalopathy / pericarditis

Severe metabolic acidosis




AIIMS Patna COVID 19 Management protocol (Version 3.0: 08/07/2020)

## 7. LABOUR AND DELIVERY OF A SUSPECTED/CONFIRMED COVID CASE

1. At present, only booked antenatal cases in labour are being admitted
2. TRIAGE – is done in the triage room at the entrance of the labour room after giving a surgical mask to the patient. Thorough history of travel, contact, symptoms are taken, followed by examination.
3. If history and examination are negative, admitted in B1A Labour room and delivered. No birth companion allowed since pandemic.
4. If COVID suspect case, transferred to Room No. 8, D6A where a Labour table has been provided. Back up team in B1B informed
5. As per protocol, Sample sent, drugs started (Hydroxyquinoline 200 mg thrice daily and Azithromycin 500 mg once daily). These drugs have been used in pregnancy. For antiretroviral drugs, if required, medical opinion will be taken.
6. No birth companion allowed
7. Fetal heart monitoring by hand held doppler, dedicated for this room.
8. Labour to be monitored by partograph
9. Low threshold for surgical intervention, in case of foetal heart irregularities and non-progress of labour
10. A dedicated delivery set with a KIWI to cut short the second stage of labour provided.
11. Active management of the third stage of labour conducted as per protocol.
12. Safe disposal of placenta as per protocol for disposal of tissue
13. Caesarean Section if required will be conducted in OT 6, designated for COVID suspect/cases. Spinal analgesia preferred or as deemed appropriate by Anaesthesia team.
14. Labour/ cesarean to be conducted by team (SR + JR) present in B1B ward for emergency duty. Unit consultant(s) under whom this patient was undergoing antenatal care to attend. This team of SR + JR is separate from team in B1A Labour Room.
15. Post- natal care as standard in other cases. Patient to be observed for post- partum haemorrhage (PPH) and other problems as standard protocol. In case, another such patient is admitted in labour, the post- partum patient may be shifted to a separate room in the same ward for observation.
16. A new born corner away from the labour table in Room No. 8, where the new born will be resuscitated
17. Breastfeeding may be allowed after explaining respiratory and hand hygiene to the mother, provided she is well. Or as deemed appropriate by the Neonatology team.
18. Testing of neonate as decided by Neonatologist.
19. Cleaning, maintenance of Medical equipment done with 1% hypochlorite solution (soak for 30 minutes), then autoclaved. KIWI, not to be autoclaved. Doppler probe to be cleaned only.
20. If mother isolated from baby, psychological support to be provided by staff.
21. Diet. No special diet recommended.
22. Specialist consultation for any additional problems.
23. In case of deterioration, to be transferred to ICU/HDU as decided by team.
24. Flow chart, as annexed is being followed

**Flow chart for management labour and delivery of a suspected/ confirmed covid case**

**Covid suspect pregnant woman presenting in labour room**
**Provide face mask to patient**

1) Fever yes / no
2) Respiratory symptoms (cough, cold, sob) yes / no

YES

1) History of travel to foreign country
   or
2) Close contact with suspected or confirmed *covid-19* patient
   or
3) Newly diagnosed *covid-19*

YES

High risk - shift to D6A ward room no. 8 (inform back-up team in b1b ward)

- Send *covid-19* swab
- Assess severity of symptoms
- Fetal heart monitoring with doppler
- Vaginal delivery in same room
- Caesarean section in OT 6, designated for covid cases
- N95 mask and PPE (full set) for delivery or c-section

*Any one no -- low risk case*

- Routine intrapartum care
- Conduct delivery in surgical mask, face shield, surgical gown

## 8. Neonatal care for babies born to suspected/confirmed covid mother

**RESUSCITATION**

1. Resuscitation of neonate can be done in a physically separate adjacent room.
2. Basic principles for resuscitation to be followed as discussed under code blue
3. Minimum number of personnel should attend and wear a full set of personal protective equipment including N95 mask.
4. Mother should perform hand hygiene and wear triple layer mask.
5. The umbilical cord should be clamped promptly and skin to skin contact avoided.
6. Delivery team member should bring over the neonate to the resuscitation area for assessment by the neonatal team.
7. Neonatal resuscitation should follow standard guidelines. If positive-pressure ventilation is needed, self-inflating bag and mask .

***If Mother is COVID Positive***

1. *All Newborn should be sponged with warm water. Keep baby in Isolation and send COVID sample within 24 hours, and Repeat COVID after 48 hours. If both come negative, then discharge baby home.*
2. ***If Newborn COVID positive & sick.***
   - A. *Baby should be admitted in separate room and primary care to continue.*
   - B. *Staff should be wearing full PPE.*
   - C. *Repeat COVID sampling to be done after baby becomes asymptomatic.*
3. ***If Newborn is COVID Positive and Stable.***
   - A. *Repeat COVID sampling to be done after 72 hours till Negative.*
   - B. *If safe, early discharge home followed by telephonic follow-up.*

**BABY WELL**

| YES | NO |
|---|---|
| 1. Preferably be cared for by family member not in contact with mother or other suspected/ proven case | 1. Keep in isolation rooms preferably negative pressure |
| 2. Feeding by expressed breast milk | 2. Staff must wear full PPE |
| 3. Roomed-in once mother has been tested and declared negative for covid 19 | 3. Baby should be taken care in incubator |
| 4. If separation not possible: Healthy neonate may be roomed-in with mother. Cot should be 1.5-2 meter from mother bed | 4. Respiratory support guided by principles of lung protective strategy including use of non-invasive ventilation |
| 5. If separation not possible: Mother can breast feed. Mother should wash hands frequently including before breastfeeding and wear mask. | 5. a. Antivirals or chloroquine/ hydroxychloroquine are NOT recommended in symptomatic neonates with confirmed or suspected COVID-19. |

## 9. Management of Sick Children in COVID 19

(Part of guideline is adopted from Indian Academy of Pediatrics Covid-19 Bulletin)

Children account for 1-2 % of the total population affected with Coronavirus infection-19 (COVID-19) with about 2-6% of them requiring management in the intensive care unit (ICU). The disease appears to be less severe in children and various theories have been proposed for the same. Severe acute respiratory illness (SARI) including severe pneumonia and acute respiratory distress syndrome (ARDS), septic shock, myocardial dysfunction, acute kidney injury and other organ dysfunction require admission to the pediatric intensive care unit (PICU). Intensive care needs like mechanical ventilation, renal replacement therapy (RRT), extracorporeal membrane oxygenation (ECMO) and cardiopulmonary resuscitation pose a significant risk of transmission to healthcare workers (HCW) and other patients. Strict infection control practices are essential to prevent the spread through fomites, contact, droplets and aerosol.

**Cohort ICU (DGB)**

Children with SARI (suspected covid 19) will be managed in a separate area (Pediatric Isolation DGB) different from the PICU where other children are being taken care. In addition, confirm covid cases will be shifted to separate designated area common for pediatric and adult patients.

General principles remain same as discussed in section 5: suggested clinical management.

**Clinical monitoring:** All cases should have standard clinical and laboratory monitoring as per level of sickness. At least following parameters must be recorded 6 hourly (more frequent in unstable patients)

- Temperature
- Heart Rate
- Respiratory Rate
- SPO2
- AVPU Score

ECG as base line and 2-4 hrs after first dose should be recorded in patients receiving hydroxychloquine.
Additional monitoring as per ICU protocol in unstable/ sick / ventilated patients.

**Laboratory Monitoring:**

Screening lab test in all

- CBC with differentials
- Liver and renal function tests
- S Ferritin level
- Covid 19 RT PCR

Following investigations should be done in covid 19 positive cases at interval of every 48 hrs.

- CBC
- S. Ferritin level
- D-dimer
- PT/aPTT, INR
- CRP
- Procalcitonin

Consider ABG, LDH, Trop I, IL-6 (once available) and other tests as appropriate on case to case basis. Efforts should be made to record daily progression on pulmonary artery pressure (Right Ventricular Artery Pressure) with the help of portable echo/ USG.

**Initial Therapy:**

- Symptomatic and supportive treatment (antipyretics, antibiotics, etc.)
- Anticoagulation: Treatment dose of LMWH (e.g. enoxaparin 2 mg/kg per day SC) in symptomatic patients (suspected or confirm cases); Prophylactic dose of LMWH (enoxaparin 1mg/kg per day SC) in all admitted cases not needing treatment dose.
- IV methylprednisolone 0.5 to 1 mg/kg OR Dexamethasone 0.1 to 0.2 mg/kg (preferably within 48 hours of admission or if oxygen requirement is increasing) for 5-10 days.
- Methyl prednisolone pulse therapy as rescue drug in severe cases.
- Azithromycin 500 mg OD (age appropriate dose for children) for URI like symptoms and add amoxicillin plus clavulinic acid 625 mg TDS if LRTI is suspected

**Early supportive therapy**

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 nCoV

**Management of SARI**

Child presenting with cough and difficulty in breathing or tachypnea with one of the following:

1. Hypoxemia [oxygen saturation ($SpO_2$) <90% or central cyanosis]
2. Severe chest indrawing or grunting
3. Danger signs like altered sensorium, poor feeding, convulsions as per World health Organization (WHO) definition of severe pneumonia.

**Respiratory support:**

In infants and small children, an oxygen hood may be placed over the head along with nasal prongs to decrease spread of aerosols due to leaks around the cannula, especially if higher flows are used. A surgical mask can be placed over the nasal prongs to minimize droplet transmission

of infection in older children. Nebulization should be avoided. If necessary, in children with airway obstruction like asthma, metered dose inhalers (MDI) are preferred.
Use of NIV and other modalities associated with aerosol generation due to use of higher flows and leaks is discouraged, unless full aerosol precautions with negative pressure rooms are available.

*Invasive mechanical ventilation:* Early elective intubation based on combination of clinical, radiological and pulse oximetry or blood gas parameters is preferred to avoid the risks involved in emergency intubation. Silent hypoxemia with minimal distress has also been reported so regular/ periodic SPO2 monitoring is good even in relatively stable children. The procedure of intubation is high risk in view of aerosol generation and has to be performed using the technique of Rapid sequence intubation (RSI) with a few modifications. If available and trained, video-laryngoscope guided intubation is preferred. Use of a transparent plastic hood enclosure (Aerosol box) with two openings for the intubator's hands has been tried in some units to contain the aerosol within the hood. Invasive mechanical ventilation strategies for children with COVID-19 are along the lines of management of Pediatric Acute Respiratory Distress Syndrome (PARDS). Closed suction catheters are preferred to avoid disconnection, aerosol production and de- recruitment.
Extubation is also associated with high aerosol generation and should be done in controlled setting directly to nasal prongs, avoiding NIV. It should be planned once the team is sure that the child will tolerate extubation. Use of plastic bags or sealed enclosures around the face after disconnection from ventilator and ensuring minimal coughing during extubation can minimise aerosol generation.

**Shock:** Restricted crystalloid fluid bolus (10-20 ml/kg of 0.9% saline or balanced salt solution) has been recommended by Surviving sepsis guidelines followed by Adrenaline infusion as the first vasoactive drug in Pediatric septic shock.

**Myocarditis:** Diuretics, Inodilator and ECMO have been recommended. Immunomodulator like Intravenous immunoglobulin (IVIG) may be considered.

**Acute kidney injury:** Failure of conservative management like anuric fluid regime and trial of diuretics requires initiation of RRT like Peritoneal dialysis (PD), hemodialysis (HD) or continuous renal replacement therapy (CRRT).

**Acute liver failure, coagulopathy and DIC:** These are managed conservatively with blood component therapy as necessary.
**Cytokine release syndrome:** It is characterised by severe inflammation with hyperferritinemia, high C-reactive protein and high Interleukin- 6 (IL-6) levels which is likely to respond to Tocilizumab.

## Algorithm for Management of Shock

**Early detection of signs of septic shock**

Heart rate (increased or decreased); Peripheral perfusion: cool or warm extremities, CRT >2 sec or flash, Altered skin color & Temperature; fever or hypothermia; Blood pressure: Normal or hypotension; Altered GCS /AVPU:

↓

**Initial stabilization and resuscitation**

Airway, breathing & circulation, oxygen, Attach monitors to record HR, BP and SPO2
IV or IO access and sampling if possible (Ca, glucose, electrolytes, Blood gas, Bl culture)
Fluid bolus: 20 ml/kg isotonic crystalloid over 5-10 minutes, repeat upto total of 30 ml/kg
Medication: Antimicrobials with in 1 hour, Antipyretics if needed

↓

**Reassessment for Signs of Septic Shock**

**Resolving signs of Shock**

Improved GCS/AVPU, normal HR and temp, CRT <2 sec, adequate systolic and diastolic BP
Ongoing Care, treat infection, organ support

**Signs of Shock persist**

**Fluid Refractory Septic Shock**

Critical care consultation and vasoactive drugs

- **Shock with cold extremities**: Epinephrine 0.05-0.3 mcg/kg/min
- **Shock with warm extremities:** Norepinephrine 0.05-0.3 mcg/kg/min
  Alternative dopamine 5-10 mcg/kg/min

↓

Consider central venous access, invasive BP monitoring and mechanical ventilation
Continue and titrate epinephrine/norepinephrine, and bolus fluid therapy as needed

**Catecholamine Resistant Shock**

Stress-dose hydrocortisone for absolute adrenal insufficiency
Consider ScVO2 monitoring and titrate vasopressors.
Consider milrinone in cardiogenic shock (if BP is maintained)

**Signs of shock resolved**
**Assess for therapeutic end points**
Normal HR & pulses, CRT < 2 sec, warm extremities, Normal BP, GCS / AVPU
Urine output > 1 ml/kg/hr, Improving lactate and metabolic acidosis
**Monitor in ICU, Support organ function, Treat infection source**

**Persistent catecholamine resistant Shock**
Rule out tension pneumothorax, pericardial effusion, high intra-abdominal pressure.
Invasive and non-invasive (USG) measurements to guide fluid and inotropic support

**Supportive care:**

***Early enteral nutrition:*** Enteral nutrition should be started within 24 hours and full feeds established by 48 hours, if there are no contraindications.

***Blood transfusion:*** If stable hemodynamics and oxygenation, a hemoglobin (Hb) of >7g/dL is targeted. In case of refractory hypoxemia or unstable hemodynamics, the trigger to transfuse would be Hb <10g/dL.

***Antibiotics:*** Co-infection with other viruses and bacteria have been observed within 72 hours of ICU admission. Oseltamivir, Azithromycin, 3rd generation cephalosporin like Ceftriaxone and anti-Staphylococcal cover with Cloxacillin is necessary especially in mechanically ventilated patients.

**Paediatric multisystem inflammatory syndrome (PMIS)**

PMIS or multisystem inflammatory syndrome in children (MIS-C), is a systemic disease involving persistent fever, inflammation and organ dysfunction following exposure to SARS-CoV-2, the virus responsible for COVID-19.

This syndrome appears somewhat similar to Kawasaki disease. It can also show features of other serious paediatric inflammatory conditions, including toxic shock and macrophage activation syndromes. Older children tend to be affected. The first symptoms may be acute abdominal pain, diarrhoea or vomiting. Low blood pressure is common. Other symptoms can include conjunctivitis, rashes, mucous membrane changes, enlarged lymph nodes, swollen hands and feet, sore throat, cough, fainting, irritability and confusion. Respiratory symptoms are not always present. Inflammation of the heart muscle is a frequent form of cardiac involvement. Others may include inflammation of the fibrous sac surrounding the heart and of the heart valves, as well as coronary artery abnormalities, such as dilatation, with the potential for aneurysms. Cytokine storm may occur, in which the innate immune system stages an excessive and uncontrolled inflammatory response.

| **Case Definition (RCPCH):** | **WHO case definition** |
|---|---|
| 1. A child presenting with persistent fever, inflammation (neutrophilia, elevated CRP and lymphopaenia) and evidence of single or multi-organ dysfunction (shock, cardiac, respiratory, renal, gastrointestinal or neurological disorder) with additional features (as listed below). This may include children fulfilling full or partial criteria for Kawasaki disease.<br>2. Exclusion of any other microbial cause, including bacterial sepsis, | Children and adolescents (0–19 years of age) with<br>• Fever >3 days<br>AND<br>• Two of the following:<br>1. Rash or bilateral non purulent conjunctivitis or muco-cutaneous inflammation signs (oral, hands or feet)<br>1. Hypotension or shock<br>2. Features of myocardial dysfunction, pericarditis, valvulitis, or coronary |

| | |
|---|---|
| staphylococcal or streptococcal shock syndromes, infections associated with myocarditis such as enterovirus (waiting for results of these investigations should not delay seeking expert advice).<br>3. SARS-CoV-2 PCR testing may be positive or negative<br><br>*Consider this syndrome in children with features of typical or atypical Kawasaki disease or toxic shock syndrome. | abnormalities (including ECHO findings or elevated Troponin/NT-proBNP)<br>3. Evidence of coagulopathy (by PT, PTT, elevated d-Dimers)<br>4. Acute gastrointestinal problems (diarrhoea, vomiting, or abdominal pain)<br><br>AND<br>• Elevated markers of inflammation such as ESR, C-reactive protein, or procalcitonin<br><br>AND<br>• No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes<br><br>AND<br>• Evidence of COVID-19 (RT-PCR, antigen test or serology positive), or likely contact with patients with COVID-19 |

**Monitor for clinical signs of worsening inflammation:**

- Worsening fever
- Cardiorespiratory deterioration
- Worsening gastrointestinal symptoms
- Increasing hepatosplenomegaly or lymphadenopathy o Extending rash
- Worsening neurological symptoms
- Laboratory signs of increasing inflammation
- Falling blood cell counts
- Rising ferritin
- Unexpectedly low or falling ESR
- Rising fibrinogen or new onset low fibrinogen
- Rising ALT, AST or LDH
- Rising triglycerides
- Rising D-dimers
- Low serum sodium with worsening renal function

**Treatment**

Little specific information is available regarding therapeutic effectiveness. Anti-inflammatory treatments have been used, and good responses have been recorded for intravenous immunoglobulin (IVIG), with or without corticosteroids. Cases requiring steroids due to resistance to intravenous immunoglobulin may be more common than in Kawasaki disease. Aspirin has been used mainly as an antiplatelet drug. RCPCH guidance

recommends that all affected children should be treated as having suspected COVID-19. For mild or moderate disease, supportive care alone may be sufficient.

**Resuscitation:** Cardiac arrest during ICU care of COVID-19 patients requiring cardiopulmonary resuscitation (CPR) pose a high risk of aerosol generation. Principles of CPR in this scenario are discussed under Code Blue section.

## 10. CODE BLUE: Cardio Pulmonary Resuscitation (CPR) in COVID 19

**Ten Recommendations for CPR during COVID 19 pandemic**

**1. Protect yourself before starting chest compression: (P-C-A-B Sequence)**

- HCW should don full personal protective equipment (PPE) while handling In Hospital Cardiac Arrest (IHCA) in COVID area.

**2. Securing the patient's airway:**

- Secure the airway using tracheal tube (TT) or laryngeal mask airway (LMA). To minimize the exposure risk to HCWs, connect v*iral filter or heat moisture exchanger (HME) with viral filtering capacity* between TT/LMA and Y end of ventilator tube / Bain's circuit / self-inflating bag.

**3. Restrictive Team composition**

- Three member team making the triangle of resuscitators with add on responsibilities.
  - Role 1: Airway (act as leader also)
  - Role 2: Compressor to alternate with member 3
  - Role 3: AED or defibrillator / administer medication / assists

**4. Tracheal Tube Placement**

- Intubate using a video laryngoscope or use LMA; or else direct laryngoscope with protective measures as mentioned above.
- Cuffed TT are preferred; inflate the cuff immediately on insertion. Attach viral filter as mentioned above.
- Confirm TT placement by chest rise and/ or EtCO2 detector; avoid auscultation.
- Use closed suction system.

**5. Attach to ventilator early:**

- Connect to a mechanical ventilator once the advanced airway is in place and continue CPR with chest compressions at a rate of 100-120 per minute without pause and breaths by ventilator at the rate of 10-12 per minute in adults/ adolescents and 12-20 per minute in children.

**6. AED and Defibrillator**

- Use disposable AED pads instead of defibrillator paddles to deliver shock to minimize contact with patient. In children, dose attenuated AED is preferred.
- Pads may be applied in anterior-posterior position in prone ventilated requiring CPR.
- If AED is not available, use defibrillator paddles taking infection prevention and control (IPC) precautions.

**7. CPR in prone position**

- Perform CPR in prone position in patients already receiving prone ventilation.
- Position hand just below the subscapular line over T7 to T10 vertebra on the midline.

**8. Hypomagnesemia: the 7th "H"**

- Consider magnesium-sulfate (MgSO4) infusion 25-50 mg/kg over 5-10 min during resuscitation as seventh H in list of Hs and Ts in case of prolonged QT interval/ torsades de pointes.

**9. Early use of vasoactive drugs**

- Once ROSC is achieved, consider early use of vasoactive drugs for persisting shock. Avoid aggressive fluid resuscitation.

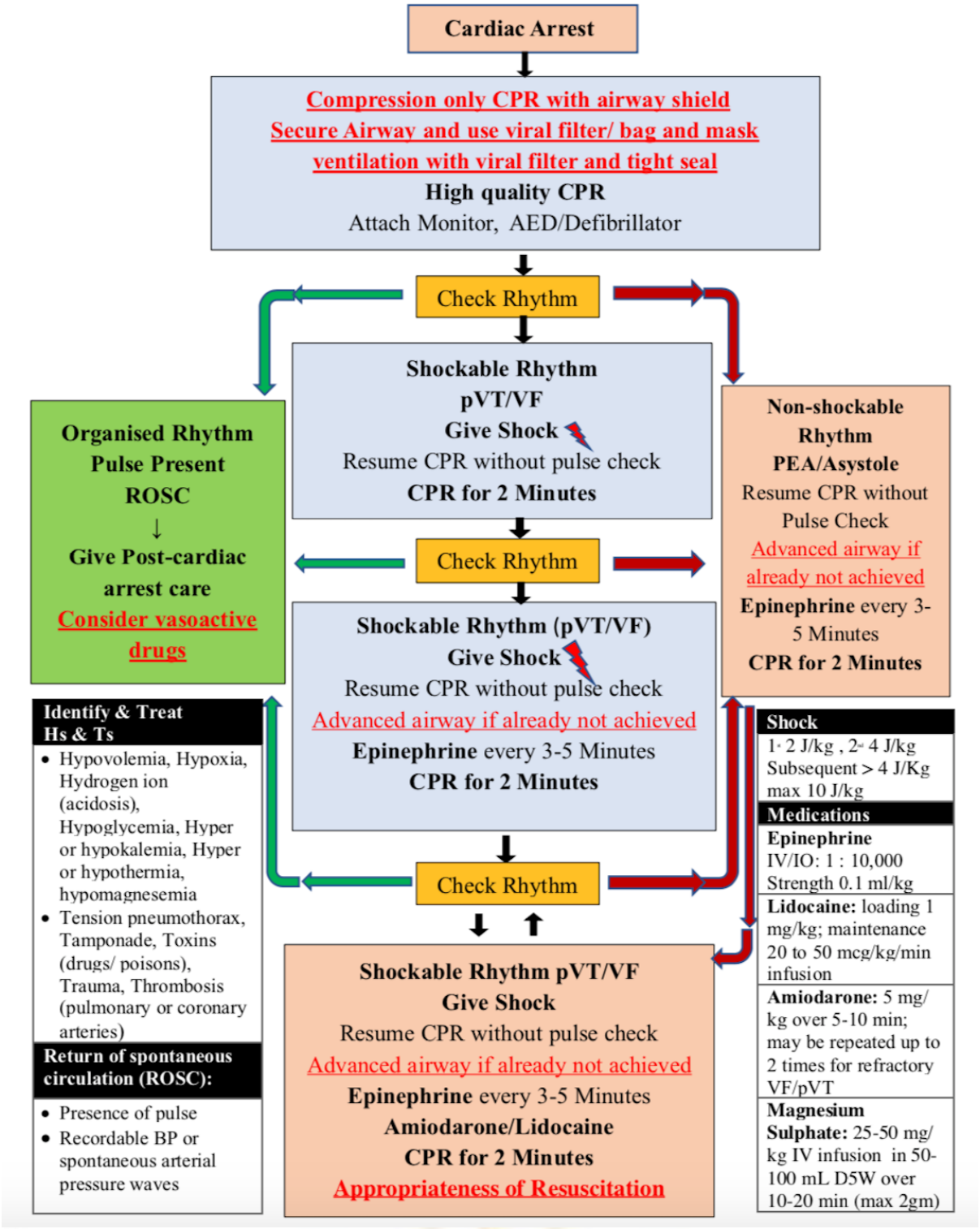
**10. Appropriateness of Resuscitation and Duration of CPR**

- Follow the updated ICMR recommendation on taking decision to start/ continue CPR.

**Contents of crash cart, and drug tray**

| Crash cart | Drug tray |
|---|---|
| • 4 sets of full PPE, 5 additional N95 Masks, and gloves<br>• CPR Board<br>• Face shield/ surgical mask, aerosol box/plastic drape to cover face till advance airway in place<br>• Face-mask<br>• HME Filter/ Viral filter Self-inflating/ flow-inflating bag (Ambu bag with reservoir/ Bains circuit to bag from distance)<br>• Laryngoscope with blade/ video laryngoscope/ LMA<br>• Stylet or bougie<br>• Appropriate size cuffed ETT (all sizes from 2.5 to 8.0)<br>• Closed circuit system suction device<br>• 2mL syringe for ETT cuff inflation<br>• AED/ Defibrillator with pads<br>• Canulae of different size<br>• Intraosseous needle<br>• Syringes and infusion sets<br>• Adhesive tape<br>• Surgical airway kit (if available)<br>• Stethoscope<br>• Pulse oximetry<br>• EtCO2 monitor (if available)<br>• Bag-valve Device<br>• Viral filter for bag or mechanical ventilator | Adrenaline,<br><br>Adenosine, Amiodarone, Atropine, MgSO4,<br><br>Midazolam, Fentanyl, Vecuronium,<br><br>Saline flush, 10% Dextrose<br><br>MDI salbutamol with spacer<br><br>*Kindly add any other essential drug used in emergency |

HMEF- Heat moisture exchanger with integrated viral & bacterial filter, ETT- Endotracheal tube, LMA- Laryngeal mask airway


Cardiac Arrest
Compression only CPR with airway shield
Secure Airway and use viral filter/ bag and mask ventilation with viral filter and tight seal
High quality CPR
Attach Monitor, AED/Defibrillator
Check Rhythm
Shockable Rhythm
pVT/VF
Give Shock
Resume CPR without pulse check
CPR for 2 Minutes
Check Rhythm
Shockable Rhythm (pVT/VF)
Give Shock
Resume CPR without pulse check
Advanced airway if already not achieved
Epinephrine every 3-5 Minutes
CPR for 2 Minutes
Check Rhythm
Shockable Rhythm pVT/VF
Give Shock
Resume CPR without pulse check
Advanced airway if already not achieved
Epinephrine every 3-5 Minutes
Amiodarone/Lidocaine
CPR for 2 Minutes
Appropriateness of Resuscitation
Organised Rhythm
Pulse Present
ROSC
↓
Give Post-cardiac arrest care
Consider vasoactive drugs
Non-shockable Rhythm
PEA/Asystole
Resume CPR without Pulse Check
Advanced airway if already not achieved
Epinephrine every 3-5 Minutes
CPR for 2 Minutes
Identify & Treat Hs & Ts
Hypovolemia, Hypoxia, Hydrogen ion (acidosis), Hypoglycemia, Hyper or hypokalemia, Hyper or hypothermia, hypomagnesemia
Tension pneumothorax, Tamponade, Toxins (drugs/ poisons), Trauma, Thrombosis (pulmonary or coronary arteries)
Return of spontaneous circulation (ROSC):
Presence of pulse
Recordable BP or spontaneous arterial pressure waves
Shock
1- 2 J/kg , 2nd 4 J/kg
Subsequent > 4 J/Kg
max 10 J/kg
Medications
Epinephrine IV/IO: 1 : 10,000 Strength 0.1 ml/kg
Lidocaine: loading 1 mg/kg; maintenance 20 to 50 mcg/kg/min infusion
Amiodarone: 5 mg/kg over 5-10 min; may be repeated up to 2 times for refractory VF/pVT
Magnesium Sulphate: 25-50 mg/kg IV infusion in 50-100 mL D5W over 10-20 min (max 2gm)

## 11. TRACHEOSTOMY GUIDELINES DURING COVID-19 PANDEMIC

**Emergency Tracheostomy (Imminent airway obstruction unknown COVID-19 status)**

Manage patient as such COVID-19 positive. Given respiratory symptoms they will fulfil criteria for suspected COVID-19 and there will not be time for testing in this situation.

**Reversible cause for airway obstruction**

- Intubation rather than tracheostomy would be preferable, follow difficult airway guidance
- Avoid use of high flow oxygen/AIRVO
- Most skilled airway manager (anaesthetist) present should manage airway to maximise first pass success
- Most skilled airway manager (ENT) for tracheostomy if required
- Reduce unnecessary team members to essential staff
- See Standard Operative Procedure for tracheostomy below
- Irreversible cause for airway obstruction i.e. (Laryngeal mass)
- Irreversible cause for airway obstruction where intubation is not appropriate, tracheostomy as per standard operative procedure below
- At this time, it may not be advisable for laryngeal debulking in those where COVID-19 status is unknown

**Elective Tracheostomy**

- COVID-19 testing to be performed in all patients prior to elective tracheostomy
- Tracheostomy is a high-risk procedure because of aerosol-generation, it may be prudent to delay tracheostomy until active COVID-19 disease has passed
- ENT and ITU consultant to discuss appropriateness of tracheostomy in COVID-19 positive patient
- If COVID negative following testing proceed as per standard operating procedure (fluid resistant surgical mask, surgical gown, gloves and eye protection) (guidance for ENT during the COVID-19 pandemic)
- Standard operative procedure for tracheostomy in COVID 19 positive patient/Unknown status
- Most skilled anaesthetic and ENT clinician performing anaesthetic and procedure, to ensure that the procedure is safe, accurate and swift
- Reduce unnecessary team members to essential staff

**Preparation and Gowning:**

- Use N95 mask.
- Eye/face protection should be worn for performing tracheostomy or changing a tracheostomy tube due to the risk of respiratory secretions or body fluids. Surgical mask with integrated visor or full face shield/visor are suitable:
- Fluid resistant disposable gown should be worn. If non-fluid resistant gown is used a disposable plastic apron must be worn underneath. A sterile disposable gown must be used for surgical tracheostomy.
- Gloves must be appropriate to allow palpation, use of stitches and surgical instruments. Consider using Eclipse system or “double-gloving”.
- Cuffed non-fenestrated tracheostomy should be used to avoid aerosolizing the virus

- Every effort should be made not to pierce the cuff of the endotracheal tube when performing tracheotomy
- Initial advancement of the endotracheal tube should be performed prior to tracheostomy window being made
- If possible, cease ventilation whilst window in the trachea is being performed and check the cuff is still inflated before recommencing ventilation
- Ventilation to cease prior to tracheostomy tube insertion and ensure swift and accurate placement of tracheostomy tube with prompt inflation of the cuff
- Confirm placement with end tidal CO2
- Ensure there is no leak from the cuff and the tube is secured in position
- HME (Heat and moisture exchanger) should be placed on the tracheostomy to reduce shedding of the virus should the anaesthetic tubing be disconnected
- Avoid disconnecting HME but if necessary, disconnect distal to HME

**Post tracheostomy care**

- Avoiding humidified wet circuits as theoretically it will reduce the risks of contamination of the room if there is an unexpected circuit disconnection
- Avoid changing the tracheostomy tube until COVID-19 has passed, will have to review with infectious diseases
- Cuff to remain inflated and check for leaks
- Make every effort not to disconnect the circuit
- Only closed in line suctioning should be used

**References:**

1. Tracheostomy guidance during the COVID-19 Pandemic :ENT U.K
2. icmanaesthesiacovi-19.org
3. ENT UK Guidance for ENT during the COVID-19 pandemic
4. van Doremalen N, Bushmaker T, Morris DH et al. Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. NEJM in press doi: https://doi.org/10.1101/2020.03.09.20033217. The https://www.medrxiv.org/content/10.1101/2020.03.09.20033217v1.full.pdf
5. Public Health England. Environmental decontamination, in COVID-19: infection prevention and control guidance https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/wuhan-novel-coronavirus-wn-cov-infection-prevention-and-control-guidance#decon
6. COVID-19 Guidance for Infection Prevention and Control in Healthcare Settings. Version 1.0

## 12.Discharge Policy of 2019-nCoV case

**Suspected case** – if the laboratory results for COVID-19 are negative, discharge is to be decided as per discretion of the treating physician based on his provisional /confirmed diagnosis.

**Confirmed case** – Follow the revised discharge policy as below.

Confirmed Covid-19 Case

| **Mild/Moderate Cases** | **Severe Cases** |
|---|---|
| *Discharge when the following criteria are met:*<br>*1. 10 days from onset of symptoms.*<br>*2. No fever for 3 days.*<br>*3. No breathlessness/resolution of breathlessness*<br>*4. Oxygen saturation ≥ 95% without supplemental oxygen for 4 days.* | *Discharge when the following criteria are met :*<br>*1. Clinical recovery*<br>*2. Single negative RT-PCR test report*.* |

Patient to be isolated at home for next 7 days as per guidelines.
(https://www.mohfw.gov.in/pdf/GuidelinesforHomeIsolationofverymildpresymptomaticCOVID19cases.pdf).

**RT-PCR for covid 19 should not be repeated to monitor the clinical progress. Negative RT PCR is not a criteria for discharge in mild to moderate cases.*

On case to case basis decision on discharge may further be decided by the treating team in consultation with core team in light of prevalent recommendations for given clinical status.

**Instructions for home quarantine of COVID-19 contacts:**

- Stay in a well-ventilated room separated from other people and pets
- Should preferably have attached/separate toilet
- Restrict his/her movement within the house.
- In shared spaces, maintain a distance of at least 1-2 meters and wear a medical mask when in proximity with other people
- Take special care to stay away from elderly people, pregnant women, children and persons with co-morbidities
- Do NOT attend any social/religious/public gathering e.g. wedding, condolences, etc.
- Wash hand often thoroughly with soap and water (at least 40 seconds) or with alcohol-based hand sanitizer (at least 20 seconds) especially after coughing and sneezing, and before and after eating, drinking and using the washroom
- Follow all steps of handwashing as described in chapter 4
- Avoid sharing household items with other people at home (e.g. dishes, drinking glasses, cups, eating utensils, towels, bedding etc.)
- Used three layered medical mask should be considered as potentially infected
- If symptoms appear (cough/fever/difficulty in breathing), he/she should immediately inform the nearest health center or call 104

**Instructions for the family members of person being home quarantined/isolated:**

- Household members should stay in a different room and be separated from the person as much as possible
- Only an assigned family member should be tasked with taking care of the person and should help with groceries, prescriptions and other personal needs
- Avoid shaking the soiled linen or direct contact with skin
- Pets should be cared for by household members and should be kept separate from the person
- Use disposable gloves when cleaning the surfaces or handling soiled linen
- Stay at least 1 m away from those who are coughing
- Wash hands after removing gloves and before and after eating, drinking and using the washroom with soap and water (at least 20 seconds) or with alcohol-based hand sanitizer (at least 30 seconds)
- All non-essential visitors should be prohibited
- In case the person being quarantined becomes symptomatic, all his close contacts will be home quarantined for 14 days and followed up for an additional 14 days or till the report of such case turns out negative on lab testing

## 13. SOP for Radiological tests of suspected or proven COVID 19 patient

| | | | |
|---|---|---|---|
| **1** | For patients examined in Flu corner or Emergency and suspected to have COVID 19 | No imaging to be done directly on outpatient or emergency basis, but patient should be shifted to isolation | If needed, imaging to be done following COVID 19 protocol |
| **2** | For patients in Isolation or ICU areas designated for COVID 19 | X-ray and USG/Doppler to be done *at site* using portable machines already stationed in 6th floor;<br>For CT/MRI follow COVID 19 protocol as below | Technician/Doctors to wear PPE and perform the tests; following tests, all equipment to be cleaned and sterilized including x-ray plates, probes, monitors, keyboards etc. |
| **3** | For patients in non - COVID 19 designated areas (normal ward/ICU) of hospital but suspected to have COVID 19 | Imaging to be done following COVID 19 protocol | |

**Protocol for imaging in radiology department for suspected or proven COVID 19 patient**

1. **During transfer**
   a. Patient to wear disposable gown
   b. Patient to be wrapped in plastic transfer sheet/body bag
   c. Main accompanying staff/doctors to wear PPE
   d. Other accompanying staff to stay minimum 1 meter distance
   e. Accompanying attendants to stay minimum 2 meters distance
2. **In exam room** (e.g. CT/MRI/DSA/FLUORO/USG/X-ray) of radiology department
   a. Technician/doctor performing test in exam room to wear PPE (lead gown if needed to be worn under the PPE)
   b. After test, machine to be cleaned with isopropyl alcohol preferably, or other standard disinfectant if available
   c. Exam room to be fumigated/spray disinfected
   d. Exam room to be kept locked for one hour post disinfection with AC ON. (In ventilated rooms, AC is not needed, but in AIIMS Patna Radiology department, such well-ventilated room are not present). Minimum of 4 recirculation air cycles are needed.
3. **In console room**
   a. PPE is not needed; persons in console room should not enter exam room and take no part in handling the patient or fomites related to patient.
   b. The accompanying persons should not enter the console room.
   c. Files related to patient from isolation areas should not be brought and given to person in console but digital request should be made or fresh requisition papers

generated in the department on verbal instructions without any physical contact with staff of radiology department.

4. The plastic covering sheet to be disposed as per standard after taking back the patient to its originating location
5. PPE worn by the persons to be removed and disposed as per standard.
6. For next patient, same cycle to be repeated.

## 14. RISK OF TRANSMISSION AND PROTECTION STRATEGIES

Aerosol-generating procedures carries the maximum risk of transmission of infection.

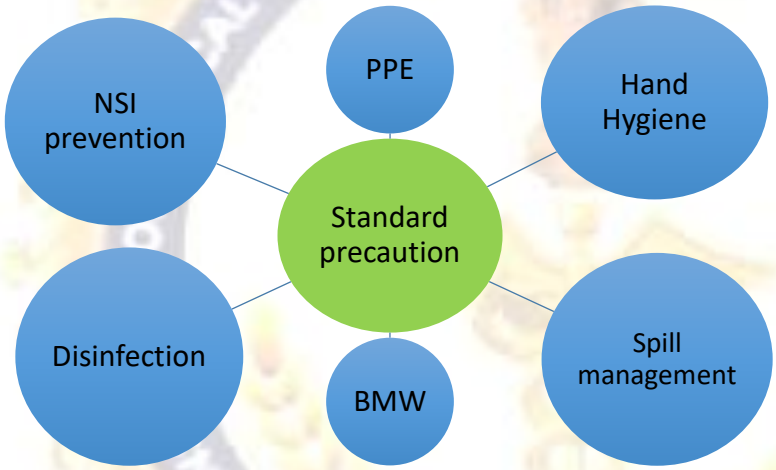
- Tracheal intubation
- Non-invasive ventilation
- Tracheotomy
- Cardiopulmonary resuscitation
- Manual ventilation before intubation
- Bronchoscopy.
- Nebulization
- Sample collection

Standard precautions along with transmission based precautions must be followed at all times in hospital setting to prevent spread of infection.

**STANDARD PRECAUTIONS**

Standard precautions are basic infection control precautions which must be applied to all patients at all times, regardless of diagnosis or their infectious state.

Components of standard precautions include –




**HAND HYGIENE** – Perform hand hygiene frequently with an alcohol-based hand rub if your hands are not visibly dirty or with soap and water if hands are dirty.

**Five moments of Hand Hygiene –** This is an approach by WHO to highlight the key moments to perform hand hygiene in order to prevent transmission of microbes in health care facilities.

**Duration:** Hand rub 20-30 sec & Hand wash 40-60 sec.

**Indications for using handrub:**

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

**Indications for using hand wash:**

- Hands are visibly dirty, contaminated with blood, or body fluids

- Potential exposure to spore forming organisms (e.g., *Clostridium difficile*); non enveloped viruses (e.g. Norovirus, rotavirus, enteroviruses)
- Handling patients having diarrhoea After using restroom
- Before handling medication or food



**PERSONAL PROTECTIVE EQUIPMENT (PPE)** - HCWs should wear PPE (Gloves, mask, gown, eye protection, or face shield) when touching blood, body fluids, secretions, excretions, and contaminated items.

**Principles for use of PPE**

- PPE should be chosen according to the risk of exposure and route of transmission of infection.
- Any contact between contaminated (used) PPE and surfaces, clothing or people outside the patient care area should be avoided.
- Used PPE should be discarded in appropriate disposal bags, and dispose of as per BMW Rules, 2016
- PPE should never be shared.
- PPE (gloves) should be changed and hands washed each time one leaves a patient to attend to another patient or another duty.

**GLOVES**

- Should be used as a part of standard, contact and droplet precautions.
- Wear gloves when touching blood, body fluids, secretions, excretions or mucous membranes
- Wear gloves before sterile procedures

- Wear gloves during contact with a patient or his surroundings during contact precaution.
- Always change gloves when touching different patients
- Change gloves between procedures on the same patient to prevent cross-contamination between different body sites
- Remove gloves after use
- Wash hands immediately after removing gloves
- Disposable gloves should not be reused but should be discarded.

When the hand hygiene indication occurs before a contact requiring glove use, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.

**I. HOW TO DON GLOVES:**

1. Take out a glove from its original box

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

3. Don the first glove

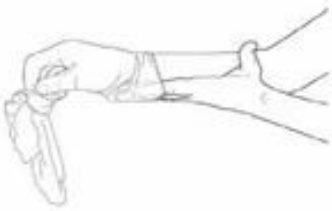
4. Take the second glove with the bare hand and touch only a restricted surface of glove corresponding to the wrist

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

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

**II. HOW TO REMOVE GLOVES:**

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



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

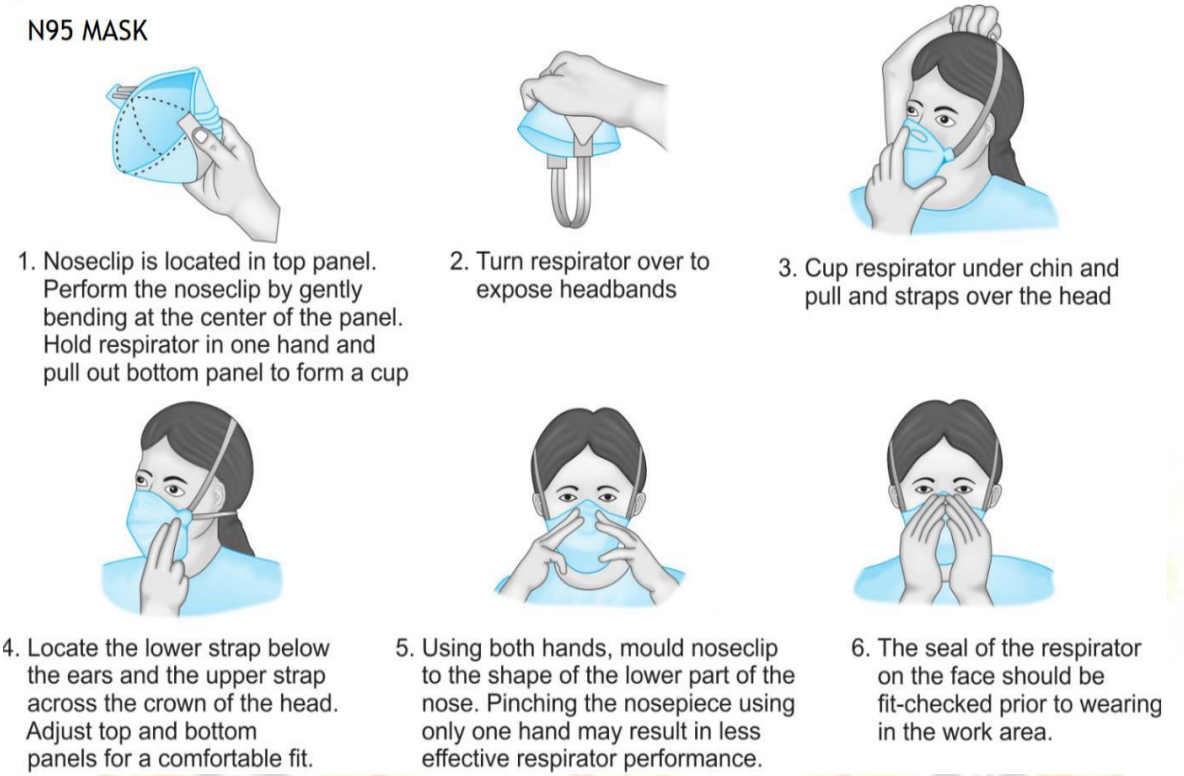
3. Discard the removed gloves

4. Then, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water

**MASKS**

Method of wearing a surgical mask


Method of wearing a N95 Mask




**Mask management**

If medical masks are worn, appropriate use and disposal are essential to ensure they are effective and to avoid any increase in transmission. The following information on the correct use of medical masks is derived from practices in health care settings –

- Place the mask carefully, ensuring it covers the mouth and nose, and tie it securely to minimize any gaps between the face and the mask.
- Avoid touching the mask while wearing it.
- Remove the mask using the appropriate technique: do not touch the front of the mask but untie it from behind.
- After removal or whenever a used mask is inadvertently touched, clean hands using an alcohol-based hand rub or soap and water if hands are visibly dirty.
- Replace masks as soon as they become damp with a new clean, dry mask. Do not re-use single-use masks.
- Discard single-use masks after each use and dispose of them immediately upon removal.
- Follow standard method for re-use of certain types of masks as per updated guidelines.

## GOWNS

**Steps of using gown**

- Hold the gown at the neck on the inside permitting to unfold
- Slide hands and arms down the sleeves.
- Fasten the ties at the neck.
- Overlap the gown at the back as much as possible and secure the waistband
- Call for help to fasten the waist ties.
- Gowns should be removed in a manner that prevents contamination of clothing or skin
- The outer contaminated side of the gown should be turned inward and rolled into a bundle, and then discarded into a designated container.
- Gowns should be removed before leaving the patient care area to prevent possible contamination of the environment outside the patient's room.


## GOGGLES

- Mucous membrane of eye may get contaminated with airborne particles liberated during aerosol generating procedures or with droplets generated when a symptomatic patient cough or sneezes.
- Goggles should be worn in case of splash/spray in caregivers face /eyes to prevent contamination of eyes.
- Front of the goggles are contaminated and should not be touched with bare hands.
- Ear pieces of goggles are considered to be clean and should be used to remove goggles.

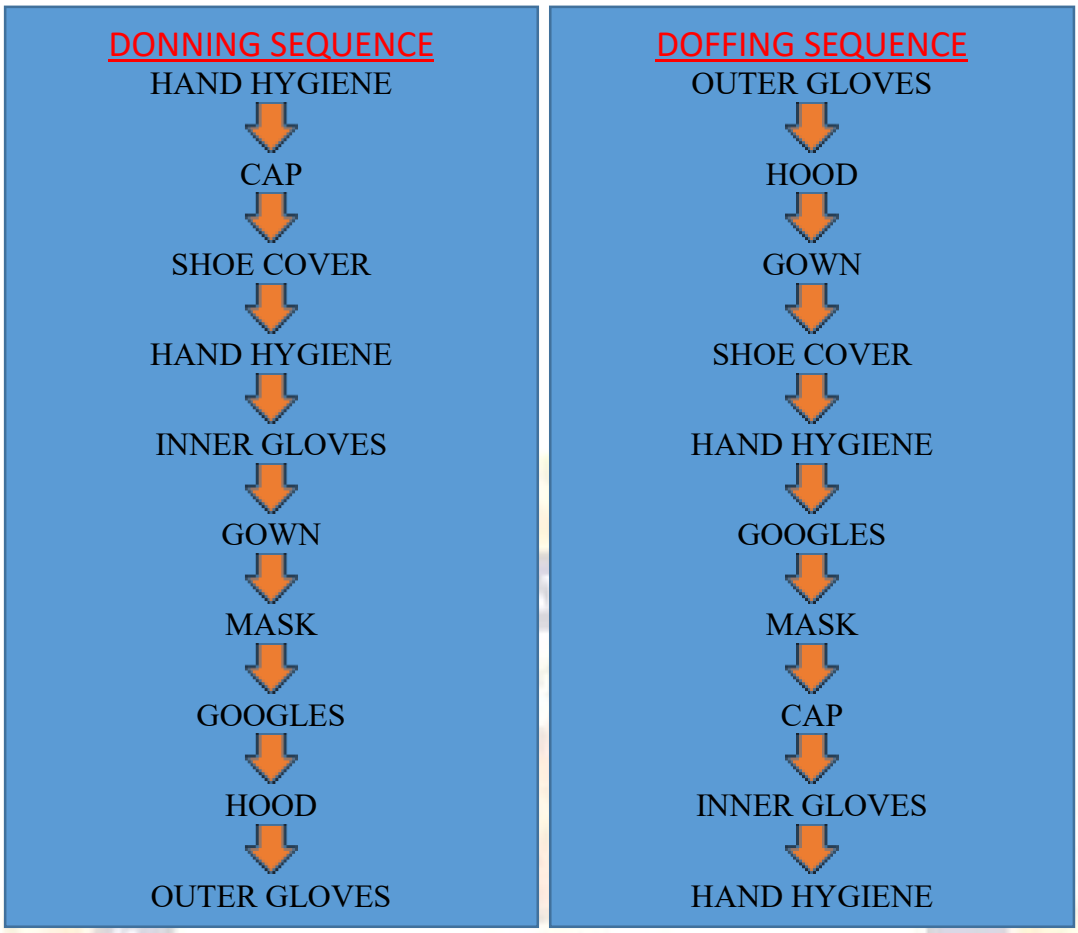
## HEAD COVER

- Should cover the head and neck of the healthcare worker.
- Hair and other extension of hair should fit inside the head cover.
- Should be tied behind the neck.

## SHOE COVER

- Should be made up of impermeable fabric to be used over shoes to facilitate personal protection and decontamination.

## DONNING AND DOFFING SEQUENCE OF PPE




**Aerosol-generating procedures with high risk of transmission**

- Tracheal intubation
- Non-invasive ventilation
- Tracheotomy
- Cardiopulmonary resuscitation
- Manual ventilation before intubation
- Bronchoscopy
- Nebulization
- Sample collection

## 15. Rational use of PPE

Out Patient Department (Respiratory Clinic / Separate screening area)

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

In-patient Services

| S. No. | Setting | Activity | Risk | Recommended PPE | Remarks |
|---|---|---|---|---|---|
| 1 | Individual isolation rooms/ cohorted isolation rooms | Clinical management | Moderate risk | N 95 mask Gloves | Patient masked. Patients stable. No aerosol generating activity. |
| 2 | ICU/ Critical care | Critical care management | High risk | Full complement of PPE | Aerosol generating activities performed. |
| 3 | ICU /critical care | Dead body packing | High risk | Full complement of PPE | |
| 4 | ICU/ Critical care | Dead body transport to mortuary | Low Risk | Triple Layer medical mask Gloves | |
| 5 | Sanitation | Cleaning frequently touched surfaces/ floor/ changing | Moderate risk | N-95 mask Gloves | |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Other Non-COVID treatment areas of hospital | Attending to infectious and non-infectious patients | Risk as per assessed profile of patients | PPE as per hospital infection prevention control practices. | No possibility of exposure to COVID patients. They should not venture into COVID-19 |
| 7 | Caretaker accompanying the admitted patient | Taking care of the admitted patient | Low risk | Triple layer medical mask | The caretaker thus allowed should practice hand hygiene, maintain a |

Emergency Department

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

Pre-hospital (Ambulance) Services

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

ther Supportive/ Ancillary Services

| S. No. | Setting | Activity | Risk | Recommended PPE | Remarks |
|---|---|---|---|---|---|
| 1. | Laboratory | Sample collection and transportation | High risk | Full complement of PPE | |
| | | Sample testing | High risk | Full complement of PPE | |

| | | | | | |
|---|---|---|---|---|---|
| 2 | Mortuary | Dead body handling | Moderate Risk | N 95 mask Gloves | No aerosol generating procedures should be allowed. No |
| | | While performing autopsy | High Risk | Full complement of PPE | No post-mortem unless until specified. |
| 3 | Sanitation | Cleaning frequently touched surfaces/ Floor/ cleaning | Moderate risk | N-95 mask Gloves | |
| 4 | CSSD/Laundry | Handling linen of COVID patients | Moderate risk | N-95 mask Gloves | |
| 5 | Other supportive services | Administrative Financial Engineering Security, etc. | No risk | No PPE | No possibility of exposure to COVID patients. They should not venture into |

## *Standard Operating Procedure for Reuse of goggles*

*All goggles that conform to prescribed EN/BIS specifications will be re-used after disinfection. Reprocessing and reuse of goggles must be done only when it is dedicated to each individual. Reprocessing must be done after every use before using it again. Clean and disinfect the goggles as follows:*
*While wearing gloves, clean goggles with soap/detergent and water and then immerse in 1% freshly prepared sodium hypochlorite for 10 minutes. Wash/wipe the inside and outside of goggles with clean water to remove residue.*

*Air dry completely on a clean flat surface or by hanging in clean place, or use clean tissue papers gauge to dry it. Store it in a paper bag/in a clean area to avoid recontamination. Remove gloves and perform hand hygiene.*
*It must be discarded if damaged/rendered optically non-clear on repeated usage.*

*Goggles may be issued to each health care worker, who will decontaminate them after every use. Goggles to be disinfected by users and re-used at least five times each, whereby one pair of goggles will suflice for 6 days. They may use them rationally till their transparency decreases or they get damaged. The ratio of issue of goggles to coverall is recommended at* 1:6.

## 16. ENVIRONMENTAL CLEANING IN HEALTH CARE FACILITIES

**Cleaning agents and disinfectants**

- 1% Sodium Hypochlorite can be used as a disinfectant for cleaning and disinfection.
- The solution should be prepared fresh.
- Leaving the solution for a contact time of at least 10 minutes is recommended.
- Alcohol (e.g. isopropyl 70% or ethyl alcohol 70%) can be used to wipe down surfaces where the use of bleach is not suitable, e.g. metals.

**PPE to wear while carrying out cleaning and disinfection works**

- Wear heavy duty/disposable gloves, disposable long-sleeved gowns, eye goggles or a face shield, and a medical mask (please see the PPE document for details)
- Avoid touching the nose and mouth (goggles may help as they will prevent hands from touching eyes)
- Disposable gloves should be removed and discarded if they become soiled or damaged, and a new pair worn
- All other disposable PPE should be removed and discarded after cleaning activities are completed. Eye goggles, if used, should be disinfected after each use, according to the manufacturer's instructions.
- Hands should be washed with soap and water/alcohol-based hand rub immediately after each piece of PPE is removed, following completion of cleaning.

**Cleaning guidelines**

- Where possible, seal off areas where the confirmed case has visited, before carrying out cleaning and disinfection of the contaminated environmental surfaces. This is to prevent unsuspecting persons from being exposed to those surfaces.
- When cleaning areas where a confirmed case has been, cleaning staff should be attired in suitable PPE. Disposable gloves should be removed and discarded if they become soiled or damaged, and a new pair worn. All other disposable PPE should be removed and discarded, after cleaning activities are completed. Goggles, if used, should be disinfected after each use, according to manufacturer's instructions. Hands should be washed with soap and water immediately after the PPE is removed. Mop floor with routinely available disinfectant.
- Wipe all frequently touched areas (e.g. lift buttons, hand rails, doorknobs, arm rests, tables, air/ light controls, keyboards, switches, etc.) and toilet surfaces with chemical disinfectants and allow to air dry. 1% sodium hypochlorite solution can be used. Alcohol can be used for surfaces, where the use of bleach is not suitable.
- Clean toilets, including the toilet bowl and accessible surfaces in the toilet with disinfectant or 1% sodium hypochlorite solution.
- Wipe down all accessible surfaces of walls as well as blinds with disinfectant or bleach solution.
- Remove curtains/ fabrics/ quilts for washing, preferably using the hot water cycle. For hot-water laundry cycles, wash with detergent or disinfectant in water at 70ºC for at least 25 minutes.

- Discard cleaning items made of cloth and absorbent materials, e.g. mop head and wiping cloths, into biohazard bags after cleaning and disinfecting each area. Wear a new pair of gloves and fasten the double-bagged biohazard bag with a cable tie.
- Disinfect buckets by soaking in disinfectant or bleach solution, or rinse in hot water before filling.
- Disinfectant or 1% sodium hypochlorite solution should be applied to surfaces using a damp cloth. They should not be applied to surfaces using a spray pack, as coverage is uncertain and spraying may promote the production of aerosols**.** The creation of aerosols caused by splashing liquid during cleaning should be avoided. A steady sweeping motion should be used when cleaning either floors or horizontal surfaces, to prevent the creation of aerosols or splashing. Cleaning methods that might aerosolize infectious material, such as the use of compressed air, must not be used.
- Biohazard bags should be properly disposed-off, upon completion of the disinfection work.

**Frequency of cleaning of surfaces:**

| **Area** | **Disinfectant** | **Contact time** | **Frequency** |
|---|---|---|---|
| High touch surfaces | Hypochlorite 1% | 10 minutes | At least 4 hrly |
| Floor | Clean with soap and water followed by Hypochlorite 1% | 10 minutes | 8 hrly |
| Wall and ceiling | Hypochlorite 1% | 10 minutes | Once daily |
| Toilet | Clean with soap and water followed by Hypochlorite 1% | 10 minutes | At least 4 hrly |
| Corridor | Hypochlorite 1% | 10 minutes | 8 hrly |
| Non critical equipment | Alcohol | | After each use |
| Terminal cleaning | Hypochlorite 1% | 10 minutes | After patient discharge |

**Precautions to take after completing the clean-up and disinfection**

- Staff should wash their hands with soap and water immediately after removing the PPE, and when cleaning and disinfection work is completed.
- Discard all used PPE in a double-bagged biohazard bag, which should then be securely sealed and labelled.
- The staff should be aware of the symptoms, and should report to their occupational health service if they develop symptoms.

**CHS Cleaning and BMW clearing timings**

| | **Timing of CHS cleaning** | **Timing of BMW Clearance** | **Contact Person for BMW related issues** |
|---|---|---|---|
| 1 | 4 am -6 am | 7:00 am | Md Aslam Iqbal 9308210434 |
| 2 | 10.00 -12.00 | 12:00 mid-day | |

| | | | |
|---|---|---|---|
| 3 | 2:00-4:00 pm | 4:00 pm | Shashi Kumar 9523508283 |
| 4 | 6:00-8:00 pm | 8:00 pm | |

**Contents of Spill Kit:** A reusable plastic container with Gloves, Plastic aprons, Masks, Eye shields, Shoe covers, Scooper and pan, Disposable paper or towel/Absorbent pad, Disposable forceps, 10% sodium hypochlorite solution 200ml, Yellow Bags, Signage board for No Entry.

**BIOMEDICAL WASTE MANAGEMENT FOR COVID-19**

- Bio-medical waste management for BMW from patients in novel Corona Virus Ward/OPD will be done as per BMWM (Principal) rules 2016 and BMWM (Amendment) rules 2018, 2019, National Infection Prevention and Control guidelines 2020, CDC and WHO Infection Prevention and Control update Jan 2020.
- Segregation of wastes will be done at the site of generation in the four categories –

| Category | Type of Waste | Type of Bag or Container | Treatment and Disposal options |
|---|---|---|---|
| Yellow | **(a) Human or animal Anatomical or Soiled Waste:** | Yellow coloured non-chlorinated plastic bags | Incineration or Plasma Pyrolysis or deep burial |
| | **(d) Expired or Discarded Medicines:** | | Returned back to the manufacturer or supplier for incineration |
| | **(e) Chemical Waste:** | | Disposed of by incineration or Plasma Pyrolysis or Encapsulation |
| | **(f) Chemical Liquid Waste :** | Effluent treatment system | Pre-treated before mixing with other wastewater. |
| | **(g)** Discarded linen, mattresses, beddings contaminated with blood or body fluid. | Yellow non-chlorinated plastic bags | Non-chlorinated chemical disinfection followed by incineration or Plasma Pyrolysis or for energy recovery. |
| | **(h) Microbiology, Biotechnology and other clinical laboratory waste:** | Autoclave safe plastic bags /containers | Pre-treat to sterilize with nonchlorinated chemicals on-site thereafter for Incineration. |
| Red | **Contaminated Waste (Recyclable)** disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and *fixed needle syringes*) and | Red coloured non-chlorinated plastic bags or containers | Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. |

| | | | |
|---|---|---|---|
| | Vaccutainers with their needles cut) and gloves. | | |
| White (Translucent) | **Waste sharps including Metals:** Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object. | Puncture proof, Leak proof, tamper proof containers | Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries |
| Blue | **(a) Glassware:** Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes. **(b) Metallic Body Implants** | Cardboard boxes with blue colored marking | Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment/Immersing in 1% chlorine solution for 20 minutes or through autoclaving or microwaving or hydroclaving and then sent for recycling. |

- Use double bags labelled COVID-19 on it.
- Use dedicated collection bins and trolleys with COVID -19 labels and store in separate collection area.
- Maintain separate staff and record of waste generated from COVID-19 isolation wards
- The inner and outer surface of collection bins and trolleys should be cleaned with 1% hypochlorite after use.
- General waste should be disposed as solid waste.
- The staff handling the bio-medical waste will wear appropriate PPE during handling and transport of waste to prevent occupational hazard.

## 17. TRANSMISSION BASED PRECAUTIONS

Additional droplet and contact precautions should also be followed. These measures protect health care workers and other patients from cross infections.

**DROPLET PRECAUTIONS –**

RESPIRATORY HYGIENE / COUGH ETIQUETTE -

- Patients should cover their nose and mouth with bent elbow or tissue when coughing or sneezing.
- Head should be turned away from others while coughing.
- Tissues should be disposed into appropriate waste bins after use immediately.
- Touching of mouth and nose should be avoided
- Hand hygiene should be done after contact with respiratory secretions.
- Surgical mask should be placed on the coughing patient in common areas.
- Spatially separating patients (> 3 feet) with respiratory infections from other patients when feasible.


Basic components of Standard precautions should be followed.

**Patient placement**

- Patient should be placed in single room.
- When single rooms are not available patients should be placed in same room separated at least 3 feet apart.
- Patients should wear a triple layer surgical mask at all times.
- Curtains should be drawn between two patients to minimize chances of direct contact.
- Doors should be kept closed.

**Patient transport**

- Infected area of the patient's body should be covered properly before transportation.
- Contaminated PPE should be removed and disposed and hand hygiene performed prior to transporting patients on Contact Precautions
- Clean PPE should be donned to handle the patient at the transport destination.

**Patient-care equipment and instruments/devices**

- Dedicated or disposable patient care equipment should be used as far as possible.
- When reusable equipment's are used they should be cleaned and disinfected before use on another patient.

## 18. Psychosocial Support and Guidance for Mental Wellbeing of Healthcare Workers During COVID19 Outbreak

**1. Stress in Health Care Workers during the Outbreak**

There are specific sources of stress for health care workers treating patients with the COVID-19 virus. These stressors include:

A. **Need to employ strict biosecurity measures**

Health care workers who are called upon to assist or treat those with COVID-19 may experience stress related to:

- Physical strain of protective equipment (dehydration, heat, exhaustion)
- Physical isolation (restrictions on touching others, even after working hours)
- Constant awareness and vigilance regarding infection control procedures
- Pressures regarding procedures that must be followed (lack of spontaneity)

**B. Risk of disease transmission**

Infection control is a significant concern that can be exacerbated by:

- Common flu and cold symptoms being mistaken for COVID-19
- The extended symptom-free incubation period of COVID-19
- A relatively higher mortality rate compared to influenza
- The tension between public health priorities and the wishes of patients and their families regarding quarantine
- misinformation and myths regarding the disease and their treatment

**C. Multiple medical and personal demands**

The complexity of responding to COVID-19 may result in conflicting personal and professional demands, including:

- Continued daily workload demands competing with COVID-19 preparation and treatment measures
- a need to maintain high standards in the face of a low-frequency event within which official recommendations and policies change regularly
- possible separation from and concern about family members
- fears about infection and subsequent implications for self, patients, and family
- inner conflict about competing needs and demands

**D. Stigma**

Health care workers can be affected by both internal and external stigma related to the COVID-19 virus and its impact, such as:

- others' fear of contact with those treating patients with COVID-19
- health care workers' self-stigma about voicing their needs and fears

**2. How stress in healthcare workers is affecting their mental wellbeing**

- Feeling of apprehension and fear
- Feeling of restlessness, not able to feel relaxed
- Anxiety with negative thoughts

- Decreased sleep
- Guilt/fear of transmitting it to the family member

**3. Simple thoughts to de-stress yourself**

- Feeling under pressure is a likely experience for you and many of your colleagues.
- It is quite normal to be feeling this way in the current situation. Stress and the feelings associated with it are by no means a reflection that you cannot do your job or that you are weak.
- I am privileged and grateful that I have the opportunity to serve the mankind
- Managing your mental health and psychosocial well-being during this time is as important as managing your physical health.

4. **Take care of yourself at this time.**

Try and use healthy coping strategies such as

- ensuring sufficient rest and respite during work or between shifts,
- making sure to eat sufficient and healthy food,
- Ensure to engage in physical activity on regular basis
- stay in contact with family and friends
- practice yoga/ meditation daily
- build fun time with family
- Maintain physical distancing but not emotional distancing- It is vital to find 'personal time' to understand the emotional responses and find opportunities to share with trusted members
- Share your feelings and emotions with family members and friends

**Don'ts**

- Avoid using unhealthy life style such as use of tobacco, alcohol or other drugs.

**Giving positive affirmations to self**- Affirmations are positive phrases or statements used to challenge negative or unhelpful thoughts which has shown to decrease health related stress. Some of the affirmations-

- Anxiety isn't dangerous. I'm just uncomfortable. I'll make it through this.
- The picture in my head isn't healthy. That's just me being negative.
- I feel anxious, but so what? I know what that feels like and I'll get through it.
- I'm going to focus on things I love to get me through this.
- I will be OK.
- This is just a phase and it will pass

**5. During work shifts, providers should engage in these behaviours:**

- self-monitoring and pacing
- regular check-ins with colleagues, family, and friends
- working in partnerships or in teams
- brief relaxation/stress management breaks
- regular peer consultation and supervision
- time-outs for basic bodily care and refreshment

- regularly seeking out accurate information and mentoring to assist in making decisions
- keeping anxieties conscribed to actual threats
- doing their best to maintain helpful self-talk and avoid overgeneralizing fears
- focusing their efforts on what is within their power
- careful practice of safety measures
- acceptance of situations they cannot change
- fostering a spirit of fortitude, patience, tolerance, and hope

**At the same time, they should avoid:**

- working too long by themselves without checking in with colleagues
- working "round the clock" with few breaks
- feeling that they are not doing enough
- excessive intake of sweets and caffeine
- Avoiding self talks like-
    - "It would be selfish to take time to rest."
    - "Others are working around the clock, so should I."
    - "The needs of survivors are more important than the needs of helpers." o "I can contribute the most by working all the time."
    - "Only I can do. . .."

**6. How to de-stress yourself after relieving from work shift)-**

- Sharing your emotion and feeling to family member or friend
- Taking good amount of sleep
- Having proper diet

Giving positive affirmations to self-

- I am feeling safe, healthy & happy
- I'm going to focus on things I love to get me through this.

Giving garitude to self-

- I have done service to mankind

**How to handle stress at home while away from work**

Strengthening the Support. Components are

- Keeping in touch with friends and relatives over phone or other media.
- Providing supportive and relevant information to the near and dear.
- Have periods of family time during social distancing which is fun and refreshing – games, movies, TV, group exercises
- Identifying and creating new ways of maintaining morale and a sense of togetherness
- Volunteering safely – through helplines, organizing donations and supplies for the vulnerable

- Co-operating with the society at large for steps towards stopping of virus spread.

**Help children find positive ways to express** disturbing feelings such as fear and sadness. Every child has his/her own way to express emotions. Sometimes engaging in a creative activity, such as playing, and drawing can facilitate this process. Children feel relieved if they can express and communicate their disturbing feelings in a safe and supportive environment.

**Maintain familiar routines in daily life** as much as possible, especially if children are confined to home. Provide engaging age appropriate activities for children. As much as possible, encourage children to continue to play and socialize with others, even if only within the family when advised to restrict social contract.

**During times of stress and crisis, it is common** for children to seek more attachment and be more demanding on parents Discuss the COVID-19 with your Children in honest and age appropriate information. If your children have concerns, addressing those together may ease their anxiety. Children will observe adults' behaviors and emotions for cues on how to manage their own emotions during difficult times. For caretakers of older adults

**Older adults**, especially in isolation and those with cognitive decline/dementia, may become more anxious, angry, stressed, agitated, and withdrawn during the outbreak/while in quarantine. Provide practical and emotional support through informal networks (families) and health professionals. Share simple facts about what is going on and give clear information about how to reduce risk of infection in words older people with/without cognitive impairment can understand.

**7. Taking care of Self and Self Esteem**

- Spirituality –Introspecting, meditating, prayers,
- Learning new skill if need be through virtual learning or in person from family members who know it – learning coding or learning to stitch a tear in a dress /missing button.
- Keeping oneself busy with house work and cleaning and planning for the future – beyond COVID 19
- Understanding how the anxiety related to the virus spread and the future is affecting self and others especially those in the family, friends and colleagues.
- Anticipating strain between family members due to being in close proximity for prolonged periods and mediating it
- Becoming a good listener among the family members.
- Developing a sense of gratitude for being safe in this time of contagion.

Engagement of spiritual and religious activity as per family norms: Unexpected life events challenges the world view. India is rich in spiritual resources. This is true in all religions. Most people in India, use various forms of spiritual resources to address difficult situations. The pandemic can be utilised for spiritual growth. Building spirituality as part of daily life, in the form of rituals, reading of religious books and discussion of purpose of life and uncertainties of life help you to understand the uncertainties of the pandemic and not react inappropriately

Note: If stress is excessive, persistent and difficult to handle then don't hesitate to consult mental health experts.

**References**


- https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf?sfvrsn=6d3578af_8
- https://www.ptsd.va.gov/covid/COVID_healthcare_workers.asp.
- https://myemotionalhealthin.com/2020/03/30/life-skills-during-a-pandemic-covid-19-srikala-bharath/

## 19. Preservation, Transportation and Handling of dead bodies of COVID-19

This guideline is based on the current epidemiological knowledge about the COVID-19. This document is limited in scope to only hospital deaths of this Institute.

**1. Key Facts –**

- The main driver of transmission of COVID-19 is through droplets. There is unlikely to be an increased risk of COVID infection from a dead body to health workers or family who follow standard precautions while handling body.

**2. Standard precautions to be followed by health care workers while handling dead bodies of COVID**

Standard infection prevention control practices should always be followed. These includes:

i. Hand hygiene.
ii. Use of personal protective equipment (e.g. water-resistant apron, gloves, masks, eyewear).
iii. Safe handling of sharps.
iv. Disinfect bag housing dead body; instruments and devices used on the patient.
v. Disinfect linen.
vi. Clean and disinfect environmental surfaces.

**3. Training in infection and prevention control practices**

All staff identified to handle dead bodies in the isolation area, mortuary, ambulance and those workers in the crematorium/burial ground should be trained in the infection prevention control practices.

**4. Removal of the body from the isolation room or area**

- The health worker attending to the dead body should perform hand hygiene, ensure proper use of PPE (water-resistant apron, goggles, N95 mask, gloves).
- All drains, tubes and catheters on the dead body should removed.
- Any puncture holes or wounds (resulting from removal of catheter, drains, tubes or otherwise) should be disinfected with 1% hypochlorite solution and dressed with impermeable material.
- Apply caution while handling intravenous catheters, sharp instruments and devices. They should be disposed into sharp containers and as per the Biomedical Waste Disposal policy.
- Plug oral, nasal orifices of the deceased 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.
- The deceased body must be placed in a plastic sheet and then a zipped body bag (leak-proof plastic body bag) with identification tag marked “COVID-19”.
- The exterior of the body bag may be decontaminated with 1% hypochlorite.
- The body bag can be wrapped with a mortuary sheet or sheet provided by the family members.
- The body may be handed over to the relatives after completing the official documentation or taken to the mortuary for temporary preservation.

- Ensure that the body is fully sealed in an impermeable body bag before being removed from the isolation room or area, and before being transferred to the mortuary, to avoid leakage of body fluid.
- All used/soiled linen should be handled with standard precautions, put in a bio-hazard bag and the outer surface of the bag decontaminated with 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 off in accordance with bio-medical waste management rules/institute policies.
- The health staff who handled the body will remove the personal protective equipment's and will perform hand hygiene.
- Provide counselling to the deceased family members and respect their sentiments.

**5. Environmental cleaning and disinfection**

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

**6. Handling of dead body in Mortuary**

- Mortuary staff handling COVID dead body should observe standard precautions (i.e. perform proper hand hygiene and use appropriate PPE, including long sleeved gown, gloves and facial protection if there is a risk of splashes from the deceased body fluids or secretions onto the body or face of the staff members).
- Dead bodies should be stored in cold chambers maintained at approximately $4^0$ C.
- Environment surfaces, the chamber door, handles, floor, instruments and transport trolleys, vehicle or stretcher should be properly disinfected with1% Hypochlorite solution.

**7. Autopsy and Embalming**

- Autopsy and Embalming of dead body should not be allowed.

**8. Transportation**

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

**9. At the crematorium/Burial Ground**

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

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

**10. Personal protective equipment for handling dead bodies (PPE)**

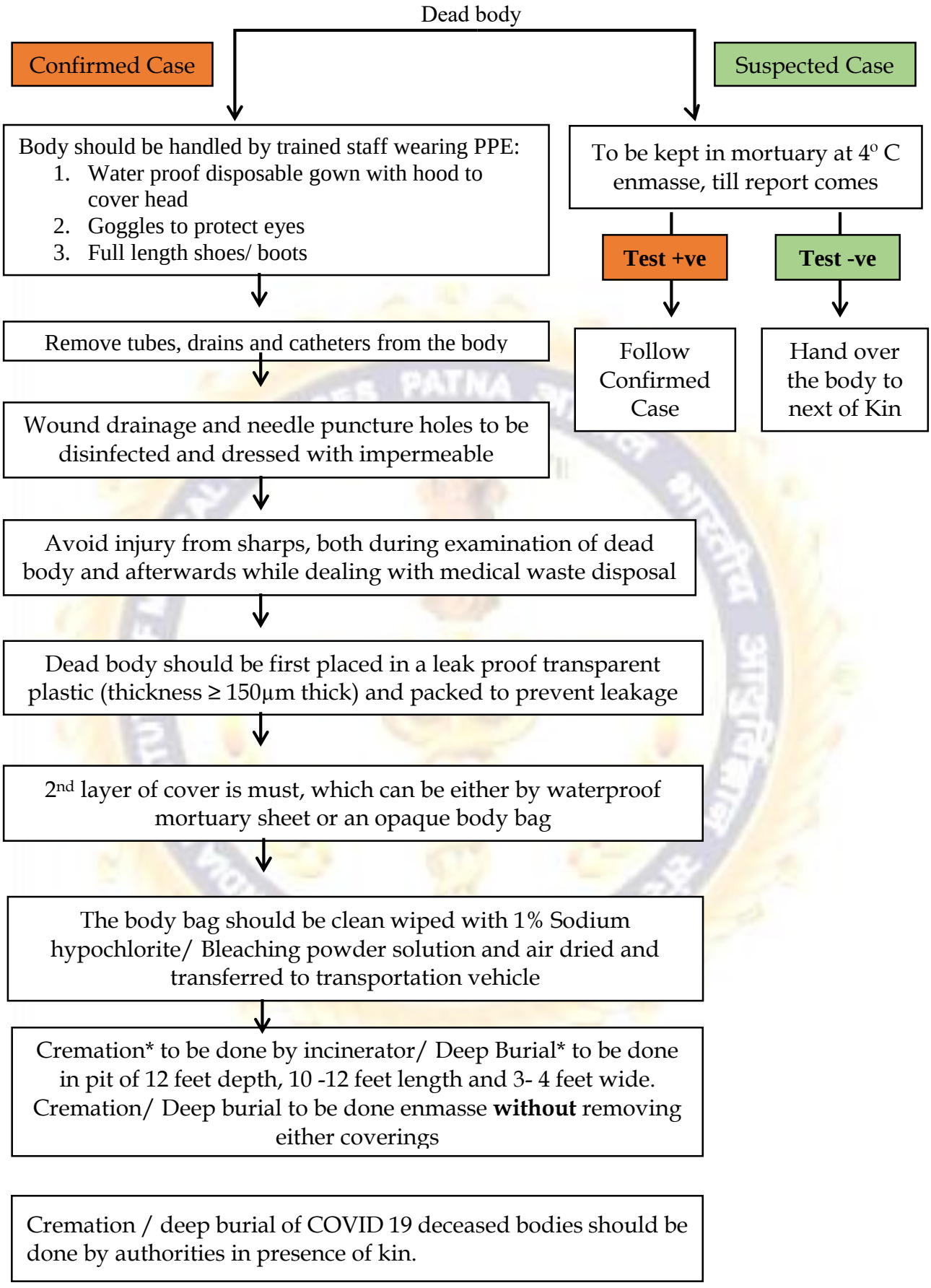
- Wear a disposable, long sleeved, cuffed waterproof gown. If no waterproof gown is available, wear a waterproof apron in addition to the gown.
- If splashing of body fluids is anticipated, use facial protection; preferable a face shield, or if not, goggles and a medical mask to protect the eyes and mucous membranes.
- Perform hand hygiene after taking off PPE.
- Use PPE for heavy duty tasks (e.g. rubber gloves, rubber apron and resistant closed shoes) in addition to regular PPE.

**11. Recommendations**

Basic protective measures for all:

- Wash your hands frequently with soap and water or sanitizers.
- Maintain social distancing of about 1 meter to keep yourself safe from large droplets.
- Use mask for coughing/sneezing, discard the mask after use, don't wear them for more than a day.
- It is advised to avoid crowds.
- Avoid touching your eyes, nose and mouth.
- Viruses can last for up to 24 hours on objects, the effective way to get rid is to wash them with soap.

## 12. Flow Chart for handling Suspected/Confirmed COVID 19 deceased body



**ALL INDIA INSTITUTE OF MEDICAL SCIENCES, PATNA**
**SLIP FOR TRASNPORTATION OF DEAD BODY TO MORTUARY**
**(To be issued in duplicate)**

**Date:**

| Sr. No. | Details |
|---|---|
| **1.** | CR. No: |
| **2.** | MLC/Non-MLC/Infective (HIV, Hepatitis/TB etc.)/Non-infective:<br>In case of MLC please provide the details of MLC: |
| **3.** | Name of the deceased: |
| **4.** | Gender: |
| **5.** | Age: |
| **6.** | SO/DO/WO: |
| **7.** | Address with Police Station: |
| **8.** | Speciality/Ward/Unit: |
| **9.** | Date and Time of Admission: |
| **10.** | Date and Time of Death: |
| **11.** | Death Register No: |
| **12.** | Cause of Death: |
| **13.** | Body Kept/Sent to: |
| **14.** | Name, Address, Contact No of the next of kin/relatives of the deceased: |
| **15.** | Nurse In-charge /Staff Nurse (Name and Signature): |
| **16.** | Verified by Faculty/ SR of the concerned ward/unit (Name and Signature): |

---

**Receipt of the dead body**

The body of the deceased _____ CR No:_____ was brought by _____ & was received from ward/department/ police station _____ in the mortuary on (Date & Time) _____

Name and Signature of the receiving nursing officer/clerk/mortuary attendant:
Date:
Stamp/Seal:

# न्यायिक चिकित्सा एवं विष विज्ञान विभाग, एम्स पटना

## COVID-19 की दशा में शव के प्रबंधन/ अंतिम-संस्कार के लिए मृतक के परिजनों के लिए महत्वपूर्ण निर्देश

### शव का परिवहन (Transport)

1. शव को बॉडी बैग में रखकर बॉडी बैग की बाह्य सतह को डिसइंफेक्ट ( Disinfect) करने के पश्चात्, शव को परिजनों को सुपुर्द किया जाता है, जिससे शव परिवहन करने वालों को कोई अतिरिक्त खतरा नहीं होता है।
2. शव को सँभालने वाले व्यक्तियों को मानक सावधानियों का अनुसरण करना चाहिए। (सर्जिकल मास्क, दस्ताने इत्यादि )
3. शव को अंतिम संस्कार स्थल/ कब्रगाह कर्मचारियों तक पहुँचाने के बाद शव परिवहन के लिए उपयोग में लाये गए वाहन का डिसइंफेक्शन १% सोडियम हाइपोक्लोराइट सोल्युशन द्वारा किया जाना अनिवार्य होगा।

### अंतिम संस्कार स्थल/ कब्रगाह में

1. अंतिम संस्कार स्थल / कब्रगाह के कर्मचारियों को इस बात के लिए जागरूक रहना होगा कि, उचित तरीके से डिसइंफेक्ट (Disinfect) किये गए शव से COVID-19 के संक्रमण का कोई अतिरिक्त खतरा नहीं होता है।
2. कर्मचारीगण हाथों की स्वच्छता के लिए मानक निर्देशों का पालन करेंगे जैसे सर्जिकल मास्क, दस्ताने इत्यादि का प्रयोग।
3. बॉडी बैग का मस्तक की ओर का हिस्सा खोलकर (कर्मचारियों द्वारा मानक सावधानियों का पालन करते हुए),परिजनों को शव का चेहरा अंतिम बार देखने की अनुमति दी जा सकती है।
4. ऐसे धार्मिक रीती रिवाज जिसमें शव को छूने की आवश्यकता नहीं होती है (जैसे धार्मिक आलेख पढ़ना, पवित्र जल छिड़कना), आदि कार्यों की अनुमति दी जा सकती है।
5. शव का चुम्बन, आलिंगन, शव को नहलाना या किसी भी तरह से शव का स्पर्श करना निषेध रहेगा।
6. अंतिम संस्कार स्थल/ कब्रगाह के कर्मचारियों एवं मृतक के परिजनों द्वारा , अंतिम संस्कार/ शव दफ़नाने के पश्चात् उचित तरीके से हाथों का विसंदूषण ( Hand Sanitization ) किया जाना चाहिए।
7. चिता भष्म/ राख से किसी प्रकार का खतरा नहीं होता है, और इसे अंतिम विधियों के लिए संगृहीत किया जा सकता है।
8. सामाजिक तौर पर दूरी बनाये रखने के लिए, अंतिम संस्कार स्थल/ कब्रगाह पर विशाल जनसमूह को एकत्र नहीं होना चाहिए, क्योंकि निकट सम्बन्धी लक्षण ग्रसित या रोग वाहक हो सकते हैं।

### मृतक के परिजनों के लिए महत्वपूर्ण निर्देश

मृतक की मृत्यु पूर्व या पश्चात्, मृतक के संपर्क में आने वाले सभी सम्बन्धियों को १४ दिवस तक सामाजिक तौर पर दूरी बनाये रखना आवश्यक होगा।

Medical Superintendent
AIIMS, Patna

# Fight Covid: Contribute for your country!!