

# Disaster Management Plan VMMC & Safdarjung Hospital

## COVID-19 Pandemic

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## Introduction

India's deadly Covid-19 wave has drastically affected practically all big cities like Delhi, Mumbai, Lucknow, Pune, etc. The second wave is much larger and steeper leading to overwhelming of healthcare and support services. In the capital city of New Delhi, the health care system is fighting to meet the tremendously increased need of the Covid 19 patients.

It is becoming increasingly difficult to avail **consultation** and **admission**. In view of this, being a frontline Central Government Care Institution providing Covid care services, VMMC & Safdarjung Hospital has decided on its plan to scale up its Covid care services.

## Purpose

- To setup a robust role model of management for Covid-19.
- To develop the right goals, achieve them in the right way, to do both in an efficient manner and in the shortest possible period of time.
- To utilize the existing infrastructure and resources to benefit the maximum number of patients.
- To identify the shortcomings/ deficiencies and correcting them fast for best healthcare services.
- To find best ways and means to **protect healthcare workers** involved in providing covid care services to the patients.
- To make separate arrangement for **Covid** (suspect & confirmed) patients as to prevent their mixing with the **Non-covid** patients.

## Objectives

- Enhancing the dedicated number of hospital beds for Covid-19 management based on surge capacity analysis to **1000** by re-designating identified non-covid areas vs Covid care areas.
- Mobilizing, training and deputing existing manpower to Covid care duties.
- Strengthening **fever clinic** to identify and initiate management of Covid patients.
- Initiating Covid 19 **Teleconsultation services**.
- Preparing training modules and training manpower involved in covid management.
- Generating and maintaining a robust supply chain of medicines, lab chemicals and other medical equipment/ consumables.



- Identify potential gaps in health care processes & services and give importance to Intensive care.

## Procedure

### 1. *Role & responsibility of control room*

- Communication between patient admitted in COVID Zone and their relatives (information)
- Counseling to public on phone
- Coordination with labs & other associated facilities of the hospital.
- Referral mechanism with various stake holders for collecting, processing and reporting information to administration/ public health officials.

Note:

- Appointment of a spokesperson who co-ordinates communications with public, media and health authorities.
- All information are to be kept confidential as personal in nature.

### 2. *Manpower management*

The necessary manpower to be re-allocated from non-covid to covid care areas based upon the existing workload and training of individual specialties.

- The clinical specialties should be the first line of workforce to be deputed for patient care services. (Medicine, Anaesthesia, Respiratory medicine, Gynaecology, Paediatrics).
- The minimum number of health care professionals and other staff who will ensure efficient functioning, are identified as one team.
- The second line of work force after having received a short-term training in respect of Covid 19 management, will be utilized for providing patient health care services. (Surgery, Cardiology, CTVS, Neurology, Neurosurgery, Endocrinology, Eye, ENT, etc.)
- High demand areas like emergency, SARI and ICU to be strengthened first.
- Sample collection is to be carried out by the trained healthcare staff.
- The laboratories may be utilized to generate timely reports for providing quick and quality assured reports. Point of care labs to be set up.



- The health care staff of para-clinical departments may be trained based on the needs, for managing and providing the teleconsultation services to the public. Please note, doctors who have attained 62 years of age may be involved in teleconsultation.
- A reserve pool of the doctors from the para clinical departments may be generated for managing Triage area, Fever clinic, Tele-consultation services, control room, data management and to provide supporting medical services to casualty NEB.
- Estimates of absenteeism or sick leave or quarantine should be considered while planning additional requirements.
- Additional manpower requisition to MOHFW either from CGHS cadre or from elsewhere (eg. Volunteers or medical or nursing students).
- Utilization of psychiatry department for psychosocial support for patient families (eg. Tele-counseling).

### **Training to staff**

Prepare training modules for management of Covid-19 patients. The training should include the following:

#### **A. For faculty/ residents**

- Admission criteria
- Management of Covid patients- mild, moderate & severe, including triage as per national guidelines.
- Criteria for shifting patients to ICU.
- Criteria for administering Remdesivir, Tocilizumab, Steroids and Anticoagulants, etc.
- Incident reporting and record keeping.
- Handling mortality.

#### **B. Infection control training activities to prevent infection among healthcare workers**

- Donning & Doffing of PPE
- Biomedical Waste Management in Covid-19 patients



- iii. Hand hygiene practice
- iv. Droplet and contact measure practices.
- v. Special precautions with regards to Covid 19- cleaning and disinfection practices and infection control practices.
- vi. Managing lab specimens, laundry and food hygiene.

(by Microbiology Department/ Biomedical waste Department/ Infection Control Committee)

**Support mechanism** to health care work force in order to ensure their physical and mental health and also the same for their families. Safe and secure arrangement for healthcare work force in hostel /hotels etc. as per government guidelines.

- i. Arrangement of regular hygienic meals for the healthcare workers
  - ii. Arrangement of uninterrupted supply of PPE kits, Hand sanitizers and N-95 masks, gloves, face shields, etc.
  - iii. Preference in treatment and admission should be given to the healthcare workers involved in the management of Covid 19 if they get the infection.
- Hospital can take help from **NGOs, Civil defense and red cross society** for counseling and guiding patients and their relatives.
  - Those healthcare staff who have recovered or the family members who have suffered loss of a family member, may be given **psychosocial support** by the dedicated team of doctors from the Psychiatry Department.

### **3. Infra-structure management**

To Identify and re-designate beds for **Covid care** areas considering the presence of central oxygen supply, segregation from non-covid care areas and availability of toilets. The patient transport and treatment area should be separate from non-covid care areas at all times.

Lift, passages, ambulances, X rays and CT scans being used for management of covid patients must be identified and maintained separately. A back-up facility for all the infra-structure must be in place all the time.



### ***Transportation of covid patients***

Patient transportation from **Fever clinic /Triage** screening zone to COVID Zone should be based upon pre-defined criteria. **(Annexure A)**

A separate lift in NEB is completely dedicated for transportation of SARI patients from ground floor to the eighth floor designated area to avoid mixing with non-covid patients. There should be adequate communication among the healthcare staff involved in the management of Covid 19 patients (casualty, SARI, fever clinic, other departments and SSB) while transporting the patients. On similar lines communication should exist with ambulance driver, the doctor/ nurse/ healthcare worker receiving the patient. All patient documents and necessary support equipment should accompany the patient during transfer from non-covid to covid area and vice versa. The patient transportation records should be well maintained.

SOPs for the **transport ambulance** is already in place, including details of ambulance maintenance and records verifying the presence of necessary medicines and functionality of life saving equipment. The records should be checked daily by an authorized person.

## **4. Management of COVID patients**

### **Registration**

The covid patients can be registered at fever clinic or at emergency NEB and then directed for further management as per the severity of the disease.

### **Treatment**

The treatment of patient should be as per standard operative procedures. **(Annexure A)**  
The **Fever clinic/ Emergency** can evaluate the patient as per his/her symptoms and signs.

**Mild** disease patients can be counselled for home isolation and they will be prescribed medicines. The medicines should be dispensed as a pre-prepared kit. Mild cases can also be managed on teleconsultation services.

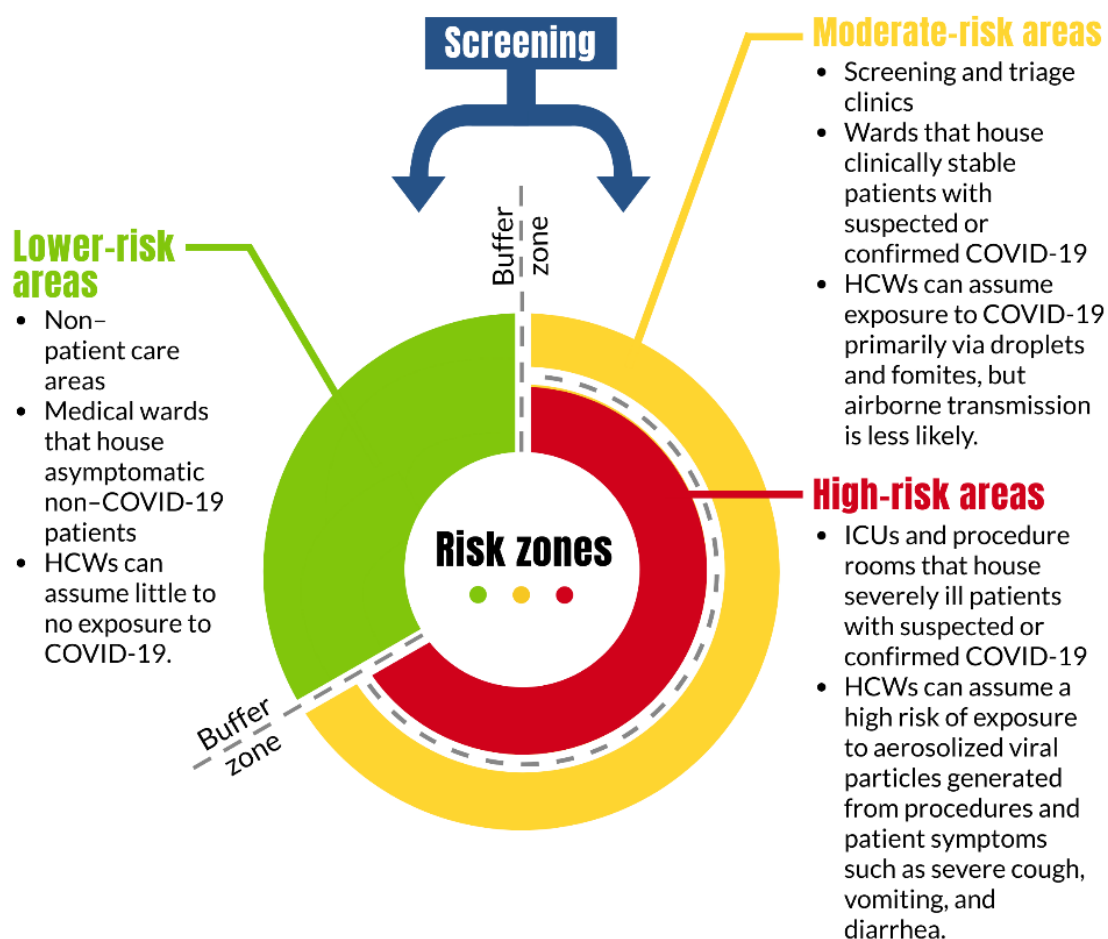
**Moderate to severe** disease patients who need admission should be stabilized and transported to SARI ward/ COVID ward as per availability of Covid test report. **(Annexure B)**



## 5. Robust supply chain & inventory management

- Continuous oxygen supply is utmost important in management of Covid patients. Any problems anticipated in availability of the same should be immediately discussed with higher authorities and monitored on daily basis.
- The requirement of drugs and consumables should be pre-planned, based on updated inventory, estimation & shortage alert system, so that procurement is initiated in time and to maintain smooth supply chain.
- Every treatment area should have a buffer stock of minimum of 15 days to 1 month.

## 6. Vulnerability assessment



- Depending upon the exposure to Covid 19(area of work), the vulnerability status of the healthcare worker should be assessed periodically.

- **Categorization-** They can be categorized into
  - a) high risk,
  - b) Moderate risk
  - c) low risk.
  
- **Action Plan-** Reserve pool of healthcare workers should be available for replacement if the need arises. Standard safety precautions should be followed depending upon the duties being performed.

### 7. *Laboratory functions*

Rapid antigen detection test (RAT) should be made available at the patient screening/ triage zone. This will enable rapid segregation of the patient into covid/ suspected covid/ non-covid. Only the samples of RAT negative patients should be sent for RT PCR.

The sample collection is done under supervision of a physician according to standard operative procedures. The sample is transported maintaining a cold chain.

The microbiology laboratory at VMMC & Safdarjung Hospital is engaged in carrying out RT PCR tests for COVID. The laboratory should be supported with adequate infrastructure, manpower and supplies & consumables so that the reporting quality and turn-around time is properly maintained.

### 8. *Covid-19 Hospital Information system Safdarjung Hospital*

The hospital information system may be upgraded and outsourced to integrate functioning of different departments.

- Teleconsultation software may be provided on the portal with prior patient appointment, patient waiting zone and recording of patient data and management details including reports, prescription and follow up.
- Patient reports may be uploaded on a central server where the reports can be accessed using patient details such as Aadhaar card no/ telephone no.





### **9. I.E.C for staff and public**

Regular training of staff and public should be carried out. It may be in the form of posters or videos on the LCD TVs. The information, education and communication should include:

- a) Poster and banners of Do's and Don'ts in hospital gate for public
- b) How to use face mask, its re-use, duration of use and storage/ disposal
- c) Donning and doffing of PPE kit
- d) Hand hygiene
- e) Social distancing
- f) Home isolation

### **10. Surveillance (epidemiological studies)**

The data pertaining to Covid should be regularly collected, compiled, analyzed and shared to provide necessary information for framing policies and guidelines. This data should be available with the hospital Covid management committee. It should include data related to patient care, infections in health care staff, inventory management pertaining to Covid, etc.

### **11. Continuous evaluation and quality improving**

The operation capabilities and activities should be regularly monitored using pre decided performance quality indicators. Efforts should be made to keep improving the outcome performance indicators which would translate into continuous quality improvement. The indicators may be:

- a. Percentage adherence to safety precautions by working staff
- b. Turn-around time for various lab reports
- c. Average hospital days
- d. Patient satisfaction score
- e. Standardized Mortality ratio
- f. Ventilator associated pneumonia rate
- g. Return to emergency within 72 hours with similar complaints
- h. Stock out rate of emergency medications

### **12. Team of volunteers (Civil defense, disaster managers)**

Volunteer support can be utilized based upon the skills and qualifications of the volunteers. They may be used in registration, RAT testing, triage, patient transport, patient care, sample delivery, surveillance, security housekeeping, communicating, data entry, etc.



### ***13. Administrative counseling and follow up action***

Necessary counseling for retaining health care staff and taking care of mental health of the healthcare staff is necessary in today's times. It should be done for:

- For those resigning (permanent /contractual)
- Taking leaves on medical grounds

### ***14. Backup services***

**Kitchen-** for hygienic food for patients.

**Sanitation-** All hospital areas should be sanitized and cleaned as per hospital infection control guidelines. The hospital infection control team and sanitation services should regularly monitor the hospital infection prevention services and sanitation practices and keep them up to date with the existing international and national guidelines.

**Security-** Being a high workload area associated with high mortality, the patients and relatives are always under stress and may pose risk to the safety and security of health care staff. Adequate counseling team, preferably Medical social workers, should be employed for better communication with the patient relatives.

**Maintenance** – by CPWD/ HCC for maintenance of equipment (ventilators, gas pipelines, etc.) and infrastructure (ambulance, lift, civil construction, etc.)

**Fire safety-** Adequate fire safety measures are to be undertaken strictly in Covid care areas being a high-risk zone where

- a. equipment are functioning round the clock, such as ventilators with oxygen supply,
- b. inability of patients to move to safer area by themselves, in event of fire.

Hence, regular audits by electrical department and fire team must continue as a preventive plan.

### ***15. Insurance of healthcare staff -*** As per MoHFW/ Government of India/ State government guidelines, if any.



## COVID 19 Disaster Management Framework

### Sub-Committees

2. Teleconsultation services management committee
3. Manpower management committee
4. Capacity building & training committee
5. Logistics management committee
  - a. General stores
  - b. Medical Stores
  - c. Equipment stores
  - d. CPWD
  - e. Manifold
6. Transport Management Committee
7. Laboratory management committee (Rapid test/ RT PCR/ supportive testing)
8. Fire safety committee
9. Dead Body Management Committee
10. Security/ Crowd management committee
11. Public Relations committee
12. Essential services committee
  - a. Kitchen services
  - b. Sanitation
  - c. CSSD

Each committee will meet at frequent interval, senior most person being the head. Fortnightly updates about the activities, shortcomings and future plans should be shared with the nodal officer disaster management. These would be discussed, evaluated and action taken plan would be formulated in the Covid-19 disaster management committee.



## **Roles and Responsibilities of Sub-Committees**

### **A. Tele-consultation services management committee**

#### **Phase 1**

1. To procure an online platform managing partner for development of an online platform for patient registration, generating Unique patient ID, generating consulting doctor login ID, giving appointments, generating prescription, updating patient reports and linking patient details on follow up consultation.
2. To recruit as many doctors as possible from para-clinical and non-clinical departments. Preferably, doctors above 62 years of age should provide on-line consultation services.
3. To prepare SOPs and training ppt/ video modules
  - i. Patient management- mild cases and mild to moderate cases
  - ii. Recommending patient for admission based upon hospital admission criteria
  - iii. Use of the online platform.
4. To train all recruited doctors for providing teleconsultation services.
5. To register 25-30 patients per doctor per day.

#### **Phase 2**

1. To scale up the teleconsultation services to morning and evening shifts.
2. To monitor quality and patient satisfaction of the services.

### **B. Manpower management committee**

#### **Phase 1**

1. Define the manpower requirement for Covid-19 management in different areas (In-charges, Doctors, Nursing officers, Technicians, Nursing attendants, Safai karamcharis, Housekeeping staff, security staff, sanitation workers, Data entry operators, Medical social workers, volunteers, drivers, etc.), including emergency, SARI, All 3 zones, all ICUs, laboratories, mortuary, transportation, etc.
2. Prepare a comprehensive list of manpower available (classifying on the basis of specialty).
3. Recruit additional staff, if needed.
4. Maintain vaccination records of health care staff being posted on Covid duties.
5. Ensure priority testing and admission facilities for health care staff.
6. Plan rotation duties and prepare duty rosters.
7. Keep a backup team of manpower in-case of shortage.
8. Maintain records of the attendance.



9. Ensure pre-duty training of staff on duties to be performed, infection control practices (standard precautions, personal protective equipment), fire safety and biomedical waste management).
10. Ensure safe work environment, accommodation availability and hygienic food to staff on duty.
11. Ensure availability of PPE.
12. Address grievances of staff on duty.

#### **Phase 2**

1. Provide health care support to the staff and their family members.
2. Keep monitoring the staff utilization and duties depending upon the number of Covid cases.
3. Prepare for future manpower trainings and preparedness, especially, pediatric cases.
4. Evaluating staff suggestions/ grievances and following them up.
5. Defining quality indicators for staff satisfaction and evaluating them.

### **C. Capacity building and training committee**

#### **Phase 1**

1. Prepare training modules/ treatment algorithm for all health care staff pertaining to, but not limited to
  - a. Classification of cases into mild, moderate and severe disease.
  - b. Management of mild cases, moderate cases and severe cases
  - c. Admission criteria
  - d. Guidelines on use of HRCT, testing (CRP, IL-6, d-dimer, ferritin, etc.) steroids, favipiravir, remdesivir, tocilizumab, plasma therapy.
  - e. Infection control practices (donning and doffing of PPE, hand hygiene, standard precautions, etc.)
  - f. Bio-medical waste management with reference to Covid-19.
  - g. Fire safety.
  - h. Mental health
2. Ensure training of all health care staff before joining Covid duties.
3. Maintain training attendance records of all health care staff trained and date of training.
4. Prepare IEC material for public in the form of banners, posters, videos on LCD televisions for
  - a. Hand hygiene
  - b. Social distancing
  - c. Use of mask
  - d. Waste disposal
  - e. Tele consultation services



## Phase 2

1. Upgrade hospital health care facilities by recommending training of staff by external institutions if needed.
2. Evaluate effect of training (pre and post) on health care staff using indicators

### D. Logistics management committee

#### 1. General stores

- a. Compile existing requirement of all general store items being used in Covid 19 management areas.
- b. Anticipate and calculate the increase or decrease in demand of the items with the help of inputs from user departments.
- c. Place orders of items well in advance.
- d. Always have 25% inventory in hand to tide over any delays in supply/ increase in demand.
- e. Maintain proper stocks and inventory records.
- f. Ensure personnel availability to distribute items to Covid management areas at all times.
- g. Avoid stock outs.
- h. Always designate two substitute manpower including in-charges, to take over the work in case of absentees/ illness.
- i. Ensure good quality of items being supplied. Regularly evaluate your suppliers based upon predefined criteria.
- j. Have a check list for evaluating the items received.
- k. Avoid delays in inspection of articles being supplied. Form 2 teams who can conduct inspections on alternate days.
- l. Ensure appropriate storage of items to prevent any loss due to damage.
- m. Identify work quality indicators such as wastage of items, expiry of items, delay in supply, supplier evaluation, etc. Record and evaluate these quality indicators.

#### 2. Medical Stores

- a. Compile existing requirement of all the medicines, test kits and consumable items being used in Covid 19 management areas.
- b. Anticipate and calculate the increase or decrease in demand of the items with the help of inputs from user departments.
- c. Place orders of items well in advance.



- d. Always have 25% inventory in hand to tide over any delays in supply/ increase in demand for items with adequate shelf life and storage conditions needed.
- e. Maintain proper stocks and inventory records.
- f. Define criteria for dispensing of essential drugs.
- g. Ensure personnel availability to distribute items to Covid management areas at all times.
- h. Avoid stock outs.
- i. Always designate two substitute manpower including in-charges, to take over the work in case of absentees.
- j. Ensure good quality of items being supplied. Regularly evaluate your suppliers based upon predefined criteria.
- k. Have a check list for evaluating the items received.
- l. Avoid delays in inspection of articles being supplied.
- m. Ensure appropriate storage of items to prevent any loss due to damage. The look alike and sound alike drugs should be labeled and stored appropriately to avoid any dispensing errors.
- n. Expensive drugs and narcotics should be stored under double lock. The dispensing records should be done on the basis of double signed utilization records only.
- o. Identify work quality indicators such as wastage of items, expiry of items, delay in supply, supplier evaluation, etc. Record and evaluate these quality indicators.

### 3. Equipment stores

- a. Compile existing requirement of all the equipment which are being used in Covid 19 management areas.
- b. **Important:** Maintain preventive maintenance records of all high-risk equipment such as ventilators etc. The **medical and equipment store** should make sure that the order for preventive maintenance of these equipment should be **ready and shared with the user department at least 15 days** before the expiry of the previous preventive maintenance contract.
- c. **Important:** The **user and owner department** should coordinate the preventive maintenance service of the equipment in coordination with the service providing firm in a dedicated space identified for the same in the Covid care area. **THIS IS IMPORTANT TO PREVENT FIRE AND EQUIPMENT BREAKDOWN.**
- d. Training records of use and handling of important sophisticated equipment should be maintained by the user department.



- e. **All equipment records should be available with the department using particular equipment.**
- f. Anticipate and calculate the increase or decrease in demand of the equipment/ and their consumables with the help of inputs from user departments.
- g. Place orders of items well in advance.
- h. Always have 25% inventory in hand to tide over any delays in supply/ increase in demand for items with adequate shelf life and storage conditions needed.
- i. Maintain proper stocks and inventory records.
- j. Ensure personnel availability to distribute items to Covid management areas at all times.
- k. Always designate two substitute manpower including in-charges, to take over the work in case of absentees.
- l. Ensure good quality of items being supplied. Regularly evaluate your suppliers based upon predefined criteria. Have a check list for evaluating the items received.
- m. Avoid delays in inspection of articles being supplied.
- n. Identify work quality indicators such as equipment breakdown records, downtime records, delay in supply, supplier evaluation, etc. Record and evaluate these quality indicators.

#### 4. CPWD

- a. Preventive electrical and civil safety services are the responsibility of the CPWD department.
- b. Before a facility is being dedicated to Covid care, it is important that CPWD team conducts a thorough electrical, fire and civil safety audit of the area (pre-commissioning audit).
- c. They should ensure that the fire safety equipment/ alarm are in place and working properly.
- d. All fire extinguishers should be filled and their expiry recorded and followed up.
- e. Follow up audits can be done every six months.
- f. CPWD should co-ordinate with the fire team to train the manpower being posted in covid care areas on fire management and electrical safety.
- g. In case of any complaints pertaining to electrical, fire and civil infrastructure, immediate action should be initiated within 24 hours.
- h. **Important:** All records pertaining to pre-commissioning audit, follow up audits, fire extinguishers, repair & action taken records and training records should be available with the executive engineer at all times.





## 5. Manifold

- a. There should be a continuous supply of gases (oxygen) to the covid care facilities.
- b. The oxygen requirement of the facilities should be compiled and records maintained by the committee.
- c. An additional supply of 25% should be made available at all times.
- d. Timely orders should be placed anticipating the time needed for supply by the vendor.
- e. All records should be maintained properly.
- f. In case of any problems in procuring oxygen the higher authorities/ hospital administration should be informed immediately.
- g. Regular preventive maintenance of supply lines should be conducted.
- h. The **medical and equipment store** should make sure that the order for preventive maintenance of these equipment should be **ready and shared with the user department atleast 15 days** before the expiry of the previous preventive maintenance contract.
- i. The **user and owner department** should coordinate the preventive maintenance service of the gas pipelines in coordination with the service providing firm in a timely manner.
- j. Quality improvement records of the breakdown, downtime, stock out, etc. and their root cause analysis may be maintained.

## E. Transport management committee

1. The transport management committee will evaluate the requirement of BLS/ACLS ambulances and other transport vehicles with necessary equipment needed for transport of manpower and patients in Covid care areas.
2. The services may be outsourced if more vehicles are needed.
3. The daily stock of medicines/ consumables and functionality of important equipment in each ambulance must be recorded daily by an identified **nursing officer** identified in NEB emergency. The consumable utilization should be checked after each round and the same must be replenished regularly.
4. The records of transportation of the patient should be available with each ambulance.
5. There should be proper co-ordination between the SARI/ NEB emergency and SSB for Covid patient transportation. SOPs should be in place.
6. PPE kits needed by the transportation staff should be made available by the nursing officer identified in NEB emergency or it may be provided from the in-charge transport section.



7. Regular feedback of the outsourced services should be shared with the Covid management committee.
8. Quality improvement records of vehicle breakdown, non-availability of drugs/ consumables, etc. may be maintained.

#### **F. Laboratory management committee**

1. **Important:** Scale up Rapid antigen testing by preparing test protocol, procuring adequate test kits, training adequate manpower to perform tests, assuring quality, maintain patient and test records, prepare rotational duty roster of staff. This test is to be used for level 2 triage in the NEB emergency and also in various wards and patient care areas. It is important to ensure health care staff safety at all times.
2. Define scope of tests available in various laboratories pertaining to management of Covid 19 patients.
3. Analyze and compile the per day testing capacity for each test.
4. Define the turn-around time.
5. Anticipate the increase/ scale up of testing if needed. Scale up testing by involving more labs for testing or hiring equipment for testing with rate contract as per guidelines.
6. Ensure internal quality control and external quality assurance and monitor its performance. If External Quality Assurance Scheme not available, inter-laboratory comparison may be established.
7. Ensure regular supply of good quality test kits and consumables.
8. Train more manpower in testing techniques in case of absentee of the testing staff.
9. Rotational duty roster of manpower may be prepared.
10. Define quality indicators to evaluate lab performance such as TAT, IQC/ EQAS failure, kit stock out, etc.

#### **G. Fire safety committee**

1. Before commissioning any area for Covid patient care management a fire audit of the area should be conducted by the fire team in coordination with CPWD.
2. The functionality of all fire management equipment should be assessed and documented.
3. Fire assembly points should be identified. Exit signages should be marked.
4. Back up **AMBU bags** for critically ill patients should be available in every patient management zones.
5. Back up patient support equipment should be available in two separate fire zones.
6. The beds of immobile patients should have castor wheels for easy and quick patient transport.
7. Follow up audits should be conducted every six months.



8. All health care staff being deputed to Covid care management should be trained in fire management services regularly. Training modules should be prepared for the same.
9. Fire mock drills should be conducted every year.
10. Data pertaining to staff training, audits and drills should be maintained.

#### **H. Dead body management committee**

1. Information regarding death of patient should be communicated to the family by trained health care worker in a timely and compassionate manner.
2. Standard operative procedures for handling and disposal of dead bodies should be in place.
3. Mortuary should have identified areas for storing Covid positive bodies.
4. Hearse vans dedicated for transport of Covid patient bodies should be available round the clock.
5. Manpower handling Covid Positive as well as Covid Suspect dead bodies should get proper training as per the guidelines issued by MOHFW on dead body management.
6. Records of disposal of dead bodies should be available with the department managing the patients.
7. Dead bodies of Suspected Covid cases should be handed over to their relatives immediately and laboratory confirmation of Covid should not be awaited. If such death case tests positive eventually, then the requisite action of contact listing, tracing etc. should be carried out subsequently.

#### **I. Security/ crowd management committee**

1. Being a high work load and high-pressure work areas adequate security staff should be available round the clock.
2. The security staff should be trained in handling crowd and ensuring personal safety at the same time.
3. The staff should also be trained in handling disasters such as fire (extinguishing fire and transporting patient to safe zones).
4. Need for security staff should be defined and documented. If needed the services may be outsourced.

#### **J. Public relations committee**

1. The committee should be responsible for communicating with patient relatives, community and media, as needed. No information should be shared without the approval of administration.
2. They should be in touch with the higher administration and should be aware of the hospital policies and protocols.



3. The committee should coordinate in maintaining patient information and conveying the patient health status to the patient relatives. A team of medical social workers may be formed who would coordinate and counsel the patients' relatives regarding patient health status.
4. The committee should coordinate with the grievance redressal committee and help in solving patient and health care staff grievances.

#### **K. Essential services committee**

1. A committee monitoring the essential services such as kitchen, sanitation, CSSD, bio-medical waste management, etc. should be constitute to supervise the functioning of these services.
2. The committee should coordinate closely with the existing departments help them in scaling up of their services.
3. All the staff of these departments should be trained appropriately in infection prevention practices.
4. Adequate staff should be ensured so that the services do not suffer.
5. Adequate PPE should be made available to these staff.

**Dr Prem Kumar**  
**(Nodal Officer, Disaster Management)**



## Annexure A

### VMMC & Safdarjung Hospital COVID-19/SARS-COV2 Treatment Protocol

	<b>MILD</b>	<b>MODERATE</b>	<b>SEVERE</b>
<b>Clinical Criteria</b>			
<b>SPO2</b>	>94 %in RoomAir	90 -94 %in RoomAir	<90 %in RoomAir
<b>RR</b>	< 24/min	24– 30	>30
<b>Clinical presentation</b>	No shortness of breath	Fever, cough, shortness of breath	Severe respiratory distress with clinical signs of pneumonia

### INVESTIGATIONS IN COVID

#### MILD COVID- NO PROVEN ROLE

MODERATE COVID- Lab monitoring: CRP and D-dimer 48 to 72 hrly; CBC, KFT, LFT 24 to 48 hrly; IL-6 levels to be done if deteriorating (subject to availability). Serial CXR; HRCT chest to be done ONLY If there is worsening.

SEVERE COVID- Serial CXR; HRCT chest to be done ONLY if there is worsening.

- Lab monitoring: CRP and D-dimer 24-48 hourly; CBC, KFT, LFT daily; IL-6 to be done if deteriorating (subject to availability).

<b>Treatment</b>			
	<b>MILD</b>	<b>MODERATE</b>	<b>SEVERE</b>
<b>Routine</b>	T. Paracetamol 500 mgTDS	T.Paracetamol500mgTDS	T.Paracetamol500mgTDS
	Anti-tussivesSOS	Anti-tussives SOS	Anti-tussives SOS



		Omeprazole 20 mg BD(or)Pan40mgOD (if reflux present)	Inj.Pantoprazole 40 mg IV OD
<b>Fluids</b>	Adequate Hydration - Oral	Adequate Hydration-NS	Conservative Fluids
<b>Antibiotics</b>	No need	T. Azithromycin 500 mg OD x5 Days + Inj. Ceftriaxone 1 gm IV BD if secondary bacterial infection suspected	T. Azithromycin 500 mg OD x 5Days+ Inj. Piptaz 4.5 mg/ Inj meropenam500mg IV TDS if secondary bacterial infection / septic shock suspected
<b>Anticoagulation</b>	Not needed	Tab. Apixaban 2.5 mg BD for 10 days OR  Tab Rivaroxiban 10 mg OD for 10 days OR  (both for high risk patients under home isolation/ hospitalization)  Inj. Enoxaparin 40 mg SC OD x till hospitalization (can be started as prophylactic without D- DIMER for high risk individuals)  (Contraindicated in ESRD, active bleeding, emergency surgery, platelets <20,000/mm <sup>3</sup> , BP>200/120) OR  Inj. Dalteparin 2500 IU SC OD × 7days	Inj. Enoxaparin 40 mg SC BD x 7Days (can be started as prophylactic without D DIMER)(Contraindicated in ESRD, active bleeding, emergency surgery, platelets < 20,000/mm <sup>3</sup> , BP >200/120)Inj. Dalteparin 5000 IUSCOD×7dayInESRD, UH–5000USCBD can be used



		In ESRD, UH-5000U SC BD can be used	
<b>Steroids</b>	Not needed	T. Medrol, 16mg PO/TID for 5 days (or) T. Dexamethasone 8mg PO/ OD for 5 days (or) If un-resolving switch to Inj. Dexamethasone 0.1-0.2 mg /kg ≈ 6 mg to 8 mg IV OD x 5-10 Days or inj. Methyl Prednisolone 0.5 - 1mg/kg ≈ 60mg x 5-10 days	Inj. Dexamethasone 0.2 – 0.4mg /kg ≈ 6 mg to 8 mg IV BD x 10 Days or inj. Methyl Prednisolone 1.0 - 2.0 mg/kg ≈ 80mg x 10 Days
		Can be considered if high grade fever and worsening cough beyond 7 days. Inhalational budesonide (DPI/ MDI with spacer @ 800 Mg BD X 5-7 days if symptoms persist >5 days.	
<b>Oxygen Support</b>	Not Required	To be initiated if SPO2 <94% Maintain Target SPo2 of 92 to 96 % Nasal Prongs (4 lit/min) ↓ Face Mask (5-10 lit /min) ↓ NRM (10-15 lit/min) ↓ HFNC (10- 40 lit/min) ↓ CPAP (TV 6ml/kg; PEEP 5-15 cm H20; Target PP 30 cm H20)	Maintain Target SPo2 >90 % NRM (10-15 lit/min) ↓ HFNC (10- 60 lit/min) ↓ CPAP (TV 6ml/kg; PEEP 5-15 cm H20; Target PP 30 cm H20) ↓ MV (ARDS Protocol)



<b>Proning</b>	Not Indicated	Awake Proning (if > 4 L /min) - 30to120minsprone - 30to120mins left lateral - 30to 120mins right lateral 30 to 120 mins upright– Contraindicated in altered mental status and hemodynamic instability, pregnancy	Prone Ventilation16to24 hrs/Day PaO <sub>2</sub> / FiO <sub>2</sub> < 150
<b>Cytokine Storm</b>	Not Indicated	Inj. Tocilizumab 400 mg, (4-6 mg/ Kg) (max 800 mg) slow IV in 100 ml NS over 1Hour Repeat Dose after12 hours if needed Contra Indications – Active Infections, TB, Hepatitis, Platelets <1L/mm <sup>3</sup> , ANC < 2000/mm <sup>3</sup>	Inj. Tocilizumab 400 mg (max800 mg) slow IV in 100 ml NS over 1Hour Repeat Dose after 12 hours if needed Contra Indications –Active Infections, TB, Hepatitis, Platelets < 1L/mm <sup>3</sup> , ANC <2000/mm <sup>3</sup>
<b>COMORBIDITY AND COMPLICATIONS</b>			
<b>Co-morbidity</b> CAD,HT,DM, Hypo-thyroid, Epilepsy	Treat Appropriately	Treat Appropriately	Treat Appropriately
<b>Complications</b> Septic Shock AKI, MODS, Delirium, Electrolytes ECG abnormalities, Stress Ulcers,	Treat Appropriately	Treat Appropriately	Treat Appropriately





Liver Dysfunction			
<b>MONITORING</b>			
BP/HR	Daily	6 <sup>th</sup> Hourly	4 <sup>th</sup> Hourly
RR/ SpO <sub>2</sub>	6 <sup>th</sup> Hourly	2 <sup>nd</sup> Hourly	Continuously
CBC/ NLR/ RFT/ LFT	Baseline on day 5	Every 2 Days	Daily
D Dimer	Baseline on day5 to be repeated and followed, if elevated	Once every 4 days	Once every 2 days
ECG	If Needed	Once every 2 days	Daily
ABG	-	-	Daily
X Ray	If Needed	If Needed	If Needed

## CT Scan Indications

### 1. Diagnosis

- a. Moderate to severe symptomatic patients (breathlessness, falling O<sub>2</sub> saturations) **suspected** to have Covid-19 for quick triage. **Cough is NOT an indication.**
- b. Asymptomatic to minimally symptomatic patients, only when **RT-PCR testing not available OR RT-PCR results are delayed** due to backlog or logistical issues by more than 48 hours and the delay will change the way the patient is managed.
- c. High clinical suspicion of Covid-19 but a negative RT-PCR report, where the findings of the CT scan will make a difference to management.
- d. Other unique or individual situations, e.g. a patient has to undergo emergency surgery and RT-PCR testing or rapid testing is not available or the results will not be available in time and the delay will change management.

**However, the routine use of CT scan as a pre-admission or pre-surgical test in non-emergency situations is strongly discouraged.**



## **2. Management**

- a. The patient is symptomatic or symptoms are worsening, and the findings on the CT scan, as against on radiographs, make a difference to management
- b. High clinical suspicion of co-existing disease such as tuberculosis or interstitial lung disease that would make a difference to the management of the patient
- c. Any other clinical scenario where the findings on the CT scan are likely to make a tangible difference to management

## **3. Follow-Up**

- a. Specific clinical situation (patient not improving, worsening, symptomatically or on PFTs)
- b. Any other clinical scenario where the findings on the CT scan are likely to make a tangible difference to management

### CT scan - Non-Indications

#### 1. Diagnosis

- a. Routine evaluation of the lungs in asymptomatic, minimally symptomatic patients. Cough is not an indication
- b. Routine pre-admission or pre-surgical evaluation when RT-PCR testing is available
- c. Patient/relatives wanting/demanding a CT scan to check status of lungs

#### 2. Management

- a. Routine evaluation as part of a routine protocol
- b. Patient/relatives wanting regular check CT scans

#### 3. Follow-up

- a. Routine follow-up to check the status of the lungs
- b. Patient/relatives wanting to check the status of the lungs

Role of CT Chest in Covid-19 - A White Paper from the Society of Chest Imaging and Intervention (SCII)



## STEROIDS IN COVID

**MILD COVID**- NO ROLE OF ORAL STEROIDS, Inhalational Budesonide (given via Metered dose inhaler/ Dry powder inhaler) at a dose of 800 mcg BD for 5 days) to be given if symptoms (fever and/or cough) are persistent beyond 5 days of disease onset.

**MODERATE COVID**- SO<sub>2</sub> 90-94, RR 24-30; = Methylprednisolone 0.5 to 1 mg/kg in 2 divided doses (or DEXA) usually for a duration 5 to 10 days.

**SEVERE COVID**- Methylprednisolone 1 to 2mg/kg IV in 2 divided doses (or an equivalent dose of dexamethasone) usually for a duration 5 to 10 days.

➤ **Remdesivir** (EUA) may be considered ONLY in patients with

- Moderate to severe disease (requiring SUPPLEMENTAL OXYGEN), AND
- No renal or hepatic dysfunction (eGFR <30 ml/min/m<sup>2</sup>; AST/ALT >5 times ULN (Not an

absolute contradiction), AND

- Who are within 10 days of onset of symptom/s.

❖ Recommended dose: 200 mg IV on day 1 f/b 100 mg IV OD for next 4 days.

- Not to be used in patients who are NOT on oxygen support or in home settings

➤ **Tocilizumab** (Off-label) may be considered when ALL OF THE BELOW CRITERIA ARE MET

- Presence of severe disease (preferably within 24 to 48 hours of onset of severe disease/ICU admission).
- Significantly raised inflammatory markers (CRP &/or IL-6).
- Not improving despite use of steroids.
- No active bacterial/fungal/tubercular infection.

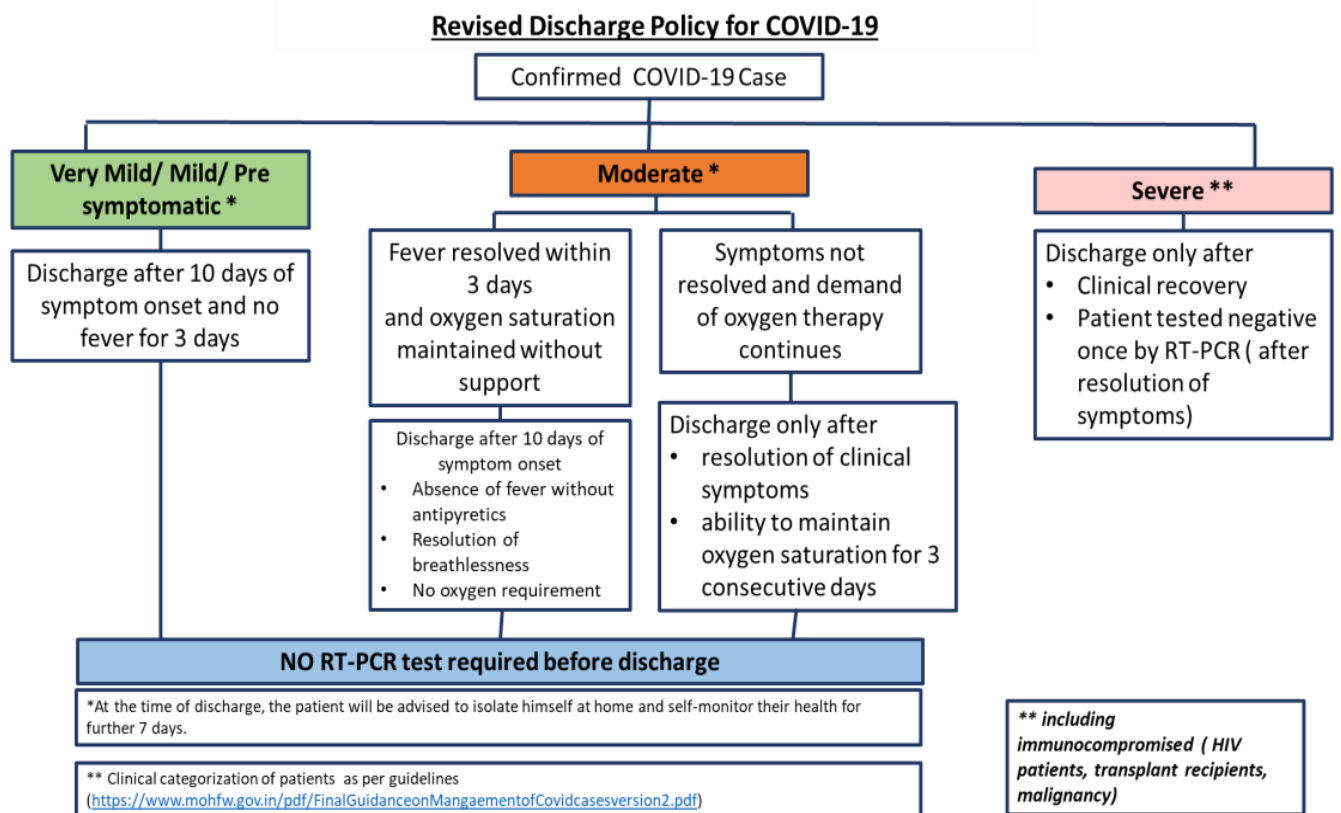
❖ Recommended single dose: 4 to 6 mg/kg (400 mg in 60kg adult) in 100 ml NS over 1 hour.



➤ Convalescent plasma (Off label) may be considered **ONLY WHEN FOLLOWING CRITERIA ARE MET**

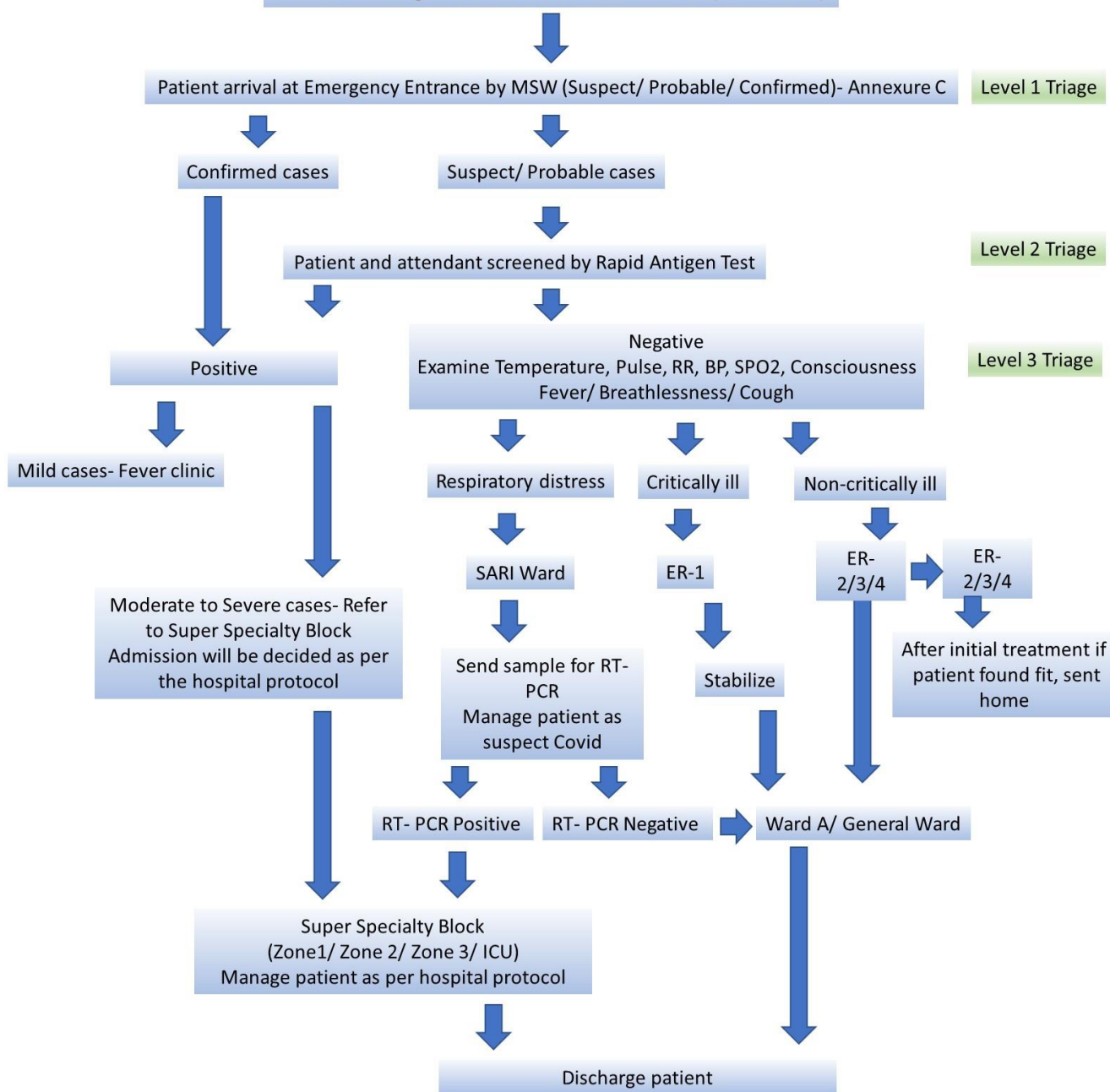
- Early moderate disease (preferably within 7 days of symptom onset, no use after 7 days).
- Availability of high titre donor plasma (Signal to cut-off ratio (S/O) >3.5 or equivalent depending on the test kit being used).

• **Discharge criteria**



**ANNEXURE B**

**Emergency Department Clinical Pathway  
for Screening for Coronavirus Disease (Covid-19)**



# Covid -19 case definitions

## **SUSPECT CASE**

Acute onset of two or more of the following symptoms

Fever with or without chills

Cough

Loss of taste

Loss of smell

general weakness/fatigue

headache

myalgia

sore throat

running nose/nasal congestion

shortness of breath

loss of appetite in adults/poor feeding in infants and young children

nausea/vomiting

diarrhoea

altered mental status

## **PROBABLE CASE**

A. A suspect case who is a contact of a confirmed case OR epidemiologically linked to a cluster of confirmed cases

OR

B. An asymptomatic person who is a **high risk** contact of a confirmed case OR epidemiologically linked to a cluster of confirmed cases

OR

C. If clinically suspected by a physician

OR

D. Death, not otherwise explained, in an individual with respiratory distress preceding death AND who was a contact of a probable or confirmed case or epidemiologically linked to a cluster of confirmed cases.

## **LABORATORY CONFIRMED CASE**

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

