

**Ministry of Health and Family Welfare**  
**Directorate General of Health Services**  
**[Emergency Medical Relief]**

**Coronavirus Disease 2019 (COVID-19): Standard Operating Procedure (SOP) for transporting a suspect/confirmed case of COVID-19**

**1. About this SOP**

This SOP is applicable to current phase of COVID-19 pandemic in India (local transmission and limited community transmission), wherein as per plan of action, all suspect cases are admitted to isolation facilities. These procedures are meant to guide and be used for training ambulance drivers and technicians in transporting COVID19 patients. These also aim to support programme officers in monitoring functionality and infection prevention protocols of the ambulances.

**2. Introduction**

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. In humans, the transmission of COVID-19 can occur via respiratory droplets directly (through droplets from coughing or sneezing) or indirectly (through contaminated objects or surfaces). The people most at risk of COVID-19 infection are those who are in close contact with a suspect/confirmed COVID-19 patient and those who care for such patients.

**3. Transportation of patients**

Ideally, there should be ambulances identified specifically for transporting COVID suspect patients or those who have developed complications, to the health facilities. Currently, there are two types of ambulances – ALS (with ventilators) and BLS (without ventilators). States may empanel other ambulances having basic equipment like that of BLS and use it for COVID patients. However, this must be ensured that strict adherence to cleaning and decontamination protocols given here in the guidance note need to be followed. The fleet in - charge or person designated by CMO/CS, will supervise its adherence.

Call centres after receiving the call will try to triage the condition of the patient and accordingly dispatch either ALS, BLS or other registered ambulances. However, please ensure that 102 ambulances should not be used for corona patients and should only be used for transporting pregnant women and sick infants. Ambulance staff (technicians as well as drivers) should be trained and oriented about common signs and symptoms of COVID-19 (fever, cough and difficulty in breathing). A sample questionnaire to identify COVID-19 cases is placed at **Annexure I**. They should also be aware about common infection, prevention and control practices including use of Personal Protective Equipment (PPE). Both the EMT and driver of ambulance will wear PPE while handling, managing and transporting the COVID identified/ suspect patients. Similar use of PPE is to be ensured by the health personnel at receiving health facility. Patient and attendant should be provided with triple layer mask and gloves. Simple public health measures like hand hygiene, respiratory etiquettes, etc. need to be adhered by all.

**Augmenting the capacity of ambulances in districts**

Local authorities should prepare a line list of all private ambulance service providers in their respective areas. These ambulances should be linked with centralized call centre so as to ensure adequate number of ambulances based on population and time to care approach (Avg. response time of 20 minutes). Orientation on Infection Prevention Protocols and protocols for transporting COVID patients should also be ensured for staff of these ambulances. To ensure response time of 20 minutes, ambulances should be strategically located at hospitals, police stations.

Only identified and designated ambulances should be used for transportation. People, health functionaries, nursing homes, private clinics, hospitals should be made aware to use ambulance services for COVID patients being

provided through toll free numbers. Otherwise it might increase the chances of transmission of infection. Every district should facilitate empaneling of ambulances other than those in the public health system even if the present situation may not require using them. To minimize the risk of transmission, it is strongly recommended that if other than empaneled ambulances are bringing COVID or suspect patients, such vehicles need to be quarantined for thorough cleaning and disinfection and should only be released after certification by district administration/district health official.

**3.1 Call Centre:** On receiving the call, the call centre needs to enquire following details:

- a) Demographic details of the patient i.e. name, age, gender etc.
- b) To ascertain whether the patient is suspect case of COVID-19
  - i. Symptoms of patient: Ask whether the patient is suffering from fever, cough and difficulty in breathing
  - ii. Whether patient has recently returned from a foreign country
  - iii. Whether the patient was under home quarantine as directed by local health administration
- c) Clinical condition of patient to be transported: whether stable or critical

**3.2** In case of an inter-facility transfer, the casualty medical officer of the referring hospital has to ensure that bed is available in referral hospital with supporting equipment and needs to convey the same while making the call.

**3.3** Assign the job to nearest ambulance with dedicated facility at strategic locations as mentioned in the box above.

- 3.3.1 Check for state of preparedness of ambulance: **Annexure II**
- 3.3.2 Ensure PPE for ambulance staff: **Annexure III**

**3.4** Both call centre and ambulances should always keep the updated list of available hospitals and beds.

**3.5** On receiving the call, from the call centre and prior to shifting the patient, EMT will perform following:

- 3.5.1 the EMT will seek the above mentioned details again to ensure whether the patient is a suspect case of COVID-19.
- 3.5.2 The EMT will wear the appropriate PPE.
- 3.5.3 The EMT shall assess the condition of the patient
- 3.5.4 If the patient is ambulatory and stable, he/she may be asked to board the ambulance otherwise the EMT (while using the prescribed PPE) may assist loading of patient.
- 3.5.5 Only one caregiver should be allowed to accompany the patient (while using the prescribed PPE).
- 3.5.6 EMT should also ensure availability and provision of adequate triple layered mask and gloves for patient and/or attendant.
- 3.5.7 The patient and the care giver will be provided with a triple layer medical mask.
- 3.5.8 EMT will contact the identified health facility for facility preparedness and readiness.

**3.6 Management on board**

- 3.6.1 Measure vitals of patient and ensure patient is stable.
- 3.6.2 If required, give supplementary O<sub>2</sub> therapy at 5 L/min and titrate flow rates to reach target SpO<sub>2</sub> ≥90%.
- 3.6.3 If patient is being transported on ventilator to a higher center, follow ventilator management protocols, provided the EMT is either trained or assisted by a doctor well versed in ventilator management.

### 3.7 Handing over the patient

- 3.7.1 On reaching the receiving hospital, the EMT will hand over the patient and details of medical interventions if any during transport. After handing over the patient, the PPEs will be taken off as per protocol followed by hand washing. Use Alcohol based rub /soap water for hand hygiene.
- 3.7.2 The biomedical waste generated (including PPE) to be disposed off in a bio-hazard bag (yellow bag). Inside would be sprayed with Sodium Hypochlorite (1%) and after tying the exterior will also be sprayed with the same. It would be disposed off at their destination hospital. This shall again be followed by hand washing.

### 3.8 Disinfection of ambulance

- 3.8.1 All surfaces that may have come in contact with the patient or materials contaminated during patient care (e.g., stretcher, rails, control panels, floors, walls and work surfaces) should be thoroughly cleaned and disinfected using 1% Sodium Hypochlorite solution. (see **Annexure – IV** for preparation of 1% Sodium hypochlorite solution)
- 3.8.2 Clean and disinfect reusable patient-care equipment before use on another patient with alcohol based rub.
- 3.8.3 Cleaning of all surfaces and equipment should be done morning, evening and after every use with soap/detergent and water.

### 3.9 Capacity building

District Authorities to ensure capacity building of EMT and driver on following areas:

- 3.9.1 Donning and doffing of PPE
- 3.9.2 Infection prevention protocols given in this guideline (**Annexure V**)
- 3.9.3 Triage and identifying COVID-19 suspects based on their signs and symptoms.
- 3.9.4 Similarly, emergency staff of health facility should also be trained in segregation, isolation and management of COVID-19 patients. They should not be mixed with other patients.

### 3.10 Monitoring

A checklist for weekly monitoring by District Surgeon/ Anesthetist is at Annexure VI **Annexure I**

<b><u>Question</u></b>	<b><u>Response</u></b>
Has someone in your close family returned from a foreign country	Yes/No
Is the patient under home quarantine as advised by local health authority?	Yes/No
Have you or someone in your family come in close contact with a confirmed COVID-19 patient in the last 14 days?	Yes/No
Do you have fever?	Yes/No
Do you have cough?	Yes/No
Do you have sore throat?	Yes/No
Do you feel shortness of breath?	Yes/No

**Annexure II Checklist for list of consumables, equipment**

S. No.	Item	Available (Yes/No)	If yes, whether functional	Remarks: quantity, expiry, last inspection date etc.
1	Stretcher trolley (foldable)			
2	Vital sign monitor			
2.1	✓ NIBP			
2.2	✓ SPO <sub>2</sub>			
2.3	✓ ECG			
3	Ventilator with O <sub>2</sub> Source			
4	Defibrillator with battery			
5	Syringe infusion pump			
6	Ventimask with O <sub>2</sub> flowmeter			
7	Ambu bag with face mask			
8	Laryngoscope with batteries			
9	ETT with oro-pharyngeal airway			
10	Suction apparatus with suction and catheter			
11	Emergency drug tray			
12	IV Fluids			
13	Nebulizer			
14	Any other items:			
14.1	✓ Foleys catheter			
14.2	✓ ECG Electrode			
14.3	✓ IV Cannula			

**Annexure III Rational use of PPE by ambulance staff\***

Activity	Risk	Recommended PPE	Remarks
Transporting patients not on any assisted ventilation	Moderate risk	N-95 mask Gloves	
Management of SARI patient while transporting	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
Driving the ambulance	Low risk	Triple layer medical mask Gloves	

\* The training of EMTs on COVID-19 will strictly adhere to the above mentioned rational use of PPE (the above recommendation is by an expert group (including WHO) and recommended by Joint Monitoring Group under DGHS available at [www.mohfw.gov.in](http://www.mohfw.gov.in))

**Annexure IV****Guidelines for Preparation of 1% sodium hypochlorite solution**

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

## **Infection Prevention for Pre-hospital Care**

### **1.1. General**

Ambulance or emergency health care workers are exposed to many infectious agents during their work. Transmission of infectious disease can occur while providing emergency care, rescue and body recovery/removal. Effective infection prevention and control is central to providing high quality health care for patients and a safe working environment for those that work in healthcare settings. Implementation of good infection control practices help to minimize the risk of spread of infection to patients and staff.

Pre-hospital care need to have an infection prevention program to monitor for HAIs (Healthcare Associated Infections) and prevent the spread of diseases/infection.

### **1.2. Standard Precautions**

Standard precautions are based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible infectious agents. These set of measures are intended to be applied to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious agent. Standard precautions include:

- Hand hygiene
- Use of barrier precautions or personal protective equipment
- Safe injection practices

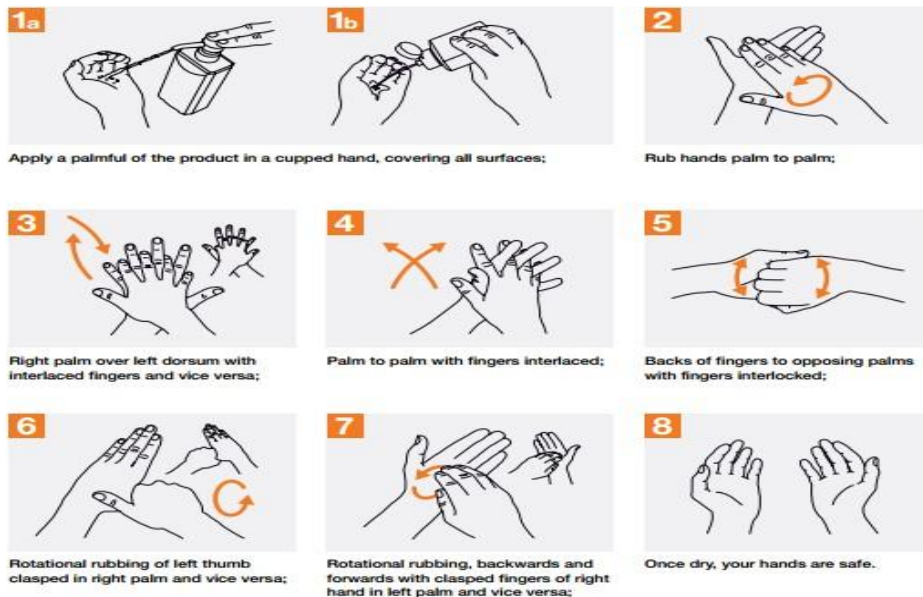
#### **1.2.1. Hand Hygiene**

Hand hygiene is the single most important practice to reduce the transmission of infectious agents in healthcare settings. The term “hand hygiene” includes both hand washing with either soap and water, and use of alcohol-based products (gels, rinses, foams) that do not require the use of water. It is important to ensure the availability of hand rub products at all times in the ambulance to ensure hand hygiene compliance.

## HOW TO HAND WASH ?

**RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED**

**⌚ Duration of the entire procedure: 20-30 seconds**



### 1.2.2. Use of barrier precautions or Personal Protective Equipment (PPE)

COVID-19 is primarily a droplet transmitted infection, with indirect transmission through fomites/contaminated surfaces/objects. The standard precautions on use of personal protective equipment, as per the risk profile are given in annexure III.

The Healthcare worker must possess knowledge and skill regarding use and removal of the PPE after its use.

### 1.3. Equipment disinfection:

Equipment and surfaces are contaminated if they have come in contact with patient's skin, blood or body fluids. These can spread infection. Therefore, it is mandatory that these are cleaned and disinfected using 1% sodium hypochlorite or alcohol based disinfectants at least once daily and after every patient contact. Patient care items and surfaces that can contribute to the spread of infection include:

- Stethoscopes
- Blood pressure cuffs
- Monitors
- Stretchers, backboards, and immobilization devices
- Laryngoscope blades
- Radios/mobiles
- Shelves
- Door handles
- Other items and surfaces in ambulance or transport vehicle

### 1.4. Decontamination of ambulance:



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

#### **Annexure VI Checklist for Monitoring**

Weekly monitoring by District Surgeon/ Anesthetist to be ensured. Following parameters to be monitored:

1. Daily stock-check & functionality test of critical equipment (Oxygen, Suction, etc.)
2. Decontamination & Disinfection Protocols – before and after transporting COVID patients
3. Waste Management – Segregation, General Waste, BMW, Liquid Waste, etc.
4. Spill Management
5. Linen Management
6. Patients' property
7. 'End of Life' care
8. Fire Safety
9. Outcome –
  1. Deaths while transporting
  2. Death after reaching the facility
  3. No. of successful resuscitation (return to spontaneous circulation after cardiac arrest)
  4. IV Fluid Usage Rate – Number of Units (1 unit = 500 ml) transfused/ Patients transported
  5. Percentage of cases, reporting more than 95% Oxygen Saturation level on arrival
  6. Incidence of Aspiration Pneumonia
  7. Service Experience (Feed-back Score on Likert scale 1-5)

