

ANNEX 11: PREPARATION OF AN AMBULANCE FOR TRANSPORT OF SUSPECTED OR CONFIRMED INFECTIOUS DISEASE PATIENT

1. Finding the Right Ambulance for the Transport.
 - 1.1. Ambulance should have separated the driver and patient compartment area.
 - 1.2. Air flow in the ambulance should be separated between driver and patient compartment area.
 - 1.3. Air flow in the patient compartment should be from paramedic seat to rear end (stretcher loading area).
 - 1.4. Patient compartment ventilation should be facilitated by the Heating Ventilation Air Conditioning (HVAC) with air exhaust system.
 - 1.5. Air flow in the ambulance compartment during movement or static should be maintained at more than 6 air exchange per hour

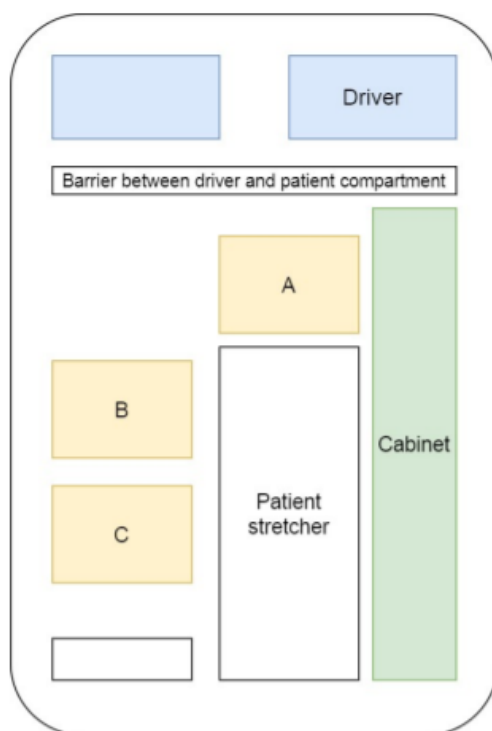
2. Preparing the Ambulance for Transport
 - 2.1. All unnecessary equipment for the care of transported patients should be removed or stored into a bag that can be secured and cleaned after response.
 - 2.2. Equipment that is anticipated to be used for the care of patients should be packaged into grouping such as Airway, Ventilation and Circulation. This will reduce difficulty in decontamination of exposed equipment.
 - 2.3. Stress should always be on terminal cleansing of the ambulance rather than encapsulation of ambulance fittings. Doffing of encapsulation carries the same risk as doffing of PPE.
 - 2.4. Always have a spillage kit available in the ambulance.

3. How many patients should be transported in an ambulance?
 - 3.1. It is advisable to only transfer one patient per ambulance. The space constraint and ventilation in an ambulance makes it a risk for cross infectivity between patients if more than one is present.
 - 3.2. Transport of more than one patient in the ambulance can be considered in a special population or situation. Medical Direction from an Emergency Physician is required for this purpose to safeguard safety of patients and staff in the ambulance.
 - 3.3. Whenever there are more than 3 patients to be transferred in a single response; then the use of alternative transport than an ambulance should be considered such as vans or coasters or bus or even trucks.

4. Terminal Cleaning and decontamination of ambulance or patient transport vehicles.
 - 4.1. Staff performing the cleansing process must adhere to PPE recommendation by IPC Team. The PPE should be similar to that worn by staff performing terminal cleansing in hospital facilities.
 - 4.2. There are several methods of terminal cleaning of vehicles or ambulance:
 - i. Clean and wipe using the recommended solution.
 - ii. Vapour distribution method using manufacturer or IPC recommended solution and device.
 - iii. Ultraviolet Germicidal Irradiation.
 - 4.3. If a solution is used then it must adhere to recommendation by the IPC Team. However, care must be used to get a solution that is least corrosive to the materials and upholstery in the ambulance.
 - 4.4. Prior to beginning the terminal cleaning process, look around the ambulance patient compartment and identify any gross contamination such as blood, vomitus or any other bodily fluid.
 - 4.5. Gross contamination must be cleansed first, before proceeding with terminal cleaning.
5. Cleaning and disinfection of medical equipment.
 - 5.1. Reusable medical equipment must be cleansed based on manufacturer or IPC recommendation.
 - 5.2. Monitor cables must be wiped using IPC recommended disinfectant wipes after use for every patient.
6. Personal Protection Equipment for Personnel Involved in Transport of Suspected or Confirmed Infectious Disease Patient.
 - 6.1. The type of PPE used in an ambulance is determined by the acuity and infectivity of a patient.
 - 6.2. Ambulance is an enclosed environment with limited ability for distancing. Thus, use of PPE should be emphasized at all times especially when transporting a patient without the use of a Patient Transport Isolation System.

SETTING	TARGET PERSONNEL	ACTIVITY	TYPE OF PPE	NOTE
Ambulance transfer vehicle	Driver	Involved in driving PUS/ Suspected/Probable/ Confirmed COVID-19 and involved in loading and unloading of patients	<ul style="list-style-type: none"> • Surgical mask • Isolation Gown (fluid-repellent long-sleeved gown) OR long-sleeved plastic apron • Gloves • Eye Protection (face shield/goggles) <p>* Full PPE is applied during loading and unloading of patient or contact with patient</p>	<ul style="list-style-type: none"> • Driver should always maintain at foot end of stretcher and perform frequent hand hygiene • Windows should be kept open throughout the drive (about 3cm only) • Use air conditioner (HVAC) with fresh air intake mode
Ambulance transfer vehicle	HCW	Transporting PUS/ Suspected/Probable/ Confirmed COVID-19 patient to the referral health care facility	<ul style="list-style-type: none"> • N95 mask • Isolation Gown (fluid-repellent long-sleeved gown) • Gloves • Eye Protection (face shield/goggles) • Head cover 	<ul style="list-style-type: none"> • Windows should be kept open throughout the drive (about 3cm only) • Use air conditioner (HVAC) with fresh air intake mode • If windows cannot be opened, use fan

7. The seating arrangement in an ambulance is a dynamic process based on acuity, infectivity and seats available in the ambulance.



Paramedic Seating	Patient Condition	Type of Intervention
A	<ul style="list-style-type: none"> Normal patient with low monitoring requirement 	None
	<ul style="list-style-type: none"> Intubated patient with patient transport isolation system 	Airway
B	<ul style="list-style-type: none"> Critically ill patient 	Circulation/ Medication
C	<ul style="list-style-type: none"> Normal patient with low monitoring requirement Can also be used to sit second patient of same risk 	None

8. Patient preparation prior to boarding of the ambulance:

- 8.1. Patients that can tolerate use of face masks should be provided with a face mask.
- 8.2. Nasal prong oxygen can be used inside a face mask.
- 8.3. Rebreathable oxygen masks can be used inside a face mask. Caution when using face mask over a non-rebreathable oxygen mask.
- 8.4. Awake patients should be asked to sanitize their hands prior to boarding into an ambulance.

- 8.5. Patients can be seated at the side chair or propped up into seating position on the stretcher.
 - 8.6. Use of safety belts must be ensured.
 - 8.7. Patients with high oxygen requirements should be informed to an Emergency Physician.
 - 8.8. Directive on need to intubate the patient with subsequent retrieval must be considered to prevent performing aerosol generating procedures during transfer.
9. Special Considerations on Transport of Highly Infectious Disease Patients (HIDP).
- 9.1. Patient Transport Isolation System (PTIS) are available to be used in transporting HIDP.
 - 9.2. The use of PTIS require a specialised team that are:
 - i. Care and use of the system.
 - ii. Adaptation of medical procedures with the system.
 - 9.3. Each type of PTIS has its advantages and limitation on:
 - i. Vehicle space requirements for its use.
 - ii. Clinical acuity of patients suitable for its use. Some PTIS require patients to lie supine only.
 - iii. Environment suitable for the PTIS operations