

# PAHO



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Americas

Prehospital  
Emergency  
Medical Services



*Prehospital Emergency  
Medical Services (EMS)*

**COVID-19**

**Recommendations**

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## Introduction

This document provides general guidance for Emergency Medical Service (EMS) preparedness and response to COVID-19. At a local and state level, regulations and resource configurations may vary. In addition to these recommendations, EMS agencies should consult with local stakeholders.

First responders and healthcare workers involved in pre-hospital Emergency Medical Service (EMS) or inter-facility transport of patients practice in a unique setting associated with a distinct set of challenges including uncontrolled pre-hospital environments, transportation in an enclosed space and resource variability.

Given the spread of the virus to date, it is anticipated that COVID-19 will affect a large portion of the world population. As outbreaks of COVID-19 develop, prehospital workers, including EMS personnel and other emergency responders may potentially be exposed to the disease through patient contact or through contaminated environments. It is paramount that providers follow specific practice guidelines to mitigate the effects of an escalating pandemic.

Much of the natural history of COVID-19, including source(s), transmissibility mechanisms, viral shedding and persistence of the virus in the environment as fomites, is certain. Although precise information regarding mode of transmission remains elusive, COVID-19 human-to-human transmission is well established and aerosol-generating procedures (AGP) may have a role in the spread of the disease.

It is important to note, however, that COVID-19 differs in many ways from Ebola virus disease (EVD) and, therefore, requires different types of precautions. Excessive use of protective equipment designed for EVD is unnecessary and may waste valuable resources. It is important to adhere to recommendations specific for COVID-19.

At all times, prehospital EMS personnel must strictly adhere to applicable standard precautions and agency protocol. In addition, special precautions are recommended for all EMS personnel when providing care for a known or suspected case of COVID-19.

The following precautions are recommended for:

- Suspected COVID-19 patient: **standard + contact + droplet precautions**
- Suspected COVID-19 patient and aerosol-generating procedures: **standard + contact + airborne precautions**

PPE guidance for COVID-19 may change rapidly. EMS agencies should monitor information from PAHO/WHO and regulatory organizations at the local/state and national level and have established contacts with infection prevention and control professionals. Responding personnel should have a low threshold to mask the patient and wear appropriate PPE as COVID-19 is transmissible prior to the onset of significant symptoms.

This document is designed to be a resource of recommendations to EMS providers regarding the COVID-19 Outbreak. It is divided into six sections, representing the functions of pre-hospital EMS and includes:

1. Dispatch/Call Management
2. Pre-Transport/EMS on Scene
3. Transport
4. Post-Transport
5. Administration (911/EMS)
6. Special Considerations

## Section 1: DISPATCH / CALL MANAGEMENT

Dispatch screening is designed to preliminarily identify COVID-19 Patients Under Investigation (PUI) based on the latest guidelines, assess illness severity and recommend the highest potential level of precautions that may be required. This promotes a safe environment for prehospital providers and allows for resource allocation according to risk assessment. On-scene evaluation will later confirm risk and allow for de-escalation of precautions/assets if appropriate.

### 1.1 Identification of PUI

Every caller reporting a patient with fever and/or signs/symptoms of lower respiratory illness (cough, shortness of breath) must be screened further.

Travel and contact history are key components of the COVID-19 screening process. Given the rapid spread of disease, the affected country list will change frequently. Likewise, the definition of high-risk contact will continue to evolve.

Dispatch center managers should keep screening algorithms up to date according to the latest definition of PUI available at [https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-\(2019-ncov\)](https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-(2019-ncov)). Dispatchers should be aware of any changes to the algorithm or screening protocol.

### 1.2 Resource allocation by disease severity

Following identification of a PUI, assessment of illness severity should determine resource activation.

Life-threatening symptoms include chest pain, difficulty breathing or altered mental status.

Dispatchers should reserve ALS ambulance activation for cases of severe disease. Stable patients may be transported by BLS providers or an alternative means of transport. If the resources are available and the regional EMS system is amenable, a dedicated infectious disease medical transport may be considered.

### 1.3 Communication and coordination with Integrated health services network (IHSN)

Communication and coordination between dispatch center, prehospital EMS providers, local public health officials and regional hospital systems will allow the receiving facility time to prepare for PUIs and transition to an appropriate level of care. This should include a system for inter-hospital transfers. Depending on resource availability, dispatch centers may coordinate the transport of unstable patients directly to an intensive care unit. Likewise, it is possible that in a well-coordinated IHSN, stable patients may be transitioned to primary care rather than an inpatient setting. An integrated health services network that incorporates EMS and dispatch notifications will allow for the optimization of available resources and transfer of patients to the appropriate level of care.

### 1.4 Activation and pre-notification of responding crew

At the time of activation, dispatchers should inform the responding EMS crew of the patient's illness/symptoms and concern for COVID-19 (Post-dispatch Information Protocol). Once notified, responding EMS will take appropriate precautions and prepare for the treatment and transport of a PUI.

## 1.5 Pre-arrival instructions

Family members or first responders may assist EMS by facilitating easy access to the scene and preparing the patient for transport. Dispatch center managers should prepare a protocol for pre-arrival instructions to callers that includes turning on adequate lighting, gathering patients' medications (or list of medications) and controlling domestic animals. Dispatchers may recommend that family members or caller be ready to direct EMS to the location of the patient.

## 1.6 Dispatch Environment and Equipment

Dispatchers need to keep their workstations clean, wiping surfaces (e.g. desks and tables) and objects (e.g. telephones, keyboards) with disinfectant before and after their shift or at all staff changes for shared dispatch consoles).

If available, personnel may consider the use of a personal keyboard, mouse and headset and store them in a private and clean space.

Dispatchers should follow the hand-washing and respiratory hygiene procedures established by their agencies, avoid sharing cups, plates or other personal items in the rest areas, and clean all surfaces that are touched frequently.

Managers should ensure that personnel take respective rest periods and that they have designated spaces for food and rest.

Personnel should try to maintain correct posture and take frequent muscle stretching breaks (active pauses).

# Section 2: PRE-TRANSPORT / EMS ON SCENE

## 2.1 Detect, Isolate and Report (DIR)

Non-EMS responders who may be first on scene (e.g. police, fire fighters, bystanders trained in first aid) should follow the process of D.I.R. (Detect – Isolate – Report). At a distance of at least 1 meter, they should attempt to detect if the patient meets COVID-19 criteria. While maintaining a distance of 1 meter, they should isolate the patient from others until EMS arrives. They should report back to the call center and/or their agencies to report the encounter and receive further instruction.

## 2.2 PPE Preparation

All emergency responders should be trained and educated on PPE use and patient management for COVID-19. Managers should ensure that the PPE protocol is up-to-date based on the latest PAHO/WHO recommendations. PPE should be readily available for donning at the time of arrival on scene.

Prior to response, providers should resolve all doubts they have in respect to the use of PPE and the methods for personal protection.

## 2.3 Confirmation of PUI

Assessment of the patient should begin at a distance of at least 1 meter if possible. EMS providers should confirm the relevant travel and exposure history for COVID-19 and verify that the history is consistent with

dispatch information. Providers should also be aware of any community-based outbreaks and inquire specifically about influenza or other specific exposures.

If a PUI is confirmed, appropriate PPE must be donned prior to further evaluation.

If there is no significant concern for COVID-19, precautions may be adjusted according to symptomatology.

## 2.4 Protective personal equipment PPE

LEVEL OF CARE	HAND HYGIENE	MEDICAL MASK	RESPIRATOR (N95 OR FFP2)	GOWN	GOGGLE OR FACE SHIELD	GLOVES
Suspected case of COVID-19 1 meter assessment (ambulance crew)	X	X				X
Driving WITH patient compartment isolated	X	X <sub>i</sub>				
Driving WITHOUT patient compartment isolated	X	X <sub>i</sub>				
Suspected or confirmed case of COVID-19 requiring medical transport and NO aerosol-generating procedure	X	X		X	X	X
Suspected or confirmed case of COVID-19 requiring medical transport and WITH aerosol-generating procedure	X		X	X	X	X
Cleaning the ambulance	X	X		X	X	X

i If a driver must be involved in direct patient care, before driving they should remove the PPE but not the mask.

Providers should provide all PUIs with a surgical mask (N95 respirator not required) if they are able to tolerate it and tissues for secretion control. Patients should be encouraged to practice hand hygiene and instructed on proper cough etiquette practices.

PPE waste should be placed in a labeled, leak-proof container. (See below for further management).

## 2.5 Hand Hygiene

As part of the standard of care, all providers must perform hand hygiene before and after all patient care activities regardless of the etiology of the patient presentation. Gloves are never a substitute for hand hygiene. All personnel should avoid touching their face while working.

## 2.6 Restricting direct contact

Direct contact with a PUI should be limited to the least number of personnel possible. Personnel not in appropriate PPE should maintain a distance of at least 1 meter from the patient and should wear gloves to guard against infectious agents on the surfaces of objects close to the patient.

## 2.7 Doffing

PPE should be removed in an appropriate doffing area to prevent secondary contamination. Care should be taken to avoid self-contamination. Please refer to the PAHO/WHO guidelines for the proper sequence for donning and doffing of PPE.

If a driver must be involved in direct patient care, after completing care and prior to entering an isolated driver's compartment, they should remove eye protection, gown and gloves and perform hand hygiene. The mask should remain in place during transport.

## 2.8 Aerosol-generating procedures

Aerosol-generating procedures in pre-hospital care include:

- Bag valve mask (BVM) ventilation
- Oropharyngeal suctioning
- Endotracheal intubation
- Nebulizer treatment
- Continuous positive airway pressure (CPAP)
- Bi-phasic positive airway pressure (biPAP)
- Resuscitation involving emergency intubation
- Cardiopulmonary resuscitation (CPR)

Providers must exercise caution when performing these procedures and perform them only if and when medically necessary. It is important to keep procedures for respiratory support up to date with current guidelines.

To decrease droplet generation, providers should consider metered dose inhalers instead of nebulizers and use a BVM or ventilator with a HEPA filter on the exhalation port.

If performing aerosol generating procedures, providers should consider having the patient compartment exhaust vent on high.

## Section 3: EMS TRANSPORT

### 3.1 Preparation of personnel

All staff (pre-hospital and hospital) must be trained, educated and demonstrate competencies for COVID-19 patient management. In the case of doubts regarding appropriate action, providers should immediately consult with their supervisor.

At the beginning of the shift, the ambulance crew needs to check that there is an adequate inventory of supplies and appropriately sized PPE to provide a safe medical transport.

The supervisor on duty and/or the person providing medical oversight must be available for consultation and/or operational support throughout the transport.

### 3.2 Communication with integrated health service network

Points of contact and means of communication must be ensured with the sending facility, the receiving facility, the public health authority, emergency management, law enforcement (or agency providing security for the transport), aviation management (if applicable), hazardous materials management and disposal, and the EMS agency's public affairs official.

Methods of communication should include a safe channel to share sensitive information.

### 3.3 Secure route

Agencies may coordinate with local authorities to develop procedures to facilitate a timely and safe transport (e.g. they may establish predetermined routes).

At the receiving facility, the patient should be moved to a designated location via the most direct route possible. This may be by ambulance or stretcher. If there is any concern for EMS stretcher contamination, the patient may be transferred to a hospital stretcher upon exit from the ambulance.

### 3.4 Ambulance ventilation

Transport vehicles should optimize ventilation strategies to reduce the risk of exposure. This includes maximizing a high volume of air exchange (e.g. by opening the windows and vents) and setting all climate controls to fresh (not recirculating) air. If separate, this applies to both the driver and patient compartments.

Separate driver and patient compartments are preferred whenever possible.

Ambulances without separate compartments may create a negative pressure gradient in the patient area by opening the outside air vents and turning on the rear exhaust ventilation fans to the highest setting.

If driver and patient compartments cannot be isolated, the vehicle operator should wear a surgical mask.

### 3.5 Pre-arrival hospital notification

Communication with the receiving facility is essential. The receiving facility should be notified as soon as possible of the arrival of a suspected COVID-19 patient. This pre-arrival notification should indicate that additional precautions are required. It should also confirm the patient's clinical condition and physical condition.

Specific locations should be confirmed with the receiving facility including the location for patient transfer and if there will be a location available for ambulance decontamination/disinfection and the donning and doffing of PPE.

### 3.6 Interfacility transfers

In the case of an interfacility transfer, both origin and destination facilities should confirm the location for patient transfer and hand-off to facilitate event-free transport, minimize environmental exposure at the facility and prevent exposure of unprotected staff, patients, and visitors. The location for donning and doffing of PPE for both origin and destination facilities should also be specified.

Documents from the sending facility should be free of contamination. When in doubt, consider them contaminated and package as appropriate for transport by ambulance personnel.

### 3.7 Passenger transport

Additional passengers (family, etc.) should not be transported. Many hospitals will not permit visitors for COVID-19 PUI. Contacts of PUI are high risk for infection and transport increases the risk of healthcare worker exposure.

If, for some reason, family or support persons are permitted to accompany the patient (e.g. pediatric patients), the receiving facility should be notified as those riding along will need to be isolated as well.

When possible, the information for the receiving hospital should be left with family members so that they may call for an update later.

EMS agencies should have a plan in place for necessary family member transportation (such as a parent accompanying a minor) that prevents crew exposures.

### 3.8 Patient care during transport

Providers should attempt to minimize patient contact during assessment. It may be permissible, for example, to defer obtaining vital signs if patient appears stable, has no visual evidence of distress or shock, and transport time is not prolonged.

Individual isolation capsules are not needed to transport COVID-19 PUI. Keeping a mask on the patient is enough for transport.

After conducting an initial assessment focused on patient's stability (respiratory distress, altered mental status, etc.), providers should define appropriate interventions for patient deterioration before and/or during patient transport.

Any patient belongings should be considered contaminated, placed in a biohazard bag, sealed, labelled and transported with the patient in the patient compartment.

Providers should avoid opening compartments and cabinets unless essential to patient care. Equipment needs should be anticipated and the appropriate tools removed from cabinets prior to placing the patient in the vehicle.

After pre-arrival notification, EMS providers should continue to communicate with the designated point of contact at the receiving facility with updates on the patient's condition and ETA to facilitate reception of the patient immediately upon arrival.

### 3.9 Air Medical Transport Considerations

Ground transport should be prioritized for stable PUIs even with extended transport distance as most medical transport aircrafts do not have a physical separation between the cockpit and the patient cabin.

#### ***Flight Crew Precautions and PPE***

Pilots should wear properly fitted N95 masks on any call with a PUI.

Diligent hand hygiene should be practiced, and eye protection should be worn by aircraft personnel regardless of patient contact status. If soap and water are not available, you may use alcohol-based hand rub (containing at least 60% alcohol).

Designation of an "isolation area" is highly recommended where possible, with the perimeter establishing "clean" and "dirty" areas when donning and doffing of PPE should occur. Personnel within the equipment should be wearing appropriate PPE. Patient care equipment should be organized outside of the isolation area, while waste and reusable equipment should be inside of the isolation area.

If possible, providers should refrain from involvement in the aircraft loading and unloading of PUIs and should avoid entering health care facilities.

Any medically necessary AGP on a COVID-19 suspected or confirmed patient should be conducted prior to loading and taking flight to reduce risk of exposure to EMS providers.

In case respiratory support could be needed during flight:

- Use simple and non-rebreather face mask to deliver oxygen
- Manual ventilation devices should be equipped with HEPA filters in vents.
- Mechanical ventilators should provide HEPA filtration capacity or equivalent of airflow exhaust
- Portable suction devices should be equipped with HEPA or equivalent filter kit

#### ***Ventilation for Fixed-Wing Pressurized Aircraft***

In most aircrafts, cabin air is sterilized during pressurization. Ideally, medical aircraft are outfitted with HEPA filters, if unavailable, it is recommended that recirculated air be minimized as much as possible. While taxiing for take-off, the starboard engines should be operated with the forward outflow valve closed to ensure rapid air exchange.

Forward-to-aft flow and separate cockpit and cabin are preferred to reduce risk of exposure to personnel.

Ventilation of the aircraft should remain ON at all times during patient transport, including during ground delays. Aircraft that re-circulate cabin and flight-deck air without HEPA filtration should not be used.

#### ***Ventilation for Rotor-Wing and Non-Pressurized Aircraft***

When there is uncontrolled interior air flow, all personnel should wear disposable N-95 masks. For cockpit crew members, aircraft aviator tight fitting face pieces that deliver oxygen that has not been mixed with cabin air can be used in lieu of N-95 masks.

The patient should be positioned as downwind from the cabin and as close to the aircraft exhaust vent as possible.

Maintenance should be conducted often as malfunctioning ventilation systems increase risk of COVID-19 transmission.

### **Decontamination**

It is recommended that pilots undertake cockpit decontamination and that cabin personnel undertake cabin decontamination.

Dry, solid waste (e.g. gloves, bandages) should be collected in biohazard bags and disposed at the receiving facility per local requirements. Waste contaminated with bodily fluids should be discarded into a leak-proof biohazard bag. Sharps (e.g. needles, scalpels) should be collected in a sharps container and discarded similarly.

Prior to disinfection and decontamination, the doors of the aircraft should be closed and air conditioning turned on at max power for the time specified by aircraft manufacturer. Non-pressurized aircraft should air out the aircraft, leaving doors and exits opening to maximize fresh air flow. Fans and blowers should be avoided as they can re-aerosolize infectious materials.

Flight crews should disinfect surfaces such as door handles, stretchers, seat belt buckles, flight controls, and absorbent fabrics along with headsets, helmets, mic booms, and mic muffs. It is recommended that contaminated reusable equipment should be placed in biohazard bags marked for disinfection using manufacturer's instructions.

## Section 4: POST-TRANSPORT

### **4.1 Waste**

Before doffing PPE, EMS providers should transfer waste from the vehicle to the hospital, to their ambulance headquarters, or to an appropriate agency as previously arranged in accordance with applicable regulations.

### **4.2 Restricting direct contact**

Direct contact with a PUI should be limited to the least number of personnel possible. Personnel not in appropriate PPE should maintain a distance of at least 1 meter from the patient and should wear gloves to guard against infectious agents on the surfaces of objects close to the patient.

### **4.3 Doffing**

EMS team should not leave the designated "hot zone" until PPE is doffed per protocol in the designated doffing area. If ambulance personnel are performing ambulance disinfection, they may proceed with disinfection prior to doffing.

The driver should return to the ambulance driver's compartment and proceed to the designated decontamination/disinfection station for the ambulance to be disinfected per protocol.

Doffing of PPE can occur into a final biohazard bag, which is then closed and disposed of properly.

### **4.4 Documentation and Debriefing**

All documentation should be performed after the transport is complete as to avoid contamination of equipment and materials.

At the conclusion of the mission, providers should debrief, and surveillance should be initiated as appropriate.

#### 4.5 Identify decontamination area:

No vehicles or equipment shall be placed back into general service prior to completion of the vehicle disinfection and decontamination.

A designated decontamination site must be established with a secure perimeter. If providers are unable to remain with the vehicle, a security plan must be in place.

Managers should consider waste management, public perception, and media visibility when selecting the decontamination site.

Managers should define a clear boundary designating clean and dirty areas that is marked around the ambulance and requires PPE to cross.

<b>Ambulance decontamination must be performed per protocol</b>
<p><b>Before Decontamination and Disinfection:</b>            Following patient transfer, the back doors of the ambulance should be left open so that sufficient air exchange may occur.</p> <p>Appropriate supplies must be available.</p> <ol style="list-style-type: none"> <li>1. Yellow caution tape or alternative system for marking off the decontamination area</li> <li>2. PPE for personnel performing decontamination</li> <li>3. Leak proof biohazard bags</li> <li>4. Garbage bags</li> <li>5. Spray bottles</li> <li>6. Disposable rags</li> <li>7. Alcohol based hand sanitizer</li> <li>8. Absorbent towels</li> <li>9. Bleach or alcohol-based cleaning solution or disinfectant wipes</li> </ol> <p>Decontamination team - The vehicle operator and patient care provider or a separate team may be used. Both approaches have advantages.</p>

**Ambulance decontamination must be performed per protocol**

**During disinfection / decontamination**

All visibly soiled surfaces should be cleaned and then decontaminated starting from the ceiling of the vehicle and working down to the floor in a systematic process.

All surfaces that may have had contact with the patient or materials that were contaminated during patient care (eg. Control panels, floors, walls, work surfaces, stretcher, rails, etc) must be thoroughly cleaned including the underneath and base of the stretcher.

To conduct cleaning, providers should follow routine cleaning and disinfection procedures for pre-cleaning. This can be done with water and soap. This pre-cleaning must be followed by the application of a high-grade disinfectant to any potentially contaminated surfaces or objects.

Coronaviruses have a lipid envelope which makes a wide range of disinfectants effective. Disinfectant solution options include:

- An EPA-registered disinfectant that is labeled for emerging viral pathogens. These may have descriptions such as “[product name] has demonstrated effectiveness against viruses similar to COVID-19 on hard, non-porous surfaces. Therefore, this product can be used against COVID-19 when used in accordance with the directions for use against [name of supporting virus] on hard, non-porous surfaces.”
- Chlorine-based compounds (bleach, calcium hypochlorite, NADCC tablets) must be at least 0.1% (1000ppm) for 10 minutes on a clean surface.
- Alcohol-based compounds (isopropyl alcohol, ethyl alcohol) must be at least 60-70% alcohol by weight or by volume.
- Regular household disinfectant containing 0.5% sodium hypochlorite (that is, equivalent to 5000 ppm or 1 part bleach to 9 parts water).

Ensure adequate ventilation especially when using chemicals. Doors should remain open while cleaning the vehicle.

Follow contact times on labels of the products used.

If patient care equipment is reusable, it must be cleaned and disinfected according to the manufacturer’s instructions.

**Decontamination of spills and disinfection:**

Disinfect the outside of any bags containing unused medical equipment as well as the stretcher.

Supervised doffing of PPE can occur into a final biohazard bag, which is closed and disinfected.

**Ambulance decontamination must be performed per protocol**

**After disinfection/decontamination:**

- All waste, including PPE and wipes, should be considered Category A infectious substances, and should be packaged appropriately for disposal.
- Linen should not be shaken. It should be contained and laundered according to standard operating procedures.
- Wash and disinfect linen: washing by machine with warm water (60–90°C) and laundry detergent is recommended for cleaning and disinfection of linens. If machine washing is not possible, linen can be soaked in hot water and soap in a large drum, using a stick to stir, avoiding splashing. If hot water not available, soak linen in 0.05% chlorine for approximately 30 minutes. Finally, rinse with clean water and let linen dry fully in the sunlight.

**Waste:**

- All waste must be disposed of according to organization protocols as well as local and national regulations for Category A infectious substances. (Best practice may be to transfer waste to the hospital for disposition).
- Additional cleaning methods may also be used, though are not required (e.g. Ultraviolet germicidal irradiation, chlorine dioxide gas, or hydrogen peroxide vapor). However, these should not replace the manual disinfection.
- Ambulance can then be returned to service.

## Section 5: ADMINISTRATION

### 5.1 Call-dispatch center and ambulance base environment

Surfaces (e.g. desks and tables) and objects (e.g. telephones and keyboards) must be wiped with disinfectant regularly.

Sanitizing hand rub dispensers should be stocked, refilled regularly, and featured in prominent places around the workplace.

Posters promoting hand-washing and respiratory hygiene should be on display. Managers also may combine this with other communication measures such as information on the intranet and/or briefings at shift change.

Face masks (surgical rather than N95) and/or paper tissues should be available for those who may develop a runny nose or cough at work, along with closed waste baskets.

Managers should communicate and promote the message that staff needs to stay home even if they have mild symptoms of COVID-19.

A response plan must be developed and implemented in case someone during the shift becomes ill with symptoms of COVID-19. The plan needs to include a room or area where the worker(s) could be safely isolated and a procedure to transfer them safely to their home or a health facility.

### 5.2 Protocols and training

All pre-hospital EMS providers should receive education and training and demonstrate competencies for COVID-19 PPE and patient management.

Transporting ambulance agencies should have protocols for the management of patients and exposures. It is recommended that EMS managers communicate with receiving facilities to consider designated ambulance decontamination location(s)

Multiagency communication should be maintained for integration, evaluation, and adaptation of protocols.

Checklists may be developed and used in protocols, training and response to ensure that important steps are addressed. These may include: a bio-safety check-off sheet, briefing template, donning check-off sheet, doffing check-off sheet, contact list

### **5.3 Communication among providers:**

Secure lines of communication should be established to share sensitive information.

A procedure to contact the appropriate public health authority for further information or actions must be in place.

Agencies should establish points of contact and means of communication between sending facilities, receiving facilities, public health authority, emergency management, and (if applicable) law enforcement, aviation, and hazardous materials management and disposal.

The need for additional security with sending and receiving facilities, as well as law enforcement personnel needs during transport and at the healthcare facilities should be determined initially and constantly reevaluated.

### **5.4 Awareness of the local/national context:**

Agencies should be aware of local or national context that may affect EMS operations.

Indicators that have effects on EMS must be monitored including status of emergency departments, bed capacity, alternate care sites, weather, epidemiological forecasting, staffing availability, and supply availability.

### **5.5 Public communication:**

The response of EMS agencies to COVID-19 may generate immediate and sustained demand for information from the public, other health care providers and news media.

The EMS agency's public affairs official should be notified of response to a COVID-19 patient.

All the messages and information released should be coordinated among the health authorities and all the responding organizations.

### **5.6 Ambulance supplies and procedures:**

Ambulances should be stocked with an adequate inventory of supplies and appropriately sized PPE for the personnel who are assigned to the transport mission. Checklists may be used to ensure adequate supply.

Procedures and training to limit contamination of ambulance environmental spaces should be conducted prior to assignment.

Agencies should establish guidelines to define the clinical care objectives for patients whose condition deteriorates en route to the receiving facility.

Confirmed plans at destination hospital and/or ambulance decontamination location should be followed for the management of regulated hazardous waste.

## 5.7 Follow-up and/or reporting measures:

EMS agencies should monitor personnel with PUI contact and encourage self-monitoring for symptoms of infection. EMS personnel who have been exposed to a suspected or confirmed case should notify their chain of command. If any unprotected exposure occurs, this must be reported to a supervisor and/or occupational health services.

Agencies should develop sick-leave policies that are flexible, non-punitive and consistent with public health guidelines. EMS personnel should be familiar with these policies.

# Section 6: SPECIAL CONSIDERATIONS

## 6.1 Pediatric Considerations

Caregivers who follow infectious precautions may be kept with the child if they wear appropriate PPE, have been providing care for the child during the current illness, and there is no substantial risk of body fluid exposure during transport.

Appropriate sizes of surgical masks should be available for children.

Assure that comfort objects (blanket, stuffed animal, etc.) can accompany the patient during transport.

When possible, specialized transport units should include agencies that routinely provide pediatric critical care interfacility transport. But should only be used by personnel trained in their operation and limitations. The use of these units may significantly increase the patient's anxiety during transport.

## 6.2 Geriatric Considerations

Elderly populations often have special needs which could affect COVID-19 pre-hospital protocol. Potential needs may include:

- Hearing deficits – patients with partial or complete hearing loss may require a provider to be in close proximity in order to communicate. This would preclude a provider from maintaining adequate distance precautions.
- Neurological or mobility disorders (e.g. Parkinson's, hand tremors, strokes) - patients may have difficulty applying masks to their own faces, accessing the ambulance or complying with provider requests.
- Cognitive impairment (e.g. dementia, Alzheimer's Disease) - patients may have difficulty providing reliable and accurate information regarding exposure. If caregiver is present, providers may consider including them in the assessment.
- Co-morbidity - patients may have multiple health concerns that need to be addressed during transport in conjunction with COVID-19 signs and symptoms.

## 6.3 Dead body management

Body bags are not necessary for packing the body. Wrap the body in the stretcher's sheet or any other linen for transfer to the designated hospital, forensic team or mortuary area.

Minimize movement of the body and establish procedures with forensic authorities to remove the body to the designated area as soon as possible.

Whether the family of the patient wishes to view the body after its removal from the scene or the ambulance, apply principles of cultural sensitivity and following standard precautions the entire time. Give the family clear instruction not to touch or kiss the body.

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