

## Signs and Symptoms

**Most patients with confirmed COVID-19 have developed:**

- Fever
- Cough
- Difficulty Breathing/Shortness of Breath
- Muscle Aches
- Fatigue

## Risk Factors

Epidemiologic factors that may help guide evaluation decisions:

- History of travel from affected geographic areas within 14 days of symptom onset.
- Any persons, including healthcare workers, who have had **close contact** with a laboratory-confirmed or suspicion of COVID-19 patient within 14 days of symptom onset.

Close contact is defined as:

- Being within approximately 6 feet (2 meters) of a COVID -19 case for a prolonged period of time; close contact can occur while caring for, living with, visiting, or sharing a healthcare waiting area or room with a COVID-19 case.

**OR**

- Having direct contact with infectious secretions of a COVID -19 case (e.g., being coughed on).

## Recommendations for EMS Providers and Medical First Responders

EMS provider practices should be based on the most up-to-date COVID-19 clinical recommendations and information from appropriate public health authorities and EMS medical direction.

### Recommended Personal Protective Equipment (PPE)

- EMS providers who will directly care for a patient with possible COVID-19 infection or who will be in the compartment with the patient should follow Standard, Precautions and use the PPE as described below. Recommended PPE includes:
  - Facemask or N-95 or higher-level respirator **Updated:** PPE recommendations for the care of patients of known or suspected COVID-19: Face masks are an acceptable alternative until the supply chain is restored. Respirators should be prioritized for procedures that are likely to generate respiratory aerosols, which could pose the highest exposure risk for HCP.
  - When the supply chain is restored, fit-tested EMS clinicians should return to the use of respirators for patients with known or suspected COVID-19.
    - Facemask - Protection from splashes and sprays.
    - **N-95 or higher-level respirator should be used when performing or present for any aerosol-generating or high-risk clinical procedures.**
  - Eye protection (i.e., goggles or disposable face shield that fully covers the front and sides of the face). Personal eyeglasses and contact lenses are NOT considered adequate eye protection.
  - Patient examination gloves.

- Isolation gown.
  - **If there are shortages of gowns, they should be prioritized for aerosol-generating procedures, care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of EMS clinicians (e.g., moving patient onto a stretcher).**

### **Recommended Personal Protective Equipment (PPE) - continued**

- Drivers, if they provide direct patient care (e.g., moving patients onto stretchers), should wear all recommended PPE. After completing patient care and before entering an isolated driver's compartment, the driver should remove and dispose of PPE and perform hand hygiene to avoid soiling the compartment.
  - If the transport vehicle does not have an isolated driver's compartment, the driver should remove the face shield or goggles, gown and gloves and perform hand hygiene. A respirator or facemask should continue to be used during transport.
- All personnel should avoid touching their face while working.
- On arrival, after the patient is released to the facility, EMS clinicians should remove and discard PPE and perform hand hygiene. Used PPE should be discarded as normal.

### **Patient Assessment**

- If Public Safety answering point (PSAP) call takers advise that the patient is suspected of having COVID-19, EMS providers should put on appropriate PPE before entering the scene. EMS providers should consider the signs, symptoms and risk factors of COVID-19.
- If information about potential for COVID-19 has not been provided by the PSAP, EMS providers should exercise appropriate precautions when responding to any patient with signs or symptoms of a respiratory infection. Initial assessment should begin from a distance of at least 6 feet from the patient, if possible. Patient contact should be minimized to the extent possible until a facemask is on the patient. If COVID-19 is suspected, all PPE as described in this protocol should be used. If COVID-19 is not suspected, EMS providers should follow standard procedures and use appropriate PPE for evaluating a patient with a potential respiratory infection.
- A facemask should be worn by the patient for source control. If a nasal cannula is in place, a facemask should be worn over the nasal cannula. Alternatively, an oxygen mask can be used if clinically indicated. If the patient requires intubation, see below for additional precautions for aerosol-generating procedures.
- During transport, limit the number of providers in the patient compartment to essential personnel to minimize possible exposures.

### **EMS Transport of a Person Under Investigation (PUI) or Patient with Confirmed COVID-19 to a Healthcare Facility (including inter-facility transport)**

If a patient with an exposure history and signs and symptoms suggestive of COVID-19 requires transport to a healthcare facility for further evaluation and management (subject to EMS medical direction), the following actions should occur during transport:

- **Consider contacting medical control for destination determination and/or alternative transport options based on clinical impression of the patient.**
- EMS providers should notify the receiving healthcare facility that the patient has an exposure history and signs and symptoms suggestive of COVID-19 so that appropriate infection control precautions may be taken prior to patient arrival.
- Keep the patient separated from other people, as much as possible.
- Family members and other contacts of patients with possible COVID-19 should not ride in the transport vehicle, if possible. If riding in the transport vehicle, they should wear a facemask.
- Isolate the ambulance driver from the patient compartment and keep pass-through doors and windows tightly shut.

## **EMS Transport of a Person Under Investigation (PUI) or Patient with Confirmed COVID-19 to a Healthcare Facility (including inter-facility transport) – continued**

- When possible, use vehicles that have isolated driver and patient compartments that can provide separate ventilation to each area.
  - Close the door/window between these compartments before bringing the patient on board.
  - During transport, vehicle ventilation in both compartments should be on non - recirculated mode to maximize air changes that reduce potentially infectious particles in the vehicle.
  - If the vehicle has a rear exhaust fan, use it to draw air away from the cab, toward the patient - care area, and out the back end of the vehicle.
  - Some vehicles are equipped with a supplemental recirculating ventilation unit that passes air through HEPA filters before returning it to the vehicle. Such a unit can be used to increase the number of air changes per hour (ACH).
- If a vehicle without an isolated driver compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to the highest setting. This will create a negative pressure gradient in the patient area.
- Follow routine procedures for a transfer of the patient to the receiving healthcare facility (e.g., wheel the patient directly into an examination room).

### **Precautions for Aerosol-Generating Procedures**

- If possible, consult with medical control before performing aerosol - generating procedures for specific guidance.
- An N-95 or higher-level respirator, instead of a facemask, should be worn in addition to the other PPE described above, for EMS clinicians present for or performing aerosol - generating procedures.
- **EMS providers should exercise caution if an aerosol - generating procedure (e.g., bag valve mask (BVM) ventilation, oropharyngeal suctioning, endotracheal intubation, nebulizer treatment, continuous positive airway pressure (CPAP), bi-phasic positive airway pressure (biPAP) or resuscitation involving emergency intubation or cardiopulmonary resuscitation (CPR) is necessary.**
  - BVMs and other ventilatory equipment should be equipped with HEPA or other viral filter to filter expired air.
  - EMS organizations should consult their ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive-pressure ventilation.
- If possible, the rear doors of the transport vehicle should be opened and the HVAC system should be activated during aerosol - generating procedures. This should be done away from pedestrian traffic.

## Patient Treatment

- **Oxygenation**

- Maintain SpO<sub>2</sub> >94%
- Nasal Cannula (NC) with surgical mask placed over the cannula is the preferred method of oxygenation.
  - May use higher than normal flow rates (up to 7lpm) if needed to maintain desired oxygen saturation.
- If persistently hypoxic despite NC, apply nonrebreather (NRB).

- **Nebulization Therapy**

- Restrict nebulizer treatments to patients who are exhibiting signs of moderate to severe bronchospasm/wheezing. Nebulizer therapy is associated with a significantly increased risk of coronavirus aerosol transmission and EMS provider exposure.
- Metered Dose Inhaler (MDI) with spacer, if available, is preferred route for medication administration.
  - Consider 4 - 6 puffs per dose of MDI with spacer, if available, may repeat every 5 minutes, as needed.
  - Use of patient's MDI with spacer, if available is preferred.

## **Continuous Positive Airway Pressure (CPAP), bi-phasic Positive Airway Pressure (biPAP)**

- **Should be used with caution in suspected COVID-19 patients.** CPAP/BiPAP is associated with a significantly increased risk of coronavirus aerosol transmission and EMS provider exposure.
- Should still be considered in the patient who has another more obvious reason for their respiratory failure such (for example, in the setting of recent weight gain, edema, and history of cardiac disease).
- If EMS providers feel it is essential, consider contacting medical control.

- **Corticosteroids**

- Corticosteroids have shown no clinical benefit and may actually be harmful in patients with COVID-19; they should therefore be avoided in the non-critically ill patient.

- **Endotracheal Intubation**

- **Should be avoided in suspected COVID-19 patients.** Intubation is associated with a significantly increased risk of coronavirus aerosol transmission and EMS provider exposure.
- This is an incredibly high-risk procedure in terms of transmission and is best performed in a negative pressure room with the highest provider level and most experienced provider.
- If EMS providers feel it is essential, consider contacting medical control.

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