



Interim Infection Control Guidance for Prehospital Emergency Medical Services (EMS)

Effective communication among clinicians requesting emergency transport of a patient with possible or known 2019-Novel Coronavirus (2019-nCoV) disease, EMS personnel, and receiving facilities is necessary to ensure appropriate protection of healthcare workers. Prehospital personnel should follow the Centers for Disease Control and Prevention (CDC) infection control guidance and use standard, contact, droplet, and airborne precautions, including the use of eye protection (e.g. goggles or a face shield). See guidance for Isolation Precautions at <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>.

When 2019-nCoV is suspected in a patient needing emergency transport, ***prehospital care providers and healthcare facilities should work closely with public health and provide as much advance notice as possible that they may be transporting or receiving a patient who may have 2019-nCoV disease.***

A. Patient Transport

Objective: Safely transport patients with known or possible 2019-nCoV disease.

Activities: Due to the novel nature of this coronavirus, current precautions should be that of MERS (<https://www.cdc.gov/coronavirus/mers/hcp/monitoring-movement-guidance.html>) and SARS (<https://www.cdc.gov/sars/guidance/i-infection/prehospital.html>).

- Involve the fewest EMS personnel required to minimize possible exposures.
- Family members and other contacts of 2019-nCoV patients should not ride in the ambulance if possible. If necessary, family members and other contacts should be evaluated for fever and lower respiratory symptoms and, if either is present, asked to wear a surgical or procedure mask when riding in the vehicle.
- When possible, use vehicles that have separate 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. Set the vehicle's ventilation system to the non-recirculating mode to maximize the volume of outside air brought into 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) (<https://www.cdc.gov/niosh/hhe/reports/pdfs/1995-0031-2601.pdf>).
- If a vehicle without separate compartments 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.
- If possible, place a surgical mask on the patient to contain droplets expelled during coughing. If this is not possible (i.e., would further compromise respiratory status, difficult for the patient to wear), have the patient cover the mouth/nose with tissue when coughing. Oxygen delivery with a non-rebreather face mask may be used to provide oxygen support during transport. If needed, positive-pressure ventilation should be performed using a resuscitation bag-valve mask, preferably one equipped to

- provide HEPA or equivalent filtration of expired air.
- If a patient has been mechanically ventilated before transport, HEPA or equivalent filtration of airflow exhaust should be available. (EMS organizations should consult their ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive-pressure ventilation.)
- Cough-generating procedures (e.g., mechanical ventilation, nebulizer treatment) should be avoided during prehospital care.

B. Personal Protective Equipment (PPE)

Objective: Ensure the safety of prehospital care providers who transport patients with known or possible 2019-nCoV disease.

Activities:

- Prehospital care providers who directly handle a patient with 2019-nCoV disease or who are in the compartment with the patient should wear PPE as recommended for standard, contact, droplet and airborne precautions, and use eye protection (e.g., goggles or face shield). These include the following:
 - Disposable isolation gown
 - Disposable patient examination gloves
 - Eye protection (i.e., goggles or face shield)
 - Respiratory protection (i.e., N-95 or higher-level respirator)
- Personnel in the driver's compartment who will have no direct patient contact should wear an N-95 or higher-level respirator during transport. Drivers who also provide direct patient care (e.g., moving patients on stretchers) should wear the recommended PPE during patient contact. This PPE, with the exception of the respirator, should be removed and hand hygiene performed after completing patient care and before entering driver's compartment to avoid contaminating the compartment. If the driver is wearing a respirator, the driver should replace the respirator with an N-95 mask before driving the vehicle. Instructions for a general approach to donning and doffing can be found here <https://www.cdc.gov/coronavirus/mers/infection-prevention-control.html>. An example doffing sequence can be found at <https://files.asprtracie.hhs.gov/documents/aspr-tracie-transport-playbook-508.pdf>.

C. Safe Work Practices

Objective: Ensure safe work practices among EMS personnel to prevent transmission of 2019-nCoV.

Activities:

- Avoid touching one's face with contaminated gloves.
- Avoid unnecessary touching of surfaces in the ambulance vehicle.
- Arrange for the receiving facility staff to meet the patient at the ambulance door to limit the need for EMS personnel to enter the emergency department in contaminated PPE. (It may not be practical to change PPE before patient transfer into the facility.) Remove and discard PPE after transferring the patient at the receiving facility and perform hand hygiene. Treat used disposable PPE as medical waste.

D. Clinical Specimens

Objective: Safely collect clinical specimens from 2019-nCoV.

Activities:

- Specimen collection should be completed at the hospital.

E. Post-Transport Management of the Contaminated Vehicle

Objective: Safely clean vehicles used for transport of 2019-nCoV patients to prevent 2019-nCoV transmission.

Activities:

- Follow standard operating procedures for the containment and disposal of regulated medical waste.
- Follow standard operating procedures for containing and reprocessing used linen. Wear appropriate PPE when removing soiled linen from the vehicle.
- Clean and disinfect the vehicle in accordance with company/agency standard operating procedures. Personnel performing the cleaning should wear a disposable gown and gloves (a respirator should not be needed) during the clean-up process; the PPE should be discarded after use. 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, work surfaces) should be thoroughly cleaned and disinfected using an EPA-registered hospital disinfectant in accordance with manufacturer's recommendations.
- Clean and disinfect reusable patient-care equipment according to manufacturer's instructions.

Adapted with permission from Washington State Department of Health