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Airway & Respiratory Treatment Procedures: Alternate Protocol During COVID-19

Effective immediately, all EMS providers should implement changes to limit aerosol-generating procedures in the field. The purpose of this document is to provide guidance to first responders as they approach assessment and therapy of the patient requiring airway and/or respiratory procedures during the COVID-19 pandemic. The measures detailed here apply to ALL patient encounters requiring airway or respiratory procedures regardless of suspicion for viral infection during the COVID-19 outbreak. Additionally, consultation with *On-Line Medical Control* should be considered for further guidance, if necessary. The guidance provided here will also make a clear distinction between therapies rendered by paramedics on first response apparatus vs. paramedics on the Life Squad (transport vehicle). This document will also address potential alternative therapies (in the form of new medications) that, if available and in stock, may be considered for use.

- A. First entering medical responders should wear N95 respirator mask and place a mask on the patient during assessment (use of N95 vs. surgical mask for the patient will be dependent on presenting symptoms and patient screening / history).
- B. The following are defined as aerosol-generating procedures:
 - 1. Bag-valve ventilations
 - 2. Oropharyngeal suctioning
 - 3. Advanced airway placement (ETI, I-Gel, KING, etc.)
 - 4. Nebulizing treatments
 - 5. CPAP (Continuous Positive Airway)
 - 6. CPR, Cardiac or Respiratory Arrest
- C. PPE – If and aerosol-generating procedure is performed, the minimum PPE standard includes:
 - 1. N95 respirator mask (fit tested) – best practice, if available
 - 2. Gloves
 - 3. A gown is only required if the patient is not in a mask and EMS is performing advanced airway placement or patient aerosolization
 - 4. Eye protection – Face shield or goggles
 - 5. Face shield or mask with eye shield
 - 6. Consider re-sanitizing your own PPE when at hospitals with UV light systems, or placing in vehicle near light during rig UV light decontamination. This will allow conservation of PPE should it become short in supply.

D. Oxygen administration

1. If pulse oximetry is $\geq 94\%$ supplemental O₂ is not indicated.
2. If pulse oximetry is $\leq 94\%$ without supplemental O₂, then oxygen administration by NC ≤ 6 lpm is preferred. If nasal cannula is unsuccessful to bring O₂ saturation to 94% then a NRB can be used.
3. Place available surgical (or N95) mask over any oxygen delivery devices (nasal cannula, NRB or nebulizer mask). While a tight face seal will be difficult to maintain with this procedure, it should help reduce particulate dispersal around the patient.

E. Bag-Valve Ventilation: Bag-valve ventilation should be equipped with an appropriate HEPA filtration system to filter expired air. While initial ventilation (in most cases) will begin with bag-valve ventilation, there should be an effort to transition to the automatic transport ventilator (Autovent 3000) upon arrival of the Life Squad to scene. The disposable ATV circuit used during mechanical ventilation does have appropriate built-in filter for bacterial and viral agents.

1. During mask ventilation, maintain a tight face seal.
2. Avoid gastric insufflation and overly forceful ventilation.

F. Metered Dose Inhalers (MDI's) – Albuterol (Ventolin, Proventil, ProAir, AccuNeb)

1. MDI's may be utilized, if available. MDI's are a preferred alternative to nebulized aerosol treatments. We are currently exploring the ability to deploy metered dose inhalers into the field for paramedic use. The re-usable MDI requires the use of a disposable spacer chamber which allows for repeated use of the inhaler. The MDI, therefore, is surfaced cleaned after each patient use.
2. If a patient has their own prescribed MDI its use is preferred over a nebulizer, or use of an MDI carried by EMS and can start before LCEMS MDI supplies are available.
 - a. 1-2 puffs (with spacer) is an acceptable alternative to avoid nebulizer treatment.
 - b. If the patient holds the MDI, it must be carefully cleaned prior to next patient use.
 - c. Spacer chambers are one-time use and disposable
 - d. 4 puffs of MDI are equivalent to 2.5mg nebulized Albuterol

G. Aerosol / Nebulized Medications: *Use should be avoided if at all possible and deferred until Life Squad arrival to scene. This will allow for better procedural approach in deployed therapy with enhanced filtering options.* In the event that nebulizing medication becomes necessary – exposed provider should wear full PPE (Gown or Tyvek, face shield over mask or visor shield. Goggles may provide less responder protection than face shielding.)

1. DO NOT administer aerosol / nebulized medication therapy if the patient:
 - a. Is not displaying signs of hypoxia
 - b. Has no increased work of breathing
 - c. Has only minimal wheezing

2. First dose of nebulized medication should be given on scene, in open area if possible (avoid delivery in back of enclosed patient area of ambulance if at all possible).
3. Hand-held nebulizer with T-piece attached is the preferred method for aerosol delivery.
 - a. Assure attachment of HEPA filter to the exhalation port of the T-piece for bacterial or viral agent filtering
4. Nebulized therapy by mask should be avoided if possible. In the event that mask nebulization is required, a surgical mask (or N95 respirator) can be used to cover the nebulizer mask to reduce viral or bacterial spread. (As an alternate, a CPAP mask can be used to provide nebulizer therapy with proper HEPA filter attachment)
5. All nebulized therapy MUST STOP before entering the emergency department to avoid contaminating the area and potentially forcing them onto EMS Bypass while the area is decontaminated.

H. Advanced Airway Management

1. In the unresponsive patient with absent gag reflex, a properly sized I-Gel airway is preferred for advanced airway management. Endotracheal intubation may become necessary in the circumstance where the I-Gel, after appropriate troubleshooting, will not seat adequately or fail to perform optimally in the delivery of ventilations. The most common cause of I-Gel failure is improper sizing.
2. Endotracheal intubation carries a higher risk of exposure and should be avoided if possible. Patients with severe respiratory compromise coupled with a higher level of mentation and intact (but depressed) gag reflex may require endotracheal intubation. Full PPE (gown + face shield) is an absolute necessity during the procedural approach to securing an airway with endotracheal intubation.
3. As described previously in this document (Bag-valve ventilation), there should be an effort to transition to the automatic transport ventilator (ATV) with disposable extension for ongoing ventilation efforts by ET tube.

I. Suctioning

1. Unnecessary suctioning should be avoided
2. Full PPE may be required and draping (with sheets / towels) to minimize exposure to bodily fluid.

J. CPAP (Continuous Positive Airway Pressure):

1. CPAP use as appropriate for patient condition with HEPA filter attachment during use. Refer to HEPA Guidance document for proper attachment of HEPA filter.

K. Cardiac / Respiratory Arrest

1. Full PPE (as noted above) should be worn for the management of cardiac or respiratory arrest.
2. Continue to perform initial chest compressions by using the Cardio-Pump. Transition to automated CPR (LUCAS 2) upon arrival of device to the scene by either first response apparatus (carrying device) or Life Squad.

L. Transport

1. Avoid aerosol-generating procedures inside the enclosed patient area of the ambulance. If treatment is absolutely critical, minimize individuals in the patient compartment, turn ON any exhaust fan to maximum, and consider (if stationary at the scene) leaving the doors to the patient area OPEN.
2. Communicate with receiving facility (ED) in advance of arrival to allow for early notification of potentially infectious patient.

M. At Hospital

1. Discontinue any nebulizer therapy prior to entering hospital
2. Transition to nasal cannula (or NRB mask if appropriate) with surgical facemask over oxygen delivery device while moving from ambulance to patient room.

N. Pediatric Considerations

1. In the event of short-duration ventilation support (e.g., seizure), bag-valve-mask ventilation is preferred over advanced airway placement.
2. In the case of pediatric cardiac arrest, BVM in lieu of advanced airway is preferred. Transition to Autovent (pediatric settings) with disposable ATV circuit attached for filtering.

LCEMS is exploring options to modify existing medication interventions and/or add additional medications for use in the respiratory compromised patient during the COVID-19 outbreak. As these therapies evolve they will be added to this guidance document for implementation and use.

Additional Guidance:

- Mercy Sylvania (Free-Standing ED) may, with suspected COVID-19 exposure, divert patients to the next available hospital-based emergency department.

PLEASE STAY SAFE!!