




Advisory 20-08: Guidelines for Airway and Respiratory Management of Suspected/Confirmed COVID-19

To: All Providers

From: Jeremy T. Cushman, MD, MS, EMT-P, FACEP, FAEMS 
Regional Medical Director

Date: April 3, 2020

Source control remains the best means of protecting providers from exposure to COVID-19 during the provision of patient care. The following guidance is intended to balance a patient's clinical needs while limiting the potential for virus aerosolization when caring for patients with suspected or known COVID-19.

Wearing appropriate PPE and placing a surgical mask on the patient with respiratory symptoms remain the most important interventions to reduce exposure while providing care. Doffing PPE remains the provider's highest potential risk of exposure and must be done slowly, properly, and with appropriate hand sanitization in order to avoid contamination and subsequent exposure.

All of the following guidelines for caring for patients with suspected or known COVID-19 must be placed in the context of a patient's overall clinical picture and clinician judgement. Remember, not every patient has COVID-19.

Oxygen Administration In Suspected/Known COVID-19

- If the patient is hypoxic, defined as $SpO_2 < 90\%$, then apply a nasal cannula under the surgical mask up to 6 l/min with a target $SpO_2 \geq 90\%$.
- If continued hypoxia despite nasal cannula, then apply a partial nonrebreather (NRB) mask over the surgical mask at 10 l/min. Any higher oxygen flow rate administration, whether through nasal cannula or partial NRB, theoretically risks aerosolization.

Nebulizer Use In Suspected/Known COVID-19

- In general, nebulizers should be used only for individuals who have clinical evidence of bronchospasm or previous history of bronchospasm (asthma or COPD). Nonspecific shortness of breath is unlikely to be improved by indiscriminant albuterol administration.
- Although NYS has encouraged the use of Breath Actuated Nebulizer (BAN) devices when available, caution should still be used. Although BAN's prevent aerosolization out the open end of the traditional oxygen powered nebulizer, neither device provides adequate source control in the likely event the patient coughs or sneezes.

web www.mlrems.org
phone (585) 463-2900
fax (585) 473-3516

office
44 Celebration Drive, Suite 2100
Rochester, NY 14620

mailing
601 Elmwood Avenue, Box 655-P
Rochester, NY 14642



- In general, Basic Life Support First Response agencies should defer nebulizer administration to the ambulance, unless it appears the patient's respiratory condition is not related to a COVID-19 condition (e.g. pediatric asthmatic with no recent illness who does not have their inhaler) and the administration can be performed in an open environment. Because of this, there is little benefit for BLSFRs to move to a BAN device.
- In general, EMS should weigh the clinical benefit of nebulizer administration in the context of the potential risk. Evaluate the patient closely for previous history of bronchospasm (asthma or COPD), the use of medications for bronchospasm (inhalers, etc), and their clinical presentation being consistent with bronchospasm (prolonged expiratory phase, sharkfin findings on capnography, etc). Patients with respiratory distress associated with COVID-19 rarely have bronchospasm, although they often have profound dyspnea and hypoxia.

CPAP/BiPAP Use In Suspected/Known COVID-19

- In general, avoid the use of CPAP/BiPAP in patients with high concern for COVID-19.
 - CPAP/BiPAP has increased potential to aerosolize viral particles.
- Unlike other pathologies (e.g. CHF), CPAP/BiPAP has not been shown to prevent intubation for COVID-19 patients.
- COVID-19 patients with respiratory failure refractory to supplemental oxygen via partial NRB mask generally require intubation.

BVM Use In Suspected/Known COVID-19

- BVM use should be limited to evidence of respiratory failure (RR <8 and/or evidence of ineffective respirations).
 - Otherwise uncomplicated hypoxia does not require BVM assistance as COVID-19 patients can have marked hypoxia without respiratory failure.
 - Utilize the patient's mental status and evidence of ineffective respirations to drive the indication for BVM use, not the oxygen saturation alone.
- Utilize an NPA/OPA as appropriate and clinically indicated.
- If available, place an in-line HEPA (viral) filter closest to the mask, extraglottic airway (iGel, King Airway), or endotracheal tube.
- Use the minimum number of personnel necessary with the following caveats:
 - Those providing ventilation should ideally have an N95 mask (if available), gloves, eye protection, and gown.
 - Ideally, use two persons to perform BVM ventilation – one to maintain/optimize a mask seal, and one to ventilate.



- Alternatively, use a CPAP mask to maintain seal and minimize the number of providers needed for airway management but use caution to not inadvertently obstruct the airway as a result of the CPAP mask force directing the jaw backwards.
- All personnel performing BVM ventilation or airway management should consider double gloving. The primary purpose of doing so is NOT that it offers greater protection, but it offers the opportunity and convenience to doff the outer set of gloves that were used during airway management - and therefore at highest risk for contamination - before performing other tasks such as equipment removal, patient removal, etc. The goal with this consideration is that it will help decrease the potential for high viral load cross contamination.
- Apply PEEP (if available). COVID-19 patients require relatively high PEEP in order to recruit and optimally oxygenate. Consider starting at 7.5-10 cm H₂O.

Intubation in Suspected/Known COVID-19

- In cardiac arrest, preferentially use an extraglottic airway (iGel, King Airway) for advanced airway management.
- Do not apply high flow nasal cannula during advanced airway placement – it increases potential for aerosolization.
- The most experienced provider should intubate with the technique that will maximize first pass success.

RSI in Suspected/Known COVID-19

- Consider early tracheal intubation instead of CPAP/BiPAP or BVM for reasons as above.
- Do not apply high flow nasal cannula during advance airway placement – it increases potential for aerosolization.

A graphical summary of this guideline is available at <https://mlrems.org/GetFile.aspx?fileID=25988> and attached to this Advisory.

A brief video training on some of the above best practice techniques developed by the University of Rochester Division of Prehospital Medicine is available at <https://youtu.be/8nyHSJ8m02A>.

All COVID-19 documents and related resources remain available at <https://www.mlrems.org/provider/covid-response/>

With questions, please contact this office.

web www.mlrems.org
phone (585) 463-2900
fax (585) 473-3516

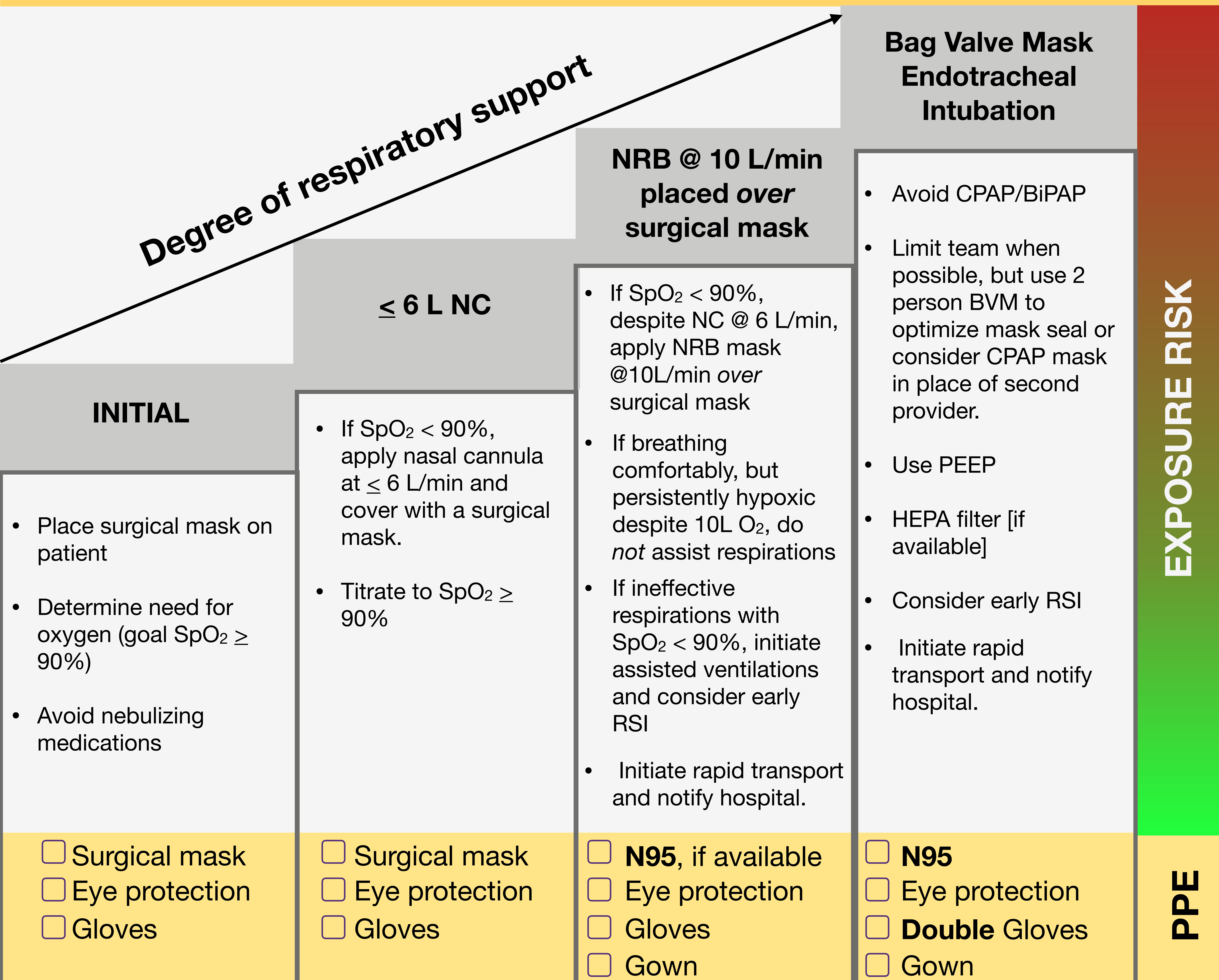
office
44 Celebration Drive, Suite 2100
Rochester, NY 14620

mailing
601 Elmwood Avenue, Box 655-P
Rochester, NY 14642

MLREMS Guidelines for Respiratory Distress/Failure COVID-19 Pandemic

Guiding Principles:

- Achieve adequate oxygenation and ventilation while minimizing exposure risk.
- All patients in respiratory failure should be assumed to be “suspected COVID-19”.
- No specific vital sign should drive invasive intervention in place of overall clinical picture and clinician judgment.



- Observed doffing procedure with hand hygiene
- Standard decontamination principles for ambulance and equipment

**AFTER
HANDOFF**

MLREMS Guidelines for RSI Providers

COVID-19 Pandemic

Guiding Principles:

- Achieve adequate oxygenation and ventilation while minimizing exposure risk to EMS personnel.
- All patients in respiratory failure should be assumed to be “suspected COVID-19”.
- No specific vital sign should drive invasive intervention in place of overall clinical picture and clinician judgment.

****If in ambulance, turn on ventilation system****

Don full PPE for aerosolizing procedures

- N-95 mask Eye protection Gown Double Gloves

Prior to
patient
contact

Presence of acute respiratory failure requiring positive pressure ventilation or invasive airway intervention?
(see Respiratory Distress/Failure Guidelines)

Initial patient
contact

YES

- Consider early tracheal intubation instead of CPAP/BiPAP or BVM
- If initiating BVM, optimize mask seal
- HEPA filter [when available] for positive pressure ventilation (PPV)

If intubating:

- Limit team to minimum necessary (≤ 3)
- If safe to do so, perform RSI with minimal to no BVM prior to intubation
- Observer > 6 feet away completes intubation checklist
- Most experienced clinician should intubate using a plan to maximize first pass success
- Early use of extraglottic airway instead of manual bagging for rescue oxygenation in case of failed airway attempt or anticipated difficult airway
- Ensure HEPA filter (if available) attached

NO

- Initiate transport without delay
- Ongoing reassessment for respiratory failure

Continued Care

- Observed doffing procedure with hand hygiene
- Standard decontamination principles for ambulance and equipment

After
patient
handoff