Section: Adult Medical
Subject: COPD (EMPHYSEMA/CHRONIC BRONCHITIS)
Section #: 340.20
Issue Date: March 21, 2011
Revision Date: December 1, 2017
Approved By: Michael Lozano, Jr., M.D., HCFR Medical Director

1. Basic ALS Treatment.

2. **Albuterol and ipratroprium bromide** (preferred for COPD and emphysema patients)
    a. **Ipratroprium bromide** 0.5 mg (500 mcg) mixed with **albuterol** 2.5 mg
    b. May be repeated up to two (2) times if there has been a response to the initial treatment [total of 1.5 mg (1500 mcg) of **ipratroprium bromide** and 7.5 mg of **albuterol**]
    c. If the patient's tidal volume is inadequate then consider administering **ipratroprium bromide** and **albuterol** via BVM with in-line nebulizer or ETT after securing the airway.

3. **Albuterol** (preferred for asthma patients)
    a. 5.0 mg nebulized
    b. May be repeated q 20 minutes (not exceeding 15 mg per hour)

4. CPAP (primarily for COPD patients)
    a. Indications: [1]
        i. Moderate to severe respiratory distress
        ii. Tachypnea (RR > 24 breaths/min)
        iii. Accessory muscle use or abdominal breathing
    b. Contraindications: [1]
        i. Respiratory arrest
        ii. Medically unstable
        iii. Unable to protect airway
        iv. Excessive secretions
        v. Uncooperative or agitated
        vi. Unable to fit mask
        vii. Recent (< 30 days) upper airway or upper gastrointestinal surgery
    c. Predictors of success for CPAP in the acute setting: [2]
        i. Able to cooperate
            1. Good neurologic status
            2. Patient's acceptance of the technique
        ii. Able to protect airway
            1. Low secretions
            2. Minimal amount of air leak
            3. Dentition intact (either their own or dentures in place)
        iii. Not too acutely ill
            1. No pneumonia
            2. Not too elevated $ETCO_2$

[1] Adapted from Liesching T, Kwok H, Hill NS: Acute applications of noninvasive positive pressure ventilation. Chest 124:699–713, 2003.

[2] Adapted from Ambrosino N, Foglio K, Rubini F, et al: Non-invasive mechanical ventilation in acute respiratory failure due to chronic obstructive pulmonary disease: Correlates for success. Thorax 50:755–757, 1995; and Soo Hoo GW, Santiago S, Williams AJ: Nasal mechanical ventilation for hypercapnic respiratory failure in chronic obstructive pulmonary disease: Determinants of success and failure. Crit Care Med 22:1253–1261, 1994.

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iv. Good initial response
1. Reduction in respiratory rate
2. Improving $ETCO_2$
3. Improving level of consciousness

d. Start at 5 cm H_2O
i. Increase as tolerated for COPD.
ii. Keep at 5 cm H_2O for asthma, and discontinue of no response.

e. Use continuous wave capnography, if available, to better monitor the clinical course.

5. Methylprednisolone (if the patient has not had steroids within the past 24 hours, and is not responding to initial albuterol)
a. 125 mg IV over 2 minutes

6. Epinephrine (for near-fatal asthma or COPD)
a. If unable to nebulize the patient and the patient's tidal volume is inadequate:
i. 0.3 mg of a 1:1,000 solution IM q 20 minutes PRN

7. Consider intubation if no response to any therapy and deterioration is noted.

8. QA Points:
a. In very symptomatic patients, an absence of wheezing may be a pre-terminal event.
b. All that wheezes is not asthma.
i. Adult patients without a history of pulmonary disease do not develop acute asthma overnight; evaluate the patient further for pulmonary edema.
ii. An aspirated foreign body in a pediatric patient can present as wheezing.
c. Caution should be exercised when applying CPAP to asthma patients, at least at levels exceeding 5 cm H_2O
i. CPAP should be reduced to 5 cm H_2O or less if there is no further improvement of respiratory distress at higher levels in asthmatic patients.