

Continuous Positive Airway Pressure – 30.030

DEFINITION:

Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, and to decrease the work of breathing, the sense of dyspnea, and the need for endotracheal intubation in patients who suffer from shortness of breath secondary to CHF/Pulmonary edema or COPD. In patients with CHF, CPAP improves hemodynamics by reducing preload and afterload.

CPAP INCLUSION CRITERIA:

Medical patients who are awake/oriented and able to maintain their own airway while complaining of moderate to severe respiratory distress **exhibiting two or more** of the following:

- A. Shows signs and symptoms consistent with either CHF/pulmonary edema, COPD or severe asthma.
- B. Retractions or accessory muscle use.
- C. Respiratory rate > 25 bpm.
- D. SpO₂ < 90%.

CPAP CONTRAINDICATIONS:

- A. Respiratory/ Cardiac arrest.
- B. Unresponsive to verbal stimuli.
- C. Major trauma or suspected pneumothorax.
- D. Inability to maintain patent airway.
- E. Active vomiting or GI bleeding.
- F. Patients < 8 years old.
- G. Not for use with Trach.

CPAP RELATIVE CONTRAINDICATIONS:

- A. Hemodynamic instability (SBP <90 or MAP <65).
 - a. All forms of positive pressure ventilation can reduce cardiac preload which may worsen hypotension. Less aggressive oxygen delivery methods (i.e. non-rebreather mask) should be trialed first. Simultaneous efforts must be made to address hypotension per the shock protocol with ongoing close BP monitoring.

PROCEDURE:

- A. EXPLAIN and COACH THE PATIENT ON THE PROCEDURE.
- B. Ensure adequate oxygen supply to ventilation device.
- C. Place the patient on continuous pulse oximetry and end-tidal CO₂.
- D. Turn on device:
 1. For the Boussignac® and Flow-Safe® CPAP devices start with oxygen flow @ 15 lpm (3-5cm H₂O) and adjust as needed up to 25 lpm.
 2. For the Emergent Port O₂ CPAP os, begin at 0-2 cm H₂O, titrate pressure to a maximum of 10 cm H₂O on exhalation.
- E. Place the CPAP over the patient's mouth and nose (consider having the patient hold the mask against their face initially to reduce anxiety).
- F. Secure the mask with the provided straps.
- G. Check for air leaks.
- H. Monitor and document the patient's respiratory response to the treatment.
- I. Continue to coach patient to keep mask in place and readjust as needed.
- J. IF RESPIRATORY STATUS DETERIORATES, REMOVE THE DEVICE AND CONSIDER BAG VALVE MASK VENTILATION AND/OR ENDOTRACHEAL INTUBATION.

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REMOVAL PROCEDURE:

CPAP therapy needs to be continuous and should not be removed unless the patient cannot tolerate the mask or experiences continued or worsening respiratory failure.

SPECIAL NOTES:

- A. Contact the receiving facility as soon as possible that a patient with CPAP is enroute to their facility so they can be prepared for patient.
- B. Reassessment of the patient's status is critical and should be performed and documented every 5-10 minutes until patient is stable.
- C. CPAP mask may be removed temporarily to administer nitroglycerin.
- D. Suctioning of secretions may be required on some patients.
- E. Watch for gastric distention and/or nausea.
- F. Estimated CPAP pressure delivered by the **Boussignac** CPAP:
 - 5 cm H₂O @ 15 lpm,
 - 7.5 cm H₂O @ 20 lpm,
 - 10 cm H₂O @ 25 lpm
- G. Estimated CPAP pressure delivered by the **Flow-Safe** CPAP:
 - 3-4 cm H₂O @ 15 lpm,
 - 6-7 cm H₂O @ 20 lpm,
 - 8.5-10 cm H₂O @ 25 lpm