A. Introduction

Continuous Positive Airway Pressure (CPAP) is a method of positive pressure ventilation used with patients who are breathing spontaneously. CPAP is applied to keep the alveoli open at the end of exhalation and thus increase oxygenation and reduce the work of breathing. CPAP has been shown to rapidly improve vital signs, gas exchange, and work of breathing, decrease the sense of dyspnea, and decrease the need for endotracheal intubation. Patients who suffer dyspnea from acute cardiogenic pulmonary edema, and drowning induced pulmonary edema may be a candidate for CPAP.

B. Indications

Patients presenting with dyspnea/hypoxemia secondary to acute cardiogenic pulmonary edema, or drowning with pulmonary edema who:

a. Have a respiratory rate $\geq$ 24 breaths per minute
b. Have a SP02 saturation > 90% (If SP02 is < 90% ventilate with a BVM for 2 minutes until saturation is above 90%, then CPAP may be utilized)

C. Contraindications

a. Glasgow Coma Score < 15
b. Inability to maintain open airway
c. Suspected pneumothorax or penetrating chest trauma
d. Respiratory arrest
e. Systolic blood pressure < 110mmHg (initial reading)
f. Persistent nausea/vomiting
g. Facial anomalies i.e. facial trauma

D. Procedure

1. Place patient in sitting position and explain procedure to patient.
2. Connect and record an initial ETCO2 reading via the Lifepak CapnoLine Smart™ cannula.
3. Connect CPAP and turn the oxygen supply regulator to **8 LPM**.
4. Have the patient hold or assist the patient with placing the mask over their mouth and nose.
5. Gradually increase the oxygen supply flow **every 2 minutes** to achieve a maximum Positive End Expiratory Pressure (PEEP) of **10cm H2O pressure** on the CPAP manometer.
6. Secure the mask with the provided head harness and straps.
7. Adjust the mask off the nose by squeezing the tabs on the forehead support.

8. Instruct patient to breathe in through their nose slowly and exhale through their mouth as long as possible and check for air leaks.
9. Monitor and document the patient's respiratory response to the treatment.
10. Continue to coach patient to keep mask in place and readjust as necessary.
11. **All patients on CPAP should have continuous Sp02 and ETCO2 monitoring**
12. Document the PEEP achieved and the final ETCO2 and SpO2 readings on the Electronic Patient Care Report (ePCR) prior to releasing patient to the Emergency Department.

Note: If respiratory status deteriorates **and/or** the initial ETCO2 rises more than 10 mm hg to an above normal ETCO2 level, remove the CPAP device and provide ventilations via BVM and/or endotracheal intubation.