



County of Santa Clara Emergency Medical Services System

Policy #700-M12: Continuous Positive Airway Pressure

CONTINUOUS POSITIVE AIRWAY PRESSURE

Effective: January 1, 2021
Replaces: February 12, 2015
Review: January 1, 2023

I. Purpose

The purpose of this policy is to describe the process of initiating and managing continuous positive airway pressure (CPAP) to patients and required equipment.

A. Goals of CPAP

1. Normally the patient should improve in the first five minutes of CPAP. Signs of improvement include:
 - a. Elimination of dyspnea
 - b. Decreased respiratory rate
 - c. Decreased heart rate
 - d. Increased SpO₂
 - e. Stabilized BP
2. Should the patient fail to improve with CPAP, remove the CPAP device and assist ventilations with BVM or intubate patient.

Signs and symptoms of failure to improve include the following:

- a. Sustained or increased heart rate
- b. Sustained or increased respiratory rate
- c. Sustained or increased BP
- d. Sustained or decreasing pulse oximetry readings, and/or
- e. Decreased level of consciousness

II. Definitions

Prehospital CPAP treatment in patients with Acute Pulmonary Edema can improve oxygenation significantly and lower respiratory rate, heart rate, and systolic blood pressure. Continuous positive airway pressure (CPAP) may reduce the need for intubation and mechanical ventilation in patients with acute hypoxemic respiratory insufficiency. Noninvasive ventilation (NIV) has been associated with lower rates of endotracheal intubation in populations of patients with acute respiratory failure.

III. Indications

- A. CPAP is indicated for patients in severe respiratory distress that meet the following criteria:
1. The patient is 15 years old or greater and:
 - a. There is a medical history of CHF with pulmonary edema with one or more of the following present:
 - 1) Pedal edema
 - 2) Orthopnea (SOB while lying supine)
 - 3) Anxiety
 - 4) Diaphoresis (profuse sweating)
 - 5) Current prescription of Digoxin or Lasix
 - 6) Sudden onset of SOB
 - Or
 - b. The patient displays signs and symptoms of:
 - 1) Severe asthma attack
 - 2) COPD exacerbation
 - 3) Near drowning
 - 4) Severe respiratory distress
- B. CPAP is indicated for patients in severe respiratory distress with a DNR/POLST form that stipulates comfort care.

IV. Contraindications

- A. **Absolute Contraindications (*DO NOT USE*):**
1. Age is less than 15 years old
 2. Respiratory or cardiac arrest
 3. Agonal respiration
 4. Severely depressed level of consciousness
 5. Systolic BP is less than 90 mmHg
 6. Signs and symptoms of pneumothorax
 7. Inability to maintain airway patency
 8. Major trauma, especially head injury with increased ICP or significant chest trauma
 9. Facial anomalies or trauma (e.g., burns, fractures)
 10. Patients that have an increased risk of aspiration
- B. **Relative contraindications (*USE CAUTIOUSLY*):**
1. History of pulmonary fibrosis
 2. Decreased LOC
 3. Claustrophobia or unable to tolerate mask (after first 1-2 minutes)

V. Equipment

- A. Santa Clara County approved CPAP delivery system

VI. Procedure

- A. Place patient in a seated position with legs dependent.
- B. Apply the county approved CPAP mask/device to the patient
- C. Provide patient reassurance. This will assist to alleviate breathing problems.
- D. If indicated, NTG spray can be given through the open port, or simply remove the mask long enough to spray.
- E. Indicate that CPAP is being used when giving the ring down report so the ED can be ready to maintain the procedure on arrival to ED.
- F. Monitor ECG and v/s (including: BP, HR, RR, SpO₂), every five (5) minutes.
- G. If there is no improvement in v/s or mentation within five (5) minutes, consider the need for an advanced airway and discontinue CPAP.
- H. Documentation shall include ECG, v/s, patient's response to treatment, and any adverse event related to treatment.

VII. Complications

- A. Hypotension.
- B. Pneumothorax.
- C. Corneal drying.