



# Madison County EMS

Updated 5-15-09



## CPAP Guideline

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

### Indications

1. Any patient who is in moderate to severe respiratory distress with signs and symptoms consistent with asthma, COPD, pulmonary edema, CHF, or pneumonia and who:
  - a. Is awake and able to follow commands
  - b. Is over 12 years old and is able to fit the CPAP mask to face
  - c. Has the ability to maintain an open airway
  - d. Has a systolic BP >90 mmHg
  - e. AND exhibits two or more of the following:
    - i. Spontaneous RR >25 breaths per minute
    - ii.  $\text{SaO}_2 \leq 94\%$  at any time
    - iii. Accessory muscle use during respirations
2. Near-drowning with intact mentation and full cooperation
3. A DNR is not a contraindication to CPAP

### Contraindications

1. Suspected pneumothorax or chest trauma
2. Altered mentation and is not able to follow commands
3. Facial trauma or inability to fit mask to face
4. Respiratory or cardiac arrest
5. Agonal respirations
6. Vomiting or active GI bleeding with emesis
7. Inability to maintain patent airway
8. Hypotension with SBP < 90 mmHg

### Monitoring

1. Continuous pulse oximetry with adequate waveform
2. Continuous waveform capnography (Medic only)
3. Continuous ECG monitoring (Medic only)
4. Vital signs every 5 minutes

### Procedure

1. Place patient in a seated position.
2. Explain procedure to the patient\*.
3. Connect generator to oxygen source.
4. Place mask over mouth and nose and manually seal against face. Allow patient to assist, if necessary.
5. Talk to the patient for the first several minutes to encourage them to tolerate the mask.
6. Use 7.5 cm H<sub>2</sub>O PEEP valve (attached to circuit). **For I/P Providers: Reassess patient after 5 min. If patient has not improved, increase PEEP to 10 cm, then to 12.5 cm H<sub>2</sub>O with extra PEEP valves.**
7. Adjust mask to eliminate leaks and secure appropriately with straps provided.
8. Continue the follow MEMS Pulmonary protocol.

### Documentation

1. Pre-hospital impression as to why CPAP was chosen
2. Vital signs (BP, HR, RR, SaO<sub>2</sub>, mental status) recorded every 5 minutes



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3. Description of patient's response to CPAP

### Special Considerations

1. If respiratory or mental status deteriorates, remove device and consider intermittent positive pressure ventilation via BVM or RSI.
2. Do not remove the device unless the patient cannot tolerate the mask, experiences respiratory or cardiac arrest, or begins to vomit.
3. When contacting hospital, advise the charge nurse or MedCom to consider paging the respiratory therapist. Upon arrival to hospital, do not remove CPAP until hospital therapy is ready to be placed on the patient.
4. Maintain adequate on oxygen supply (see below). When using a portable tank, conserve oxygen. Use the following table to determine approximate time of usage of a full cylinder:

Cylinder Size	30% FiO <sub>2</sub>
D (Portable)	30 minutes
M (Truck)	240 minutes

### Helpful Phrases \*The phrases below may be used to help the patient breathe normally and avoid hyperventilation:

1. "You are having trouble breathing because your heart is not pumping well enough right now and fluid is backing up into your lungs."
2. "I am going to put this mask on your face to help push air into your lungs and push the fluid out."
3. "It will feel a little strange at first, but you will notice right away that your breathing will be a lot easier."
4. "Just relax, breath normally, and you will see this will really help."