

P140 LFD PROCEDURE PROTOCOL: CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

AEMT	EMT-I	Paramedic
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Indications:

- Symptomatic patients with moderate-to-severe respiratory distress as evidenced by at least two (2) of the following:
 - Rales (crackles), rhonchi, or wheezes
 - Dyspnea with hypoxia (SpO₂ less than 90% despite O₂)
 - Dyspnea with verbal impairment – i.e. cannot speak in full sentences
 - Accessory muscle use
 - Respiratory rate greater than 24/minute despite O₂
 - Diminished tidal volume

Contraindications:

- Respiratory or cardiac arrest
- Systolic BP less than 90mmHg
- Lack of airway protective reflexes
- Significant altered level of consciousness such that unable to follow verbal instructions or signal distress
- Vomiting or active upper GI bleed
- Suspected pneumothorax
- Trauma
- Patient size or anatomy prevents adequate mask seal

Technique:

1. Place patient in a seated position and explain the procedure to him or her
2. Assess vital signs (BP, HR, RR, SpO₂, and ETCO₂)
3. Apply the CPAP mask and secure with provided straps, progressively tightening as tolerated to minimize air leak
4. Operate CPAP device according to manufacturer specifications
5. Start with the lowest continuous pressure that appears to be effective. Adjust pressure following manufacturer instructions to achieve the most stable respiratory status utilizing the signs described below as a guide
6. Monitor patient continuously, record vital signs every 5 minutes.
7. Assess patient for improvement as evidenced by the following:
 - a. Reduced dyspnea
 - b. Reduced verbal impairment, respiratory rate and heart rate
 - c. Increased SpO₂
 - d. Stabilized blood pressure
 - e. Appropriate ETCO₂ values and waveforms
 - f. Increased tidal volume
8. Observe for signs of deterioration or failure of response to CPAP:
 - a. Decrease in level of consciousness
 - b. Sustained or increased heart rate, respiratory rate or decreased blood pressure
 - c. Sustained low or decreasing SpO₂ readings
 - d. Rising ETCO₂ levels or other ETCO₂ evidence of ventilatory failure
 - e. Diminished or no improvement in tidal volume

Precautions:

- Should patient deteriorate on CPAP:
 - Troubleshoot equipment
 - Consider endotracheal intubation
 - Assess need for possible chest decompression due to pneumothorax
 - Assess for possibility of hypotension due to significantly reduced preload from positive pressure ventilation
- In-line nebulized medications may be given during CPAP as indicated and in accordance with manufacturer guidelines
- Some fixed pressure CPAP devices do not have FiO₂ adjustment and will only administer up to 30% oxygen. If no improvement in oxygenation with a fixed pressure CPAP device consider adding supplemental oxygen.