EL DORADO COUNTY EMS AGENCY
FIELD PROCEDURES

808

Effective: July 1, 2011
Last Revised: August 2024
Scope: ALS

(on file)
EMS Agency Medical Director

ETCO2 MONITORING

PURPOSE
The measurement of End-Tidal CO2 (EtCO2) is the optimal method of continuously monitoring systemic perfusion in both adult and pediatric patients. It measures expired carbon dioxide using infrared spectroscopy.

INDICATIONS:
Initial and continuous EtCO2 waveform monitoring must be employed on all patients with advanced airway interventions including:

- Endotracheal Tube
- Supraglottic Airway (SGA)
- Needle Cricothyrotomy
- Respiratory Distress/Arrest

CONTRAINDICATIONS:

- None

PROCEDURE:

1. Select appropriate sized sensor based on the size/type of airway device selected.

2. Calibrate with room air prior to placing on device. Monitor will show a reading of "0"

3. Place sensor between the end of the advanced airway device and the bag valve in accordance with manufacturer specifications.

4. Ventilate patient to maintain a normal ETCO2 waveform and numeric value (Target = 35-45 mmHg).

a. Certain conditions that cause metabolic acidosis or poor perfusion, such as hemorrhage, sepsis, DKA, etc., will show lower values even when ventilation is adequate.

5. Generally a normal ETCO2 waveform (square shaped) should be noted for confirmation of ETT placement. This will typically correspond with a value of 35-45 mmHG or 10-20 mmHg during effective CPR.

6. Changes in waveform may reflect the complications below:

a) Tube displacement or esophageal intubation – diminished or no waveform

b) Obstructed airway or ventilation device failure – diminished or no waveform

c) Hyperventilation – low numeric value

d) Hypoventilation – high numeric value

7. Include ETCO2 waveforms from transport and transfer of care in the ePCR

SPECIAL CONSIDERATIONS:

- A drop in ETCO2 during CPR may indicate suboptimal compressions.
- A sudden rise in ETCO2 during CPR may be an indicator of "Return of Spontaneous Circulation" (ROSC) and the patient should be re-evaluated at that time.
- Low ETCO2 levels may be noted in states of profound shock. Ventilation changes should not be done to try and correct ETCO2 levels but rather correct the underlying cause of the hypo-perfusion state.