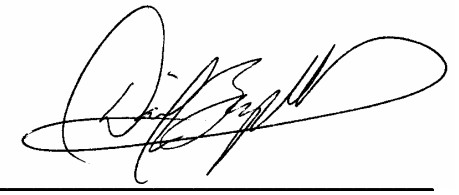
EL DORADO COUNTY EMS AGENCY
FIELD PROCEDURES

Effective: July 1, 2011
Reviewed: July 2018
Revised: July 1, 2016
Scope: ALS – Adult/Pediatric



EMS Agency Medical Director

ETCO2 MONITORING

Purpose:
The measurement of End-Tidal CO2 (EtCO2) currently is the optimal method of continuously monitoring the adequacy of ventilation and circulation in both adult and pediatric patients. It measures expired carbon dioxide using infrared spectroscopy. EtCO2 is of value in the assessment of ventilation, measurement of response to therapy, and the assessment of circulation status of patients.

Indications:
Continuous EtCO2 waveform monitoring must be employed on all patients with advanced airway interventions including:

- Endotracheal Tube
- Combitube
- King Tube
- Surgical Airway

Contraindications:

- None

Procedure:

1. During the intubation process a colormetric device may be utilized initially to confirm tube placement.
2. While initial steps are completed the ETCO2 monitor will be set up with the appropriate size window:
    a. Large clear adult = Any tube size greater than 4.0
    b. Small purple pediatric/neonatal + Any tube size 4.0 or smaller
3. ETCO2 sensor will be placed between the end of the advanced airway device and the bag valve in accordance with manufacture specifications.
4. Generally a normal (square) ETCO2 waveform and a numeric value of 10-20 mmHg during effective CPR and 35-45 mmHg without CPR should be noted for confirmation of ETT placement.
5. Ventilation of patient will be done so as to maintain a normal ETCO2 waveform and numeric value. Normal values are 35-45.
6. A strip printed showing ETCO2 waveform and numeric value will be captured as soon as possible once monitoring is initiated and be placed in the patient care record.

7. ETCO2 waveform will tracked during transport with changes in ventilation done to maintain normal waveforms and numeric value. These values will be introduced into the patient medical record whenever vital signs are charted.
8. Changes in waveform and numeric values should be assessed in accordance to patient condition to ascertain possible complications:
    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
9. Upon transfer of care of the patient another strip is to be printed showing ETCO2 waveform and numeric value which will be placed in the patient care record. Additional copy should be left for the hospital record.

Special Considerations

- May be utilized during CPR to gage effectiveness of compressions and ventilation. A drop in ETCO2 level may indicate need to change out personnel doing compressions.
- A sudden rise in ETCO2 level during CPR is 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.
- ETCO2 adaptor and Bag Valve should be disconnected from the advanced airway during any patient transfer to avoid tube dislodgement.