

**Michigan**  
**PROCEDURES**  
END TIDAL CARBON DIOXIDE MONITORING  
(CAPNOMETRY AND CAPNOGRAPHY)

Initial Date: 05/31/2012

Revised Date: 10/25/2017

Section 7-24

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***End-Tidal Carbon Dioxide Monitoring (Capnometry and Capnography)***

**Aliases:** ETCO<sub>2</sub>, End Tidal, Capnography

**Definitions:** For the purpose of all protocols the mention End Tidal Carbon Dioxide monitoring, these are the definitions:

1. Capnography is a graphic representation of exhaled carbon dioxide. Capnography is a waveform along with a numeric representation. Capnography is the preferred method of detection for ALS providers and will be mandatory for all ALS providers by October 1, 2018.
2. Capnometry is simply a numeric representation of exhaled carbon dioxide.
  - a. A colorimetric end tidal carbon dioxide monitor is a rudimentary form of capnometry and is acceptable for use in MFR and BLS applications.
  - b. Capnometry that includes a numerical read out is preferred to colorimetric capnometry.

**Indications:**

1. Determining appropriate placement of an airway has taken place.
  - A. Capnography/Capnometry **must** be utilized to confirm endotracheal tube placement.
  - B. Capnography/Capnometry **must** be utilized on all supraglottic airways.
2. Continuous monitoring of the integrity of the ventilatory circuit.
  - A. Capnography **may** be utilized in patients receiving assisted ventilations without advanced airways (used between the face mask and the bag-valve).
  - B. Capnography **must** be used for patients on transport ventilators.
3. Monitoring severity of pulmonary disease (bronchospasm) and evaluating response to therapy
  - A. Capnography **may** be utilized in patients with respiratory distress, or with signs and symptoms suggestive of acidosis.
4. Monitoring therapy intended to increase coronary blood flow, reflected in CO<sub>2</sub> elimination
  - A. Capnography **may** be utilized in patients receiving CPR (even without advanced airway placement), cardiac pacing, or when receiving medications that are intended to increase cardiac output, as a means to determine the physiological effectiveness of interventions

**Contraindications:**

1. There are no absolute contraindications to Capnography/Capnometry

**Procedure:**


1. Attach the colorimetric device to airway device (supraglottic or between facemask and BVM)

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2. Note presence or absence of color change.
  - a. If no change in color on device, verify placement of device.
3. Document findings in patient chart.
4. When ALS arrives, switch to capnography (if available) from capnometry.
5. Attach the CO<sub>2</sub> sensor to the monitoring device and to the advanced airway, or between the mask and the bag valve in the ventilated patient that does not have an advanced airway placed, or using the nasal cannula style sensor for patients not receiving assisted ventilation.
-  6. Note the CO<sub>2</sub> level and waveform characteristics
7. Any loss of CO<sub>2</sub> detection or waveform may indicate an airway or ventilation problem and should be investigated, corrected and documented.
8. Document the use and results in the Patient Care Record (PCR).

Note: If a “0” value, no value, or no color change is noted for a patient:

- Ensure that the patient has adequate spontaneous circulation and ventilation, or that effective CPR is being performed
- Verify that the tubing is properly connected to the monitor and that there are no kinks in the tubing.
- If the tubing is found not to be the problem and an advanced airway has been placed, remove the advanced airway immediately and assist ventilations as needed with manual ventilation techniques.