

# End Tidal CO2 Detection

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## **Preamble**

Carbon Dioxide Detectors are useful adjuncts in the establishment of correct Combitube or endotracheal tube placement.

## **Requirements**

1. Fully licensed Technician-Paramedic.
2. Certification in the CO2 detector protocol by the Medical Director.
3. Certification in the Double Lumen Airway and/or Endotracheal Intubation protocol by the medical director.

## **Indications**

After placement of Combitube, or tracheal placement of endotracheal tube.

## **Procedure**

1. Combitube or Endo tracheal tube intubation should be performed as per protocol.
2. Assess correct tube placement as per protocol.
3. Select Easy Cap CO2 Detector for patients over 15kg.  
Select Pedi-Cap CO2 Detector for patients under 15kg.
4. Verify initial color as matching the purple color marked "checked".
5. After 6 or 7 ventilations, connect the Easy Cap device to the appropriate ventilation port or ET tube and to the ventilation bag.
6. Observe the device for color changes. It should change from purple to yellow/tan with each ventilation. Color change is a positive indication of correct tube placement.
7. If no color changes are observed after 6-7 ventilations use other assessment options to verify placement immediately.
8. Remove the detector after placement was confirmed and reconnect and ventilate as per protocol. It can be used again to reassess placement as needed.

9. Be aware of the following precautions:

I) Low perfusion states, i.e. Prolonged Cardiac arrest, reduce the production of CO<sub>2</sub>.

II) CO<sub>2</sub> detectors should never be used as sole method of assessment of tube placement. Lung sounds, chest rise, absence of gastric sounds, tube fogging, pulse Oximetry and direct visualization should still be used to establish correct placement.

III) When mouth-to-mouth ventilation was performed, false positive readings might be obtained due to gastric insufflation in esophageal intubation.

IV) Recently consumed carbonated beverages can cause false readings when the esophagus is intubated.

10. Continue to monitor tube as per protocol.

11. Document on PCR

### **Charting & Documentation**

The following information must be charted on the patient care report form:

1. Patient's presenting signs and symptoms, including vital signs and level of consciousness.
2. Indications for protocol use.
3. Type of CO<sub>2</sub> detector selected.
4. Documentation of color change.
5. Repeat assessment and vital signs, as indicated.
6. Changes from baseline, if any, that occur during transport.
7. Signature and license number of EMS personnel performing any transfer of function skills.

## **Certification**

1. Certification in the procedure of double-lumen airway and/or endotracheal tube.
2. Demonstrate an understanding of the indications related to the use of the CO2 detector.
3. Be able to demonstrate, in a lab setting, the proper technique and use of the CO2 detector.
4. Pass a written examination.
5. Pass practical scenarios incorporating the use of the CO2 detector.
6. Certification is by the Medical Director.

## **Recertification**

1. Review class and recertification is done every 12 months.
2. A record will be kept to document all cases where this protocol is used.

## **Decertification**

1. Decertification is at the discretion of the Medical Director or the Provincial Medical Director, Emergency Medical Services, Manitoba Health & Healthy Living.

## **Quality Assurance**

1. Appropriate quality assurance policies must be in place. The Medical Director or designate must review all instances where this protocol is used. As a minimum, the following must be assessed:
  - i) appropriateness of implementation
  - ii) adherence to protocol
  - iii) any deviation from the protocol
  - iv) corrective measures taken, if required or indicated
2. Yearly statistics must be compiled and forwarded to Emergency Medical Services, Manitoba Health & Healthy Living.