



Section 14: Appendix 2: Medical Procedures

SECTION 14: END TIDAL CO₂ / CAPNOGRAPHY

E	EMT	E
A	AEMT	A
P	PARAMEDIC	P

INDICATIONS	SIGNS AND SYMPTOMS	CONTRAINDICATIONS
<ul style="list-style-type: none"> The End-Tidal CO₂ shall be measured on all intubated patients, or with placements of King Airway / LMA 	<ul style="list-style-type: none"> Cardiac Arrest / Shock Intubated Patients Respiratory Failure COPD Hyper / Hypoventilation / Seizures Sedated Patients 	This device is not to be used for: <ul style="list-style-type: none"> Detection of mainstem bronchial intubation

Capnography vs. Capnometry

Capnography comprises the continuous analysis and recording of carbon dioxide concentrations (Co₂) in respiratory gases. Although the terms capnography and capnometry are sometimes considered synonymous, capnometry suggests measurement (ie, analysis alone) without a continuous written record or waveform.

PROCEDURE – Capnography (Intubated Patient)

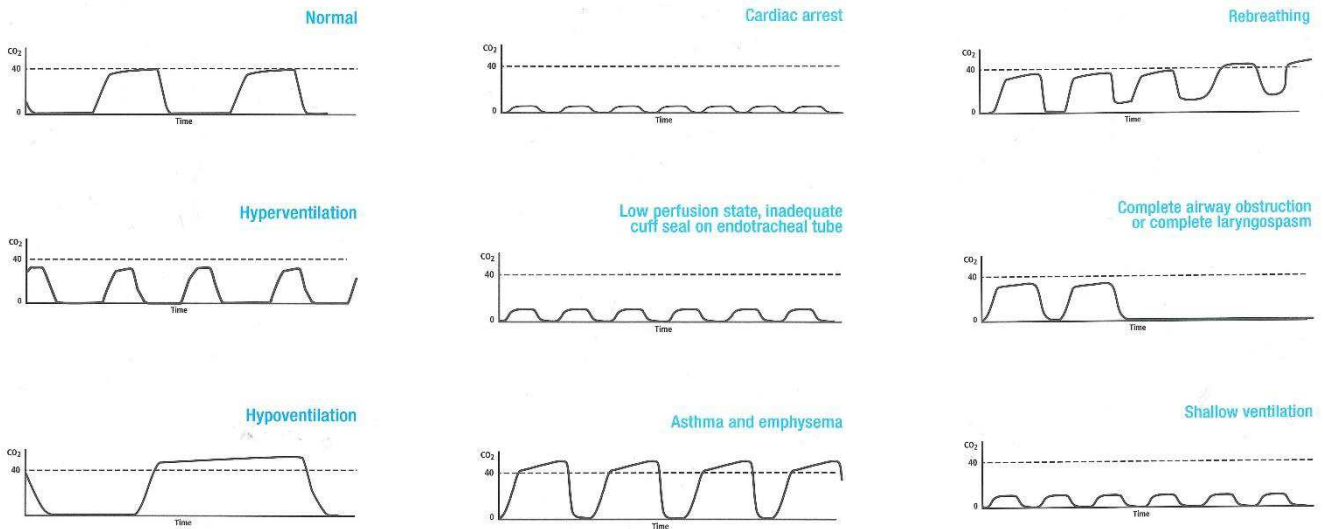
Capnography is required for all patients requiring ventilation through an ET tube, King Airway / LMA.

- Turn on recording instrumentation (usually part of a cardiac monitor in the pre-hospital setting)
- Place Co₂ Sampling device in between ventilation device (BVM / Ventilator) and the ET / King / LMA
- Attach sampling device to recording instrumentation and ventilate to a Co₂ of 35 - 45



PROCEDURE – Capnography (Non-Intubated, Spontaneously breathing patient)

- Turn on recording instrumentation (usually part of a cardiac monitor in the pre-hospital setting)
- Place the sampling cannula on the patient
- Attach sampling device to recording instrumentation record results and treat per results



NORMAL WAVEFORM

Diagram of a normal waveform



- A-B: Dead space ventilation, beginning of exhalation
- B-C: Rapid rise in CO₂
- C-D: Alveolar plateau
- D: End of expiration, end tidal CO₂ (etCO₂)
- D-E: Inhalation

RESPIRATORY CYCLE

The primary components of the respiratory cycle are oxygenation and ventilation.

- Oxygenation**
Oxygen is inhaled into the lungs and carried into the blood
- Ventilation**
CO₂ is exhaled from the lungs



Relationship between CO₂ and respiration rate

↑ RR ↓ CO₂ Hypoventilation ↓ RR = ↑ CO₂ Hypoventilation



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SECTION 14: END TIDAL CO2 / CAPNOGRAPHY -Cont.

E	EMT	E
A	AEMT	A
P	PARAMEDIC	P

INDICATIONS	SIGNS AND SYMPTOMS	CONTRAINDICATIONS
<ul style="list-style-type: none"> Backup to Capnography 	<ul style="list-style-type: none"> Intubated Patients 	This device is not to be used for: <ul style="list-style-type: none"> Detection of hypercarbia Detect mainstem bronchial intubation

PROCEDURE – Capnometry

- Remove the Co2 detector from package or activate detector.
- Attach the Co2 detector to a King or endotracheal tube.
- Ventilate patient and note color change on the Co2 detector.
- Compare color of indicator on full end-expiration to color chart on product dome. SEE ALGORITHM BELOW.
- The Co2 detector shall remain in place with the airway and monitored throughout the prehospital care and transport. Any loss of Co2 detection or color change is to be documented and monitored as procedures are done to verify or correct the airway problem.
- Tube placement should be verified frequently and with each patient move or change in the Co2 detector.
- If initial intubation attempts fail, the Co2 detector can be used for re-intubation on the same patient provided the indicator color still matches the "CHECK" color standard on product dome.
- Document the procedure and the results on the patient care report (PCR).

