

End Tidal CO₂ (EtCO₂) Monitoring

Applies to:

P Paramedic

Clinical Indications:

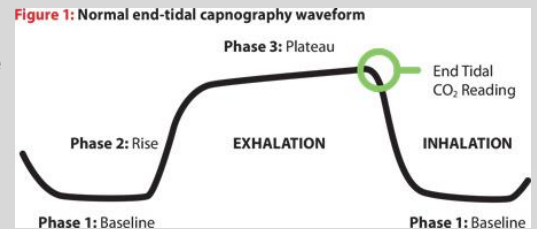
1. Capnography shall be used when available with the use of all advanced airway procedures and as required by treatment guidelines.

Procedure:

1. Attach capnography sensor to the monitor first to allow for room air calibration, then attach to the advanced airway or any other oxygen delivery device, including bag-valve mask and nasal cannula.
2. Note that EtCO₂ level and waveform changes. Values shall be documented in the EHR.
3. The capnometer shall remain in place and be monitored throughout prehospital care and transport.
4. Any loss of EtCO₂ detection or waveform may indicate an airway problem and should be immediately addressed and thoroughly documented.
5. Document the procedure and results in the EHR.

Notes:

1. EtCO₂ readings may be unreliable if the patient is in shock or has poor perfusion.
2. Normal EtCO₂ levels range from 30s and 40s, but this may vary based on the patient's underlying respiratory and metabolic status.
3. EtCO₂ levels that rise from a normal baseline to or above 50 may indicate hypoventilation is occurring.
4. Patient stimulation, use of a BVM, or use of Naloxone may be appropriate based on the situation.



Causes of Elevated EtCO ₂	Causes of Decreased EtCO ₂
METABOLISM Pain Hyperthermia Shivering	METABOLISM Hypothermia Metabolic acidosis
RESPIRATORY SYSTEM Respiratory insufficiency Respiratory depression COPD Analgesia/sedation	RESPIRATORY SYSTEM Alveolar hyperventilation Bronchospasm Mucus plugging
CIRCULATORY SYSTEM Increased cardiac output	CIRCULATORY SYSTEM Hypotension Sudden hypovolemia
MEDICATIONS Bicarb administration	CIRCULATORY SYSTEM Cardiac arrest Pulmonary emboli

<p>Sudden loss of waveform</p> <ul style="list-style-type: none"> • ET tube disconnected, dislodged, kinked or obstructed • Loss of circulatory function 	<p>Decreasing EtCO₂</p> <ul style="list-style-type: none"> • ET tube cuff leak • ET tube in hypopharynx • Partial obstruction 	<p>Bronchospasm ("Shark-fin" appearance)</p> <ul style="list-style-type: none"> • Asthma • COPD
<p>CPR Assessment</p> <ul style="list-style-type: none"> • Attempt to maintain minimum of 10mmHg 	<p>Sudden increase in EtCO₂</p> <ul style="list-style-type: none"> • Return of spontaneous circulation (ROSC) 	<p>Hypoventilation</p>
		<p>Hyperventilation</p>
		<p>Decreased EtCO₂</p> <ul style="list-style-type: none"> • Apnea • Sedation