

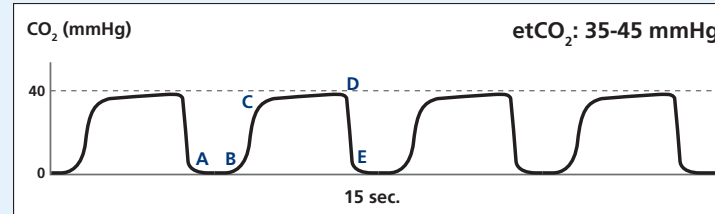
Normal and Abnormal etCO₂/Capnograph Waveforms

Normal Capnogram

The normal capnogram is a waveform which represents the varying CO₂ level throughout the breath cycle.

Waveform Characteristics:

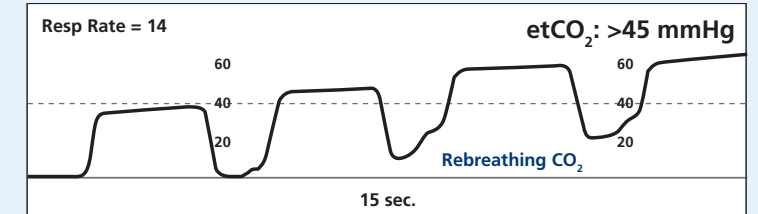
- A-B:** Baseline
- B-C:** Expiratory Upstroke
- C-D:** Expiratory Plateau
- D-E:** End-Tidal Concentration
- D-E:** Inspiration



Rebreathing CO₂

Other Possible Causes:

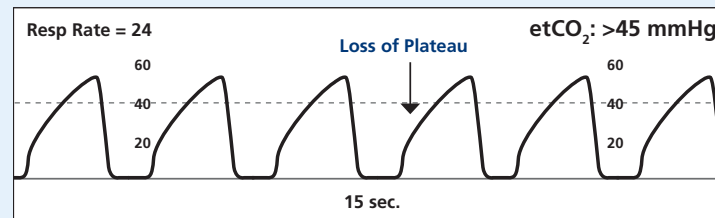
- Faulty expiratory valve
- Inadequate inspiratory flow
- Partial rebreathing
- Insufficient expiratory time



Bronchospasm/Asthma

Other Possible Causes:

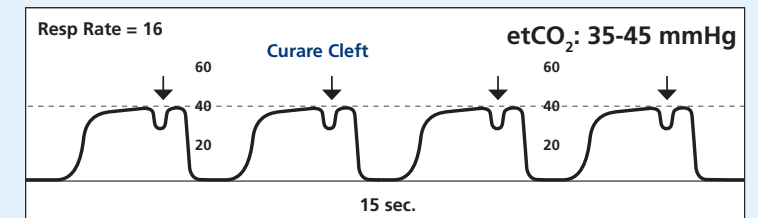
- Bronchospasm/COPD
- Obstruction in the expiratory limb of the breathing circuit
- Presence of a foreign body in the upper airway
- Partially kinked or occluded artificial airway



Curare Cleft

Other Possible Causes:

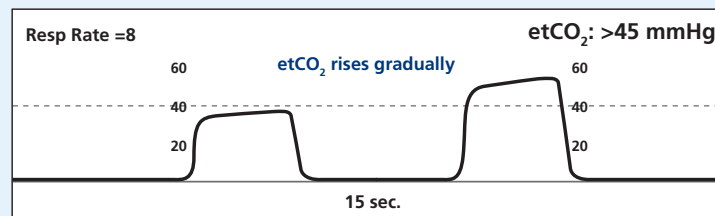
- Patient is mechanically ventilated
- Depth of cleft is proportional to degree of muscle relaxants



*Increasing etCO₂ (Hypoventilation)

Other Possible Causes:

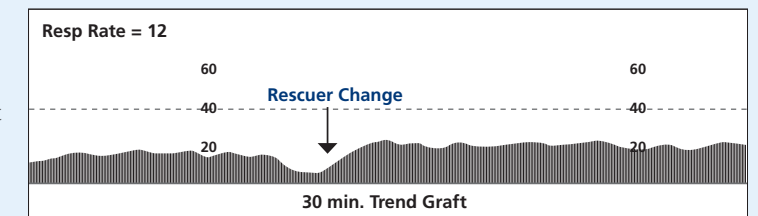
- Decrease in respiratory rate
- Decrease in tidal volume
- Increase in metabolic rate
- Rapid rise in body temperature (malignant hyperthermia)



Cardiac Arrest

Other Possible Causes:

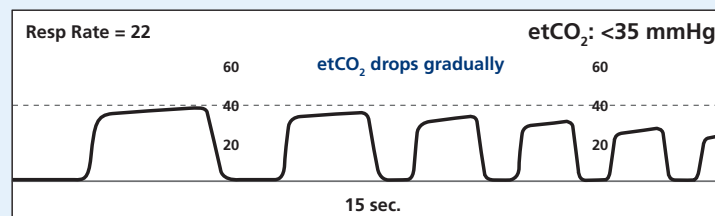
- Decreased or absent cardiac output
- Decreased or absent pulmonary blood flow
- Sudden decrease in CO₂ values



*Decreasing etCO₂ (Hyperventilation)

Other Possible Causes:

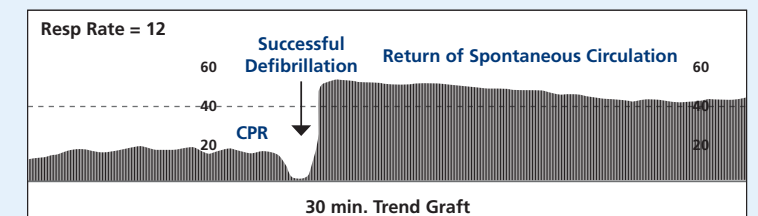
- Increase in respiratory rate
- Increase in tidal volume
- Metabolic acidosis
- Fall in body temperature



Return of Spontaneous Circulation

Other Possible Causes:

- Increase in cardiac output
- Increase in pulmonary blood flow
- Gradual increase in CO₂ production



*Assumes adequate circulation and alveolar gas exchange