

Capnography/ End-Tidal

Indications: Quantitative and graphical representation of exhaled carbon dioxide for purposes including, but not limited to:

1. Confirmation of endotracheal tubes (**MANDATORY**),
2. Confirmation of extraglottic airways (**MANDATORY**),
3. Monitoring during administration of opiates or sedatives (**MANDATORY**),
4. Assessment of ventilation while using BVM,
5. Early detection of ROSC in patients with cardiac arrest,
6. Early detection of endotracheal tube or EGD dislodgement,
7. Assessment of respiratory physiology, clinical course, and response to treatments,
8. Optimizing ventilatory rate in patients requiring assisted ventilations,
9. Assessment of perfusion and/or detection of occult shock.

PROCEDURE:

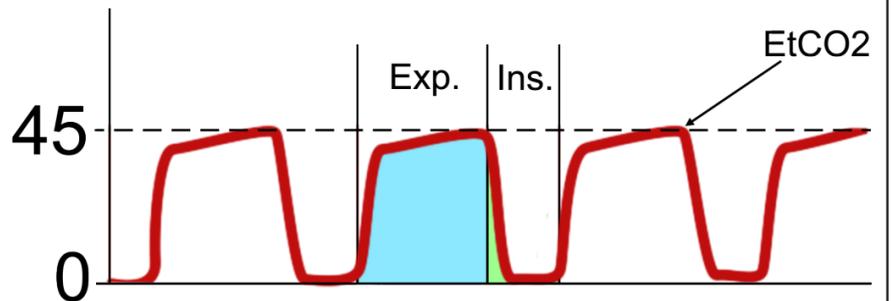
1. Select the correct sampling probe for the patient:
 - Spontaneously breathing patients may use the pronged nasal device.
 - Patients requiring assisted ventilation (e.g. BVM, EGD, ETT) will require the in-line device.
2. Connect the sampling device to the monitor, ensuring that it is seated firmly.
3. Observe the presence of a respiratory waveform on the monitor.



INTERPRETATION AND TROUBLESHOOTING:

NORMAL WAVEFORM:

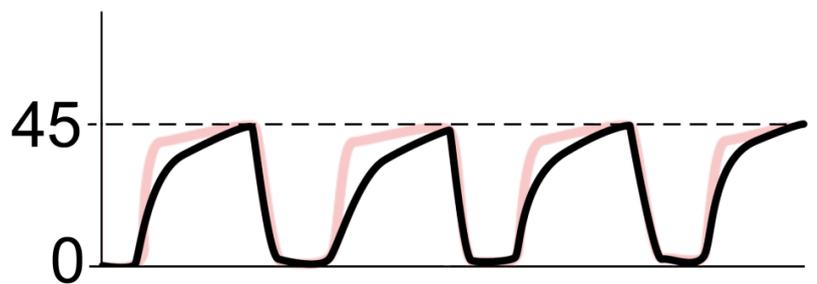
“Square” appearance.
End-tidal CO₂ (EtCO₂) between 35 and 45mmHg.



OBSTRUCTIVE AIRWAY:

“Shark-fin” appearance from prolonged expiration.

Consider bronchospasm (e.g. asthma, COPD).
Consider physical airway obstruction.



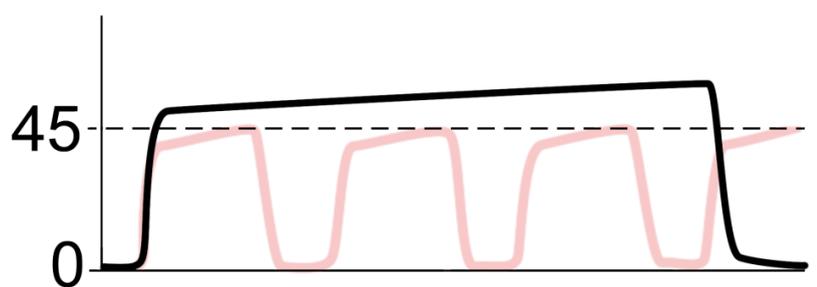
IF INTUBATED:

Consider kinked endotracheal tube.
Consider small-for-size endotracheal tube.

HYPOVENTILATION:

Longer intervals between breaths. May have increased EtCO₂.

Consider assisted ventilation.
If opiate overdose suspected, consider naloxone.



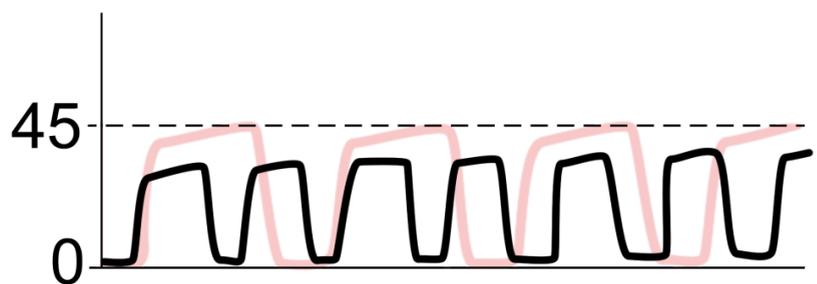
IF INTUBATED / EGD:

Consider adjusting ventilatory rate.

HYPERVENTILATION:

Shorter intervals between breaths. May have reduced EtCO₂.

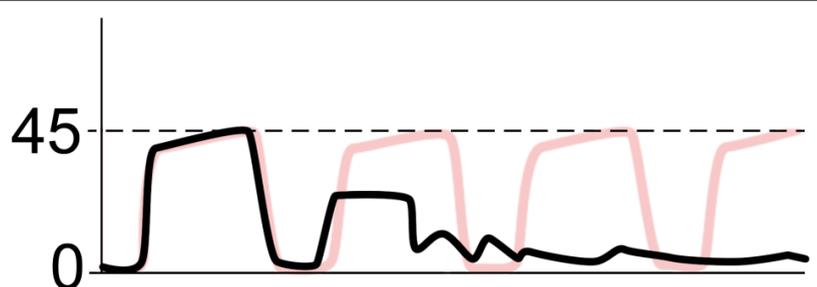
Consider compensatory response to metabolic acidosis and evaluate for signs of shock (e.g. sepsis, hemorrhage).
Consider pain or anxiety state.



LOSS OF WAVEFORM:

Loss of previously established normal waveform.

Consider cardiopulmonary arrest or apnea.
Consider device / sensor failure.



IF INTUBATED / EGD:

Consider displaced endotracheal tube or EGD.
Consider kinked endotracheal tube.

RISING BASELINE:

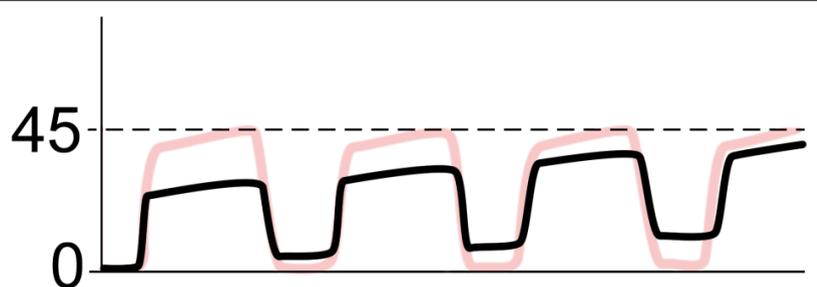
Baseline rises between breaths with increasing EtCO₂.

Consider causes of inadequate exhalation:

- Bronchospasm or Physical Airway Obstruction

IF INTUBATED / EGD:

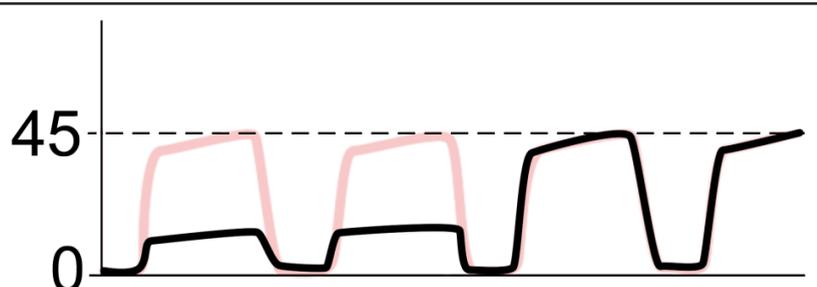
Consider increasing exhalation time with ventilations.
Consider small-for-size endotracheal tube size.



SUDDEN INCREASE IN ETCO2:

EtCO₂ of waveforms suddenly increase.

Consider ROSC if noted during CPR.
Consider recent sodium bicarbonate administration.



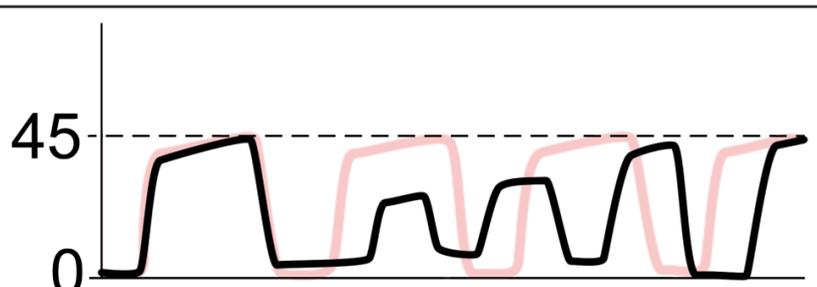
IRREGULAR WAVEFORM:

Waveforms are present but vary in size and shape.

Consider anxiety or agitation.

IF INTUBATED / EGD:

Consider improving pain control or depth of sedation.



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