

MindVet Journal

The Veterinary Clinical Application of Capnography

READ  ITAL SIGNS Vol.3

mindray
animal care

mindvet
academy



LEARNING OUTCOMES

1. Clinical value of EtCO₂
2. How to read and interpret abnormal capnography

END-TIDAL CARBON DIOXIDE

End-tidal carbon dioxide (EtCO₂) shows the level of CO₂ that is released at the end of an exhaled breath. EtCO₂ levels reflect the concentration of CO₂ in the blood that is carried back to the lungs and exhaled.

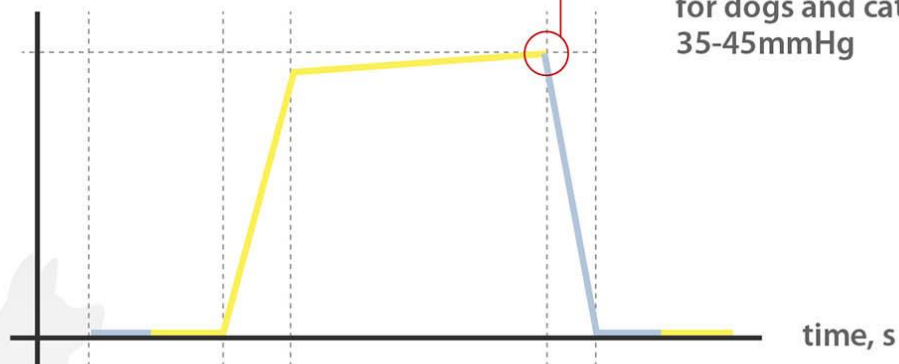
EtCO₂ < 35mmHg

- Hyperventilating
- Cardiac output decreasing
- Cardiopulmonary arresting

EtCO₂ > 45mmHg

- Hypoventilating
- Metabolism increasing
- CO₂ rebreathing

CO₂, mmHg



EtCO₂ value

Normal range
for dogs and cats:
35-45mmHg

— Expiration

— Inspiration

Capnography

CAPNOGRAPHY QUICK GUIDE REFERENCE

Common patterns of abnormal capnography and possible reasons



Hypocapnia



Hyperventilation / Hypothermia

Hypercapnia



Hypoventilation / Hyperthermia

Plateau Cleft



Spontaneous breathing recovery /
Insufficient anesthesia depth

Baseline Elevation



Insufficient fresh gas flow /
Saturation of CO₂ absorbent

Plateau Disappear



Inadequate ET tube seal / Leaky cuff /
ET tube size mismatch (small)

Cardiogenic Oscillations



Slow heart rate (slower respiratory rate,
longer inspiratory time) / Muscle relaxation

Weakening Wave Waveform



Esophageal intubation

Sudden Loss of Waveform



ET tube disconnected

Slow Upward Stroke



Obstruction in airway



Precise EtCO₂ Monitoring



Artema technology

- Accurate sidestream CO₂ measurements
- Sampling rate auto-adapted by the water trap

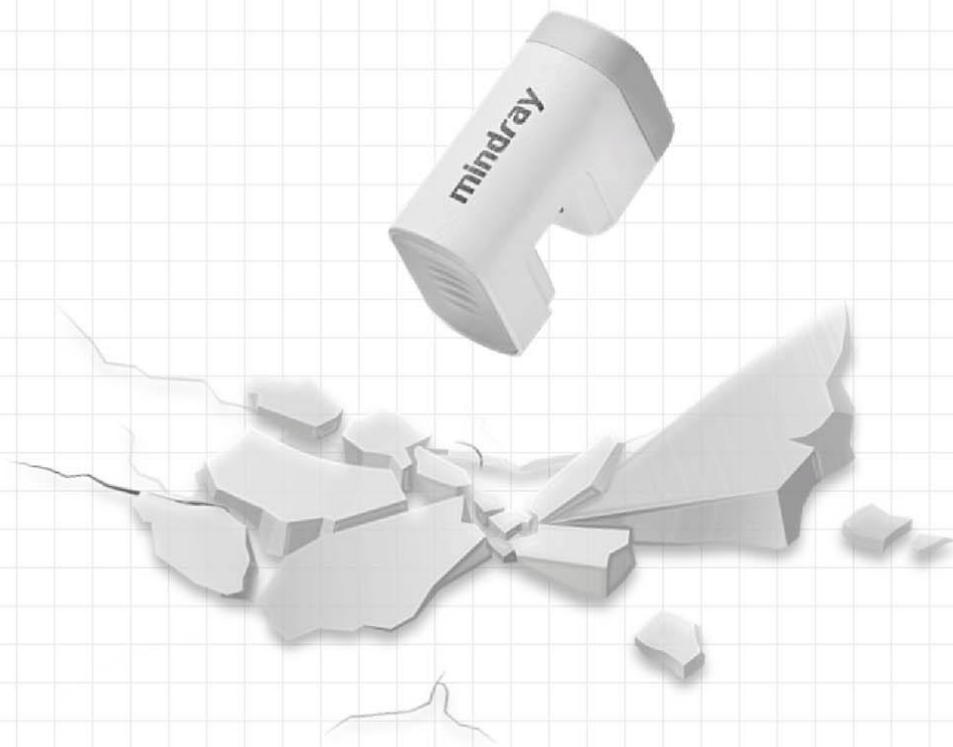


Low dead space adapter

- Safe anesthesia for animals <3kg
- Reducing repeated inhalation of CO₂



Mainstream CO₂ sensor



**Drop resistance:
100 times dropping from 2 meters**

