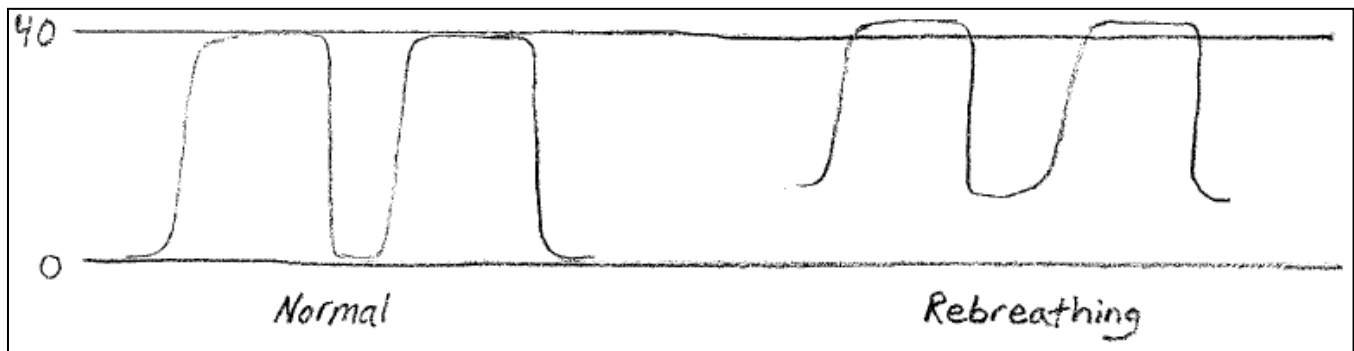


Inspiratory CO₂

Anesthetic Pearls: Anesthetic Implications of Inspiratory CO₂

Carbon dioxide, the by-product of aerobic metabolism, is present in the air we normally breathe. Normal atmospheric air has approximately 1% concentration of CO₂. It is **NOT** present in the hospital medical air supply (produced by blending oxygen and nitrogen) and **should not** be present within the inspiratory limb of the anesthesia circuit.

Inspiratory CO₂ is detected with capnography by a failure of the waveform to return to its usual baseline of zero.



Rebreathing causes the presence of inspiratory CO₂. Causes include:

1. Exhausted CO₂ absorber – usually detected by purple coloration from the indicator dye or an absorber canister that is cool to touch.
2. Channeling of gas through the CO₂ absorber (the absorber will again be cool to touch).
3. Incompetent inspiratory or expiratory valves – normally produce unidirectional flow in the circle system when functioning properly; allow rebreathing and CO₂ mixture with incompetent valves.
4. Disconnection of the anesthesia circuit at the machine connection in a spontaneously breathing patient (this will mirror inspiratory or expiratory valve incompetence).
5. Inadequate fresh gas flow in Mapleson circuits (typically require > 2X the minute ventilation).