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Unit VI Respiratory-ABG Interpretation

NORMAL VALUES:

•pH	7.35 - 7.45
•PaCO ₂	35 - 45 mmHg
•PaO ₂	80 - 100 mmHg
•HCO ₃ ⁻	22 - 26mEq /L
•SaO ₂	More than 95%
•B.E	-2 to +2

- First Step: Look at PH –Is it?
 - o ACIDOSIS
 - o ALKALOSIS
 - o NORMAL
- Second Step: Look at PaCO₂ and HCO₃⁻ Which is causing the pH disturbance?
 - o PaCO₂ it is RESPIRATORY
 - o HCO₃ it is METABOLIC
 - o BOTH are normal & pH is normal, it is a normal ABG
- Third Step: After determination of component causing abnormality in pH-What are other factors?
 - o Contributing to abnormality-COMBINED DEFFECT
 - o Within normal limits-ACUTE DEFFECT
 - o If not contributing to abnormality but also not within normal limits-there is PARTIAL OR COMPLETE COMPENSATION
- Fourth Step: **GO BACK TO pH**
 - o If pH normal but PaCO₂& HCO₃ are out of normal limits COMPLETE COMPENSATION
 - o To decide which is the cause & which is the compensation, USE 7.40 AS A CUTOFF FOR ACIDOSIS OR ALKALOSIS
 - pH ABOVE 7.40 indicates pH is returning to normal from ALKALOSIS
 - pH BELOW 7.40 indicates the pH is returning to normal from ACIDOSIS
 - o The component MATCHING with pH is causative & other is compensation
 - pH = 7.45, PaCO₂ = 28, HCO₃ = 19 fully compensated respiratory alkalosis
 - pH = 7.35, PaCO₂ = 20, HCO₃ = 10 fully compensated metabolic acidosis
 - o If pH not normal & both the PaCO₂ and HCO₃ are out of normal limits, may be PARTIAL COMPENSATION.
 - Component matching with pH is causative
 - Factor out of limits but not enough to bring pH within normal range is PARTIAL COMPENSATION
 - If pH = 7.29, PaCO₂ = 25, HCO₃ = 20 metabolic acidosis with partial respiratory compensation.
- NOTE: If PaCO₂ is greater than 50, and HCO₃ is greater than 30, but pH is within normal limits, suspect CHRONIC RESPIRATORY FAILURE.