

Variable	Normal	Normal Range(2SD)
pH	7.40	7.35 - 7.45
pCO ₂	40	35-45
Bicarbonate	24	22-26
Anion gap	12	10-14
Albumin	4	4

What is the pH? Acidemia or Alkalemia?

2. What is the primary disorder present?

3. Is there appropriate compensation?

Metabolic acidosis :

$$\text{Expected } P_{\text{CO}_2} = (1.5 * H_{\text{CO}_3}) + 8 \quad (+2)$$

Metabolic alkalosis

$$\text{Expected } P_{\text{CO}_2} = 40 + \text{change of } P_{\text{CO}_2}$$

$$\text{Change of } P_{\text{CO}_2} = 0.7 * \text{change of } H_{\text{CO}_3} \quad (+2)$$

Respiratory acidosis

For every 10 Increase of PCO_2 = increase HCO_3 (1) in acute and (3.5) in chronic
(added to normal HCO_3 (24)

Respiratory alkalosis

For every 10 decrease of Pco_2 = decrease Hco_3 (2) in acute and (5) in chronic (removed from 24)

4.Is the compensation acute or chronic? In (respiratory pathology)

5.Is there an anion gap?

Na^- ($Cl^- + HCO_3^-$)

6.If there is a AG check the delta gap?

Delta gap = Change in AG - change in HCO_3

- if delta gap > 6 there is combined AGMA with metabolic alkalosis

- if delta gap $< - 6$ there is combined AGMA with NAGMA

7.What is the differential for the clinical processes?

What disorder is present?	pH	pCO ₂	HCO ₃
Respiratory Acidosis	pH low	high	high
Metabolic Acidosis	pH low	low	low
Respiratory Alkalosis	pH high	low	low
Metabolic Alkalosis	pH high	high	high

This will you to determine what is the primary process !
 If no AG ,
 Every 1 meq/l increase of chloride there should be a 1 mEq/L decrease in HCO₃ (+_5) , if HCo3 decrease is less than predicted, then there is metabolic alkalosis in addition to NAGMA

