What's the primary disturbance?

1. pH

   - >7.4: alkalemia
   - <7.4: acidemia

What's the pCO2?

2. pCO2

   - respiratory acidosis
   - respiratory alkalosis

Acute or chronic?

- What is the chronicity?
  - Look at metabolic compensation
    - Acute: $10 \Delta pCO_2 \rightarrow 0.08 \Delta pH$
    - Chronic: $10 \Delta pCO_2 \rightarrow 0.03 \Delta pH$

What's the bicarb?

3. HCO$_3^-$

   - metabolic alkalosis
   - metabolic acidosis

Is the anion gap increased?

- AG = [Na] + ([Cl] + [HCO$_3^-$])
- Expected AG = 2.5 x Albumin
- If AG > expected AG, there is an anion gap present

Is there compensation?

- If there is a metabolic acidosis or alkalosis present
- is there appropriate respiratory compensation?

  Use one of two rules of find out:
  1. Expected pCO$_2$ = 1.5 x [HCO$_3^-$] + 8 ± 2 (Winter’s)
  2. Expected pCO$_2$ = last two digits of pH

  If the measured pCO$_2$ does not match the expected value, there is also a respiratory derangement.

Does the change in AG account for the change in HCO$_3^-$?

- Used to determine if there is another derangement.

  - Does $\Delta HCO_3^- \approx \Delta AG$?
    - $\uparrow \Delta \Delta > 1.5$ 
    - $\downarrow \Delta \Delta < 0.8$

No other derangement

- Salicylate poisoning
  - DKA w/ dehydration

Airflow obstruction
- COPD, asthma
- Drive
- Medications
- Central
- CO$_2$ production

- drive
  - Hypoxemia
  - Pain/anxiety
  - Hepatic enceph
  - Pregnancy
  - Salicylates

“BLVD PLACE”

- B - Bartter's
- L – Laxative
- V – Vomitting
- D – Diarrhea/diuretics
- P - Post-hypercapnea
- L - Licorice
- A - Alkali ingestion
- C - Contraction alkalosis
- E - Endocrine
  (Conn’s or Cushing’s)

“RAGES”

- R – RTA
- A – Ammonia
- Acetazolamide
  - HyperAlimentation
- G – GI losses
- E – Endocrine
- S – Saline

“GOLDMARKeT”

- G – Glycols
- O – Oxoproline
- L – Lactic acid
- D – Lactic acid
- M – Methanol
- A – Aspirin
- R – Renal fail, Rhabdo
- Ke – Ketones
- T – Toluene