Acidosis (Blood pH = low) <7.40

Metabolic

Primary Event
↓ HCO_3^-
↓ pH ~ ---------
$PaCO_2$

Primary Event
HCO_3^-
↓ pH ~ ---------
↑ $PaCO_2$

Respiratory
(Hypoventilation)

E.g. in;
1-Obstructive lung disease.
2-Hyperkalaemia & Others

Calculate anion gap with reference range 6-14 mmol/L

Anion gap = Na^+ - (Cl^- + TCO_2); 12±4 mEq/L

Acute: (BE) Normal
-Airway Obstruction Bronchospasm (Asthma)
-Neuromuscular Disease & CNS Disorder
-Drug overdose (hypnotics, anaesthetics, benzodiazaphine)

Low
Due to artefact of paraproteins

Chronic: (BE) High
***Chronic obstructive lung disease**

-Emphysema=Smokers
-Bronchiectasis

High=MUD PILES

1. Accumulation of **osmotically active** solutes e.g. **e**thanol, **m**ethanol, **l**actic acid, **e**thylene glycol and ***s**alicylates*
2. Diabetic type-I **ketoacidosis**.(Alcoholic) & **diabetes mellitus**
3. **Inborn error of metabolism** in 34 days old child e.g. **P**KU and **M**SUD.
4. **Acidosis**. (Lactic Acidosis) excessive parenteral administration of amino acids: e.g. arginine, lysine and histidine.
5. **Glycogen Storage Disease:** for example like in glucose 6-phosphatase deficiency.
6. **Branch-Chain Amino Acid Disorders**.
7. **Toxins. (acid poisoning)**, ***P**aracetomol,*
8. **U**remia. **Starvation, Massive rhabdomyolysis = H^+**

Normal=ADIL R

Renal tubular acidosis type I, II, III or IV

I. **↓ K^+,** distal tubular acidosis with **↑ Cl^-**

II. **↓ K^+,** proximal tubular defect reabsorption of **HCO_3^- ↓**

III. ↓ K^+ = I + II combined

IV. **↑ K^+,** Renin-angiotensin block will retain K^+ and H^+ and low K^+ will be in urine. Or severe lower GI fluid, pancreatic & biliary drainage. In this case K^+ will be low in plasma and HCO_3 too. And acid loads will be higher in end stage renal failure.

***CD inhibitors*

***Generalized Renal Failure*

Acetazolamide therapy
Diarrhea
ILeal loop (rare cause)
RTA

- **Fanconi Syndrome:** (IEM) proximal defect – genetic defect in reabsorption mechanisms. Present with glycosuria, protienuria and aminoaciduria. Excessive loss of H_2O and PO_4^{3-} and HCO_3^- and K^+ (RTA type II).