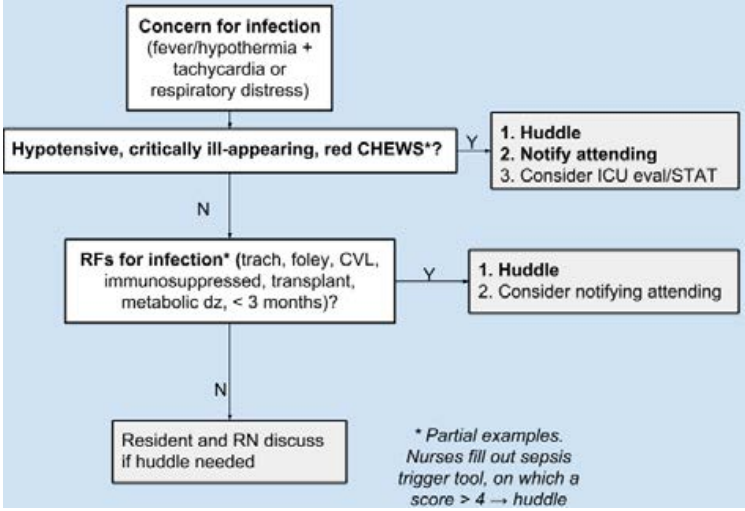
Sepsis Huddle



ABGs/VBGs

- Presented as **pH/PCO2/PO2/HCO3-**
- **Venous pH + 0.035 = Arterial pH**
- Look at past VBGs for baseline pCO2 (e.g., chronically elevated in ex-preemies w/CLD)
- VBGs sufficient to assess acid-base status & clinical response to treatments (in general). **ABG preferred over VBG:**
  a. to accurately determine **PaCO2 in severe shock**
  b. to accurately determine PaCO2 if hypercapnic (i.e. PaCO2 >45 mmHg)

Stepwise Approach:

1. **Compare pH to normal** range
2. Identify the **primary process** that led to the change in pH (using PCO2/HCO3)
3. Calculate the **serum anion gap (SAG)**
   a. **SAG = Na+ - (Cl- + HCO3-)**. If **>12**, there is a primary AG metabolic acidosis
4. Identify the **compensatory process** (if one is present)
5. Identify if any other disorders are present or there is a **mixed acid-base process using delta/delta = (AG - 12) / (24 - Bicarb)**
   a. < 0.4 → pure Non-AG Metabolic Acidosis (NAGMA)
   b. 0.4 - 0.8 → mixed NAGMA + High-AG Metabolic Acidosis (HAGMA)
   c. 0.8 - 2.0 → a pure HAGMA
   d. >2.0 → mixed HAGMA + metabolic alkalosis

Normal Blood Gas Values

	Arterial	Venous
pH	7.35 - 7.45	7.31 - 7.41
pCO2 (mmHg)	35 - 45	40 - 50
pO2 (mmHg)	75 - 100	36 - 42
HCO3 (meQ/L)	22-26	Same
BE	-2 to + 2	Same
Oxygen Saturation	> 95%	60 - 80%

ABGs/VBGs

Compensation

Disorder	Defect	Compensatory Response*
Respiratory Acidosis	↑ pCO2	↑ **HCO3-** Acute = **+1** MeQ/L HCO3- for +10 mm Hg PaCO2 Chronic = **+4** MeQ/L HCO3- for +10 mm Hg PaCO2
Respiratory Alkalosis	↓ pCO2	↓ **HCO3-** Acute = **-2** MeQ/L HCO3- for -10 mm Hg PaCO2 Chronic = **-5** MeQ/L HCO3- for -10 mm Hg PaCO2
Metabolic Acidosis	↓ HCO3	↓ **pCO2** PCO2 = 1.5 x HCO3 + 8 +/- 2 (Winter's Formula)
Metabolic Alkalosis	↑ HCO3	↑ **pCO2** pCO2 + 0.6 for + 1.0 mEq/L HCO3

* HCO3 = kidneys (days); CO2 = lungs (minutes)
Limits of compensation: HCO3 = 15 - 38. CO2 = 10