

## THE ABC'S OF ABG'S

### 1. WHAT IS THE PH? ACIDEMIA/ALKELEMIA?

PH<7.40 IS ACIDEMIA, PH>7.40 IS ALKALEMIA

### 2. DOES DIRECTION OF PCO2 CHANGE EXPLAIN DIRECTION OF PH CHANGE?

IF YES, ITS A PRIMARY RESPIRATORY \_\_\_ OSIS  
IF NO, IT'S A PRIMARY METABOLIC \_\_\_ OSIS

(PCO2 HIGHER THAN 40 SHOULD DROP YOUR PH  
PCO2 LOWER THAN 40 SHOULD RAISE YOUR PH)

### 3. DOES AMOUNT OF PCO2 CHANGE EXPLAIN PH CHANGE?

IF NO, THERE IS ALSO A PRIMARY METABOLIC DISTURBANCE

PH DROPS ABOUT 0.1 FOR EVERY INCREASE IN PCO2 OF 10  
(ITS ACTUALLY A PH DROP OF EXACTLY 0.08.)

### 4. IS THERE A GAP ACIDOSIS? (>12) (GAP=NA-CL-HCO3)

A RAISED ANION GAP IMPLIES A GAP METABOLIC ACIDOSIS REGARDLESS  
OF THE PH OR HCO3.

A RAISED ANION GAP HAS A LIMITED DIFFERENTIAL DIAGNOSIS  
(M U D P I L E S PNEUMONIC)

### 5. FOR METABOLIC ACIDOSES- CALCULATE PREDICTED PCO2 :USE WINTERS FORMULA:

PCO2 PREDICTED (+/-2) = (1.5 X HCO3)+8  
IF PCO2 IS DIFFERENT THAN PREDICED THEN THERE IS AN ADDITIONAL  
RESPIRATORY PROBLEM BEYOND MERE COMPENSATION

### 6. IF THERE IS A RAISED ANION GAP, CALCULATE THE CORRECTED HCO3 TO SEE IF THERE IS YET ANOTHER METABOLIC DISTURBANCE

DELTA DELTA (DD): DD=GAP-12  
DD + PT'S HCO3=X  
IF X<24, THEN A PRIMARY NON GAP METABOLIC ACIDOSIS ALSO EXISTS  
IF X>24, THEN A PRIMARY METABOLIC ALKALOSIS ALSO EXISTS