I Just Received Blood Gas Results On My Ventilated Patient… Now What Do I Do?

1) Assess oxygenation (this cannot be done with a venous blood gas)
   - \( P_aO_2 < 60 \): Increase \( FIO_2 \) and/or increase PEEP
   - \( P_aO_2 > 100 \): Decrease \( FIO_2 \) until \( S_{pO_2} \) 90-96%

2) Assess and address the acid-base status

3) Adjustments in the ventilator rate
   A simple rule of thumb can be used to determine the proper change in the respiratory rate:
   \[
   \text{New rate} = \text{Current rate} \times \frac{\text{Current } P_aCO_2}{\text{Target } P_aCO_2}
   \]
   Call for Help! if desired rate is > 35

4) In What Situations Will I Have Trouble Achieving The Goal pH or \( P_aCO_2 \)
   There are several situations in which it can be difficult to achieve the goal \( P_aCO_2 \) or pH
   - Severe ARDS: in patients with a high dead-space fraction, it can be hard to normalize \( P_aCO_2 \) and pH despite a high minute ventilation (Most patients can tolerate a pH down to 7.15 in these situations). Call for Help!
   - Severe metabolic acidosis: despite significant decreases in \( P_aCO_2 \), the pH may remain low. Call for a Help!
   - Overbreathing the ventilator: decreases in the set respiratory rate will not achieve a change in minute ventilation. The patient will continue to over-breathe the ventilator

5) How Long Before I Need to Get Another Arterial Blood Gas
   - After changes in \( FIO_2 \) or PEEP: repeat ABG is not necessary. Follow \( S_{pO_2} \)
   - After changes in the set rate: wait 15-30 minutes before the repeat ABG

Critical Care Skills for Non-Critical Care Providers
Responding To Blood Gas Results