Pulmonary

- Airway Pressure Release Ventilation (APRV, Bivent)

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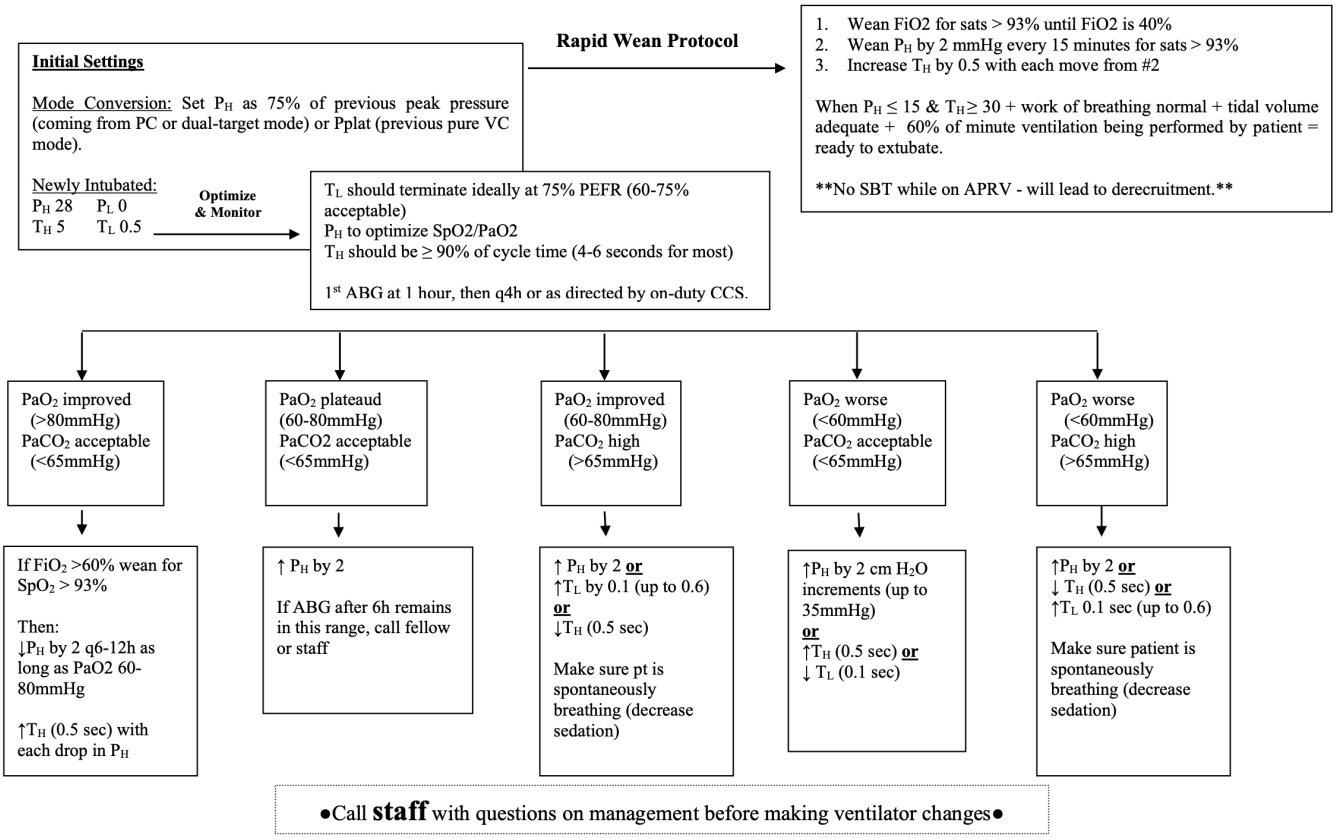
Nota bene:

- Indications/contraindications for APRV in an individual patient should be discussed with CCS attending on duty prior to initiating.
- Examples of candidates for rapid weaning = post-op respiratory failure with no acute underlying lung disease that would preclude extubation; transfer from OSH with no acute underlying lung disease that would preclude extubation. **Discuss candidacy for rapid wean protocol with CCS attending on duty.**



Notes & Tips:

A recruitment maneuver of 40 cmH_2O of peep for 40 seconds can be done after circuit changes, replacement of expiratory filters, changing of Ballard suction catheters, going to/returning from transport where patient was manually bagged, or by physician written order.

Release Rate (cycles/minute) = $60/(T_H+TL)$, ideally not greater than 12/min

For obstructive lung disease patients, you may have to use longer T_L times (above 0.6 sec) to achieve target of 60-75% PEFR

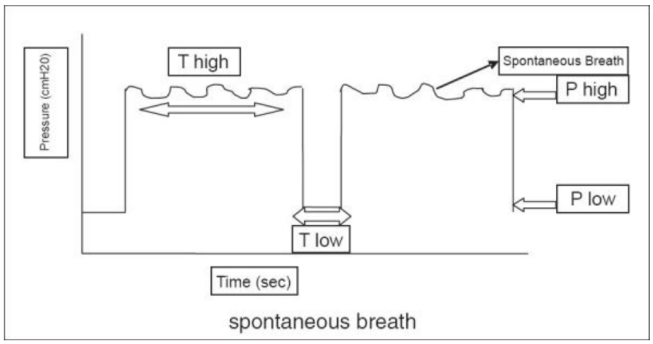
MOST SPONTANEOUSLY BREATHING PTS WILL REGULATE THEIR OWN CO_2. Always allow as much spontaneous breathing as possible. Gold standard of APRV is to not use neuromuscular blockade, but should be guided based on individual patient circumstances.

Worry about oxygenation first and the CO_2 second (permissive hypercapnia)

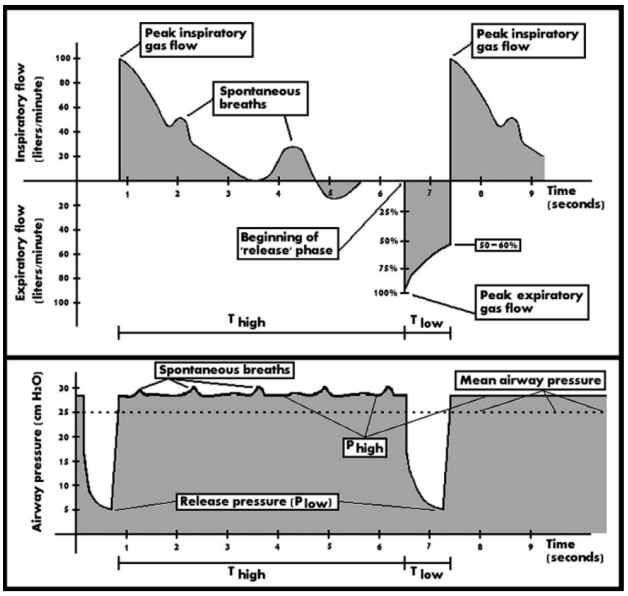
If patient is inhaling too forcefully and using accessory muscles: may still be under-recruited. Can increase P_H, or decrease TL as long as <75% PEFR maintained on flow curve.

If patient is exhaling too forcefully: may be overinflated (also diaphragm will be flat on CXR). Can decrease P_H and increase T_H to maintain the same mean airway pressure, or increase the TL as long as >25% of PEFR maintained on flow curve.

Dr. Habashi APRV Workshop Video (1 hour on YouTube, great resource)



$$\text{Mean Airway Pressure} = \frac{(P\ High \times T\ High) + (P\ Low \times T\ Low)}{(T\ High + T\ Low)}$$



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