

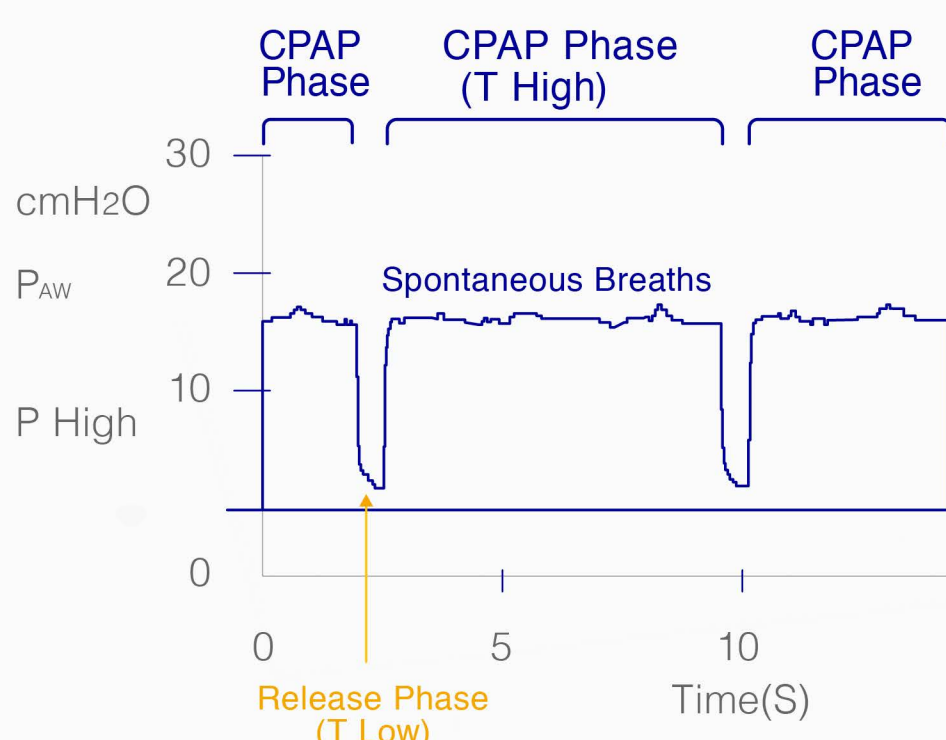
DID YOU KNOW?



AIRWAY PRESSURE RELEASE VENTILATION (APRV)

What is it?

There are two level of pressure (**Phigh and Plow**) applied for to independent times (Thigh and Tlow). **Spontaneous breathing** is possible every time during the ventilation. The brief pressure relief times (Tlow) is used to eliminate CO₂ from the lungs of the patients. The **Tidal volume is created by the difference between Phigh and Plow and from the spontaneous efforts of the patient.**



Which are the settings?

Phigh

- Set plateau pressure or peak pressure set during conventional ventilation (25-35 cmH₂O)
- Based on oxygenation index
- Based on pressure volume curve
- Phigh > 35 cmH₂O maybe necessary in morbid obesity or in other condition associated with low chest wall compliance
- Phigh > 25 cmH₂O consider use of non-compliant circuit

Plow

- Set at 0 cmH₂O (correct setting of Tlow will create intrinsic PEEP)

Other settings

- Tube compensation up to 100% (if available)
- Pressure Support = 0 cmH₂O

Thigh

- Set at 4-6 secs* (Average around 5 sec)
- Target to have CPAP level of 90% of ventilation time

Shorter if:

- No spontaneous breathing
- High PaCO₂ at the beginning
- Poor diffusing capacity

Longer if:

- Spontaneous beathing
- Normal PaCO₂
- Good diffusion
- Weaning

* in restrictive lung disease

Tlow

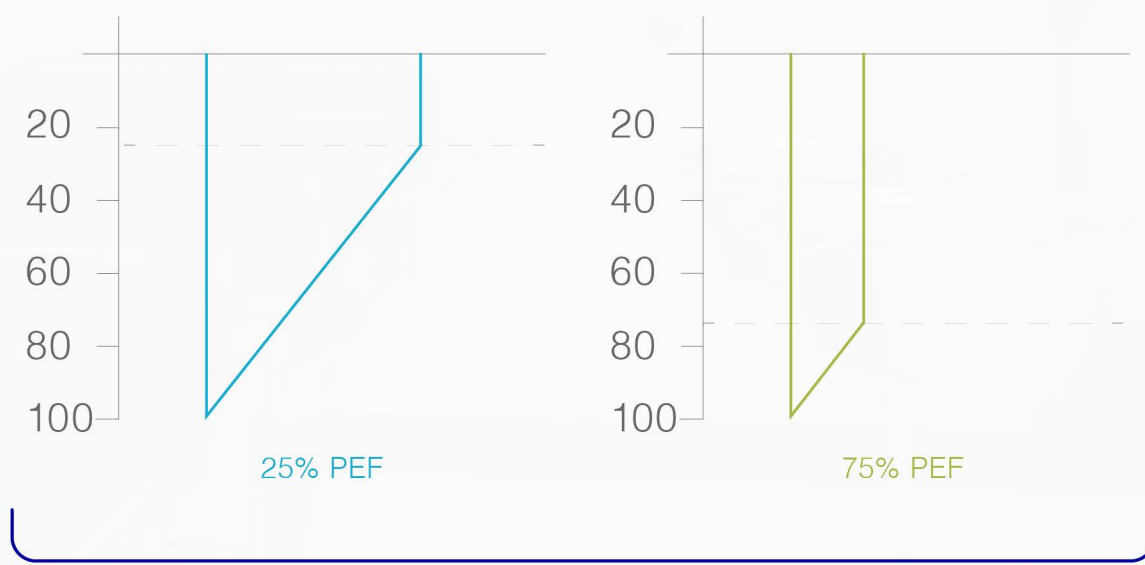
- Titrate to maintain constant end expiratory lung volume
 - Assess and adjust using end expiratory flow waveform measurement
 - Freeze waveforms and set Tlow at 75%* of a Peak Expiratory Flow
 - Use Autorelease® to automatically optimize Tlow to terminate expiration at a certain percentage of peak expiratory flow
- * in restrictive lung disease

AUTORELEASE®

- In the past, Tlow had to be adapted manually to changing expiratory flow patterns
- With AutoRelease, Tlow is automatically optimized to terminate expiration at a certain percentage of peak expiratory flow
- Keeping endexpiratory lung volume and CO₂ removal can be well balanced even in light of changing respiratory mechanics and expiratory flow patterns



Release gas flow intentionally terminated at 50% of peak expiratory flow
 Recommendation: 50-75% PEF
 Exhalation intentionally terminated to keep end expiratory lung volume(EELV) to prevent derecruitment



Shorter expiration time - Higher Pmean

When should APRV be applied?

- When is it suggested to use APRV? In which kind of patients?
- Hypoxemic respiratory failure (including ARDS) with/without associated (not primary i.e., severe asthma) hypercapnia
 - Patients with Acute Lung Injury
 - Patients with atelectasis after major surgery

Why is it helpful to improve outcome?

- Alveolar recruitment and improved oxygenation
- Preservation of spontaneous breathing – less sedation
- Better ventilation of dependent areas
- Keep the lung open