**NON-INVASIVE POSITIVE PRESSURE VENTILATION**

**Purpose & Definitions:**
- Non-invasive positive pressure ventilation (NIPPV) is a method of supporting ventilation and oxygenation. NIPPV can be used in acute respiratory failure to avoid endotracheal intubation. EPAP (expiratory pressure) = PEEP = CPAP

**Indications:**
- COPD exacerbation (↓ intubation, ↓ mortality)
- Cardiogenic pulmonary edema (↓ mortality)
- Other causes of respiratory failure
- DNI status
- Extubation to NIPPV

**Contra-Indications:**
- Unresponsiveness/coma
- Inability to trigger breath
- Inability to protect airway / remove mask
- Risk of emesis / copious secretions
- Recent head/neck surgery

**Mode**

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<tr>
<th>Mode</th>
<th>Description</th>
<th>Pro’s</th>
<th>Con’s</th>
<th>Ventilator settings / example</th>
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<tr>
<td>CPAP</td>
<td>Delivers a continuous pressure (CPAP == EPAP == PEEP) throughout the respiratory cycle, holding open collapsible airways and improving oxygenation. Patient triggers all breaths.</td>
<td>Improves oxygenation; relatively well tolerated. Useful in obstructive apneas, reduces intubations in CHF exacerbations.</td>
<td>Does not assist ventilation (risk of hypoventilation)</td>
<td>EPAP, FIO2 +8, 60%</td>
<td>Ventilation</td>
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<tr>
<td>S/T (Spontaneous Timed (a.k.a. BiLelel, BiPAP))</td>
<td>Sets, an inspiratory (IPAP) &amp; expiratory pressure (EPAP). Every breath is supported with positive pressure. Patient triggers breaths, there is also a backup rate. (Similar to pressure support) T - time/pressure/flow, C - flow, L - pressure</td>
<td>Improves ventilation &amp; oxygenation. Useful in COPD to avert intubation &amp; reduce mortality. May also reduce mortality in patients with immunosuppression presenting with hypoxemic respiratory failure.</td>
<td>Can have volutrauma</td>
<td>Backup RR, IPAP, T, Risetime, EPAP, FIO2 8 bpm, 16 cmH2O, 1 sec, 0.15 sec, +8, 60%</td>
<td>Ventilation Volumes</td>
</tr>
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<td>AVAPS (Adaptive volume assured pressure support (a.k.a. iVAPS))</td>
<td>Hybrid mode that dynamically adjusts inspiratory pressure (IPAP) to deliver a desired tidal volume. (Analogous to PRVC/VC+ modes) T - time/pressure/flow, C - volume, L - volume</td>
<td>Ensures minimum ventilation (within a desired pressure range). Not proven superior</td>
<td>Can have volutrauma With greater patient effort (e.g. gasping) will provide less support.</td>
<td>Backup RR, Goal TV, Pmin, Pmax, Risetime, PEEP, FIO2 8 bpm, 450cc, 10, 20, 0.15 sec, +8, 60%</td>
<td>Ventilation pressures &amp; volumes</td>
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