

# Initiation of ventilation during stabilisation

Benefits of ventilation	Key points	General goals
<ul style="list-style-type: none"> <li>Airway protection</li> <li>Respiratory support</li> <li>Cardiovascular support</li> <li>Aids neuroprotection</li> <li>Facilitates transfers, scans and procedures</li> </ul>	<p><b>Keep the child sedated &amp; muscle relaxed</b></p> <ul style="list-style-type: none"> <li>No benefit in spontaneous breathing whilst waiting for the retrieval team</li> </ul> <p><b>Pressure control is recommended</b></p> <ul style="list-style-type: none"> <li>Tidal volume estimation can be inaccurate in smaller infants/children</li> </ul>	Ensure adequate oxygenation and ventilation, with consideration of the following special circumstances*

## Suggested initial ventilator settings

Respiratory pressures (P <sub>insp</sub> & PEEP)	PIP 15-30 (increased until adequate chest wall movement/tidal volumes) PEEP 5-8 (always have PEEP on)
Maximum limits (P <sub>max</sub> )	Peak pressures > 30 requires intervention (See trouble shooting)
Inspiratory time	<3kg 0.7 3-40kg 0.8 >40-60kg 1.0 >60kg 1.2
I:E Ratio	Typically 1:2
Respiratory Rate	<10kg 25-30 (no greater than this) >20kg 20-25 >50kg 12-20
F <sub>i</sub> O <sub>2</sub>	Minimum amount to achieve target sats*
Tidal volume	5-8mls/kg. Aiming for normal chest rise

## Troubleshooting Ventilation

<b>Deterioration</b> (Call for help)	<p>Hand ventilate, check tube length, secretion clearance, then try back on ventilator, and:</p> <ul style="list-style-type: none"> <li>Increase FiO<sub>2</sub></li> <li>Increase mean airway pressure by increasing:           <ul style="list-style-type: none"> <li>* PEEP</li> <li>* Inspiratory time</li> <li>* PIP or tidal volume</li> </ul> </li> <li>Improve V/Q mismatch (recruitment techniques)</li> <li>Sedate &amp; muscle relax</li> <li>Exclude reversible respiratory pathology (pneumothorax)</li> </ul>
<b>Ventilator asynchrony</b>	<p>Hand ventilate, check tube length, secretion clearance, then try back on ventilator, and:</p> <ul style="list-style-type: none"> <li>Increase minute volume by increasing:           <ul style="list-style-type: none"> <li>* RR (balance against time for gas clearance)</li> <li>* PIP or tidal volumes</li> </ul> </li> <li>Sedate &amp; muscle relax</li> <li>Review your acceptable CO<sub>2</sub> targets; keep pH &gt;7.2</li> <li>Check correct size equipment (e.g. HME size)</li> </ul>

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## Troubleshooting Ventilation: A practical approach

