

## Appendix A: ITU Weaning Protocol



### Weaning Protocol (Adults)

exclusions: short-term ventilation, severe obesity, spinal cord injury

#### Weaning should be started when:

- Active lung pathology has resolved
- Oxygen saturation >90% with FiO<sub>2</sub> ≤ 40%
- Haemodynamically stable on minimal inotropes
- Spontaneous breaths present

Protocol A <i>[for endotracheal, tracheostomy tubes]</i>	Protocol B <i>[for tracheostomy tubes]</i>
09:00	07:00
Set PS to lowest level that allows: Resp Rate: 15-25 breaths/min Tidal Volume: > 250 mls (typically PS between 10-20 cmH <sub>2</sub> O)	Place patient on tracheostomy mask <ul style="list-style-type: none"> <li>• Cuff deflated (unless contraindicated)</li> <li>• Speaking valve</li> <li>• FiO<sub>2</sub>: 10% higher than ventilator</li> </ul>
15:00	
Is patient distressed?	
<b>No</b> decrease PS by 2 cmH <sub>2</sub> O	<b>Yes</b> increase PS to previous level  Resume weaning after 6 hours
21:00	
Is patient distressed?	
<b>No</b> decrease PS by 2 cmH <sub>2</sub> O	<b>Yes</b> increase PS to previous level  Resume weaning after 6 hours
Maximum decrease in PS in 1 day: 6 cmH <sub>2</sub> O  Aim for PS 8 cmH <sub>2</sub> O for at least 12 hours. If achieved, consider spontaneous breathing trial.	Step 1: 1 hr session, 5 hours rest x 3 sessions Step 2: 2 hr session, 4 hours rest x 3 sessions Step 3: 3 hr session, 3 hours rest x 3 sessions Step 4: 4 hr session, 2 hours rest x 3 sessions Step 5: 5 hr session, 1 hour rest x 3 sessions Step 6: 7am - midnight session, overnight ventilation  Step 7: 24 hours session  Once a patient is comfortable, move on to another step the following day  If a patient fails to complete session, keep at current step until patient manages to complete prescribed session

#### Signs of patient distress

Resp Rate > 35 bpm  
 SpO<sub>2</sub> < 90%  
 EtCO<sub>2</sub> increase > 10 mmHg  
 Heart Rate >140 bpm

Systolic Blood Pressure > 180 mmHg, < 90 mmHg  
 Obvious respiratory distress (use of accessory muscles, nasal flaring)  
 Anxiety, Profuse sweating

Spontaneous Breathing Trial	Signs of Patient Distress
<p>Note the current ventilator settings</p> <p>Decide length of SBT ( 30 - 120 min )</p> <p>Change settings to:</p> <hr/> <p>CPAP / PSV / Spont</p> <p>PEEP: same as before</p> <p>Pressure support: 5 cmH<sub>2</sub>O</p> <p>FiO<sub>2</sub>: + 10</p> <hr/> <p>Observe the patient closely</p> <p>If Patient is distressed (see opposite), STOP SBT</p> <p>If successful, record RSBI:</p> <hr/> $RSBI = \frac{\text{Resp Rate}}{\text{Tidal Volume in Litres}}$ <hr/> <p>If RSBI &lt; 100, chances of successful extubation are 85%</p>	<p>Resp Rate &gt; 35 bpm</p> <p>SpO<sub>2</sub> &lt; 90%</p> <p>EtCO<sub>2</sub> increase &gt; 10 mmHg</p> <p>Heart Rate &gt;140 bpm</p> <p>Systolic Blood Pressure &gt; 180 mmHg, &lt; 90 mmHg</p> <p>Obvious respiratory distress (use of accessory muscles, nasal flaring)</p> <p>Anxiety, Profuse sweating</p> <hr/> <p><b>If any of the above signs, then stop SBT</b></p> <p><b>Continue ventilation as per previous settings</b></p>

In difficult-to-wean patients, consider:			
W	wheeze (COPD/asthma)	N	nutritional deficiency
H	heart disease & fluid overload	O	opiates & other sedatives
E	electrolyte & metabolic derangement	T	thyroid disease, tube blockages
A	anxiety		
N	neuromuscular diseases & weakness		
S	sepsis, ventilator synchrony		