## Asthma and Status Asthmaticus

<table>
<thead>
<tr>
<th>Drug</th>
<th>Albuterol</th>
<th>Ipratropium (Atrovent)</th>
<th>Steroid</th>
<th>Magnesium</th>
<th>Epinephrine</th>
<th>Terbutaline</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td>Neb x 1 or MDI if mild Neb q20’ x 3 if moderate Continuous if severe</td>
<td>Give with albuterol x1 if mild or q20’ x 3 if moderate to severe</td>
<td>PO for moderate, IV for severe</td>
<td>Moderate to severe</td>
<td>Severe</td>
<td>Severe</td>
<td>Severe</td>
</tr>
<tr>
<td>0 – 4 years</td>
<td>2.5 mg neb or 4-6 puffs MDI (moderate) Continuous 7.5 mg/hr or 1 mg/kg/hr</td>
<td>0.25 mg neb</td>
<td><strong>Decadron</strong> 0.3-0.6 mg/kg PO (max 12mg) <strong>Prednisone</strong> 2mg/kg PO (max 60mg) <strong>Methylprednisolone</strong> 2mg/kg IV (max 125mg)</td>
<td>40 mg/kg IV</td>
<td>0.01 mg/kg or 1:1000 IM or SQ</td>
<td>0.01 mg/kg IV over 10min (max 0.25-0.5mg), then IV infusion at 0.4 mcg/kg/min</td>
<td>BiPAP 10 IPAP/5 EPAP <strong>Aminophylline</strong> 5mg/kg IV over 1 hour then 0.5-1 mg/kg/hr <strong>Ketamine</strong> 1 mg/kg IV then infusion 1 mg/kg/hr Heliox 79/21 or 70/30</td>
</tr>
<tr>
<td>5 years and older</td>
<td>5 mg neb or 8 puffs MDI Continuous 15 mg/hr</td>
<td>0.5 mg neb</td>
<td><strong>Decadron</strong> 0.3-0.6 mg/kg PO (max 12mg) <strong>Prednisone</strong> 2mg/kg PO (max 60mg) <strong>Methylprednisolone</strong> 2mg/kg IV (max 125mg)</td>
<td>40 mg/kg IV (max 2gm)</td>
<td>0.01 mg/kg or 1:1000 IM or SQ (max 0.3mg)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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**Work-up**
- Pulse oximetry
- Peak flow as able
- Venous blood gas if severe
- Chest radiograph if:
  - Focal crackles after initial therapy
  - Fever high (>39) or prolonged
  - Persistent hypoxemia
  - Severe disease
  - Chest pain
- Look for pneumonia, air leak, atelectasis

**Mechanical ventilation**
- Avoid intubation & mechanical ventilation if possible; allow permissive hypercapnia, aim for O2 sat > 90%
- Indications: cardiac or respiratory arrest, physical exhaustion, severely altered level of consciousness, persistent severe hypoxemia
- RSI: ketamine, rocuronium
- Vent settings: minimal achievable PIP, tidal volume, long I:E ratio (1:3-4) and low rates to allow for full exhalation (avoid air trapping)
- Sedate heavily, try to avoid ongoing paralytic use (aminosteroid neuromuscular blocker + steroid can cause prolonged myopathy)

Ventilator flow waveform with air trapping; solution: lower rate, increase expiration time