



# KIDS Clinical Guideline: Asthma

## Principles of management:

- Assessment of severity as per BTS guidelines
- Identify risk factors for poor outcome (e.g. previous ICU admission)
- Involve consultant if acute, severe asthma
- Provide adequate oxygen
- Use bronchodilators, but avoid toxicity
- Intubate and ventilate if necessary (see indications + precautions)
- Consider differentials (e.g. foreign body)
- Call KIDS if any concerns **(0300 200 1100)**

## Emergency treatment:

### 1<sup>st</sup> line:

- Give high flow oxygen (aim for SpO<sub>2</sub> 94-98%)
- Nebulised bronchodilators “back-to-back”:
  - **Salbutamol** – 2.5 mg (1months -4yrs) ; 5 mg (>5yrs)
  - **Ipratropium**- 250 microg (1months -11yrs); 500 microg (>11yrs)
- Early steroids
  - Oral **Prednisolone** 2mg/kg (1months -11yrs); 50 mg (>11yrs) OR
  - IV **Hydrocortisone** 4mg/kg depending on the severity.
- CXR- If suspicion of pneumothorax, consolidation, unsatisfactory response to bronchodilators

### 2<sup>nd</sup> line:

- Intravenous **Salbutamol** (see [drug calculator](#))  
Bolus followed by infusion, with continuous ECG monitoring  
*Note: May cause tachyarrhythmias, hypotension, lactic acidosis*
- Intravenous **Magnesium Sulphate** (see [drug calculator](#))  
*Note: May cause hypotension*
- Intravenous **Aminophylline** (see [drug calculator](#))  
Bolus followed by infusion with ECG monitoring  
*Note: May cause tachycardia. Do not load if on oral theophylline.*
- *Salbutamol and aminophylline may cause hypokalaemia, requiring increased potassium in maintenance fluid*
- Consider **high-flow nasal cannula oxygen** (at least 1-2 l/kg/min)

## Intubation and ventilation:

### Indications:

- Exhaustion
- Worsening hypoxemia, despite 1<sup>st</sup> + 2<sup>nd</sup> line treatment
- Poor respiratory effort, or respiratory arrest

### Precautions:

- High risk intubation, as ventilation may be difficult
- Most experienced operator should intubate and manage ventilation
- Preoxygenate with 100% oxygen for 3mins
- Prepare fluid bolus +/- adrenaline
- Rapid Sequence Induction – use ketamine and rocuronium / suxamethonium (see [drug calculator](#)).
- Use cuffed ETT

## Sample ventilator settings:

- Mode: Pressure Control
- Limit P<sub>i</sub>P < 35 cm H<sub>2</sub>O
- Aim for tidal volumes 5-10 ml/kg
- Rate 10 - 20 bpm
- I: E ratio of at least 1:2
- PEEP of 5-8 cmH<sub>2</sub>O (avoid zero PEEP!)
- Alter settings depending on patient response

## Post intubation

- Sedate with ketamine and midazolam
- Muscle relax with rocuronium infusion
- If no improvement, consider low dose sevoflurane (F<sub>i</sub> 0.5-2.0%)
- If hypotension occurs, change iv salbutamol to adrenaline
- Aim for:
  - pH >7.2
  - SpO<sub>2</sub> > 90%
- Watch for:
  - Worsening bronchospasm
  - Overinflation (consider manual decompression)
  - Mucous plugging
  - Pneumothorax
- Maintain normovolaemia