

Management of acute asthma in children (aged >2 years) in hospital

ASSESS ASTHMA SEVERITY

Moderate exacerbation

- SpO₂ ≥92%
- PEF ≥50% best or predicted (>5 years)
- No clinical features of severe asthma

NB: If a child has signs and symptoms across categories, always treat according to their most severe features

Severe exacerbation

- SpO₂ <92%
- PEF <50% best or predicted (>5 years)
- Heart rate
 - >130/min (2-5 years)
 - >120/min (>5 years)
- Respiratory rate
 - >50/min (2-5 years)
 - >30/min (>5 years)
- Use of accessory neck muscles

Life threatening asthma

- SpO₂ <92%
- PEF <33% best or predicted (>5 years)
- Silent chest
- Poor respiratory effort
- Altered consciousness
- Cyanosis

Oxygen via face mask/nasal prongs to achieve normal saturations

- β₂ agonist 2-4 puffs via spacer ± facemask
- Increase β₂ agonist dose by 2 puffs every 2 minutes up to 10 puffs according to response
- Oral prednisolone
 - 20mg (2-5 years)
 - 30-40mg (>5 years)

Reassess within 1 hour

- β₂ agonist 10 puffs via spacer ± facemask or nebulised salbutamol (2-5 years: 2.5mg; >5 years: 5mg) or terbutaline (2-5 years: 5mg; >5 years: 10mg)
- Oral prednisolone (2-5 years: 20mg; >5 years: 30-40mg) or IV hydrocortisone 4mg/kg
- If poor response add 0.25mg nebulised ipratropium; repeat β₂ agonist and ipratropium up to every 20-30 minutes according to response

- Nebulised salbutamol (2-5 years: 2.5mg; >5 years: 5mg) or terbutaline (2-5 years: 5mg; >5 years: 10mg) plus ipratropium 0.25mg
- IV hydrocortisone 4mg/kg

Discuss with senior clinician, PICU team or paediatrician

- Repeat bronchodilators every 20-30 minutes

ASSESS RESPONSE TO TREATMENT

Record respiratory rate, heart rate and oxygen saturation every 1-4 hours

RESPONDING

- Continue bronchodilators 1-4 hours prn
- Discharge when stable on 4 hourly treatment
- Continue oral prednisolone for up to 3 days

At discharge

- Ensure stable on 4 hourly inhaled treatment
- Review the need for regular treatment and the use of inhaled steroids
- Review inhaler technique
- Provide a written asthma action plan for treating future attacks
- Arrange follow up according to local policy

NOT RESPONDING

- Continue 20-30 minute nebulisers and arrange HDU/PICU transfer

Consider:

- Chest x-ray and blood gases
- Bolus IV salbutamol 15μg/kg (over 10 minutes)
- Continuous IV salbutamol infusion 1-5μg/kg/min (200μg/ml solution)
- IV aminophylline 5mg/kg loading dose over 20 minutes (omit in those receiving oral theophyllines) followed by continuous infusion 1mg/kg/hour
- >5 years: Bolus IV infusion of magnesium sulphate 40mg/kg (max 2g) over 20 minutes