**Initial assessment**

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<th>– previous medication and asthma history, particularly severe attacks</th>
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<td>– chest movements, prolonged expiration, recessions, use of accessory muscles, cyanosis, general condition, mental status</td>
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<td>Examination</td>
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<td>– oxygen saturation (blood gases when appropriate)</td>
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**Initial treatment**

- Oxygen; saturation ≥ 95%
- Reassurance of children and parents
- Avoid sedatives and painful procedures

**Very severe or life-threatening episode, anaphylaxis:**

- Consider i.m adrenaline
  
  \[(10 \mu g/kg; 0.1 ml/10 kg of adrenaline 1 mg/ml)\]

**Moderate or severe episode.**

The general advice is to administer β2-agonist until effect is achieved or until side effects occur (tachycardia).

The child needs close observation from skilled personnel in this phase

- Inhaled β2-agonist
  
  - Nebulised Salbutamol 1.0 mg/10 kg (max 5 mg) in 2-5 ml NaCl 9 mg/ml, may be repeated every 20 min first hour, or
  
  - Salbutamol continuously for one hour; 1.5 mg/10 kg (max 5 mg) in 5 ml NaCl 9 mg/ml given repeatedly
  
  - Moderate episode; salbutamol MDI with spacer; 0.1 mg/dose, 1 puff/10 kg – may be repeated every 20 minutes first hour
  
  - Inhaled adrenaline – particularly in younger children (<2 years) and in severe attacks
    
    - Racemic adrenaline 2 – 5 mg in 2-5 ml NaCl 9 mg/ml or
    
    - Adrenalin 1 mg/ml: 1 - 2 mg in 2-5 ml NaCl 9 mg/ml.
    
    - repeat every 1-2 hourly

- Inhaled ipratropium bromide – may be considered in older children in addition to a β2-agonist
  
  - Nebulised ipratropium bromide 0.25 mg in 2-5 ml NaCl 9 mg/ml
  
  - Moderate episode; ipratropium bromide MDI with spacer, 2 puffs (40 μg) – may be repeated every 20 min first hour

- Systemic glucocorticosteroids
  
  - Oral glucocorticosteroids (prednisolone 1-2 mg /kg or equivalent) or
  
  - Intravenous glucocorticosteroids (methylprednisolone 1 mg/kg or hydrocortisone 4 mg/kg)

**Reassessment after 1-2 hours**

Oxygen requirement, physical observation and examination as above, consider blood gases

**Poor improvement, severe obstruction**

- continue inhalations as above (observe side effects)
- Consider
  
  - β2-agonist intravenously (terbutaline 5-10 ug/kg/h)
  
  - Theophylline intravenously (loading dose 6 mg/kg, maintenance 0.7-0.9 mg/kg/h)
    
    - Adjust according to plasma theophylline levels
  
  - Magnesium sulphate intravenously; 25 – 100 mg/kg given over 20 minutes

**Reassessments at regular intervals**

Oxygen requirement, physical observation and examination as above, blood gases

**Deterioration –impending respiratory failure**

- Decreasing breath sound – “quite chest”
- Worsening of general signs and mental status, inability to speak or cry
- arterial pCO2 > 7.5 – 8 kPa

Consider

- BiLevel CPAP
- Mechanical ventilation

**Improvement, moderate and decreasing obstruction**

- continue inhalations as above, gradually increasing intervals
- step down other medications
- oral glucocorticosteroids to be continued for 1-5 days