

 <p style="text-align: center;">CREDIT VALLEY THE CREDIT VALLEY HOSPITAL</p>	CLINICAL PRACTICE GUIDELINE	PROFESSIONAL PRACTICE
TITLE: Emergency Management: Paediatric Asthma		
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Purpose:

To provide general guidelines for use by physicians and staff in planning the care and treatment of paediatric patients presenting to the emergency department with acute signs and symptoms of asthma.

Inclusion Criteria:

Patients presenting with acute signs and symptoms of asthma which may include any of the following; audible wheezing, wheezing with retractions, tight cough and dyspnea.

Responsibilities:

All physicians may initiate this guideline by completing the preprinted physician order sheet ([# 00001 D HR effective Jan 23/2003](#)).

Assessment and Monitoring:

Vital Signs: frequency depending on level of illness

Oximetry:

Peak Flow Rates/Spirometry:

Indicated:

- for all children > 6 years old and children > 5-6 years old who are cooperative and understand instructions
- pre treatment,
- AND 15 minutes post initial treatment series (1 or 3 treatments)
- AND 4 hours after last mask treatment or pre discharge

Arterial Blood Gases:

Indicated if:

- fatigue or confusion present, poor response to treatment, deterioration despite aggressive treatment
- $FiO_2 \geq 50\%$ is required to maintain a $SaO_2 \geq 93\%$

Consider if:

- Peak flow rates < 30% predicted

Potassium (K+) Level:

Consider when:

- 9 mask treatments given (at home and in Emergency Department)

Chest Radiograph:

Indicated if:

- poor response to treatment
- atypical cases, question of alternative diagnosis
- need for hospitalization, fever crepitations are not absolute indications for CXR

Treatment:

Oxygen: initiate oxygen therapy and titration according to the medical directive: O₂ Assessment protocol - Paediatrics MD 15.2

Medications: administration of inhaled salbutamol and ipratropium bromide may be initiated as per medical directive: Administration of inhaled salbutamol and ipratropium bromide to paediatric patients (Emergency Department) MD 1.4

DRUG	DOSE	GUIDELINE
Salbutamol **	5 mg/mL solution: 0.03 mL/kg/dose inhalation q 20 mins - 4 hrs minimum 0.2 mL/dose maximum 1 mL/dose	Give by inhalation starting at Q20min frequency until patient significantly improved. Reassess after every 3 masks; reduce frequency when pt is stable. Give dose in 3 mL NS by nebulizer with oxygen.
Ipratropium Bromide	250 mcg (1 mL)/dose inhalation q 20 min x 3 doses; further doses may be considered.	Use for severe and moderately-severe disease, omit in mild disease. May mix with salbutamol or normal saline.
Corticosteroids	Prednisone or Prednisolone 2 mg/kg po x 1 dose maximum 60 mg Dexamethasone 0.3 mg/kg po x 1 dose <u>OR</u> Hydrocortisone 4-6 mg/kg/dose IV given q4-6h	Give as soon as possible except in mild cases (ie those with good initial response to Salbutamol) Give IV hydrocortisone in very severe asthma or deteriorating patient, or patients unable to take po medication (ie. persistent vomiting)

** Intravenous Salbutamol is not to be initiated in the Emergency Department. It is reserved for use only in the Critical Care Unit setting.

Fluid Management:

Consider intravenous fluids if:

- patient is vomiting or unable to maintain adequate oral intake
- patient is dehydrated
- patient requiring IV hydrocortisone
- patient with severe asthma requires critical care

Disposition:**Indication for Transfer to Critical Care Unit/Tertiary Center:**

- no response to intensive therapy
- bronchodilator inhalations given q20 minutes with increasing fatigue
- $\text{PaCO}_2 > 40$ mm Hg or $\text{SaO}_2 < 90\%$ on oxygen supplementation of $\text{FiO}_2 \geq 0.5$
- pneumothorax

Discharge Criteria:

- improvement in respiratory status 2 hours after last inhalation and it appears patient is able to tolerate q4h salbutamol treatments
- $\text{SaO}_2 > 95\%$ in room air
- peak flow rate $> 75\%$ predicted in clinically stable patient (Normal peak flow rates are on the back of the preprinted physician order sheet ([#00001 D HR](#)))
- demonstrates good understanding of prescribed home therapy, including use of puffers, aerochamber and peak flow meter if indicated.
- demonstrates good understanding of clinical indicators of progressive respiratory failure and when to seek further medical intervention

Consider extending observation > 2 hours if:

- past history of Critical Care Unit ventilation for asthma
- very severe respiratory distress on arrival
- $\text{SaO}_2 < 90\%$ in room air on arrival

Education and Follow up:

- Teaching will be done prior to discharge on use of puffers, aero chamber and peakflow meter as indicated
- Reassessment appointment with family doctor or paediatrician within 3 days of discharge from the Emergency Department.
- Referral to Pediatric Clinic
- Referral to Asthma Education Centre

References:

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6. Schuh S. Et al. Hospitalization patterns in severe acute asthma in children. *Pediatr Pulmonol*. 1997 Mar;23(3):184-92.
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Evaluation:

- Assess the use of preprinted orders six months after changes implemented.
- Compare the use of dexamethasone vs prednisone in the Emergency Department.

Approval:

Department of Paediatrics: April 2002
Department of Emergency Medicine: January 2001
Pharmacy and Therapeutics: April 2002
Emergency Steering Committee: April 2002
Professional Practice Committee: April 2002
Clinical Quality Care Committee: April 2002
Medical Advisory Committee: May 2002