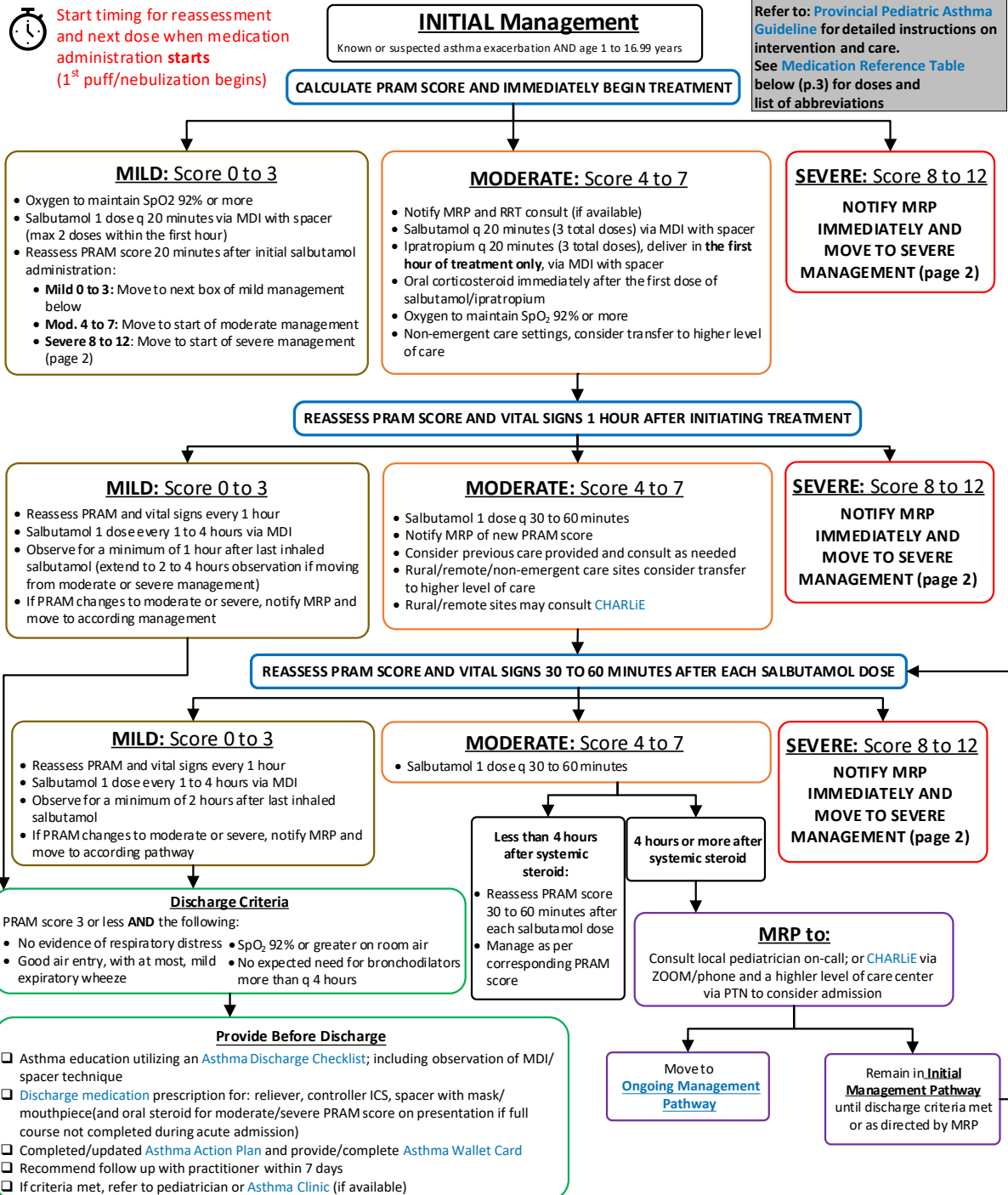


## Algorithm: Initial Management of Pediatric Asthma Exacerbations (Page 1 of 3)



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## Algorithm: Initial Management of Pediatric Asthma Exacerbations (Page 2 of 3)



Start timing for reassessment and next dose when medication administration **starts**  
(1<sup>st</sup> puff/nebulization begins)

Refer to: [Provincial Pediatric Asthma Guideline](#) for detailed instructions on intervention and care.

See [Medication Reference Table](#) below (p.3) for doses and list of abbreviations

### **SEVERE: Score 8 to 12**

- Inhaled salbutamol and ipratropium MDI with spacer or nebulizer q 20 minutes (3 total doses)
  - If salbutamol q 20 minutes x 3 already provided, administer continuous nebulized salbutamol
  - If ipratropium already provided during management, do not administer again
- Establish vascular access
- If not already provided, administer:
  - MethylPREDNISolone IV, even if PO steroid already provided
- Continuous SpO<sub>2</sub>, heart rate and respiratory rate monitoring
- Most responsible physician at bedside, consult RRT (if available)
- Consider early respiratory support and magnesium sulfate infusion (see below for further recommendations)
- Consult local pediatrician on-call; if no pediatrician call [CHARLIE](#) via ZOOM/phone and a higher level of care center via PTN
- Rural/remote sites consider/prepare transfer to higher level of care

### **Signs of Impending Respiratory Failure**

- Decreased level of consciousness
- Agitation
- Cyanosis
- Decreased respiratory effort
- Confusion

### **REASSESS PRAM SCORE 1 HOUR AFTER INITIATING TREATMENT**

#### **MILD: Score 0 to 3 or MODERATE: Score 4 to 7**

Reassess vital signs and PRAM q 30 min x2 (salbutamol 1 dose q 30 to 60 minutes);  
**then**  
Move to **MILD** or **MODERATE** management (page 1)

#### **SEVERE: Score 8 to 12**

- Begin to maintain continuous administration of nebulized salbutamol
- If not already provided, administer:
  - MethylPREDNISolone IV (even if PO steroid already provided)
  - Magnesium sulfate IV (following appropriate health authority/agency guidelines)
- Monitor BP q 5 minutes during infusion, then q 30 minutes
- If signs of circulatory compromise, provide isotonic 10 to 20 mL/kg bolus (max 1L) over 10-20 minutes to achieve adequate perfusion (monitor for fluid overload)
- Continuous SpO<sub>2</sub>, heart rate and respiratory rate monitoring
- BiPAP is the first-line recommendation for non-invasive respiratory support for patients with severe work of breathing and/or impending respiratory failure (BCCH/VGH PICU can support)
- Caution using HFNC: see considerations for potential use of HFNC in 'Oxygen and Respiratory Support' section of guideline
- Consult local pediatrician on-call; if no pediatrician call [CHARLIE](#) via ZOOM/phone and PICU/higher level of care center via PTN
- Consider intubation with PICU consult in patient with impending respiratory failure despite maximum therapy

#### **Consider:**

- CXR
- Blood gas (venous, capillary or arterial)
- Electrolytes, CBC & Differential
- POC blood glucose
- Possibility of a pneumothorax
- Anesthesia consult for airway management

### **REASSESS PRAM SCORE EVERY 15 MINUTES OR AS DIRECTED**

#### **MILD: Score 0 to 3 or MODERATE: Score 4 to 7**

Reassess vital signs and PRAM q 30 min x 2 (salbutamol 1 dose q 30 to 60 minutes);  
**then**  
Move to **MILD** or **MODERATE** management (page 1)

#### **SEVERE: Score 8 to 12**

- Continuous administration of nebulized salbutamol
- Early consultation with BCCH/VGH PICU for all patients with:
  - impending respiratory failure,
  - those who fail to improve following initial management; **and/or**
  - in patients for whom transfer to a higher level of care is anticipated
- Continue assessments q 15 minutes or as otherwise directed

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## Algorithm: Initial Management of Pediatric Asthma Exacerbations Medication References

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### Bronchodilators

<b>salbutamol (intermittent)</b>	<p><b>Child weight less than 20 kg:</b> 5 puffs via MDI with spacer (100 mcg/puff); <u>or</u> 2.5 mg via nebulizer</p> <p><b>Child weight greater than or equal to 20 kg:</b> 10 puffs via MDI with spacer (100 mcg/puff); <u>or</u> 5 mg via nebulizer</p> <p><i>Note: salbutamol doses are the same throughout the management algorithm.</i></p>
<b>salbutamol (continuous)</b>	<p>20 mg/hr via nebulizer</p> <p><i>Note: salbutamol doses are the same throughout the management algorithm.</i></p>
<b>ipratropium (intermittent)</b>	<p><b>Child weight less than 20 kg:</b> 3 puffs via MDI with spacer (20 mcg/puff); <u>or</u> 0.25 mg via nebulizer</p> <p><b>Child weight greater than or equal to 20 kg:</b> 6 puffs via MDI with spacer (20 mcg/puff); <u>or</u> 0.5 mg via nebulizer</p>

**Note:** administering nebulized medication through a HFNC circuit will dramatically reduce delivered dose. See guideline for detailed instructions.

### Systemic Steroids

<b>dexamethasone</b>	<p>0.6 mg/kg/dose (max 16 mg/dose) PO x 1 dose</p> <p><i>Second dose to be given after 24 hours in hospital if scoring moderate or severe PRAM</i></p>
<b>prednisone/prednisolone</b>	1 mg/kg/dose (max 60 mg/dose) PO daily (x 5 days)
<b>methylPREDNISolone</b>	1 mg/kg/dose (max 60 mg/dose) IV q6h

### Other

<b>magnesium sulfate</b>	50 mg/kg/dose (max 2000mg/dose) IV x 1 dose <b>over 20 minutes</b>
<b>0.9% NaCl/Ringer's Lactate bolus</b>	10-20 mL/kg bolus (max 1L) over <b>10 to 20 minutes</b>

#### List of Abbreviations

BCCH/VGH PICU = BC Children's Hospital/Victoria General Hospital Pediatric Intensive Care Unit  
 BiPAP = Bilevel positive airway pressure  
 BP = Blood pressure  
 CBC = Complete blood count  
 CHARLIE = Child health advice in real-time electronically  
 CXR = Chest x-ray  
 HFNC = High flow nasal cannula  
 ICS = Inhaled corticosteroid  
 IV = Intravenous  
 MDI = Metered dose inhaler  
 MRP = Most responsible physician  
 NaCl/LR = Sodium chloride/Lactated Ringer's

O<sub>2</sub> = Oxygen  
 PO = By mouth  
 POC = Point of care  
 PRAM = Pediatric Respiratory Assessment Measure  
 PRN = As needed  
 PTN = Patient transfer network  
 q = Every  
 RR = Respiratory rate  
 RRT = Registered Respiratory Therapist  
 SpO<sub>2</sub> = Oxygen saturation

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