



## **CHBC Provincial Guideline**

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

#### Start timing for **ONGOING Management** reassessment and next dose when medication • 4 hours or more after initial systemic steroid and PRAM less than or equal to 7 administration starts • Intended to only be used for patients aged 1 to 16.99 years with an uncomplicated primary NOTE: Pediatric Asthma Exacerbations (1st puff/nebulization diagnosis of asthma, on room air or low-flow oxygen (not on high-flow nasal cannula) begins) Require Unique Medication Dosing: \*Salbutamol: less than 20kg- 5 puffs/2.5mg neb Refer to: Provincial greater than/equal to 20kg- 10 puffs/5mg neb **ASSESS PRAM SCORE AND VITAL SIGNS WITHIN 30** Pediatric Asthma MINUTES OF TRANSITION TO ONGOING MANAGEMENT \*\*Ipratropium: less than 20 kg- 3 puffs/0.25mg neb **Guideline** for detailed instructions on greater than/equal to 20kg- 6 puffs/0.5mg neb Consider starting inhaled corticosteroids (if admitted) intervention and See Medication Reference Table below (page 3) Oxygen to keep SpO<sub>2</sub> 92% or above MILD: Score 0 to 3 • Salbutamol\* q 2 hours • Reassess vital signs and PRAM in 1 hour: • PRAM 0 to 3: continue mild management **MODERATE:** Score 4 to 7 SEVERE: Score 8 to 12 below • Salbutamol\* q 1 to 2 hours • PRAM 4 to 7 or 8 to 12: move to moderate or • Notify MRP immediately • Reassess vital signs and PRAM q 30 to 60 severe management and notify MRP • Follow Severe Asthma Management minutes: (p. 2) • MILD 0 to 3: move to start of mild management Signs of impending respiratory • MODERATE 4 to 7: continue current MILD: Score 0 to 3 failure: management decreased level of consciousness, • SEVERE 8 to 12: move to severe • Salbutamol\* q 2 to 4 hours agitation, cyanosis, decreased management • Reassess vital signs and PRAM q 2 hours: respiratory effort, confusion • PRAM 0 to 3: continue current management • PRAM 4 to 7 or 8 to 12: move to moderate or • Repeat PO/IV steroid dose if last severe manager and notify MRP administered more than 24 hours prior When PRAM remains mild 4 hours after last If moderate PRAM unchanged x 6 hours: salbutamol dose, move below • Move to severe management MILD: Score 0 to 3 • Wean puffs of salbutamol administered (follow health authority/agency guidelines for weaning dose; i.e. MRP/RN/RRT scope of practice) MRP to consider discharge **Provide Before Discharge** ☐ <u>Discharge medication</u> prescription for reliever, **Discharge Criteria** controller ICS and spacer with mask/mouthpiece (and oral steroid for moderate/severe PRAM PRAM score 3 or less AND the following: score on presentation if full course not 1. No evidence of respiratory distress completed during acute admission) 2.Good air entry, with at most, mild expiratory wheeze ☐ Completed/updated Asthma Action Plans and 3. SpO2 92% or greater on room air; provide/complete Asthma Wallet Card • If admitted: SpO<sub>2</sub> 92% or greater for 12 hours on room air (including a documented spO2 92% or greater while asleep) ☐ Recommend follow up with appropriate

This material has been prepared by Child Health BC (CHBC) as guidance in the provision of care to pediatric patients in British Columbia. Please consult your health authority leaders for clarification on the adoption and use of this guidance within your local context. A printed copy of this document may not reflect the current electronic version.

practitioner within 7 days

for follow up

☐ Refer to pediatrician or <u>asthma clinic</u> if available

Effective date: 14/10/2025 Revised: 14/11/2025

4. No expected need for bronchodilators more than q 4 hours

5. Asthma education completed utilizing an Asthma Discharge

Checklist; including observation of MDI/spacer technique





## CHBC Provincial Guideline

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

NOTE: Pediatric Asthma Exacerbations Require Unique Medication Dosing:

\*Salbutamol: less than 20kg- 5 puffs/2.5mg neb; greater than/equal to 20kg- 10 puffs/5mg neb

\*\*<u>lpratropium</u>: less than 20 kg- 3 puffs/0.25mg neb; greater than/equal to 20kg- 6 puffs/0.5mg neb See Medication Reference Table below (page 3)



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

### SEVERE: Score 8 to 12

- Inhaled salbutamol\* MDI with spacer or nebulizer q 20 minutes (x 3 total)
  - If salbutamol\* q 20 minutes x3 already provided, administer continuous nebulized salbutamol\*
- 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; or if rural/remote CHARLIE via Zoom or phone; or higher level of care center via PTN
- Rural/remote sites consider/prepare transfer to higher level of care

Refer to:

detailed

care.

instructions on

intervention and

Signs of Impending Respiratory Failure

- Decreased level of Pediatric Asthma consciousness **Guideline for** 
  - 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 minutes x 2 (salbutamol\* q 30 to 60 minutes); then

Move to MILD or MODERATE

management (page 1)

## SEVERE: Score 8 to 12

- Begin of 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 20mL/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 Anesthesia consult for airway severe work of breathing and/or impending respiratory failure (BCCH/VGH PICU can support) management
  - ▲ Caution using HFNC: see considerations for potential use of HFNC in 'Oxygen and Respiratory Support' section of guideline
- Consult local Pediatrician on-call; or if rural/remote CHARLIE via Zoom or phone; or 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

# 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 minutes x 2 (salbutamol\* 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 via PTN for all patients with:
- Impending respiratory failure
  - Those who fail to improve following initial management
  - In patients for whom transfer to a higher level of care is anticipated
- Continue assessments q 15 minutes or as otherwise directed

This material has been prepared by Child Health BC (CHBC) as guidance in the provision of care to pediatric patients in British Columbia. Please consult your health authority leaders for clarification on the adoption and use of this guidance within your local context. A printed copy of this document may not reflect the current electronic version.

Effective date: 14/10/2025 Revised: 14/11/2025





## **CHBC Provincial Guideline**

Ongoing Management of Paulattic Asthma Exacerbations Medication Reference (Page 3 of 3)

### **Bronchodilators**

salbutamol (intermittent)	Child weight less than 20 kg (1 dose): 5 puffs via MDI with spacer (100 mcg/puff); or 2.5 mg via nebulizer  Child weight greater than or equal to 20 kg (1 dose): 10 puffs via MDI with spacer (100 mcg/puff); or 5 mg via nebulizer
salbutamol (weaned dose)* ONLY when sustained PRAM score 3 or less with salbutamol q4h	2-4 puffs via MDI with spacer (100mcg/puff) q4h *Follow site specific policies/procedures for weaning dose (i.e. MRP/RN/RRT scope of practice).
salbutamol (continuous)	20 mg/hr via nebulizer

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

## **Systemic Steroids**

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

## Inhaled Corticosteroids (continue home maintenance therapy if applicable)

beclomethasone diproprionate HFA	100 mcg/dose inhaled BID
fluticasone propionate MDI	125 mcg/dose inhaled BID
ciclesonide MDI	200 mcg/dose inhaled once daily
budesonide DPI	200 mcg/dose inhaled BID
fluticasone propionate DPI	100 mcg/dose inhaled BID

### **Other**

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

### LIST OF ABBREVIATIONS

BCCH/VGH PICU = BC Children's Hospital/Victor
General Hospital Pediatric Intensive Care Unit
BIPAP = Bilevel positive airway pressure
BP = Blood Pressure
INTENSIVE | DIVIDING |
INTENS CBC = Complete Blood Count
CHARLIE = Child Health Advice in Real-time Electronically

CXR = Chest X-Ray

MDI = Metered Dose Inhaler MRP = Most Responsible Practitioner

POC = Point of Care PRN = as needed (Pro Re Nata)
PTN = Patient Transfer Network RR = Respiratory Rate

MNF = MUSI Responsible Fluctionism MN = Respiratory Rate  $Q_1$  = Oxygen  $Q_2$  =  $Q_3$  =  $Q_4$  RATE Registred Respiratory Therapist  $Q_4$  =  $Q_4$  =  $Q_4$  =  $Q_5$  =  $Q_5$  =  $Q_6$  =  $Q_6$ 

This material has been prepared by Child Health BC (CHBC) as guidance in the provision of care to pediatric patients in British Columbia. Please consult your health authority leaders for clarification on the adoption and use of this guidance within your local context. A printed copy of this document may not reflect the current electronic version.

Effective date: 14/10/2025 Revised: 14/11/2025