

PEDIATRIC ASTHMA MANAGEMENT

Less than 17 years of age

IH Emergency Departments

Weight (kg)

Bulleted orders are initiated by default, unless crossed out and initialed by the physician / prescriber. Boxed orders () require physician / prescriber check mark () to be initiated.

INITIAL MANAGEMENT (1st hour in Emergency Department)

1. **ALLERGIES:** See Allergy and Adverse Reaction Record #826234

2. **DIET**

NPO Sips

3. **ACTIVITY**

Bedrest Activity as Tolerated

4. **MONITORING**

- Heart rate, SpO₂, respiratory rate and PRAM score Q _____ and PRN; minimum 20MIN after each dose of salbutamol
- NOTIFY Physician if PRAM score greater than or equal to 8 (see PRAM scoring tool on reverse of page 1)
- Peak Expiratory Flow (PEFR)
- Continuous Cardiac/Respiratory/SpO₂ monitoring/Reassessing
- Other _____

5. **LABORATORY**

- ED Panel (CBC, Lytes4, BUN, Cre, Glucose)
- Arterial Blood Gases (ABG) × 1
- Venous Blood Gases (VBG) × 1

6. **DIAGNOSTICS**

- Chest Portable Peds less than 17 years
- Chest Peds less than 17 years

7. **TREATMENTS**

- Oxygen to keep SpO₂ greater than 92%

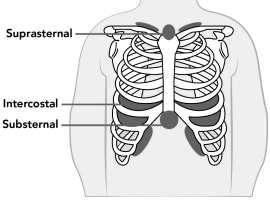
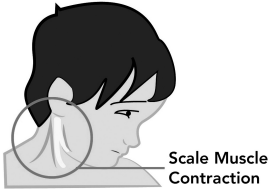
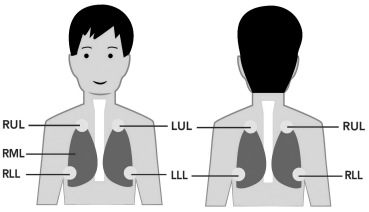
8. **Intravenous Therapy and Hydration**

Saline Lock IV: Fluid, type and rate _____

Date (dd/mm/yyyy)	Time	Prescriber's Signature	Printed Name or College ID#
/ /			

Table 1: PRAM Scoring Table *

See also CHBC Provincial Asthma Guideline – Part Two: Appendix A for additional information*

Criteria	Description	Score	Notes
O2 saturation	Greater than or equal to 95%	0	O ₂ saturation must be measured with the patient breathing ambient air until stabilization of the oximetry value for at least 1 minute.
	92 to 94%	1	Turn Off Supplementary Oxygen when measuring PRAM. If SpO ₂ falls to less than 92% you can turn oxygen back on immediately as they have automatically scored maximum (2) points.
	Less than 92%	2	
Suprasternal Retraction 	Absent	0	The suprasternal retraction is visible indrawing of the skin above the sternum and between the sterno-cleido-mastoid muscle with every intake of breath.
	Present	2	This is a visual assessment.
Scalene Muscle Contraction 	Absent	0	The scalenes are deep cervical muscles located in the floor of the lateral aspect of the neck. Scalene contraction cannot be seen. This is a palpable assessment. Land mark for locating scalene muscles in the triangle bordered by the clavicle (in the front), the trapezius (in the back) and neck (medially) in line with the ear lobe. Occurs in about 10% of all patients – only those with severe asthma exacerbations.
	Present	2	
Air Entry 	Normal	0	In cases of asymmetry, the most severely affected lung field determines the rating.
	↓ at the base	1	Use lung fields to grade air entry. Lung field = two contiguous VERTICAL auscultation zones of the major lobes:
	↓ at the apex and the base	2	Right anterior lung field: RUL and RML Right posterior lung field: RUL and RLL
	Minimal or absent	3	↓ at the base 1 Left anterior lung field: LUL and LLL ↓ at the apex and 2 Left posterior lung field: LUL and LLL
Wheezing	Absent	0	Use auscultation zones to grade wheeze.
	Expiratory only	1	
	Inspiratory (± expiratory)	2	At least two auscultation zones must be affected to influence the rating.
	Audible without stethoscope or silent chest (minimal or no air entry)	3	**In case of asymmetry, the two most Audible without severely affected auscultation zones, stethoscope or 3 irrespectively of their location (RUL, RML, silent chest RLL, LUL, LLL), will determine the rating (minimal or no air criterion).

Child Health BC. Provincial Asthma Guideline; Initial Management of Pediatric Asthma in Emergent/Urgent Care Settings. Vancouver, BC: Child Health BC, April 2018.

Severity Classification

Mild	0 to 3
Moderate	4 to 7
Severe	8 to 12
Impending Respiratory Failure	Regardless of score, presence of lethargy, cyanosis, decreasing respiratory effort, and/or rising CO ₂

Suprasternal Retractions: Notch seen above the clavicle and sternum-may appear to sink in with each breath. May cause an involuntary shoulder shrug in small children.

Scalene Muscle Contractions: The scalenes are deep cervical muscles located in the floor of the lateral aspect of the neck. Scalene contraction cannot be seen. This is a palpable assessment. Occurs in about 10% of all patients – only those with severe asthma exacerbations.

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9. MILD ASTHMA PRAM SCORE 0 – 3 (See PRAM scoring tool on reverse of page 1)

Inhaled Medications

- Pediatric less than 20 kg:
 - salbutamol 500 mcg (5 puffs) per MDI with spacer (preferred) ****OR****
2.5 mg nebulized Q20MIN PRN up to 2 doses
- Pediatric 20kg or greater:
 - salbutamol 1,000 mcg (10 puffs) per MDI with spacer (preferred) ****OR****
5 mg nebulized Q20MIN PRN up to 2 doses
- Reassess PRAM score after 2 doses of salbutamol and if PRAM score greater than 3, call MRP for further orders (refer to pathway on back of page 2)

10. MODERATE ASTHMA PRAM SCORE 4 – 7 (See PRAM scoring tool on reverse of page 1)

- Consult RT if available
- Consider consulting pediatrician on call

Inhaled Medications

- Pediatric less than 20 kg:
 - salbutamol 500 mcg (5 puffs) per MDI with spacer ****OR****
2.5 mg nebulized Q20MIN × 3 doses
 - ipratropium 60 mcg (3 puffs) per MDI with spacer ****OR****
250 mcg nebulized Q20MIN × 3 doses
- Pediatric 20 kg or greater:
 - salbutamol 1,000 mcg (10 puffs) per MDI with spacer ****OR****
5 mg nebulized Q20MIN × 3 doses
 - ipratropium 120 mcg (6 puffs) per MDI with spacer as above ****OR****
500 mcg nebulized Q20MIN × 3 doses

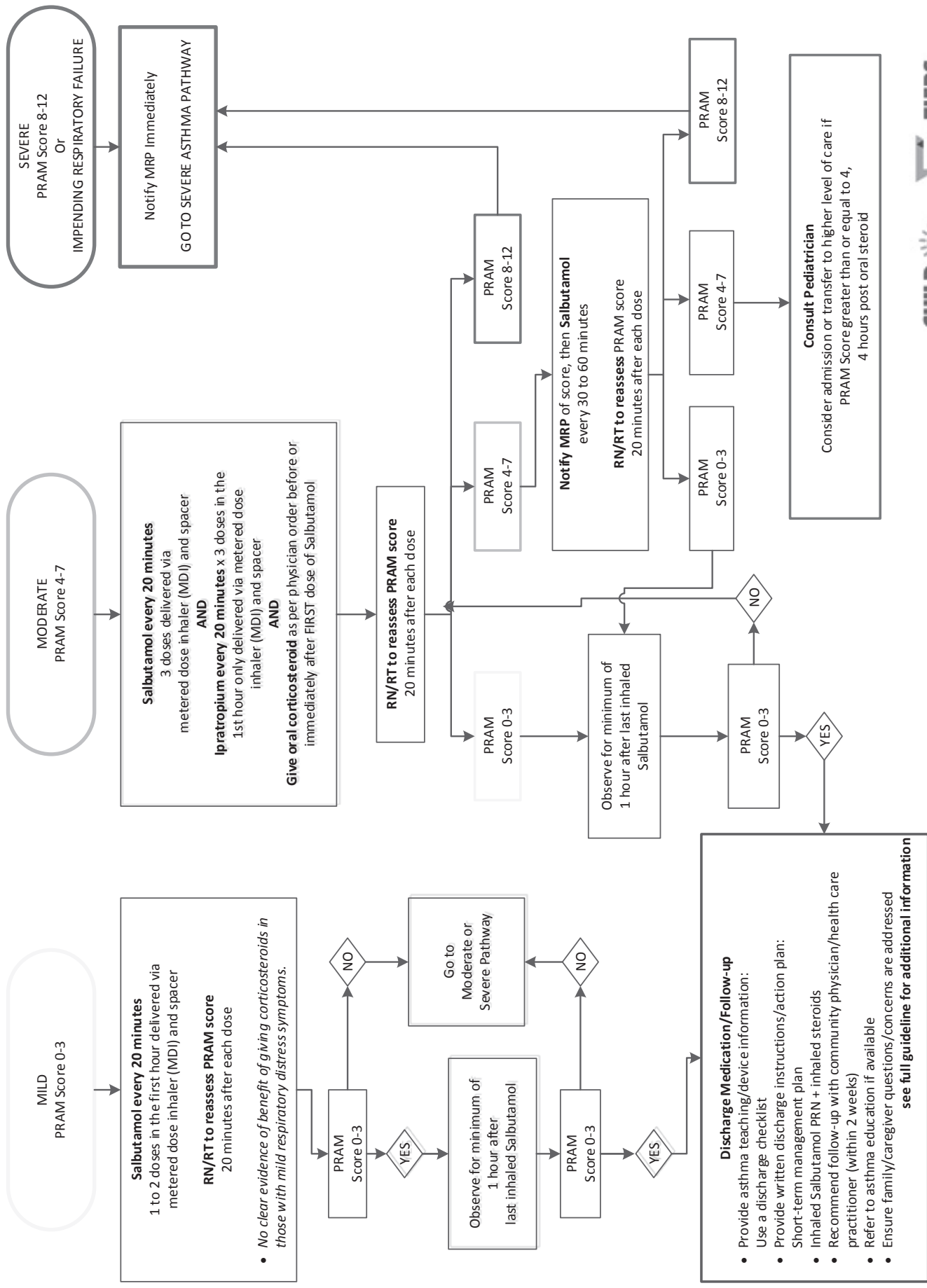
Corticosteroid Medication

- dexamethasone _____ mg PO × 1 dose (0.3 to 0.6 mg/kg/dose to max 16 mg/day)
- predniSONE _____ mg PO × 1 dose (1 to 2 mg/kg/dose to max 60 mg/day)
- methyIPREDNISolone _____ mg IV Q6H (1 mg/kg/dose to max 60 mg/dose)

Intravenous Medications

- magnesium sulfate _____ mg IV × 1 dose (25 to 50 mg/kg/dose to max 2,000 mg/dose) (consider for patients with incomplete response to conventional therapy during the first 1-2 hours)
- Reassess PRAM score after 3 doses of salbutamol + ipratropium and if PRAM score greater than 3, call MRP for further orders (refer to pathway on back of page 2)

Date (dd/mm/yyyy)	Time	Prescriber's Signature	Printed Name or College ID#
/ /			



Discharge Medication/Follow-up

- Provide asthma teaching/device information: Use a discharge checklist
- Provide written discharge instructions/action plan: Short-term management plan
- Inhaled Salbutamol PRN + inhaled steroids
- Recommend follow-up with community physician/health care practitioner (within 2 weeks)
- Refer to asthma education if available
- Ensure family/caregiver questions/concerns are addressed

see full guideline for additional information

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11. SEVERE ASTHMA PRAM SCORE 8 – 12 OR IMPENDING RESPIRATORY FAILURE *(See severe asthma algorithm on reverse)*

- **Call ED MRP immediately**
- **Consult Pediatrician on call**
- **Consult RT if available**
- **Consider Higher Level of Care – call PTN at 1-866-233-2337**
- **Continuous Cardio/Respiratory/SpO₂ monitoring/Reassessing**
- **Establish IV access, run maintenance fluids**

Inhaled Medications

- **salbutamol 5 mg continuously nebulized via 6 to 8 L/min of oxygen - continue until PRAM score is less than 8.**
Dilute 1 mL of 5 mg/mL salbutamol solution in 1.5 mL 0.9% sodium chloride to make one dose.
- Pediatric less than 20 kg:
 - **ipratropium 250 mcg nebulized Q20MIN for 3 doses** (if not already given)
- Pediatric 20 kg or greater:
 - **ipratropium 500 mcg nebulized Q20MIN for 3 doses** (if not already given)
- Other _____

Intravenous Medications

- magnesium sulfate** _____ **mg IV × 1 dose** (25 to 50 mg/kg/dose to max 2,000 mg/dose)
- methylPREDNISolone** _____ **mg IV Q6H** (1 mg/kg/dose to max 60 mg/dose) **even if steroid previously administered**

12. DISCHARGE

- Follow Pediatric Asthma Action Plan
 - [CHBC Asthma Action Plan 1 to 5 Years - Fillable](#)
 - [CHBC Asthma Action Plan 1 to 5 Years - Printable](#)
 - [CHBC Asthma Action Plan 6 to 18 Years - Fillable](#)
 - [CHBC Asthma Action Plan 6 to 18 Years - Printable](#)

Consider Pediatrician / Outpatient follow up *(if on ICS/new diagnosis/repeated presentations to ED. EDP to arrange.)*

- Asthma Education Clinic
- Community Respiratory Therapy
- Pulmonary Function Lab (if more than 6 years)
- See ED Discharge form #826238
- Admit; see admission orders

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SEVERE PRAM Score 8–12

****OR****

**IMPENDING RESPIRATORY FAILURE NOT
improving within 1 hour of initial therapy**

1. **Call ED MRP and Pediatrician on call Immediately**
2. Consult RT if available
3. salbutamol continuous nebulization with oxygen
4. ipratropium nebulized every 20 minutes × 3 doses if not already given
5. Establish IV access, run maintenance fluids
6. methylPREDNISolone IV 1 mg/kg/dose every 6 hours (even if previous steroid given)
7. Continuous Cardio/Respiratory/SpO₂ monitoring
7. Consider Chest X-Ray

Reassess PRAM Score

PRAM Score 0–7

Continue to give salbutamol every 30–60 minutes.

Return to algorithm for moderate PRAM score.

PRAM Score 8–12

magnesium sulfate IV

****AND****

**CONSULT
PEDIATRICIAN**

- Consider 0.9% sodium chloride bolus IV of 20 mL/kg over 20 minutes to prevent hypotension
- Consider calling BC Patient Transfer Network (PTN) to arrange consultation or transfer **1-866-233-2337**
- consider Tele PICU consult if available

**If patient is
deteriorating,
consider:**

- RT consult if not already involved
- Blood Gases (venous, capillary or arterial)
- Non-invasive positive pressure ventilation (NIPPV)
- Anesthesia consult if considering advanced airway management
- Assisted Ventilations or Intubation
- At the direction of the Intensivist:
 - aminophylline IV
 - ketamine IV

Reassess PRAM Score

PRAM Score 0–7

Continue to give salbutamol every 30–60 minutes.

Return to algorithm for moderate PRAM score.

PRAM Score 8–12

Continue to give salbutamol continuous nebulization with oxygen

Consult and prepare for transfer to a Higher Level of Care
BC Patient Transfer Network (PTN) **1-866-233-2337**