PRAM Initial Management Pathway

MILD
PRAM Score 0-3

- Salbutamol every 20 minutes, 1-2 doses in the first hour delivered via metered dose inhaler (MDI) and spacer rather than nebulization[2]
- RN/RT to reassess PRAM Score 20 minutes after each dose of salbutamol
- **Note:** There is no clear evidence of the benefit of giving corticosteroids in those with mild respiratory distress

REASSESS

PRAM Score 0-3 | PRAM Score 4-7 | PRAM Score 8-12

- Observe for a minimum of 1 hour after last inhaled salbutamol
- If the PRAM score remains in the 0-3 range during this time proceed to discharge instructions

REASSESS

PRAM Score 0-3 | PRAM Score 4-7 | PRAM Score 8-12

Discharge Medications and Follow up

- Provide asthma teaching/device information using a discharge checklist
- Provide written discharge instructions/action plan (short-term management plan)
- Inhaled salbutamol PRN and inhaled steroids
- Recommend follow-up with community physician/ health care practitioner within 2 weeks
- Refer to asthma education (if available)

MODERATE
PRAM Score 4-7

- Salbutamol every 20 minutes, X 3 doses delivered via MDI and spacer rather than nebulization[2]
- Ipratropium every 20 minutes, X 3 doses delivered in the first hour only, 3 delivered via MDI and spacer
  - This has been shown to yield greater improvement and lower hospital rates[4]
- Give oral corticosteroid before or immediately after the first dose of salbutamol
  - This has been shown to decrease time to improvement, emergency department length of stay, and hospitalization rates[5-6]
  - Either oral dexamethasone or prednisone/ prednisolone is likely to have comparable efficacy, with lower rates of vomiting with dexamethasone[7]
- RN/RT to reassess PRAM Score 20 minutes after each dose

REASSESS

PRAM Score 0-3 | PRAM Score 4-7 | PRAM Score 8-12

- Notify MRP of the score
- Salbutamol every 30-60 minutes for PRAM greater than or equal to 4
- Reassess PRAM 20 minutes after each dose of Salbutamol

REASSESS

PRAM Score 0-3 | PRAM Score 4-7 | PRAM Score 8-12

- If the PRAM Score remains in this range for 4 hours after oral corticosteroid consult a pediatrician and consider admission or transfer to a higher level of care

SEVERE
PRAM Score 8-12

1. Call MRP Immediately
2. Salbutamol continuous nebulization with oxygen
   - Bronchodilators delivered continuously for 60-180 minutes via aerosol result in more rapid improvement compared to intermittent delivery
3. Ipratropium nebulized every 20 minutes for 3 doses if not already given
4. Establish IV access, run maintenance fluids
5. Methylprednisolone IV 1 mg/kg/dose every 6 hours even if a previous steroid has been given
6. Continuous cardio/respiratory/SaO2 monitoring
7. Consider chest x-ray

PRAM Score 4-7 | **REASSESS** | PRAM Score 8-12

- Magnesium Sulfate IV[8]
  - In addition to continuous bronchodilator therapy
  - Consider 0.9% sodium chloride bolus IV of 20mL/kg over 20 minutes to vent hypotension
- Consult Pediatrician
  - Consider calling BC Patient Transfer Network (PTN) to arrange consultation or transfer: 1-866-233-2337
  - Consider Tele PICU consult (if available)
- If the patient is deteriorating consider:
- RT consult if not already involved
- Blood gases (venous, capillary or arterial)
- High-flow oxygen therapy or BIPAP
- Anesthesia consult if considering airway management
- Assisted ventilations or intubation
- At the direction of intensivist, aminophylline or ketamine IV

PRAM Score 4-7 | **REASSESS** | PRAM Score 8-12

- Continue to give Salbutamol every 30-60 minutes
- Consider admission to hospital

Go to the moderate pathway

- 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

See Page 2 for dose references to accompany the initial management pathway[1]

UBC CPD
CONTINUING PROFESSIONAL DEVELOPMENT
FACULTY OF MEDICINE

Course Material for:
Pediatric Asthma Management
ubccpd.ca/course/pediatric-asthma-management

Updated: March 26, 2019

PRAM Initial Management Pathway Dose References[1]

Salbutamol	**Less than 20 kg:** 5 puffs by MDI and spacer or 2.5 mg by nebulizer **20 kg or greater:** 10 puffs by MDI and spacer or 5mg by nebulizer
Ipratropium	**Less than 20 kg:** 3 puffs by MDI and spacer or 250 mcg by nebulizer **20 kg or greater:** 6 puffs by MDI and spacer or 500 mcg by nebulizer
Dexamethasone	0.3-0.6 mg/kg/dose (max dose 16 mg per dose) PO daily x 1-2 days
Prednisone/ Prednisolone	1-2 mg/kg/dose (max dose 60 mg per dose) PO daily x 5 days
Methylprednisolone	1 mg/kg/dose (max dose 60 mg per dose) IV q 6 hours
Magnesium Sulfate	40-50 mg/kg/dose (max dose 2 g per dose) IV x 1 dose over 20 minutes **Avoid** *in children with neuromuscular disease*
Sodium Chloride	0.9% 20 mL/kg bolus IV over 15-30 minutes

For a complete interactive experience with the PRAM Initial Management Pathway and PRAM Score
Take UBC CPD's Pediatric Asthma Management Course
ubccpd.ca/course/pediatric-asthma-management

References

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2. Cates CJ, Welsh EJ, Rowe BH. Holding chambers (spacers) versus nebulisers for beta-agonist treatment of acute asthma. *Cochrane Database Syst Rev.* 2013;(9):CD000052. DOI: 10.1002/14651858.CD000052.pub3.
3. Vézina K, Chauhan BF, Ducharme FM. Inhaled anticholinergics and short-acting beta(2)-agonists versus short-acting beta2-agonists alone for children with acute asthma in hospital. *Cochrane Database Syst Rev.* 2014;(7):CD010283. DOI: 10.1002/14651858.CD010283.pub2.
4. Griffiths B, Ducharme FM. Combined inhaled anticholinergics and short-acting beta2-agonists for initial treatment of acute asthma in children. *Cochrane Database Syst Rev.* 2013;(8):CD000060. DOI: 10.1002/14651858.CD000060.pub2.
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6. Zemek R, Plint A, Osmond MH, et al. Triage nurse initiation of corticosteroids in pediatric asthma is associated with improved emergency department efficiency. *Pediatrics.* 2012;129(4):671-680. DOI: 10.1542/peds.2011-2347.
7. Keeney GE, Gray MP, Morrison AK, et al. Dexamethasone for acute asthma exacerbations in children: a meta-analysis. *Pediatrics.* 2014;133(3):493-499. DOI: 10.1542/pesd.2013-2273.\
8. Griffiths B, Kew KM. Intravenous magnesium sulfate for treating children with acute asthma in the emergency department. *Cochrane Database Syst Rev.* 2016 Apr 29;4:CD011050. DOI: 10.1002/14651858.CD011050.pub2.