Inpatient Care: Tertiary and Regional Centres

Alberta Acute Childhood Asthma Pathway: Evidence based* recommendations

Summary of Inpatients and Inpatient Pathways

1. Diet / Fluids / Electrolytes
- **BSC**
  - Consider clear fluids until Phase I. NPO if not tolerating PO or in case of life-threatening (jaundice) toxicology PO intake as feasible.
  - Administer fluids as per clinical condition, vital signs, IV access and electrolyte status.

2. Oxygen
- **Phase I and II**
  - Suggest to keep in ± 85%. Periodically saturate checks ± 2 hours and PFR before ventilated patient.
  - Once in Phase III suggest in ± 95% as long as there is no increased need of O2 breathing.

3. Prophylaxis (Prophylaxis 1-2 Agonist (100mcg/ml) PO) for 5 days total (Maximum: 5x for exacerbation). Ipratropium 0.5-1.5mg/kg (10mg/ml)
  - Three to five days of dexamethasone suggested although literature is insufficient to support extended usage and duration.

4. Drugs
- **Phase I**
  - Max MDI dose 10 puffs
  - If less effective, increase by 1-2 puff/dose; if increased side effects (HR, jittery), decrease by 1-2 puff/dose.

- **Phase II**
  - Continue ICS at discharge until seen by the community care provider.

- **Phase III**
  - Continue usual maintenance therapy.

5. Pathway Entry / Assessment of Clinical Status
- **Modified PRAM scoring** in place, modified for this acute phase.
- Vital signs: HR, RR to be done with each assessment, BP routine.
- Assessment tool at the bedside which will vary depending on the clinical situation (see algorithm for considerations for MD assessment and when patient is deteriorating).

6. Admission
- **Entry Point “A”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for potential discharge.
  - If on assessment 2 hours after inhaled salbutamol, score < 3, do not give inhaled salbutamol. Patient is ready to move to Phase II.
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.

7. Admission
- **Entry Point “B”**
  - If on assessment 2 hours after inhaled salbutamol, score ≥ 3, score may be unchanged and following respiratory status.

8. Medications
- **Phase I**
  - Terbutaline (Bricanyl) 40 mg/kg IV bolus over 20 minutes (max 2 grams)
  - Magnesium Sulfate: consider Magnesium sulphate if deterioration unresponsive to treatment.
  - Ipratropium 3-5mg PO (10-20mg/ml) 6-9 times/day in hospital. If in ED or urgent care, the PRAM score is used for assessment of severity of exacerbation at triage and following respiratory status.

- **Phase II**
  - Beclomethasone (QVAR) 400mcg 4-6 times/day in hospital. If in ED or urgent care, the PRAM score is used for assessment of severity of exacerbation at triage and following respiratory status.

9. Inpatient Assessment
- **Phase I**
  - Score of < 3 at routine assessment or MD order on a reassessment in Phase I.

- **Phase II**
  - Score of < 3 at routine assessment or MD order on a reassessment in Phase II.

- **Phase III**
  - Score of < 3 at routine assessment or MD order on a reassessment in Phase III.

- **Phase I**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 4 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase II**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase III**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase I**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 4 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase II**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase III**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

10. Pathway Inclusions
- **Evidence based* recommendations**

11. Pathway Entry / Assessment of Clinical Status
- **Modified PRAM scoring** in place, modified for this acute phase.
- Vital signs: HR, RR to be done with each assessment, BP routine.
- Assessment tool at the bedside which will vary depending on the clinical situation (see algorithm for considerations for MD assessment and when patient is deteriorating).

12. Admission
- **Entry Point “A”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.
  - If on assessment 2 hours after inhaled salbutamol, score ≥ 3, score may be unchanged and following respiratory status.

13. Discharge Criteria in Phase III
- **Score of < 3 at routine assessment or MD order on a reassessment in Phase III.**

14. Discharge Criteria in Phase II
- **Score of < 3 at routine assessment or MD order on a reassessment in Phase II.**

15. Discharge Criteria in Phase I
- **Score of < 3 at routine assessment or MD order on a reassessment in Phase I.**

16. Summary of PRAM Score
- **Phase I**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 4 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase II**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase III**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

17. Medical and Social History
- **Phase I**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 4 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase II**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase III**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

18. Medication Reconciliation
- **Phase I**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 4 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase II**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

- **Phase III**
  - Room air, saturations > 90%.
  - Score < 3 on assessment 2 hours after last treatment or 12 hours in hospital (ED / urgent care).

19. Admission
- **Entry Point “A”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.
  - If on assessment 2 hours after inhaled salbutamol, score ≥ 3, score may be unchanged and following respiratory status.

20. Admission
- **Entry Point “B”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.
  - If on assessment 2 hours after inhaled salbutamol, score ≥ 3, score may be unchanged and following respiratory status.

21. Admission
- **Entry Point “C”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.
  - If on assessment 2 hours after inhaled salbutamol, score ≥ 3, score may be unchanged and following respiratory status.

22. Admission
- **Entry Point “D”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.
  - If on assessment 2 hours after inhaled salbutamol, score ≥ 3, score may be unchanged and following respiratory status.

23. Admission
- **Entry Point “E”**
  - If on assessment 1 hour after inhaled salbutamol, score ≥ 5, do not give inhaled salbutamol. Patient is ready for discharge/transfer.
Alberta Acute Childhood Asthma Pathway: Evidence based* recommendations

Inpatient Care: Tertiary and Regional Centres

**PHASE I** (q1 hour ASSESSMENT)

- 0 hours post inhalation salbutamol
- dry cough
- wheeze
- no increase in RR or O2 needs
- no previous hospital admissions

Score 3:
- give PRN inhalation salbutamol
- notify MD if score ≥3
- return to Phase I

Score <3:
- no inhalation salbutamol

ASSESSMENT (on admission)

First Assessment for PRN 30 minutes post inhalation salbutamol

Second Assessment for PRN 30 minutes post inhalation salbutamol

- MD to assess

- no inhalation salbutamol

ASSESSMENT (on admission)

Third Assessment for PRN 30 minutes post inhalation salbutamol

- MD to assess

- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- notify MD if score ≥3
- return to Phase I

Score <3:
- no inhalation salbutamol

**PHASE II** (q2 hour ASSESSMENT)

Score 2:
- give PRN inhalation salbutamol
- notify MD if score ≥2
- return to Phase I at Entry Point "A"

Score <2:
- no inhalation salbutamol

ASSessment 1 hour post inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase II

Score <3:
- no inhalation salbutamol

ASSESSMENT (from Phase II)

Score 2:
- give PRN inhalation salbutamol
- notify MD if score ≥2
- return to Phase I

Score <2:
- no inhalation salbutamol

ASSESSMENT (on admission)

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase II

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase II

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase II

Score <3:
- no inhalation salbutamol

Score 2:
- give PRN inhalation salbutamol
- notify MD if score ≥2
- return to Phase I at Entry Point "A"

Score <2:
- no inhalation salbutamol

**PHASE III** (q4 hour ASSESSMENT)

Score 2:
- give PRN inhalation salbutamol
- notify MD
- return to Phase II at Entry Point "A"

Score <2:
- no inhalation salbutamol

ASSESSMENT (on admission)

Score 3:
- give PRN inhalation salbutamol
- MD to consider move to Phase III
- until MD decision minimum q4 hour salbutamol

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase III

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase III

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase III

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to assess
- move to Phase III

Score <3:
- no inhalation salbutamol

Score 2:
- give PRN inhalation salbutamol
- notify MD
- return to Phase III at Entry Point "A"

Score <2:
- no inhalation salbutamol

Score 2:
- give PRN inhalation salbutamol
- notify MD
- return to Phase III at Entry Point "A"

Score <2:
- no inhalation salbutamol

Score 2:
- give PRN inhalation salbutamol
- notify MD
- return to Phase III at Entry Point "A"

Score <2:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to consider move to Phase III
- until MD decision minimum q4 hour salbutamol

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to consider move to Phase III
- until MD decision minimum q4 hour salbutamol

Score <3:
- no inhalation salbutamol

Score 3:
- give PRN inhalation salbutamol
- MD to consider move to Phase III
- until MD decision minimum q4 hour salbutamol

Score <3:
- no inhalation salbutamol

Assessment for PRN 1 hour post inhalation salbutamol

Assessment for PRN 2 hour post inhalation salbutamol

Assessment for PRN 4 hour post inhalation salbutamol

**Inpatient Assessment Score (Modified PRAM)**

**Abbreviations**

- BP: Blood Pressure
- CBC: Complete Blood Count
- CRP: C-reactive protein
- CT: Computerised Tomography
- D-Dimer: Dimer D
- ECG: ECG: Electrocardiogram
- FBC: Full Blood Count
- HCT: Haematocrit
- Hgb: Haemoglobin
- INR: International Normalised Ratio
- MD: Medical Director
- MDI: Metered Dose Inhaler
- NEURO: Neurology
- NPO: Nothing by Mouth
- O2: Oxygen
- PRAM: Pediatric Respiratory Assessment Model
- PRN: As needed
- RR: Respiratory Rate
- WBC: White Blood Cell

**Medications**

- Fluticasone (Flovent)
- Budesonide (Pulmicort)
- Beclomethasone (QVAR)

**Phase Change Criteria: Score 0 = atrisk assessment or MD order on a reassessment Phase I or Phase II.**

**For secondary assessment:** Score 0 > 2 give salbutamol (1-2 dose salbutamol)

**Reassess PRAM score 15-30 minutes post any salbutamol treatment.**

**For any assessment Score 2 > give salbutamol and notify MD:** if in Phase II or Phase III move back to previous phase. If in Phase I consider further investigations, reassesses therapy (IBS frequency, FEV1, oxygen, etc.) and consider PRAM confirmation if not responding to treatments.

1. Excludes O2 saturation

*To view online pathway, continuing education module, and supporting evidence go to www.albertachildhoodpathways.com.