

Policy
Compliance
Procedure



Acute Management of Infants and Children with Asthma – Emergency Departments in Level 1 to 3 Hospitals

This PCP relates to	
NSW Health PD	PD2005_386: Children and Infants with Asthma – Acute Management
PCP number	PD2005_386:PCP 1
Sites where PCP applies	All HNE Health Emergency Departments in level 1-3 Hospitals.
Target audience	Clinicians in ED where children present with shortness of Breath
Description	Provides evidence based practice guidelines for the treatment of infants and children with asthma
Subject	Acute management of asthma in infants and children
Keywords	Acute management asthma children infants
Replaces Existing PCP?	Yes
Document number and/or name or superseded document/s	PD2005_386:PCP 2, PD2005_386:PCP 4, PD2005_386:PCP 5, PD2005_386:PCP 7 From May 2007 to May 2010

Related Legislation (including OHS legislation), Australian Standards, NSW Health Policy or Circular, other HNEH Documents, Professional Guidelines, Codes of Practice or Ethics:

- NSW Health Paediatric Clinical Practice Guidelines

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Summary

- This PCP is a guideline in the assessment of the severity and management of asthma in infants and children
- It promotes evidence based practice in the use of bronchodilators via MDI and spacer
- This PCP provides guidelines on appropriate transfer/retrieval based on clinical assessment and response to treatment or discharge planning

Distribution:	General Manager, DON, Paediatrician, NUM ED, ED Physician, Director of Medical Services CYP&FCN Stream Leaders
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PCP authorised by:	Professor Trish Davidson, Clinical Leader, CYP&FCN
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**HNE Health Emergency Department
Revised PAEDIATRIC ASTHMA
MANAGEMENT PATHWAY Level 1-3
Hospitals**

Surname _____ Sex _____
Given Names _____
DOB _____ MRN _____
AFFIX PT LABEL HERE

Pt. Weight _____ kg Spirometry/ Peak Flow (greater than 7yrs) _____

INITIAL ASSESSMENT

IF ACUTELY DISTRESSED GIVE O₂ & SALBUTAMOL NOW
If patient has received asthma medication prior to arrival consider higher triage category & severity score

SYMPTOMS	MILD	MODERATE Any one feature = moderate	SEVERE AND LIFE-THREATENING Any one feature = severe
Level of consciousness	Normal	Normal	<input type="checkbox"/> Agitated, confused, drowsy
Accessory muscle use	<input type="checkbox"/> None to Minimal	<input type="checkbox"/> Minimal to Moderate	<input type="checkbox"/> Moderate to Excessive
Pulse rate	<input type="checkbox"/> Normal range for age	<input type="checkbox"/> Tachycardia	<input type="checkbox"/> Extreme tachycardia or bradycardia
Talks in	<input type="checkbox"/> Sentences	<input type="checkbox"/> Phrases	<input type="checkbox"/> Words/ unable to speak
Central cyanosis	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Likely to be present
Wheeze intensity	<input type="checkbox"/> Variable	<input type="checkbox"/> Moderate-loud	<input type="checkbox"/> Moderate-loud/often quiet
SpO ₂ on presentation	<input type="checkbox"/> Greater than 94%	<input type="checkbox"/> 90-94%	<input type="checkbox"/> Less than 90%: cyanosis may be present

INITIAL MANAGEMENT – ASSESSMENT OF ACUTE ATTACK

* If severe or life-threatening – notify RETRIEVAL TEAM IMMEDIATELY
* Note for Mild and Moderate Asthma: First preference is for Metered Dose Inhaler (MDI) via a spacer.
* Remember to **reassess and review** the patient after each MDI via a spacer or nebuliser

TREATMENT	MILD <input type="checkbox"/>	MODERATE <input type="checkbox"/>	SEVERE/LIFE THREATENING CALL Doctor IMMEDIATE <input type="checkbox"/>
O ₂	As required	Yes. Continuous SpO ₂ monitoring. <i>See over for O₂ therapy principles.</i>	
Salbutamol (ventolin)	<ul style="list-style-type: none"> Less than 20Kg 6 puffs MDI with spacer Greater than 20Kg 12 puffs MDI with spacer 	Less than 20kg 6 puffs MDI with spacer Q 20min x 3 Greater than 20kg 12 puffs MDI with spacer Q 20 min x3 Reasses the need for further Salbutamol doses every 15 minutes during subsequent hour	Continuous Nebulised Salbutamol: Load 4mls of Salbutamol Nebuliser Sol ⁿ 5mg/mL undiluted into the nebuliser. <i>PTO see point 1 for instructions</i> Consider Salbutamol IV: Infusion: Using ventolin obstetric inj. 5mgs/5ml draw up 50mls in syringe, then start infusion @ 5micrograms/kg/minute for 1 hour. Then turn down to 1microgram/kg/min. <i>PTO see point 2</i>
Atrovent	No	Optional : MDI with spacer Q 20min x3 Less than 20kg 4 puffs Greater than 20kgs 8 puffs Deliver each atrovent dose after each ventolin dose	Nebules x 3 Q 20 minutes <ul style="list-style-type: none"> Less than 20Kg 250 mcg Greater than 20 Kg 500mcg
Steroids		Prednisolone 1 mg/kg/stat. 3 day outpatient course	Hydrocortisone 4mg/Kg Q6h (IV) OR Methylprednisolone 1mg/kg Q6-8h (IV)
CXR	Not necessary unless focal signs present		Necessary if no response to initial therapy or pneumothorax is suspected
Antibiotics	Not routinely required.		
Monitoring and Observation	Heart rate, resp. rate & SpO ₂ , minimum hourly. If not improving at 60 mins. manage as moderate.	Heart rate, resp. rate & SpO ₂ , with each dose. If not improving at 60 mins. manage as severe.	Continuous cardio-respiratory monitoring and SpO ₂ . EUC, VBG, lactate & BSL. Consider ECG, (if available) Review after 15mins.
Ongoing Treatment	If improving continue Salbutamol PRN.	If improving continue Salbutamol PRN.	If improving consider reducing Salbutamol frequency. If not call retrieval team, Ensure IV access. Consider CPAP, or Intubation
Disposition	When able to reduce Salbutamol to greater than 3hrly discharge home with Asthma Action Plan, discharge letter & Asthma fact sheet. Salbutamol Q 4 hrly tapered.	When able to reduce Salbutamol to greater than 3hrly home as per mild if improving. If unable to reduce Salbutamol greater than 3 hrly – transfer to a higher level care facility.	If responding to treatment try to gradually reduce Salbutamol to greater than 3hrly. Call Retrieval Team Transfer to a higher level care facility.

**1. Instructions for the administration of Salbutamol Nebuliser Solution 5mg/mL.
For continuous Nebulised Salbutamol.**

Product Name:	Salbutamol Nebuliser Solution 5mg/mL (30mL bottle) Single patient use only. NOT TO BE ADMINISTERED INTRAVENOUSLY
Indications:	For severe or life threatening Asthma in infants and children in accordance with NSW Health PD2005_386 'Acute management of infants and children with asthma.'
Administration:	Load 4mLs of Salbutamol Nebuliser Solution [5mg/mL] <u>undiluted</u> , into the nebuliser bowl using an oral syringe and run continuously with oxygen at a minimum flow rate of 6-8 litres/minute. This will require regular (at least 10-15 minutely) 'top ups' into the nebuliser bowl with more <u>undiluted</u> Salbutamol Nebuliser Solution [5mg/mL].

2. Instructions for the administration of Intravenous Salbutamol (Ventolin Obstetric Injection)

Product Name:	Salbutamol Intravenous for Injection 5mg/5mL TO BE ADMINISTERED INTRAVENOUSLY ONLY
Indications:	For <i>persistently</i> severe or life threatening Asthma in infants and children in accordance with NSW Health PD2005_386 'Acute management of infants and children with asthma.'
Administration:	Draw up 50mLs of Salbutamol Intravenous 5mg/5mL <u>for injection undiluted</u> strength. Infusion: 5micrograms/kg/minute for 1 hour. Then turn down the infusion to 1microgram/kg/minute ongoing. Deliver IV infusion via a syringe pump. Weight [kg] x 0.06mL/hr = 1 microgram/kg/minute

For patients 40kg and over the maximum dose of 5micrograms/kg/minute is 200micrograms which = 12mLs/hr.

Measure BSL and Serum Potassium regularly

Principles of Oxygen Therapy:

1. All patients receiving oxygen therapy require continuous oxygen saturation monitoring.
2. For Initial resuscitation and stabilization use high flow oxygen.
3. Oxygen therapy should be back titrated after initial resuscitation and stabilization to maintain oxygen saturations within the range of 93% - 98% in the acute phase. Oxygen delivery methods:
 - Standard Nasal Prongs provide the lowest % of supplemental oxygen maximum oxygen flow rates are:
 - Under 12months of age 2L/min, delivers maximum FiO₂ 28%
 - Greater than 12months (including adolescents) 3L/min, delivers maximum FiO₂ 32%.
 - Use a partial non-rebreather mask with reservoir (rather than a Hudson mask) when nasal prongs are insufficient or not tolerated.
 - Minimum flow of 6L/min delivers FiO₂ 35%
 - Flow of 10L/min delivers Fi O₂ 65%