Policy Compliance Procedure

HUNTER NEW ENGLAND NSW HEALTH

Acute Management of Infants and Children with Asthma – Emergency Departments in Level 4 to 6 Hospitals

This PCP relates to	
NSW Health PD	PD 005_386: Children and Infants with Asthma – Acute Management
PCP number	PD2005_386:PCP 2
Sites where PCP applies	All HNE Health Emergency Departments in level 4-6 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Document number and/or name of superseded document/s	PD2005_386:PCP 1; PD2005_386:PCP 3; PD2005_386:PCP 6 From May 2007 to May 2010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

Portfolio Executive Director responsible for Policy and PCP or Delegate	Professor Trish Davidson, Clinical Leader, CYP&FCN
Policy Contact Person	HNE Health Southern - Rhonda Winskill, CNC Paediatrics NCHN/HNE Health. Mobile phone: 0428 809 688 HNE Health Northern - Helen Stevens, CNC Paediatrics HNE Health. Mobile phone: 0428 263 809 HNE Health Lower Mid North Coast - Sandra Babekuhl, CNC Paediatrics HNE Health. Mobile phone: 0400 328 696

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 4-6 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 O_2 & 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	☐ Agitated, confused, drowsy
Accessory muscle use	☐ None to Minimal	☐ Minimal to Moderate	☐ Moderate to Excessive
Pulse rate	☐ Normal range for age	☐ Tachycardia	☐ Extreme tachycardia or bradycardia
Talks in	☐ Sentences	☐ Phrases	☐ Words/ unable to speak
Central cyanosis	☐ Absent	☐ Absent	☐ Likely to be present
Wheeze intensity	☐ Variable	☐ Moderate-loud	☐ Moderate-loud/often quiet
SpO_2 on presentation	☐ Greater than 94%	☐ 90-94%	☐ Less than 90%: cyanosis may be present

INITIAL MANAGEMENT – ASSESSMENT OF ACUTE ATTACK

***** If severe or life-threatening – notify senior ED doctor **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 ☐	MODERATE ☐	SEVERE/LIFE THREATENING CALL Doctor IMMEDIATELY
O_2	As required	Yes. Continuous SpO_2 monitoring. *See over for O_2 therapy principles.*	
Salbutamol (ventolin)	• 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 x3 Greater than 20Kg 12 puffs MDI with spacer Q 20min 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. *PTO see point 1 for instructions* **Consider Salbutamol IV:** Infusion: Using ventolin obstetric inj. 5mgs/5ml draw up 50mls in a syringe, start infusion @ 5micrograms/kg/minute, for 1 hour. Then turn down to 1microgram/kg/min. *PTO see point 2*
Atrovent	No	Optional: MDI with spacer Q 20min x3 Less than 20kg 4puffs Greater than 20kgs 8 puffs Deliver each atrovent dose after each ventolin dose	Nebules x 3 Q 20 minutes • 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)**
Antibiotics	Not routinely required.		
CXR	Not necessary unless focal signs present		Necessary if no response to initial therapy or pneumothorax suspected
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 min. manage as severe.**	Continuous cardio-respiratory monitoring and SpO_2. EUC, VBG, lactate and BSL. Consider ECG **Review after 15mins.**
Ongoing Treatment Disposition	If improving continue Salbutamol PRN. 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	If improving continue Salbutamol PRN. When able to reduce Salbutamol to greater than 3hrly, home as per mild if improving. If unable to reduce Salbutamol greater than 3 hrly – admit or transfer to a higher level care facility.	If improving consider reducing Salbutamol frequency. If not Senior ED review. Ensure IV access. Consider CPAP, or Intubation If responding to treatment try to gradually reduce Salbutamol to greater than 3hrly. **Admit all patients or transfer to a higher level care facility.**

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

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] undiluted, 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 undiluted 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 *persistently* 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 for injection undiluted strength.
Infusion: 5micrograms/kg/minute for 1 hour. Then turn down the infusion to 1microgram/kg/minute.
Deliver IV infusion via a syringe pump.
Weight [kg] x 0.06mL/hr = 1microgram/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 FiO_2 28%
     - Greater that 12months (including adolescents) 3L/min. delivers maximum FiO_2 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 FiO_2 35%
     - Flow of 10L/min delivers FiO_2 65%