

# INHALED MEDICATION: ADMINISTRATION - SCH

## PRACTICE GUIDELINE<sup>®</sup>

### DOCUMENT SUMMARY/KEY POINTS

This document is to be conjunction with **Acute Asthma Guideline – SCH**.

- All inhaled medication must be prescribed by a medical officer.
- Inhaled medication must be administered according to hospital guidelines for administration of medication.
- The level of monitoring will be influenced by the severity of the patient's condition.
- Ensure the correct apparatus and flow rate are used at all times.
- Large Volume spacers are no longer supplied at SCH.

### CHANGE SUMMARY

- Change in term used for spacer devices from “bowl” to “chamber”.
- Correction of 2 minor typographical errors.

### READ ACKNOWLEDGEMENT

- All Clinical nurses and medical officers caring for patients requiring inhaled medications should read and acknowledge they understand the contents of this document.
- Line managers are to maintain records of staff read acknowledgements for quality review and compliance audit processes.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

<b>Approved by:</b>	SCHN Policy, Procedure and Guideline Committee	
<b>Date Effective:</b>	1 <sup>st</sup> October 2013	<b>Review Period:</b> 3 years
<b>Team Leader:</b>	Clinical Nurse Consultant Respiratory (acute)	<b>Area/Dept:</b> Clinical Support

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# 1 Administration of Inhaled Medications

## Standard

1. All inhaled medication must be prescribed by a medical officer.
2. Inhaled medication must be administered according to hospital guidelines for administration of medication.
3. The level of monitoring will be influenced by the severity of the patient's condition.
4. Ensure the correct apparatus and flow rate are used at all times.

## Advantages of Nebulisation

- If the patient is too ill to use a metered dose inhaler for a severe attack of asthma.
- If the medication is unavailable in a metered dose inhaler.
- Often preferred in cystic fibrosis.

## Types of Jet Nebulisers

- Single patient use (i.e. disposable) - use for bronchodilators, steroids, adrenaline.
- Non-disposable one way valve nebuliser - use for bronchodilators, antibiotics, dornase (Pulmozyme): This drugs generic name is dornase however it is most widely known throughout the hospital as Pulmozyme and is the only such drug at the hospital that we use.

## To clean Jet Nebulisers

- Label chamber with child's name and date.
- Wash nebuliser out between doses with warm soapy water, rinse and allow to dry on paper towel inside kidney dish, before next use.
- Change disposable nebulisers weekly.

## To clean Non-Disposable Nebulisers

- Label chamber with child's name and date.
- Clean nebuliser chamber between each dose using warm soapy water and rinse. Place nebuliser on paper towel inside kidney dish to dry, before next use and allow to dry.
- Nebuliser and filter (without filter paper) to be sterilised in CSSD between each patient. EXCEPT when patient's sputum has isolated *Burkholderia cepacia* or Multi-Resistant *Staphylococcus aureus* [MRSA]. In this case discard nebuliser bowl, mouthpiece and filter, after the patient has been discharged, or equipment can be given to patient for home use.

## Outcome

To ensure the safe and effective delivery of inhaled medication.

## Procedure

Medication	Nebuliser type	Fill volume	Flow rate	Gas	Other
Bronchodilator (see note 4)	Jet (single use)	4mL	6-8L	O <sub>2</sub> Or air	Use mouthpiece for children older than 5 years Spacer and MDI is preferable.
Antibiotics (see note 1 & 4)	Non –disposable (eg: Pari LC plus) <b>MUST BE USED</b>	Dependent on prescribed dose	6-8L	O <sub>2</sub> Or air	Filter pad to be used and changed when wet or every 24 hours.
Steroids (see note 2)	Jet (single use)	4mL	6-8L	O <sub>2</sub>	avoid side effects
Dornase (Pulmozyme)	<b>A separate</b> non –disposable (eg: Pari LC plus) <b>MUST BE USED</b>	2.5mL	6-8L	Air	<b>not compatible</b> with any other nebuliser solution including <b>water and normal saline</b>
Adrenaline (see note 3)	Jet (single use)	5mL	6-8L	O <sub>2</sub>	
Hypertonic Saline	Non –disposable (eg: Pari LC plus)	4-8mL	6-8L	Air unless on supplemental O <sub>2</sub>	

### Note 1:

- Piperacillin may cause bronchospasm, therefore pre-medicate with salbutamol or refer patient to respiratory lab for a test-dose, with spirometry pre and post salbutamol.
- If the patient has not had a test dose in the respiratory lab, or are too young to do so, then oxygen saturations (SaO<sub>2</sub>) should be monitored during first dose of new medication.

### Note 2:

- Side effects such as oral thrush, contact dermatitis, and cataracts are minimised by:
  - Protecting the eyes with a cloth or goggles
  - Wiping the face afterwards
  - Rinsing the mouth afterwards

### Note 3:

For the treatment of CROUP:

- Must be prescribed as a STAT dose.
- A medical officer is to assess the patient prior to administration of each dose to assess for need of further intervention.
- The patient requires continual nursing observation including pulse oximetry, heart rate and clinical signs of respiratory distress.
- If no clinical improvement is seen after repeated doses of nebulised adrenaline the patient should be reviewed by a senior medical officer, as the patient may require transfer to intensive care environment for closer observation.

**CAUTION:** There is a potential for airway obstruction to recur as nebulised adrenaline only temporarily reduces symptoms.

**Note 4:**

- For the treatment of patients with cystic fibrosis all nebulisers should be used with a flow rate of 6-8L of AIR.
- For treatment of other respiratory disorders management is as per the medical instructions.

## 2 Administration of Metered Dose Inhaler with a Spacer Device

Spacers are to be used for all children requiring inhaled medication via a metered dose inhaler (MDI)

### Advantages of Spacers

- Decrease need for coordination and actuation of MDI.
- Decrease the amount of medication deposited in the oropharynx, thus reduce associated side effects.
- Portable, less time consuming and less expensive than a nebuliser.
- Less distressing for the patient. <sup>2</sup>

### Types of Spacers Used at SCH

- Small volume with face mask for children less than 4 years of age.
- Small volume spacer without face mask for children over 4 years of age.

**N.B.** – Large Volume spacers are no longer supplied at SCH.

### Method

#### *Small Volume Spacers*

1. Remove cap and shake metered dose inhaler (MDI).
2. Place MDI upright into the end of the spacer opposite the mouthpiece.
3. Ask child to open their mouth, place the mouthpiece between the teeth and ask the child to close their lips around the mouthpiece.
4. Press MDI once.
5. Observe and count the child taking 4-6 breaths (normal tidal breathing is adequate).
6. If further dosage is prescribed repeat steps 2 to 5.

#### *Small volume spacers with facemask attachment*

1. Place the facemask onto the mouthpiece of the spacer.
2. Remove cap and shake the metered dose inhaler (MDI).
3. Place the MDI upright into the spacer at the end opposite the facemask.

4. Gently place the facemask over the child's mouth and nose. Ensure there is a good seal with no gaps.
5. Press MDI once.
6. Observe and count the child taking 4-6 breaths (normal tidal breathing is adequate).
7. If further dosage is prescribed repeat steps 2 to 6.

### **Priming Spacers**

If the spacer cannot be washed prior to using it for the first time, it will need to be primed by administering 2-4 puffs of salbutamol into the spacer. This ensures there is no static build-up inside the spacer. <sup>1</sup>

### **To Clean**

For single patient use, this procedure only needs to be done prior to initial use. When the spacer is new rinse in warm soapy water and air dry - do not rinse the detergent off as this prevents an electro - static charge which then allows for increased medication to be available for deposition into the lungs. Ensure the valve is in situ and is working.

For multiple patient use, spacers can be adequately decontaminated by heat disinfection either in CSSD or in ward dishwashers - temperature must be maintained at 80°C for 10mins (Infection Control Policy, NSW Health), however they need to be rinsed in warm soapy water and allowed to air dry (ref asthma management handbook) prior to patient use.

- See clinical guidelines for administration of bronchodilators

## **3 References**

1. National Asthma Council Australia (2006) Asthma Management Handbook.
2. Cates, C.J., Rowe, B.H., & Bara, H. Holding chambers verses nebulisers for beta-agonist treatment of acute asthma (Cochrane Review). In: The Cochrane Library, Issue 4, 2002. Oxford: Update Software.
3. Dolovich, M. (1997). Aerosols in Barnes, P., Grunstein, M., Leff, A., Woolcock, A., (Eds.), Asthma, 1396 - 1365.
4. Gillies, J., (1997). Overview of delivery system issues in pediatric asthma. Pediatric Pulmonology, Supplement, 15, 55-58.

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