



MONOGRAPH

SALBUTAMOL

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|-----------------------|---|
| Scope (Staff): | Medical, Pharmacy, Nursing, Anaesthetic Technicians |
| Scope (Area): | All clinical area. Intravenous – Critical Care Areas only |

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [DISCLAIMER](#)

QUICKLINKS

[Dosage/Dosage Adjustments](#)

[Continuous IV Infusion](#)

[Compatibility](#)

[Monitoring](#)

DRUG CLASS

Salbutamol is a short acting beta₂-agonist. It is also known as albuterol¹.

INDICATIONS AND RESTRICTIONS¹

- Relief of acute bronchospasm (e.g. in asthma, COPD, anaphylaxis)
- Prevention of exercise-induced bronchoconstriction
- Relief of reversible airway obstruction
- Short term treatment of acute hyperkalaemia
- Intravenous salbutamol is restricted for use in critical care areas only.

CONTRAINDICATIONS

- Hypersensitivity to salbutamol or any component of the formulation.

PRECAUTIONS

- Cardiovascular disorders (including hypertension, ischaemic heart disease, heart failure, arrhythmias) – risk of cardiovascular adverse effects when administered intravenously.¹
- High doses of intravenous and nebulised salbutamol may cause lactic acidosis. Increase in lactate levels may lead to dyspnoea and compensatory hyperventilation, which could be

misinterpreted as a sign of asthma treatment failure. Monitor for elevated serum lactate levels.¹

- Pre-existing hypokalaemia – may further decrease potassium levels. Correct hypokalaemia prior to salbutamol administration.²
- Hyperthyroidism – may stimulate thyroid activity, increase risk of cardiovascular adverse effects when given intravenously.^{1, 2}
- Diabetes – risk of hyperglycaemia and ketoacidosis with high doses and concurrent administration of corticosteroids, monitor blood glucose levels^{1, 2}
- Treatment with other sympathomimetic amines – may increase adverse effects (e.g. tremor, tachycardia, headache)¹
- Glaucoma – may elevate intraocular pressure, use with caution²
- Seizure disorders – use with caution, beta-agonists may result in CNS stimulation/excitation²

FORMULATIONS

Listed below are products available at PCH, other formulations may be available, check with pharmacy if required:

- Metered Dose Inhaler (MDI) – 100 microg/dose, 200 actuation
- Nebules – 2.5 mg/2.5 mL, 5 mg/2.5 mL
- Ampoules for intravenous use – 500 microg/mL, 5 mg/5 mL

Imprest location: [Formulary One](#)

DOSAGE, ADMINISTRATION & DOSAGE ADJUSTMENTS

Neonates: [Refer to Neonatal Medication Protocols](#)

ACUTE ASTHMA:^{1, 3, 4}

Note: The following table only contains dosages for salbutamol.

Refer to [PCH Emergency Department Asthma Guideline](#) or [Clinical Guideline: Asthma \(acute\) – Assessment and Management on the Ward](#) for complete asthma management plan.

| | < 6 years | ≥ 6 years |
|------------------|--|-------------------------------------|
| Mild or Moderate | MDI: 2 – 6 puffs via spacer and mask | MDI: 4 – 12 puffs via spacer |
| | Repeat every 20 – 30 minutes as needed for the first hour (or sooner if required to relieve breathlessness). | |

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| | Shake inhaler well before each actuation. Use with spacer (and mask for young children who cannot form a tight seal around spacer mouthpiece). Give 1 puff at a time followed by 4 breaths See also Health Facts: Small Volume Spacers With a Mask . | |
| Severe | MDI: 6 puffs via spacer and mask OR Intermittent Neb: 2.5 mg | MDI: 12 puffs via spacer OR Intermittent Neb: 5 mg |
| | Repeat dose at least every 20 minutes as needed for the first hour. Use nebules if unable to breathe through spacer. Use nebules in any efficient nebulising device. The nebulising solution MUST NOT be injected or ingested. Discard any solution remaining in the nebuliser after completion of therapy. ⁵ | |
| Life Threatening | Continuous nebulisation, if not possible intravenous route may be used in critical care areas (see below). | |

LIFE THREATENING ACUTE ASTHMA:

Continuous Nebulisation Driven by Oxygen:^{4, 6}

- < 6 years: Use 2.5 mg nebules
- ≥ 6 years: Use 5 mg nebules

Administration:

- Use two nebules in the nebuliser chamber at a time and refill when used up.

IV route should be considered if continuous nebulisation is not possible/effective, and only in the emergency department or intensive care/high dependency unit.

Intravenous - Children 6 months to 18 years:^{1,8}

- Loading dose: 5 – 15 microg/kg (maximum 300 microg) over 10 minutes.
 - May be prescribed at consultant's discretion. Continuous infusion may be started without a loading dose
- Continuous infusion: Start at 1 microg/kg/MINUTE and adjust to response, up to 5 microg/kg/MINUTE (maximum 200 microg/MINUTE)

Administration:

To prepare 100 mg in 500 mL (200 microg/mL) standardised concentration: Discard 145 mL from a 500 mL bag of sodium chloride 0.9% (or other compatible fluid) and add 100 mg of salbutamol (20 x 5 mg/5 mL salbutamol ampoules) to bag

At this concentration, 1 microg/kg/MINUTE is equivalent to 0.3 mL/kg/HOUR

- The maximum concentration for peripheral administration is 200 microg/mL
- Patients who are fluid restricted may be prescribed 25 mg in 50 mL, to be administered via a central line only
- Loading doses should be administered using one of the above standard concentration preparations

HYPERKALAEMIA:^{3, 9}**Nebuliser: ≥ 4 weeks to 18 years:**

- 2.5 – 5 mg as a single dose. Repeat if necessary.

Intravenous: ≥ 4 weeks to 18 years:

- 4 microg/kg (max 250 microg) as a single dose given over 5 minutes. Repeat if necessary.

Administration: Dilute dose to 50 microg/mL with a compatible fluid⁸.

ANAPHYLAXIS:¹**Nebuliser:**

- **All ages:** 5 mg. Dose may be repeated as required. May be nebulised continuously if bronchospasm is persistent.

Note: This is a supportive treatment for anaphylaxis and does not replace the use of intramuscular adrenaline.

Renal impairment:

- Use with caution when administering high doses as clearance is reduced⁵
- [eGFR calculator](#)

Hepatic impairment:

- Use with caution when administering high doses as clearance is reduced⁵

COMPATIBILITY (LIST IS NOT EXHAUSTIVE)

Compatible fluids: Glucose 5%, sodium chloride 0.9%, sodium chloride and glucose solutions⁸

Compatible at Y-site: Insulin (Novorapid), meropenem⁸

Only commonly used drugs are listed below. This is not a complete list of incompatible drugs.

[Compatibilities of IV drugs](#) must be checked when two or more drugs are given concurrently.

INCOMPATIBLE drugs: Limited information. Administration with other drugs at the same time not recommended.

MONITORING^{2, 9}

- Monitor for signs of salbutamol toxicity – especially with frequent dosing, continuous nebulisation or intravenous salbutamol
- Blood pressure, heart rate, respiratory rate, serum potassium and electrolytes, blood glucose, acid/base balance (blood lactate)

ADVERSE EFFECTS^{1, 5}

The inhaled route has fewer systemic adverse effects compared to IV.

Common: Tremor, palpitations, flushing, headache

Infrequent: Hyperglycaemia and hypokalaemia (high dose), tachycardia, muscle cramps, agitation, hyperactivity in children, insomnia

Rare: Paradoxical bronchospasm, hypersensitivity reactions, lactic acidosis

STORAGE⁵

MDI: Store below 30° C. Protect from direct sunlight.

Nebules: Store below 30° C. Store protected from light. Shortened expiry of 3 months once removed from foil wrapping.

IV Ampoules: Store below 25° C. Store protected from light.

INTERACTIONS

This medication may interact with other medications; consult PCH approved references (e.g. [Clinical Pharmacology](#)), a clinical pharmacist or PCH Medicines Information Service on extension 63546 for more information.

Please note: The information contained in this guideline is to assist with the preparation and administration of **salbutamol**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines

[PCH Emergency Department Asthma Guideline](#)

[Asthma \(acute\) – Assessment and Management on the Ward](#)

[Inhaled Medication Administration Guide](#)

References




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Useful resources (including related forms)

[Australian Asthma Handbook](#)

[PIC Acute Asthma Guideline](#)

This document can be made available in alternative formats on request for a person with a disability.

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