



MONOGRAPH

ACETYLCYSTEINE

Scope (Staff):	Medical, Pharmacy, Nursing, Anaesthetic Technicians
Scope (Area):	All Clinical Areas

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	Administration	Compatibility	Monitoring
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DRUG CLASS

- Antidote for paracetamol poisoning.¹
- Mucolytic agent.¹

INDICATIONS AND RESTRICTIONS

- Intravenous – paracetamol overdose in patients at risk of developing hepatotoxicity. administration.¹ Refer to [PCH ED Paracetamol Poisoning Guideline](#) to assess necessity for acetylcysteine.
- Intravesical (urinary bladder instillation) – reduction of mucous viscosity to prevent recurrent urinary tract infection and bladder calculi in augmentation cystoplasty patients.²
- Nebulisation or intratracheal – reduction of mucous viscosity.¹

CONTRAINDICATIONS

Hypersensitivity to acetylcysteine or any component of the formulation.¹

PRECAUTIONS

- Anaphylaxis may occur – resuscitation facilities must be readily accessible.¹
- History of asthma or bronchospasm – risk of acute bronchospasm. Consider administering bronchodilator 15 minutes prior to nebulised acetylcysteine.³
- Patients with respiratory insufficiency, impaired cough mechanism or gag reflex.¹

FORMULATIONS

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

- Intravenous – 2 g/10 mL ampoule.
- Nebulised, intravesical, intratracheal instillation – 800 mg/4 mL (20%) nebulising solution.

Imprest location: [Formulary One](#)

DOSAGE & DOSAGE ADJUSTMENTS

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

Dosing in Overweight and Obese Children: Use actual **measured body weight** to calculate intravenous acetylcysteine dose (*use ideal body weight to quantify extent of paracetamol overdose in obese children*).⁴

Intravenous – for paracetamol poisoning⁵

- If IV access is not possible, acetylcysteine may be administered orally; contact Poisons Information Centre **13 11 26** for advice.⁶
- If ongoing acetylcysteine infusion is required, repeat 2nd infusion.⁷ Discuss with toxicologist.
- Smaller volume for dilution may be used in younger infants or fluid restricted patients (7 mL/kg for the 1st infusion, 14 mL/kg for 2nd infusion).^{7, 8}
- Glucose 5% as a diluent may be substituted with sodium chloride 0.9% if clinically necessary.¹
- Invert prepared acetylcysteine infusion bag at least 10 times to ensure adequate mixing.⁵
- **A larger dose (200 mg/kg) for 2nd infusion may be required in cases of massive overdose.**⁵ Refer to [PCH ED Paracetamol Poisoning Guideline](#).

Infants or children <20kg

	Acetylcysteine dose	Volume of glucose 5% for dilution	Infusion duration
1 st infusion	200 mg/kg	100 mL	4 hours
2 nd infusion	100 mg/kg	250 mL	16 hours

Children 20 – 50kg

	Acetylcysteine dose	Volume of glucose 5% for dilution	Infusion duration
1 st infusion	200 mg/kg	250 mL	4 hours
2 nd infusion	100 mg/kg	500 mL	16 hours

Children or adolescents >50kg

(Recommended ceiling weight: 110kg)

	Acetylcysteine dose	Volume of glucose 5% for dilution	Infusion duration
1 st infusion	200 mg/kg	500 mL	4 hours
2 nd infusion	100 mg/kg	1L	16 hours

Intravesical (urinary bladder instillation)²

Administer 2g (10 mL of acetylcysteine 800 mg/4 mL) diluted with 40 mL of sodium chloride 0.9% (total volume 50 mL), twice to four times daily via urinary catheter.²

Nebulisation

- 200 mg to 2 g (1 mL to 10 mL of acetylcysteine 800 mg/4 mL) every 2 to 6 hours.¹ Consider using lower end of dose range (1 to 2 mL) for infants.¹

Direct intratracheal instillation

- 200 mg to 400 mg (1 mL to 2 mL of acetylcysteine 800 mg/4 mL) every 1 to 4 hourly.¹
- Up to 1 g (5 mL) may be administered for direct instillation to bronchopulmonary tree, under local anaesthesia and direct vision.¹

Renal impairment:

- No specific dosage adjustment recommended.¹

Hepatic impairment:

- No specific dosage adjustment recommended.¹

ADMINISTRATION**Intravenous¹**

- IV acetylcysteine is hyperosmolar; adequate dilution is necessary prior to administration.
- Refer to [dosage](#) section for dilution volume and infusion duration.
- Dilution volume may be reduced if clinically necessary; consult a pharmacist's advice.

Intravesical (urinary bladder instillation)

- Dilute with sodium chloride 0.9% to a total volume of 50 mL.
- Drain all catheters prior to administration.
- Clamp all catheters **EXCEPT** externalised ureteric catheters.
- Instil via urethral or Mitrofanoff catheter. Dwell for 30 minutes then drain out.

Nebulisation

- Administer undiluted or diluted in appropriate volume of sodium chloride 0.9% or water for injection.¹

Intratracheal

- Administer undiluted into the trachea or tracheostomy.¹

COMPATIBILITY (LIST IS NOT EXHAUSTIVE)**Compatible fluids:**

DBL®/Link® brands only: Glucose 5%, sodium chloride 0.9%.⁵

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:

Cefepime, ceftazidime.⁵

Nebulised/tracheal route – incompatible with amphotericin B.³

MONITORING

- Monitor for hypersensitivity reactions.
- Intravenous (paracetamol poisoning)⁹:
 - Continuous cardiac monitoring for the first infusion bag. Discontinue cardiac monitoring after this period unless hypersensitivity reaction occurred or if clinically indicated.
 - Monitor respiratory rate, oxygen saturation and blood pressure every 30 minutes for 2 hours then hourly if clinically stable.
 - Baseline liver function tests (LFT) and paracetamol concentration; repeat 2 hours prior to completion of second infusion (continuation of acetylcysteine infusion may be necessary if liver transaminase or serum paracetamol concentrations remains elevated).
 - Refer to [PCH ED Paracetamol Poisoning Guideline](#) for additional monitoring recommendations in paracetamol poisoning.
- Management of hypersensitivity reactions with IV infusions:
 - Mild/moderate hypersensitivity reactions (e.g. rash, bronchospasm, hypotension) – slow or stop infusion and treat reactions. Infusion may be recommenced when symptoms resolve.⁵
 - Severe anaphylactic reactions – stop infusion and treat reactions.⁵

ADVERSE EFFECTS**Intravenous**

Common: Hypersensitivity reactions.³

Infrequent: Flushing, tachycardia, oedema, nausea, vomiting.³

Rare: Pharyngitis, rhinorrhoea, throat tightness, bronchospasm, dyspnoea, wheezing, hypotension.³

STORAGE

Ampoule/Vial: Store below 25°C. Protect from light.⁵

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 **acetylcysteine**. Any variations to the doses recommended should be clarified with the prescriber prior to administration

Related CAHS internal policies, procedures and guidelines

[PCH ED Paracetamol Poisoning Guideline](#)

[PCH CPM: PARROT Procedure](#)

References

1. Clinical Pharmacology. 2022 [Available from: <https://www-clinicalkey-com.pklibresources.health.wa.gov.au/pharmacology/>].
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8. Micromedex® 2.0. Greenwood Village, Colorado, USA: Truven Health Analytics; 2022 [Available from: <http://www-micromedexsolutions-com.pklibresources.health.wa.gov.au/>].
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File Path:	W:\Safety & Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\Medication Monographs_Word\PCH.MED.Acetylcysteine.docx		
Document Owner:	Chief Pharmacist		
Reviewer / Team:	Senior Pharmacist, ED consultant, ENT consultant, Urologist, PCC consultant, ED CNS, 2B SDN		
Date First Issued:	Dec 2019	Last Reviewed:	Dec 2022
Amendment Dates:	Dec 2022	Next Review Date:	Dec 2025
Approved by:	Medication Safety Committee	Date:	Jan 2023
Endorsed by:	Drug and Therapeutics Committee	Date:	Feb 2023
Standards Applicable:	NSQHS Standards:   NSMHS: N/A Child Safe Standards: N/A		

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Compassion

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