MONOGRAPH

Naloxone

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

DRUG CLASS

Competitive antagonist at opioid receptors[1]

INDICATIONS AND RESTRICTIONS

- Treatment of opioid overdose, intoxication and reversal of opioid sedation[1, 2]
- Treatment of opioid-induced pruritus[3]
- Management of clonidine toxicity[4]

CONTRAINDICATIONS

- Hypersensitivity to naloxone or any component of the formulation[5]

PRECAUTIONS

- Opioid dependence – administration of naloxone may precipitate acute withdrawal symptoms or unmask pain in patients who take opioids regularly. Monitor for symptoms and manage as needed[1, 5]
- Patients with cardiac disease or receiving cardioactive drugs – naloxone administration has the potential to cause cardiovascular effects such as hypotension, ventricular tachycardia, and pulmonary oedema. Monitor for symptoms and manage as needed[3]
- Renal impairment – extended treatment with naloxone may be required to reverse opioid effects in patient with renal impairment. This is due to the accumulation of some opioids

(including morphine and oxycodone and their active metabolites) and their delayed excretion in impairment.[1]

- Opioid overdose symptom recurrence – Recurrence of respiratory and CNS depression is possible if the opioid involved is long-acting. Continue to observe patients until there is no further risk of respiratory or CNS depression.[5]
- Partial opioid agonist and mixed opioid agonist/ antagonist overdose – reversal of these agents (including buprenorphine) may be incomplete. Larger or repeated doses of naloxone may be required.[5]
- Postoperative reversal – excessive dosages should be avoided after the use of opioids in surgery. Abrupt postoperative reversal may result in nausea, vomiting, sweating, tachycardia, hypertension, seizures and other cardiovascular events.[5]

FORMULATIONS

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

- Naloxone 400 micrograms/ 1 mL ampoule
- Combination products:
  - Targin® (oxycodone/naloxone): 2.5 mg/1.25 mg, 5 mg/2.5 mg, 10 mg/5 mg, 20 mg/10 mg and 40 mg/20 mg

Imprest location: Formulary One

DOSAGE & DOSAGE ADJUSTMENTS

Neonates: Refer to Neonatal Medication Protocols

Dosing in Overweight and Obese Children: Dose on actual body weight[6]

Renal impairment:

- No dose adjustment required[3

Hepatic impairment:

- No dose adjustment required[3]

OPIOID TOXICITY:

Intravenous Injection: (≥ 4 weeks old):

	Pruritus[7, 8]	Excess Sedation[2, 7]	Resuscitation[2]
Dose	1 microgram/kg	2 micrograms/kg	10 micrograms/kg
Maximum dose	100 micrograms	200 micrograms	400 micrograms
Dosing Interval	Repeat after 2 hours. Consider ceasing or rotating opioid	Every 2 – 3 minutes	Every 2 – 3 minutes

Consider switching to a continuous infusion if more than 2 bolus doses are required[2]

Intravenous Infusion (≥ 4 weeks old)[2, 5]:

- 5 – 40 micrograms/kg/hour
- Adjust to response

Intramuscular Injection (≥ 4 weeks old):

	Pruritus	Excess Sedation[3, 5, 8]	Resuscitation[3, 5, 8]
Dose	-	4 micrograms/kg	10 micrograms/kg
Maximum dose	-	200 micrograms	400 micrograms
Dosing Interval	-	Every 10 - 15 minutes	Every 10 - 15 minutes

Intranasal (≥ 4 weeks old):

Using 400 microgram/mL ampoule:

	Pruritus	Excess Sedation[8-10]	Resuscitation[8-10]
Dose	-	4 micrograms/kg	20 micrograms/kg
Maximum dose	-	200 micrograms	400 micrograms
Dosing Interval	-	Every 5 minutes	Every 5 minutes

CLONIDINE TOXICITY:

- High dose naloxone can be considered in clonidine toxicity for CNS and respiratory depression[4]
- Please refer to Toxinz and discuss with a Toxicologist for dosing advice[4]

ADMINISTRATION

Intermittent intravenous injection:

- Administer over at least 30 seconds[11, 12]
- Give undiluted or dilute dose to a final concentration between 20 – 40 micrograms/mL with a compatible fluid[11, 12]

Continuous intravenous infusion:

- A continuous infusion may be required to prevent re-sedation following overdose with controlled-release products[12]
- Extravasation may result in severe tissue damage. Monitor infusion site closely[11]

Patient's Weight	Concentration	Notes
All patients	400 micrograms in 50 mL (8 micrograms/mL)	-
Higher concentration **(CVAD preferred)**	2 mg in 50 mL (40 micrograms/mL)	Consider using in fluid restricted patients or in larger patients requiring larger doses

Intramuscular injection:

- Suitable for administration when the IV route is unavailable[12]
- Absorption of intramuscular naloxone may be delayed and erratic[3]
- Inject undiluted into a large muscle mass[3]
- Refer to the Intramuscular (IM) Injections clinical practice manual

Intranasal administration:

- Administer the dose into one nostril. If repeated doses are required, alternate nostrils[2, 5]
- Dose to be administered using the solution for injection with an atomiser attached to a syringe[5]
- See Appendix 1

COMPATIBILITY *(LIST IS NOT EXHAUSTIVE)*

Compatible fluids:

Sodium chloride 0.9%, glucose 5%[11, 12]

At Y-Site: Plasma-Lyte 148, Potassium chloride 20 mmol/L[11, 12]

Compatible at Y-site:

Defibrotide, isavuconazole, linezolid[11]

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:

Solutions that contain bisulfites or sulfites, alkaline solutions, calcium folinate[12]

MONITORING

- Observe patients closely for any recurrence of sedation and signs of acute opioid withdrawal (including pain, tachycardia, hypertension, fever, sweating, abdominal cramping, diarrhoea, agitation, and irritability) for a minimum of 4 – 6 hours.[2, 5]

- Patients should be observed for at least 24 hours for long-acting opioids such as controlled release products or methadone[2]
- During this period, the following monitoring parameters should be measured[5]:
  - Respiratory status[5]
  - Level of consciousness[5]
  - Heart rate[5]
  - Blood pressure[5]
  - Temperature[5]

ADVERSE EFFECTS

Common: people with opioid dependence may have an acute withdrawal syndrome, e.g. anxiety, agitation, tachycardia, confusion[1]

Rare: opioid-dependent people may occasionally have more severe effects, e.g seizures, pulmonary oedema, ventricular arrhythmias[1]

STORAGE

- Ampoule: Store below 25°C. Protect from light[12]
- Infusion solution: Use within 24 hours[12]
- Nasal spray: Store below 30°C[13]

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

REFERENCES

1. AMH Australian Medicines Handbook Pty Ltd. Naloxone. Australian Medicines Handbook [Online]: Australian Medicines Handbook Pty Ltd. Accessed June 10, 2025. https://amhonline-amh-net-au.pklibresources.health.wa.gov.au/chapters/antidotes-antivenoms/antidotes/naloxone
2. AMH Australian Medicines Handbook Pty Ltd. Naloxone. Children's Dosing Companion [Online]. Accessed June 10, 2025. https://childrens-amh-net-au.pklibresources.health.wa.gov.au/monographs/naloxone
3. Clinical Pharmacology. Naloxone Paediatric Monograph. Elsevier Inc. Accessed June 10, 2025. https://www-clinicalkey-com.pklibresources.health.wa.gov.au/pharmacology/monograph/425?type=1&n=Naloxone
4. Toxinz. Clonidine. National Poisons Centre, New Zealand. Accessed September 2, 2025. https://www-toxinz-com.pklibresources.health.wa.gov.au/specifications/alpha-2-adrenergics---imidazolines/imidazolines---antihypertensives/imidazoline-antihypertensives---imidazolines/clonidine/?&name=Clonidine
5. UpToDate. Naloxone: Paediatric drug information. UpToDate. Accessed June 10, 2025. https://www-uptodate-com.pklibresources.health.wa.gov.au/contents/naloxone-drug-

information?sectionName=Pediatric&topicId=9678&search=naloxone&usage_type=panel&anchor=F199481&source=panel_search_result&selectedTitle=1~150&showDrugLabel=true&kp_tab=drug_general&display_rank=1#F199481
6. Merative MIcromedix. Naloxone. Merative US L.P. Accessed June 10, 2025. https://www-micromedexsolutionscom.pklibresources.health.wa.gov.au/micromedex2/librarian/PFDefaultActionId/evidenceexpert.DoIntegratedSearch?navitem=topHome&isToolPage=true#
7. The Royal Children's Hospital Melbourne. Nursing guidelines: Management of the paediatric patient receiving opioids [Online]. The Royal Children's Hospital Melbourne. Accessed June 10, 2025.https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Management_of_the_paediatric_patient_receiving_opioids/
8. Dr David Sommerfield. RE: Use of Naloxone for the management of opioid toxicity In: Lloyd T, editor. Perth Children's Hospital 2025.
9. Malmros Olsson E, Lönnqvist P-A, Stiller C-O, Eksborg S, Lundeberg S. Rapid systemic uptake of naloxone after intranasal administration in children. Pediatr Anaesth. 2021;31:631–636. https://doi.org/10.1111/pan.14175
10. Saari TI, Strang J, Dale O. Clinical Pharmacokinetic and Pharmacodynamics of Naloxone. Clinical Pharmacokinetics (2024) 63:397–422. https://doi.org/10.1007/s40262-024-01355-6
11. The Royal Children's Hospital, Melbourne. Naloxone. Paediatric Injectable Guideline Online [Online]. Accessed June 10, 2025. https://pig-rch-org-au.pklibresources.health.wa.gov.au/monographs/naloxone/
12. The Society of Hospital Pharmacists of Australia. Naloxone. Australian Injectable Drugs Handbook [Online]. Accessed June 10, 2025. https://aidh-hcn-com-au.pklibresources.health.wa.gov.au/browse/n/naloxone
13. AusDI by Telstra Health. NYXOID® (Naloxone Hydrochloride Dihydrate) Nasal Spray: Product Information. Health Communication Network Pty Limited. Accessed June 10, 2025. https://ausdi-hcn-com-au.pklibresources.health.wa.gov.au/productInformation.hcn?file=p04189

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

File Path:	W:\Safety & Quality\CAHS\CLOVERS MEDICAL Pharmacy\Procedures Protocols and Guidelines\Medication Monographs_Word\PCH.MED.Naloxone.docx		
Document Owner:	Chief Pharmacist		
Reviewer / Team:	Senior Pharmacist, Paediatric Critical Care Consultant, Paediatric Critical Care Clinical Nurse Specialist, Nursing Clinical Nurse Specialist, Emergency Medicine Consultant , Anaesthesia and Pain Medicine Consultants, Nurse Practitioner		
Date First Issued:	Feb 2026	**Last Reviewed:**	New
Amendment Dates:		**Next Review Date:**	Jan 2029
Approved by:	PCHN Medication Safety Committee	**Date:**	Jan 2026
Endorsed by:	CAHS Drug & Therapeutics Committee	**Date:**	Feb 2026
Standards Applicable:	NSQHS Standards: NSMHS: N/A Child Safe Standards: N/A		

Printed or personally saved electronic copies of this document are considered uncontrolled

Healthy kids, healthy communities

Compassion | Excellence | Collaboration | Accountability | Equity | Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital

Appendix 1: Preparation and Administration guide for Intranasal Naloxone

Naloxone can be administered using an intranasal Mucosal Atomisation Device (MAD Nasal™).

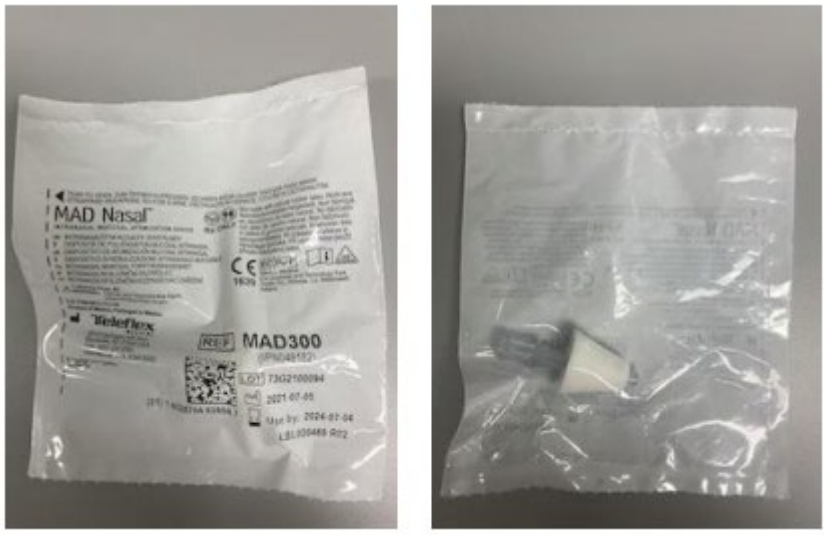

Image 1: MAD Nasal™.

Instructions:

1. Draw up the desired dose of naloxone solution in a syringe, plus an additional 0.1 mL to account for the dead space in the MAD nasal™.

2. Attach the MAD nasal™ and push the plunger to the desired dose to prime the MAD nasal™. Note: Not priming the MAD may result in underdosing.

3. Ensure the patient is positioned safely on the bed or on the parent or caregiver's lap.

4. Using the free hand to hold the occiput of the child's head stable, place the MAD Nasal™ against the nostril of the child aiming slightly up and outward (toward the top of the ear).

5. Administer the dose as a rapid push and avoid spillage from the nose by ensuring an adequate seal.

6. The dose can be divided over both nostrils to increase the absorptive area.