MIDAZOLAM

Read in conjunction with Disclaimer

HIGH RISK Medication

Formulary: Restricted
Requires neonatologist review within 24 hours of initiation.

Presentation	**Ampoule:** 5 mg/5 mL = **1000 microg/mL** 5 mg/mL and 15 mg/3 mL = **5000 microg/mL**
Classification	Benzodiazepine

Indication	• Short acting sleep-inducing agent for:
	  ○ Short procedures
	  ○ Induction of anaesthesia
	  ○ Prolonged sedation of ventilated patients
	• Treatment for refractory seizures.
	• Midazolam enhances the central sedative effects of tranquilisers, narcotics, analgesics, and anaesthetics.

Special Considerations	• In preterm infants, midazolam half-life is increased up to 22 hours. It may be longer with impaired liver function. • Withdraw slowly after chronic administration as abrupt discontinuation may precipitate withdrawal seizures.
Monitoring	• Level of sedation. • Cardiac and respiratory status. • Blood pressure.
Compatibility	**Fluids:** Sodium chloride 0.9%, glucose 5%, glucose 10%, water for injection.

Compatibility with heparin

	Sodium chloride 0.9%	Glucose 5%	Glucose 10%
With heparin	Stable for 24 hours at room temperature	Stable for 24 hours at room temperature	No stability information (avoid use)
Without heparin	Stable for 48 hours at room temperature	Stable for 48 hours at room temperature	Stable for 24 hours at room temperature

Refer to KEMH Neonatal Medication Guideline: Y-Site IV Compatibility in Neonates

Interactions	• **Erythromycin** inhibits metabolism of midazolam prolonging its sedative and respiratory depressant effects. • Combination use with other **CNS depressants** can increase the risk of respiratory depression and sedation. • **Caffeine** may reverse the sedative effects of midazolam; care needs to be taken with adding or withdrawing caffeine. • **Fluconazole** may inhibit metabolism of midazolam causing elevated levels of and increased clinical and adverse effects of midazolam; use combination with caution.

Adverse Effects	Respiratory depression, apnoea, drowsiness, oversedation, poor feeding, hypersalivation, dry mouth, hypotension and seizures. Reduced cerebral blood flow and paradoxical reactions, including myoclonus, have been reported.
Storage & Stability	**Schedule 4 Restricted Medication** **Ampoule:** Store at room temperature, below 25ºC. Protect from light.
Comments	Flumazenil is used as the reversal agent for midazolam.

ORAL

Presentation (for oral use)	**Ampoule (plastic)**: 5 mg/mL = **5000 microg/mL**
Dosage	**Induction/Sedation:** 250 to 500 microgram/kg/dose administered 15 to 30 minutes before a procedure.
Dose Adjustment	• **Renal impairment:** Use with caution in severe renal impairment, accumulation of medication and metabolites may occur. • **Hepatic impairment:** Dose reduction may be required in severe hepatic impairment for repeated doses.
Preparation 5000 microg/mL **plastic ampoule only**	**Plastic** ampoules containing 5 mg/mL (5000 microg/mL) of midazolam may be used for oral administration. *Note: Tastes bitter and acidic when given orally.* *Ampoule may be diluted if required for small doses.* **Dilution:** • Draw up 0.2 mL (1000 microg) of midazolam and make up to 5 mL total volume with compatible fluid. *Concentration now equal to* **200 microg/mL**
Administration	• Draw prescribed dose into oral/enteral syringe. • Can be given Oral/OGT/NGT. • May be given anytime in relation to feeds. • *Midazolam may also be administered buccally if oral route not appropriate. Dose reduction may be required.*

INTERMITTENT INTRAVENOUS PUSH

IV PUSH

Presentation (for IV use)	**Ampoule:** 5 mg/5 mL = **1000 microg/mL** 5 mg/mL and 15 mg/3 mL = **5000 microg/mL**
Dosage	50 to 150 microgram/kg/dose every 2 to 4 hours as required, followed by a continuous infusion if required.
Dose Adjustment	• **Renal impairment:** Use with caution in severe renal impairment, accumulation of medication and metabolites may occur. • **Hepatic impairment:** Dose reduction may be required in severe hepatic impairment for repeated doses.
Preparation 1000 microg/mL ampoule	May be used undiluted.
	May be diluted if required for small doses. **Dilution:** • Draw up 1 mL (1000 microg) of midazolam and make up to 5 mL total volume with compatible fluid. *Concentration now equal to* **200 microg/mL**
Preparation 5000 microg/mL ampoule	**Dilution:** • Draw up 1 mL (5000 microg) of midazolam and make up to 5 mL total volume with compatible fluid. *Concentration now equal to* **1000 microg/mL**
	May be diluted to a lower concentration if required for small doses. **Dilution:** • Draw up 0.2 mL (1000 microg) of midazolam and make up to 5 mL total volume with compatible fluid. *Concentration now equal to* **200 microg/mL**
Administration	**IV push:** • IV Injection over 2 to 5 minutes. • Avoid rapid administration (less than 2 minutes) in neonates as severe hypotension, respiratory depression and seizures have been reported.

CONTINUOUS INTRAVENOUS INFUSION

CONTINUOUS INFUSION		
Presentation (for IV use)	**Ampoule:** 5 mg/5 mL = **1000 microg/mL** 5 mg/mL and 15 mg/3 mL = **5000 microg/mL** ***Available from CIVAS (KEMH) and PCS (PCH):*** *continuous infusion*	
Dosage	**Sedation** 0.5 to 1 microg/kg/minute	
	Seizures 1 to 7 microg/kg/minute	
Dose Adjustment	• **Renal impairment:** Use with caution in severe renal impairment, accumulation of medication and metabolites may occur. • **Hepatic impairment:** Dose reduction may be required in severe hepatic impairment for continuous infusion.	
Preparation	*Use syringe prepared by pharmacy where available.* **Dilution:** *Check strength of ampoule carefully.* Draw up 3 mg of midazolam per kg of baby's weight and make up to 50 mL total volume with compatible fluid. *Concentration:* **1 mL/hour = 1 microg/kg/minute**	
	Fluid restricted infants • Continuous infusions can be made double, quadruple, etc strength if required for fluid restricted infants. • Ensure medication order is clearly annotated with the strength of the infusion (i.e. "double strength"). • Pay close attention to the change in infusion rate when changing strength.	
Administration	**IV infusion:** Infuse at the prescribed rate via syringe driver pump.	

Related Policies, Procedures, and Guidelines

HDWA Mandatory Policies:

MP 0131/20: WA High Risk Medication Policy

CAHS Neonatology Clinical Practice Guidelines:

Seizures: Neonatal

End of Life Care

Pharmaceutical and Medicines Management Guidelines:

CAHS Neonatology – Medication Administration Guideline

High Risk Medicines

Schedule 4 Restricted (S4R) and Schedule 8 (S8) Medications

References

AusDI. Midazolam injection. In: AusDI By Medical Director [Internet]. Australia: AusDI by Medical Director; 2025 [cited 2026 May 21]. Available from: https://www.ausdi.com/

Australian Medicines Handbook. Midazolam. In: Australian Medicines Handbook [Internet]. Adelaide (South Australia): Australian Medicines Handbook; 2026 [cited 2026 May 21]. Available from: https://amhonline.amh.net.au/

Advanced Pharmacy Australia. Midazolam. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2026 [cited 2026 May 21]. Available from: http://aidh.hcn.com.au

Ainsworth S, Vasey N. Neonatal Formulary: Drug Use in Pregnancy and the First Year of Life. 9th ed. Oxford: Oxford University Press; 2026. p. 511-514

British National Formulary. BNF for Children. 2025-26 ed. London, UK: BMJ Group and Pharmaceutical Press; 2025. p. 273-275.

Truven Health Analytics. Midazolam. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2026 [cited 2026 May 21]. Available from: https://neofax.micromedexsolutions.com/

UpToDate Lexidrug. Midazolam: Pediatric drug information. In: UpToDate Lexidrug [Internet]. Wolters Kluwer; 2026. [cited 2026 May 21]. Available from: https://www.uptodate.com/

Document history

Keywords	Midazolam, Hypnovel, benzo, seizures, induction				
Abbreviations	IV: intravenous, CNS: central nervous system, CIVAS: Centralised Intravenous Additive Service, KEMH: King Edward Memorial Hospital, PCS: Pharmacy Compounding Service, PCH: Perth Children's Hospital				
Document Owner:	Chief Pharmacist				
Author/ Reviewer	KEMH & PCH Pharmacy/Neonatology Directorate				
Version Info:	V4.0 – Full review, new template				
Date First Issued:	03/2003	Last Reviewed:	15/05/2026	Review Date:	15/05/2031
Endorsed by:	Neonatal Directorate Management Group			Date:	28/07/2026
NSQHS Standards Applicable:	Std 1: Clinical Governance		Std 4: Medication Safety		
Printed or personally saved electronic copies of this document are considered uncontrolled. Access the current version from WNHS HealthPoint.					

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

© North Metropolitan Health Service 2026