



NEONATAL Medication Monograph

MIDAZOLAM

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





Restricted: Requires Neonatologist review within 24 hours of initiation

⚠ HIGH RISK Medication

Presentation	Ampoule: 5mg/5mL (1000microgram/mL) 15mg/3mL (5000microgram/mL) Oral Solution : 2.5mg/mL (2500 microgram/mL)
Description	Short acting benzodiazepine
Indications	Short acting sleep-inducing agent for: <ul style="list-style-type: none"> • Short procedures • Induction of anaesthesia • Prolonged sedation of ventilated patients Treatment for refractory seizure Midazolam enhances the central sedative effects of tranquillisers, narcotics, analgesics, and anaesthetics.
Contraindications	Known hypersensitivity to midazolam
Precautions	<ul style="list-style-type: none"> • In preterm infants, especially in extreme preterm, midazolam half-life is increased from 4–6 hours in term neonates up to 22 hours in premature infants.. • Caution when concurrently used with opioids – midazolam interacts with other central nervous system depressants and may increase the risk of drowsiness, respiratory depression and hypotension. • Withdraw slowly after chronic administration. Abrupt discontinuation may precipitate withdrawal seizures. • Caution in neonates with renal and hepatic impairment – increased sensitivity to central nervous system (CNS) effects; use doses at lower end of the range and increase in half life • Rapid IV infusion may result in hypotension, respiratory depression or seizure.

Dose	<p><u>IV:</u></p> <p><u>Intermittent dosing:</u> 50-150 microgram/ kg/ dose every 2 to 4 hours as required followed by a continuous infusion</p> <p><u>Continuous infusion - SEDATION</u> 0.5-1 microgram/ kg/ minute</p> <p><u>Continuous infusion – SEIZURES</u> 1-7 microgram/kg/minute</p> <p><u>Oral:</u></p> <p><u>Induction/Sedation :</u> 250-500 microgram/kg/dose administered 15-30minutes before a procedure</p>												
Dose Adjustment	<p>Dose adjusted according to response with adequate monitoring</p> <p>Dose adjustment in seizure control may be higher – use with caution</p>												
Interactions	<p>Combination use with other CNS depressants can increase the opioid effect – increasing risk of respiratory depression and sedation</p> <p>Concurrent administration with erythromycin promotes accumulation.</p> <p>Pentoxifylline may decrease the anaesthetic/sedative effect of benzodiazepines</p> <p>Care needs to be taken with adding or withdrawing caffeine</p> <p>Refer to IV Compatibility Chart in Neonates for compatibility information or refer to the Pharmacy Department</p>												
Compatible Fluids	<p>Sodium Chloride 0.9%, Glucose 5%, Glucose 10%</p> <p>Compatibility with Heparin and Stability Data</p> <table border="1"> <thead> <tr> <th></th> <th>Sodium Chloride 0.9%</th> <th>Glucose 5%</th> <th>Glucose 10%</th> </tr> </thead> <tbody> <tr> <td><u>Midazolam with Heparin</u></td> <td>24 hours at room temperature</td> <td>No information</td> <td>No information</td> </tr> <tr> <td><u>Midazolam without Heparin</u></td> <td>168 hours at room temperature</td> <td>168 hours at room temperature</td> <td>4 hours at room temperature</td> </tr> </tbody> </table>		Sodium Chloride 0.9%	Glucose 5%	Glucose 10%	<u>Midazolam with Heparin</u>	24 hours at room temperature	No information	No information	<u>Midazolam without Heparin</u>	168 hours at room temperature	168 hours at room temperature	4 hours at room temperature
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Preparation	<p>IV: Available from CIVAS (KEMH & PCH)</p> <p>Infusion Calculation:</p> <p>Dilute 3mg of midazolam per kilogram of baby's weight and make to a final volume of 50mL with a compatible fluid</p> <p>Concentration = 1 microgram/kg/minute = <u>1mL/hour</u></p>
Administration	<p>Oral: May be given at any time with regard to feeds.</p> <p>IV: over at least 5 minutes or intravenous infusion via a syringe pump</p>
Adverse Reactions	<p>Common: hypotension, reduced cardiac output</p> <p>Serious: apnoea, respiratory depression, seizures</p>
Storage	<p>Store at room temperature, below 25°C</p> <p>Protect from light</p>
Notes	<p>May be used in conjunction with morphine</p> <p>Flumazenil (see monograph) is used as the reversal agent for Midazolam.</p>
Related clinical guidelines	<p>Calculation of the Composition of Drug Infusions</p> <p>Resuscitation and Intubation Drugs for Neonates</p> <p>Seizures: Neonatal</p> <p>End of Life Care</p>
References	<p>Truven Health Analytics. Midazolam. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2019 [cited 2020 Sep 4]. Available from: https://neofax.micromedexsolutions.com/</p> <p>Neomed Formularies. Midazolam. In: The Royal Hospital for Women [Internet]. [South Eastern Sydney, New South Wales; 2017 [cited 2020 Sep 4]. Available from: https://www.seslhd.health.nsw.gov.au/royal-hospital-for-women/neomed-formularies</p> <p>Takemoto CK, Hodding JH, Kraus DM. Pediatric & neonatal dosage handbook with international trade names index : a universal resource for clinicians treating pediatric and neonatal patients. 24th ed. Hudson (Ohio): Lexicomp; 2019. P1356.</p> <p>British National Formulary. BNF for Children. 2018-19 ed. London, UK: BMJ Group and Pharmaceutical Press; 2018. p. 223-224</p> <p>Kemp AC, McDowell JM. Paediatric Pharmacopoeia. 13th edition. Parkville, VIC: Royal Children's Hospital Pharmacy Department; 2002. p. 175</p>

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