




NEONATAL

MILRINONE

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




Highly Restricted: Requires Neonatologist or relevant specialist approval before commencing

 **HIGH RISK Medication**

Presentation	Ampoule: 10 mg/10 mL = 1 mg/mL
Classification	Selective phosphodiesterase inhibitor which has positive inotropic and vasodilatory activity
Indication	<ul style="list-style-type: none">• Refractory pulmonary hypertension• Low cardiac output• Septic shock <p>There is some evidence for its use in preventing low cardiac output in patients undergoing cardiac surgery.</p> <p>It is for short term treatment only and should generally not be used for longer than 72 hours</p>
Contraindications	Avoid use in patients with severe: <ul style="list-style-type: none">• obstructive aortic disease• pulmonary valvular disease• hypovolaemia.
Precautions	<ul style="list-style-type: none">• Use with caution in patients with a history of ventricular arrhythmias, atrial fibrillation or atrial flutter as may aggravate, use continuous ECG monitoring• Use with caution in patients with impaired renal function• Use with caution in conjunction with other vasodilating agents.• Correct hypokalaemia before initiating therapy <div> Use extreme caution when titrating dosage and changing lines/fluids as sudden changes to rates can result in blood pressure fluctuations.</div>

Dose	<p>Note:</p> <ul style="list-style-type: none">Any fluid imbalance should be corrected before commencing milrinone.In both regimens below, consider reducing or omitting the loading dose if the patient is at risk of hypotension. <table><tr><th>Corrected Gestational Age</th><th>Loading Dose</th><th>Maintenance Dose</th></tr><tr><td>Less than 30 weeks</td><td>0.75 microgram/kg/minute for 3 hours</td><td>0.2 microgram/kg/minute</td></tr><tr><td>30 weeks and greater</td><td>0.4 to 1.25 microgram/kg/minute for 60 minutes</td><td>0.25 to 0.75 microgram/kg/minute</td></tr></table>	Corrected Gestational Age	Loading Dose	Maintenance Dose	Less than 30 weeks	0.75 microgram/kg/minute for 3 hours	0.2 microgram/kg/minute	30 weeks and greater	0.4 to 1.25 microgram/kg/minute for 60 minutes	0.25 to 0.75 microgram/kg/minute
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Monitoring	<p>Continuous ECG monitoring to promptly detect and manage ventricular arrhythmias.</p> <p>Blood Pressure (hypotension may occur)., Heart Rate</p> <p>Infusion site reactions.</p> <p>Fluid and electrolyte status (especially potassium and magnesium)</p> <p>Renal function.</p>									
Dose Adjustment	<p>Milrinone is primarily excreted unchanged by the kidneys, reduction in the infusion rate may be necessary in patients with renal impairment.</p>									
Guidelines & Resources	<p>CAHS Neonatology Guidelines:</p> <p>Congenital Diaphragmatic Hernia (CDH)</p> <p>Cardiac: Neonatal Circulation Changes / Unbalanced Circulation</p> <p>Cardiac: Routine Post-Operative Care</p> <p>Hypoxic Ischaemic Encephalopathy (HIE) and Therapeutic Hypothermia</p> <p>Sepsis: Neonatal</p>									
Compatible Fluids	<p>Glucose 5%. Sodium Chloride 0.9%</p>									
Preparation	<p>IV: Available from CIVAS (KEMH & PCH)</p> <p>Withdraw 1.5 mg of milrinone per kg of baby’s weight (1.5 mL/kg) and dilute to 50 mL with appropriate infusion fluid.</p> <p>Concentration:</p> <p>1 mL/hour= 0.5 microgram/kg/minute</p>									

Administration	<u>IV Infusion:</u> See Dose section for recommended infusion times
Adverse Reactions	Common: Hypotension Serious: Supraventricular and ventricular arrhythmias, Hypokalaemia, thrombocytopenia
Storage	Store at room temperature, below 25°C
Interactions	Incompatible with furosemide (frusemide).
References	<p>Truven Health Analytics. Milrinone. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2019 [cited 2019 Aug 4]. Available from: https://neofax.micromedexsolutions.com/</p> <p>Society of Hospital Pharmacists of Australia. Digoxin. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2017 [cited 2019 Aug 4]. Available from: http://aidh.hcn.com.au</p> <p>Clinical Pharmacology. Tampa, FL: Gold Standard, Inc. 2015 [cited Apr 2] Available from: http://www.clinicalpharmacology-ip.com/help/faq/citing_clinical_pharmacology.htm</p> <p>Royal Pharmaceutical Society of Great Britain, Royal College of Paediatrics and Child Health; British Medical Association. Neonatal and Paediatric Pharmacists Group. BNF for children 2018-19.</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; 2401. 2</p> <p>Milrinone: Paediatric Drug Information [Internet] UpToDate [Online Database] 2016 [cited 2019 Jun 08], Available from: https://www.uptodate-com.pklibresources.health.wa.gov.au/contents/milrinone-pediatric-drug-information</p>

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