

**DOPAMINE HYDROCHLORIDE** This drug must be guardrailed

<b>Trade Name</b>	Sterile Dopamine Concentrate 200mg/5mL (Martindale)
<b>Class</b>	Catecholamine. Precursor of noradrenaline.
<b>Mechanism of Action</b>	<p>Increases blood pressure by increasing systemic vascular resistance by alpha-adrenergic effects. Variable effects on cardiac output. Renal vasodilatation may occur in doses between 2.5 and 7.5 micrograms/kg/min, however this is controversial in neonates.</p> <p><b>Drug effects are dose dependent:</b></p> <p><b>Low dose:</b> 2-5 microgram/kg/minute. Little effect seen on heart rate or cardiac output. Increased urine output.</p> <p><b>Middle dose:</b> 5-15 microgram/kg/minute. Increase in cardiac contractility and output results in increased blood flow and heart rate.</p> <p><b>High dose:</b> 15 microgram/kg/minute. Alpha adrenergic effects begin to dominate with increased systemic and pulmonary vascular resistance and decrease in perfusion.</p>
<b>Indications</b>	Hypotension
<b>Contraindications</b>	<p>Known hypersensitivity to dopamine or sodium metabisulfite. High doses in Persistent Pulmonary Hypertension. Tachyarrhythmias. (Use with caution in patients with a family history of asthma)</p>
<b>Supplied As</b>	200mg/5mL Dopamine hydrochloride
<b>Dilution</b>	<p><b>See dopamine infusion sheet</b></p> <p>Take <math>(30 \times \text{wt}(\text{kg}) \text{ in mg} \div 40)</math> and make up to 50mL with normal saline, 5% or 10% dextrose without heparin</p> <p><b>1 mL/hr = 10 microgram/kg/min</b></p> <p><b>** Max concentration 3.2mg/mL</b> - this will be exceeded in babies &gt;5kg and the infusion will need to be made half strength .</p> <p>Note that if the infusion is made “double strength” it will exceed the max. concentration allowed if weight is &gt;2.5kg</p>
<b>Dosage</b>	5-20 microgram/kg/minute.
<b>*Must chart guardrail and use Alaris pump*</b>	Start at 5 microgram/kg/minute and titrate according to response in blood pressure.
<b>Guardrails</b>	<p>Concentration: Min – 0.18mg/mL Max – 3.2mg/mL</p> <p>Soft Min: 2 microgram/kg/min Hard Max: 20microgram/kg/min</p> <p>Soft Max: 15 microgram/kg/min Default: 5 microgram/kg/min</p>
<b>Interval</b>	Continuous iv infusion

<b>Administration</b>	Continuous iv infusion. Need to make up infusion, place in syringe driver and use purge until solution is flowing prior to connecting to baby (or it may take up to an hour to reach the baby's circulation).
<b>Compatible With</b>	5 % & 10% Dextrose, 0.9% sodium chloride, dobutamine. Lactated Ringers. TPN Lipid <b>Y site:</b> Adrenaline, alprostadil, aminophylline, amiodarone, aztreonam, caffeine citrate, calcium chloride, caspofungin, cefotaxime, cefoxitin, ceftazidime, chloramphenicol, dobutamine, famotidine, fentanyl, fluconazole, flumazenil, gentamicin, heparin, hydrocortisone succinate, ibuprofen lysine, lidocaine, linezolid, lorazepam, meropenem, metronidazole, midazolam, milrinone, morphine, , nitroglycerin, nitroprusside, pancuronium bromide, piperacillin/tazobactam, potassium chloride, propofol, ranitidine, tobramycin, vecuronium, and zidovudine.
<b>Incompatible With</b>	Acyclovir, amphotericin B, benzylpenicillin, furosemide, indometacin, sodium bicarbonate.  Insulin – data from higher concentrations than we use for both infusions. We have used this without detectable problems for some years. If concerned change to dobutamine which is compatible at any concentration
<b>Monitoring</b>	Continuous heart rate, ECG and intra-arterial blood pressure preferably. Urine output, peripheral perfusion. If peripheral iv, monitor iv site closely.
<b>Stability</b>	Single use vial.  Do not use if discoloured (pink, yellow or brown)  Continuous infusions must be changed after 24 hours
<b>Storage</b>	Below 30°C. Protect from light.
<b>Adverse Reactions</b>	Tachycardia and arrhythmias. May increase pulmonary artery pressure. Reversible suppression of prolactin and thyrotropin secretion. Iv infiltration may cause tissue ischaemia, necrosis and sloughing.  In combination with Phenytoin hypotension, bradycardia may occur
<b>Metabolism</b>	Very short half-life. Steady state in 5-10 minutes. Metabolised in liver and excreted in urine.
<b>Comments</b>	Correct hypovolaemia first  Doses above 15 microgram/kg/min are associated with increasing vasoconstriction. Assess cardiac function / contractility may support adding in dobutamine which is more effective in this situation.
<b>References</b>	1. NZHPA notes on injectable drugs 5 <sup>th</sup> Edition 2. Trissel Handbook on Injectable Drugs 10 <sup>th</sup> Edition 3. Neofax 2001 4. Medicines for Children RCPCH. 5. Arch Dis Child 1993; 69: 59-63

<b>Updated By</b>	P Schmidt, B Robertshawe	February 2005
	B Robertshawe, A Lynn	September 2009
	A Lynn, B Robertshawe	June 2012 (re-order profile), May 2013 max. conc
	A Lynn	Aug 2015 guardrail update
	A Lynn, M Wallenstein, B Robertshawe	December 2020