


DOPAMINE

Indication	<ul style="list-style-type: none"> • Treatment of hypotension, severe sepsis and septic shock¹ • Augmentation of cardiac output and renal blood flow² 		
INTRAVENOUS	Presentation		
	Dosage (low dose action)		<ul style="list-style-type: none"> • Ampoule 200 mg in 5 mL • 1–4 microgram/kg/minute³
	Dosage (blood pressure)		<ul style="list-style-type: none"> • 5–20 microgram/kg/minute²⁻⁴ <ul style="list-style-type: none"> ○ Commence at 10 microgram/kg/minute³ ○ May be effective at 5 microgram/kg/minute for premature infants³ ○ Titrate according to response²
	Preparation		<ul style="list-style-type: none"> • Single strength infusion <ul style="list-style-type: none"> ○ Draw up 30 mg/kg of dopamine and make up to 50 mL total volume with compatible fluid³ ○ <i>Concentration now equal to 600 microgram/kg/mL</i>
	Administration		<ul style="list-style-type: none"> • IV infusion via a medication safety infusion pump^{3,5} <ul style="list-style-type: none"> ○ <i>Single strength infusion (600 microgram/kg/mL) infused at 1 mL/hour, delivers 10 microgram/kg/minute³</i>
Special considerations	<ul style="list-style-type: none"> • Correct hypovolaemia prior to commencement¹ • Infusions may be prescribed as single, double, quadruple or greater strength <ul style="list-style-type: none"> ○ Maximum concentration 6 mg/mL⁵ ○ Low-stiction syringe recommended, but do not withhold treatment if unavailable • Infuse via CVL, UVC or large peripheral vein² <ul style="list-style-type: none"> ○ Use a dedicated IV line or Y site to avoid accidental bolus⁵ ○ Do not flush the IV line • Do not cease abruptly (reduce dose gradually⁵) 		
Monitoring	<ul style="list-style-type: none"> • Consider baseline echocardiogram (may assist in determining most appropriate inotrope or vasopressor) • Continuous ECG⁵, arterial BP² • Urine output, peripheral perfusion² • Extravasation risk: can cause necrosis⁵ 		
Compatibility	<ul style="list-style-type: none"> • Fluids <ul style="list-style-type: none"> ○ 5% glucose⁵, 10% glucose⁶, 0.9% sodium chloride⁵ • Y-site <ul style="list-style-type: none"> ○ Adrenaline (epinephrine)⁵, amiodarone⁵, caffeine⁵, ciprofloxacin⁵, dobutamine⁵, esmolol⁵, fentanyl⁵, fluconazole⁵, glyceryl trinitrate⁵, heparin⁵, hydrocortisone⁵, lidocaine (lignocaine)⁵, methylprednisolone⁵, metronidazole⁵, midazolam⁵, milrinone⁵, morphine⁵, noradrenaline (norepinephrine)⁵, piperacillin-tazobactam⁵, potassium chloride⁵, ranitidine⁵, sodium nitroprusside⁵, vecuronium⁵, verapamil⁵, zidovudine⁵ 		
Incompatibility	<ul style="list-style-type: none"> • Fluids <ul style="list-style-type: none"> ○ Sodium bicarbonate or other alkaline solutions⁵ • Drugs <ul style="list-style-type: none"> ○ Aciclovir⁵, ampicillin⁵, cefazolin⁵, esomeprazole⁵, insulin-(short-acting)⁵, indometacin⁵, sodium bicarbonate⁵ 		
Interactions	<ul style="list-style-type: none"> • Concurrent use of: <ul style="list-style-type: none"> ○ Phenytoin may result in hypotension and/or cardiac arrest⁷ ○ Digoxin may result in an increased risk of cardiotoxicity (arrhythmias)⁷ ○ Vasodilators (e.g. glyceryl trinitrate and sodium nitroprusside) may result in hypotension⁷ 		

Stability	<ul style="list-style-type: none"> • Ampoule <ul style="list-style-type: none"> ○ Store below 30 °C. Protect from light⁵ ○ Use only if solution clear colourless to pale yellow⁵ • Infusion solution <ul style="list-style-type: none"> ○ Stable for 24 hours below 25 °C⁵
Side effects	<ul style="list-style-type: none"> • Circulatory: tachycardia², abnormal ventricular conduction¹, vasoconstriction¹, hypotension or hypertension¹, arrhythmias² • Digestive: vomiting¹ • Endocrine: reversible suppression of thyrotropin secretion² • Immune: allergic reaction⁸ • Nervous: mydriasis¹, piloerection¹ • Respiratory: dyspnoea¹ • Urinary: polyuria²
Actions	<ul style="list-style-type: none"> • Stimulates dopamine receptors; is an alpha and beta and serotonin agonist. Varying effects at different doses • Low doses (1–4 microgram/kg/minute)³ <ul style="list-style-type: none"> ○ Increases renal blood flow and glomerular filtration rate • Intermediate doses (5–10 microgram/kg/minute)³ <ul style="list-style-type: none"> ○ Increases cardiac output, blood pressure and renal blood flow⁹ • High doses (10–20 microgram/kg/minute) <ul style="list-style-type: none"> ○ Systemic vasoconstriction⁹
Abbreviations	<ul style="list-style-type: none"> • BP: blood pressure, CVL: central venous line, ECG: electrocardiogram, IV: intravenous, UVC: umbilical venous catheter
Keywords	dopamine, vasopressor, hypotension, inotrope, blood pressure, BP

Quick Guide: dopamine infusion concentrations

Draw up dopamine dose (mg/kg)	Make up to total volume (mL)	Infusion rate (mL/hour)	Delivers (microgram/kg/minute)
30 mg/kg	50 mL	@ 1 mL/hour	10 microgram/kg/minute
60 mg/kg	50 mL	@ 1 mL/hour	20 microgram/kg/minute
120 mg/kg	50 mL	@ 1 mL/hour	40 microgram/kg/minute

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

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