


NORADRENALINE (norepinephrine)

Indication	<ul style="list-style-type: none"> Acute hypotension^{1,2} (e.g. secondary to sepsis, pulmonary hypertension) 	
INTRAVENOUS	Presentation³	
	Dosage	
	Preparation	
	Administration	
Special considerations	<ul style="list-style-type: none"> Correct hypovolaemia before use¹ Route <ul style="list-style-type: none"> Administration via dedicated central line is preferred¹ Large peripheral vein may be used as temporary measure until CVL sited³ Ensure, centrally placed catheters are well positioned (i.e. UVC is past ductus venosus) Wean infusion gradually (don't cease abruptly)¹ Levophed contains sodium metabisulfite which may cause allergic reactions in susceptible people³ 	
Monitoring	<ul style="list-style-type: none"> Continuous cardiorespiratory and invasive BP⁴ Extravasation risk of necrosis: monitor for blanching/extravasation³ Urine output and peripheral perfusion 	
Compatibility	<ul style="list-style-type: none"> Fluids <ul style="list-style-type: none"> 5% glucose³ (preferred diluent because glucose protects against loss of potency due to oxidation⁴), 0.9% sodium chloride³ 10% glucose: (limited references) use only if severe fluid restriction causes concern for BGL maintenance as per pharmacist advice for pragmatic management in complex situations. Seek SMO approval prior Y-site <ul style="list-style-type: none"> Giving drugs via Y-site may change the infusion rate of noradrenaline and is not recommended At 60 microgram/mL or higher: Amikacin³, amiodarone³, atracurium³, aztreonam³, calcium chloride³, calcium gluconate³, caspofungin³, cefalotin³, cefazolin³, cefotaxime³, cefoxitin³, ceftazidime³, ceftriaxone³, cisatracurium³, clindamycin³, dexmedetomidine³, dobutamine³, dopamine³, ephedrine sulfate³, esmolol³, fentanyl³, fluconazole³, gentamicin³, glyceryl trinitrate³, haloperidol lactate (in glucose)³, heparin sodium³, hydrocortisone sodium succinate³, insulin (Novorapid)³, magnesium sulfate³, metoclopramide³, midazolam³, milrinone³, morphine sulfate³, mycophenolate mofetil³, phenylephrine³, posaconazole³, potassium chloride³, sodium nitroprusside³, suxamethonium³, tobramycin³, vancomycin³, verapamil³ 	

Incompatibility	<ul style="list-style-type: none"> Lipids incompatible, however if access limited, some evidence supports infusion via 3-way tap.⁷ Seek SMO approval prior to administration Fluids <ul style="list-style-type: none"> No information³ Drugs <ul style="list-style-type: none"> Azathioprine³, benzylpenicillin³, folic acid³, foscarnet³, ganciclovir³, indometacin³, insulin (Actrapid)³, iron salts³, phenobarbital³, sodium bicarbonate³, incompatible with alkalis and oxidising agents³
Interactions	<ul style="list-style-type: none"> Concurrent administration with esmolol predicted to increase the risk of hypertension and bradycardia²
Stability	<ul style="list-style-type: none"> Ampoule <ul style="list-style-type: none"> Store below 25 °C. Do not refrigerate. Protect from light¹ Clear and colourless solution¹. Do not use if discoloured or contains precipitate⁵ Infusion <ul style="list-style-type: none"> Stable for 24 hours between 20–25 °C⁴
Side effects	<ul style="list-style-type: none"> Blood pathology: plasma volume depletion with prolonged administration that needs to be corrected with fluid and electrolyte therapy⁸ Circulatory: hypertension with hyperthyroidism⁸, ischaemic injury⁴ (renal and digital⁸), cardiac disturbance from overdose including severe hypertension, increased peripheral resistance⁸, reflex bradycardia⁸ and reduced cardiac output⁸ Integumentary: injection site necrosis⁴—treat with phentolamine (in consultation with pharmacist)
Actions	<ul style="list-style-type: none"> Acts predominantly on alpha-receptors and beta-receptors in the heart¹ Causes peripheral vasoconstriction (α-adrenergic action) and a positive inotropic effect on the heart and dilation of coronary arteries (β-adrenergic action), resulting in an increase in systemic blood pressure and coronary artery blood flow¹ Onset of action and duration of effect is 1–2 minutes and half-life is less than 3 minutes³
Abbreviations	BGL: blood glucose level, BP: blood pressure, CVL: central venous line, SMO: most senior medical officer, UVC: umbilical venous catheter
Keywords	Noradrenaline, norepinephrine, hypotension, levophed, sympathomimetic, vasopressor

Quick guide: noradrenaline (norepinephrine) IV INFUSION concentrations

Strength	Noradrenaline base 1 mg/mL	Total infusion volume (mL)	Infusion rate (mL/hour)	Delivers (microgram/kg/minute)
Single	150 microgram/kg	50 mL	@ 1 mL/hour	0.05 microgram/kg/minute
Double	300 microgram/kg	50 mL	@ 1 mL/hour	0.1 microgram/kg/minute
4 x	600 microgram/kg	50 mL	@ 1 mL/hour	0.2 microgram/kg/minute
8 x	1200 microgram/kg	50 mL	@ 1 mL/hour	0.4 microgram/kg/minute

If fluid restricted, concentrations higher than single strength may be indicated

A baby of 4.16 kg reaches maximum concentration of 100 microgram/mL at 8 x strength

A baby more than 4.16 kg needs 4 x strength or less to remain under 100 microgram/mL (maximum concentration)

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.

References

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