



# Ambulance Victoria

# ARV

Adult Retrieval Victoria

# ARV Infusions Table - Page 1

### Key

\* Not stocked by ARV

† based on lean body weight (use MedCalc); if not morbidly obese [BMI<40], LBW ≈ ideal body weight

‡ based on ideal body weight (use MedCalc, or IBW [kg] [Male] = Height [cm] – 100, IBW [kg] [Female] = Height [cm] – 105)

§ based on total (actual) body weight

¥ based on adjusted body weight (use MedCalc)

Drug	Presentation	Preparation	Concentration	Indication	Bolus	Infusion	Notes
Adrenaline	1mg/ml	3mg dilute to 50ml with D5W	60mcg/ml	Inopressor	See medications table	Start 1-4mcg/min Usually 1-20mcg/min Max 100mcg/min	1ml/hr = 1mcg/min Also compatible with NS & CSL Can be run through large peripheral IV @ <10mcg/min, monitor for extravasation
Alteplase*	50mg/50ml 10mg/10ml	Reconstitute with H <sub>2</sub> O provided	1mg/ml	Massive PE	10mg, slow push, followed by infusion	If >65kg, 90mg over 2hr If <65kg, total dose (incl bolus) = 1.5mg/kg <sup>§</sup> (= 90mg in a 60kg patient: 10mg bolus and 80mg over 2hr)	Total dose 100mg unless <65kg Follow with heparin infusion
				Cardiac arrest due to PE	50mg IV, slow push, then infusion	If >65kg, 50mg over 2hr If <65kg, total dose (incl bolus) = 1.5mg/kg <sup>§</sup> (= 90mg in a 60kg patient: 50mg bolus and 40mg over 2hr)	Max total dose 100mg unless <80kg Follow with heparin infusion
				Stroke thrombolysis	0.09mg/kg <sup>§</sup> IV, slow push, then infusion; max bolus dose 9mg	0.81mg/kg <sup>§</sup> over 1hr, max dose 81mg	Total dose 0.9mg/kg (max 90mg), 10% given as bolus, 90% as infusion
Amiodarone	150mg/3ml	300mg dilute to 50ml with D5W	6mg/ml	Antiarrhythmic	5mg/kg <sup>†</sup> Usually 300mg over 30-60min	15mg/kg/24hr Usually 900mg/24hr = 6.25ml/hr	
Argipressin/ Vasopressin*	20U/1ml	20U dilute to 20ml with D5W or 40U dilute to 40ml with D5W	1U/ml	Shock resistant to noradrenaline	N/A	Start 0.6U/hr Usually 0.6-2.4U/hr Max dose 3.6U/hr	Central line only 1U/hr = 1ml/hr Also compatible with NS
Dobutamine*	250mg/20ml 250mg dry powder	250mg dilute to 42ml with D5W	6mg/ml	Inodilator	N/A	Start 100-400mcg/min Usually 100-1500mcg/min	1ml/hr = 100mcg/min Also compatible with NS & CSL
Dopamine*	200mg/5ml	300mg dilute to 50ml with D5W	6mg/ml	Inotrope	N/A	Start 100-400mcg/min Usually 100-1500mcg/min	1ml/hr = 100mcg/min
Esmolol*	100mg/10ml	Neat, 500mg in 50ml	10mg/ml	Hypertension/aortic dissection/AF/SVT/VT	500mcg/kg <sup>†</sup> over 1min, then infusion  (= 40mg = 4ml in a 80kg patient)	Start 50mcg/kg/min <sup>†</sup> (= 4mg/min = 24ml/hr in a 80kg patient), if ineffective, repeat loading dose and increase by 50mcg/kg/min q10min, max 300mcg/kg/min	Give via central line or large peripheral vein Onset within 2min, duration ~30min
Fentanyl	100mcg/2ml 500mcg/10ml	500mcg dilute to 50ml with NS	10mcg/ml	Analgesia/analgo-sedation	See medications table	1-10mcg/kg/hr Usually 50-200mcg/hr	May need bolus 1mcg/kg when infusion increased
Fentanyl & Midazolam	See individual entries	Fentanyl 500mcg and Midazolam 50mg make up to 50ml with NS	Fentanyl 10mcg/ml Midazolam 1mg/ml	Analgo-sedation	N/A	Usual rate 5-10ml/hr	Titrate to sedation
Glyceryl Trinitrate (GTN)	50mg/10ml	50mg dilute to 50ml with NS	1mg/ml	Afterload reduction/peripheral vasodilation	N/A	10-200mcg/min = 0.6-12ml/hr Start 50 mcg/min = 3ml/hr	Titrate to pain and BP
Heparin (unfractionated)*	Multiple (incl pre-mixed bags 100U/ml)	5000U in 50ml NS	100U/ml	Anticoagulation	2500U-7500U depending on indication and weight – use local protocol	Complex – use local protocol, weight and APTT based	Perform APTT 4-6hr after commencing infusion Usually no loading post-thrombolysis of PE/ischaemic stroke
				STEMI	4000U	Start 12U/kg/hr, max 1,000 U/hr	Perform APTT 4-6hr after commencing infusion Can repeat 1000U q1hr instead of infusion
Hydralazine	20mg dry	100mg dilute to 50ml with NS	2mg/ml	Afterload reduction/peripheral vasodilation	See medications table	50-300mcg/min = 1.5-9ml/hr	Maintenance infusion after initial BP control with boluses
Hypertonic (3%) Saline	250ml	Neat	N/A	Raised ICP	5-7ml/kg <sup>†</sup> , usually 250ml over 10min	N/A	May be given peripherally through any reasonable IV In setting of persistently raised ICP, repeat dosing as indicated to achieve serum Na <sup>+</sup> ≤ 155mmol/l
				Symptomatic hyponatraemia	2ml/kg <sup>†</sup> , max 100ml, over 10-60min, repeat x1-2 until improvement	N/A	May be given peripherally through any reasonable IV Aim ↑ Na <sup>+</sup> by ≤6mmol/l over 6hr (each 100ml will ↑ Na <sup>+</sup> ~2mmol/l)
Insulin*	Actrapid/ NovoRapid 300U/3ml 1000U/10ml	50U dilute to 50ml with NS	1U/ml	Hyperglycaemia	N/A	1-20U/hr, depending on glucose level, usually 1-6U/hr. Start at 6U/hr if glucose >20mmol/L	Monitor glucose and K <sup>+</sup>
Isoprenaline*	1mg/5ml 200mcg/1ml	3mg dilute to 50ml with D5W	60mcg/ml	Bradycardia	See medications table	Start 0.5-2mcg/min Usually 2-10mcg/min	1ml/hr = 1mcg/min Also compatible with NS Can give as bolus whilst preparing syringe driver (see medication table)
Ketamine	200mg/2ml	200mg dilute to 50ml with NS	4mg/ml	Sedation	See medications table	0.6-3mg/kg/hr <sup>†</sup> (= 48-240mg/hr in a 80kg patient)	Titrate to sedation and vital signs
				Analgesia	0.3mg/kg <sup>†</sup> over 15min (=24mg in an 80kg patient)	0.1-0.3mg/kg/hr <sup>†</sup> (= 8-24mg/hr in a 80kg patient)	
Labetalol*	100mg/20ml	Neat, 250mg/50ml	5mg/ml	Hypertension	See medications table	Usually 25-150mg/hr = 5-30ml/hr	Titrate to BP
Levetiracetam (Keppra)	500mg/5ml	1000mg dilute to 50ml with NS	20mg/ml	Status epilepticus	20mg/kg <sup>†</sup> over 10min	N/A	May repeat to 60mg/kg if ongoing seizures (max 4500mg) Can be given via NG (1:1 bioavailability)
				Seizure prophylaxis after head injury	1000mg IV over 20min/PO, then 500-1000mg bd PO/IV		Omit loading if <50kg Not indicated in atraumatic ICH
Levosimendan*	12.5mg/5ml	2.5mg dilute to 50ml with D5W	50mcg/ml	Inodilator	N/A	0.05mcg/kg/min <sup>†</sup> for 1hr, If tolerated ↑ to 0.1mcg/kg/min for 1hr, then ↑ to 0.2mcg/kg/min (= 960mcg/hr = 19.2ml/hr in a 80kg patient)	Bolus not recommended due to risk of SEs Max infusion rate 0.2mcg/kg/min Continued for 24hr

# ARV Infusions Table - Page 2

**Key**  
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 ‡ based on ideal body weight (use MedCalc, or IBW [kg] [Male] = Height [cm] – 100, IBW [kg] [Female] = Height [cm] – 105)  
 § based on total (actual) body weight  
 ¥ based on adjusted body weight (use MedCalc)

Drug	Presentation	Preparation	Concentration	Indication	Bolus	Infusion	Notes
Lignocaine/ Lidocaine	100mg/5ml	200mg dilute to 50ml with D5W (Also comes as pre-mixed solution 2g in 500ml D5W)	4mg/ml	Ventricular arrhythmia: VT/VF	1mg/kg <sup>†</sup> over 2 min, followed by infusion. Further 0.5mg/kg q5-10min if no response; max 3ml/kg bolus dose	4mg/min = 60ml/hr for 1hr, then 3mg/min = 45ml/hr	If breakthrough VF/VT, give further 0.5mg/kg q5-10min (max 3mg/kg total bolus dose), ↑infusion back to 4mg/min for further 1hr  Watch for neurological SEs
Magnesium Sulphate	10mmol/5ml (=2.47g)	20mmol dilute to 50ml with NS	0.4mmol/ml	Pre-eclampsia	4g = 16mmol = 40ml over 20min	1g/hr = 4mmol/hr = 10ml/hr	
				Eclamptic seizures	4g = 16mmol = 40ml over 10min	1-2g/hr = 4-8mmol/hr = 10-20ml/hr	If seizure during maintenance, give further 2g = 8mmol = 20ml over 5min
				Asthma	2g = 8mmol = 20ml over 20min		
				Torsades	2g = 8mmol = 20ml over 10-15min	0.5-0.75g/hr = 2-3mmol/hr = 5-7.5ml/hr	
Mannitol (20%)*	100g/500ml	Neat = 0.2g/ml	N/A	Raised ICP	0.5-1g/kg <sup>†</sup> = 2.5-5ml/kg over 20 minutes (max 100g)	N/A	
Metaraminol	10mg/1ml	20mg dilute to 40ml with D5W	0.5mg/ml	Hypotension	0.5-1mg = 1-2ml boluses q2-3min	Start 2mg/hr = 4ml/hr Usually 0.5-10mg/hr = 1-20ml/hr	Titrate to effect/BP Also compatible with NS
Midazolam	15mg/3ml	50mg dilute to 50ml with NS	1mg/ml	Sedation	See medications table	0.5-10mg/hr = 0.5-10ml/hr	
Milrinone*	10mg/10ml	10mg dilute to 50ml with D5W	0.2mg/ml	Inodilator	0.05mg/kg over 10min	Start 0.1mcg/kg/min <sup>§</sup> ↑ in 0.025-0.05mcg/kg/min increments q2-4hr, usual dose 0.125-0.35mcg/kg/min Max 0.75mcg/kg/min	Also compatible with NS Dose based on actual body weight to max 120kg Loading dose usually omitted due to BP Long half-life, ↑/wean slowly
Morphine	10mg/1ml	50mg dilute to 50ml with NS	1mg/ml	Analgesia/analgo-sedation	2.5-10mg	2-10mg/hr = 2-10ml/hr	
Morphine and Midazolam	See individual entries	Morphine 50mg and Midazolam 50mg dilute to 50ml NS	1mg/ml of each	Analgo-sedation	1-2ml boluses	Usual rate 5-10ml/hr	Titrate to sedation
Naloxone	400mcg/1ml	4mg dilute to 50ml with NS	80mcg/ml	Opioid OD	40mcg-2mg, repeat if needed	Give 50-60% the effective bolus dose over 1hr, continue as required	Titrate to desired effect (partial or full reversal)
Nimodipine*	10mg/50 ml	Neat	200mcg/ml	Cerebrally selective vasodilator/SAH	1mg/hr = 5ml/hr for first 2hr	2mg (10ml/hr) maintenance	Titrate to BP If BP drops 7ml/hr for 2hr then back to 10ml/hr CVC only with concurrent fluid (eg. NS) @ 40ml/hr via 3-way tap through dedicated CVC port
Noradrenaline	4mg/4ml	3mg dilute to 50ml with D5W	60mcg/ml	Inopressor	N/A	Usually 2-30mcg/min = 2-30ml/hr	1ml/hr = 1mcg/min Also compatible with NS & CSL Can be run through large peripheral IV @<10mcg/min, monitor for extravasation
Octreotide*	50mcg/1ml 100mcg/1ml 500mcg/1ml	500 mcg dilute to 50ml with D5W	10 mcg/ml	Oesophageal varices	50-100mcg	25-50mcg/hr for 48hr = 2.5-5ml/hr	
Phenytoin*	100mg/2ml 250mg/5ml	250mg in 5ml neat	50mg/ml	Status epilepticus	15-20mg/kg <sup>¥</sup> = 0.3-0.4ml/kg over at least 20min Usually 1g, max rate 50mg/min (=1ml/min)	N/A	
Propofol	200mg/20ml 500mg/50ml	500mg in 50ml neat	10mg/ml	Sedation	10-50mg = 1-5ml	1-3mg/kg/hr <sup>§</sup> Usually 6-20ml/hr	
Rocuronium	50mg/5ml	250mg dilute to 50ml NS	5mg/ml	Ongoing paralysis	See medications table	Range 4-16mcg/kg/min <sup>†</sup> Usually 10mcg/kg/min (9.6ml/hr in a 80kg patient)	Ensure adequate sedation - risk of awareness
Salbutamol	5mg/5ml	6mg dilute to 50ml with NS	120mcg/ml	Asthma	240mcg = 2ml over 2min	5-20mcg/min = 2.5-10ml/hr Start 5mcg/min	
				Preterm labour		Start 10mcg/min = 5ml/hr, range 10-50mcg/min = 5-25ml/hr	2 <sup>nd</sup> line to nifedipine
Sodium Bicarbonate	8.4% 100ml	100ml dilute to 1000ml with D5W	0.84%	TCA OD	See medications table	250ml/hr	Keep pH 7.5-7.55
				Salicylate OD	See medications table	250ml/hr	Keep pH >7.4 Keep urinary pH>7.5
Sodium Nitroprusside*	50mg dry 50mg/2ml	50mg dilute to 50ml with D5W Protect from light with foil	1mg/ml	Vasodilator		Start 0.5mcg/kg/min <sup>†</sup> = 0.03ml/kg/hr and titrate up Usually 3mcg/kg/min (14.4ml/h in a 80kg patient) Range 0.5-10mcg/kg/min = 0.03-0.6ml/kg/hr	Max rate 10mcg/kg/min should be continued for <10min, then reduced to 5mcg/kg/min (cyanide toxicity). If BP not controlled at this rate, use alternative
Syntocinon (Oxytocin)	10U/1ml	40U dilute to 50ml with NS	0.8U/ml	PPH	See medications table	10U/h = 12.5ml/hr for 4hr	If ongoing bleeding or high risk, infusion may be continued beyond 4hr
Tranexamic Acid	1g/10ml	1g dilute to 50ml with NS	20mg/ml	Trauma at risk of significant haemorrhage	1g over 10min = 300ml/hr	1g over 8h = 6.25ml/hr	Should be commenced within 3hr of haemorrhage
	1g/10ml	1g dilute to 50ml with NS	20mg/ml	Postpartum haemorrhage	1g over 10min = 300ml/hr; repeat x1 if ongoing bleeding after 30min	N/A	PPH due to any cause including genital tract trauma Should be commenced within 3hr of haemorrhage
Verapamil	5mg/2ml	20mg dilute to 50ml with NS	0.4mg/ml	SVT/rate control in AF	20mg over 20min (150ml/hr)	N/A	Stop infusion once effect achieved

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