

PAEDIATRIC CRITICAL CARE INFUSIONS

INTUBATION DRUGS			
<u>DRUG</u>		<u>DOSE</u>	<u>CAUTION</u>
Atracurium		0.5 – 1 mg/kg	
Atropine		10 – 20 mcg/kg	In case of bradycardia min 100mcg; max 600mcg
Fentanyl		2 – 4 mcg/kg	Hypotension
Ketamine		1 -2 mg/kg	Not if ICP is raised; ↑secretions
Midazolam		0.05 – 0.2 mg/kg	Hypotension
Propofol		2 – 5 mg/kg	Hypotension
Rocuronium		0.6 – 1.0 mg/kg	
Sugammadex		2mg/kg	2-18yrs – Consult product literature
Thiopental		2 – 4 mg/ kg	Hypotension
STANDARD DRUG INFUSIONS			
RESPIRATORY			
Drug	Volume in syringe	Rate of infusion	Dosing range
Aminophylline	500mg in 500ml 5% Dextrose	1ml/kg/hr = 1mg/kg/hr	0.5-1 mg/kg/hr >12yr old refer to BNFC
Salbutamol (central inf)	50mg in 50ml 5% Dextrose	0.06ml/kg/hr = 1mcg/kg/min	1-2mcg/kg/min upto 5mcg/kg/min in ICU setting – monitor for toxicity if > 20mcg/min
Salbutamol (peripheral inf)	10mg in 50ml 5% Dextrose	0.3ml/kg/hr = 1mcg/kg/min	1-2mcg/kg/min upto 5mcg/kg/min in ICU setting - monitor for toxicity if > 20mcg/min
CARDIOVASCULAR			
Drug	Volume in syringe	Rate of infusion	Dosing range
Adrenaline (central only)	0.3mg/kg in 50ml 5% Dex	1ml/hr = 0.1mcg/kg/min	0.1 – 1 mcg/kg/min
Amiodarone	15mg/kg in 50ml 5% Dextrose	1ml/hr = 5mcg/kg/min	5 – 15 mcg/kg/min
Dobutamine	15mg/kg in 50ml 5% Dextrose	1ml/hr = 5mcg/kg/min	5 – 20 mcg/kg/min
Dopamine	15mg/kg in 50ml 5% Dextrose	1ml/hr = 5mcg/kg/min	5 – 20 mcg/kg/min
Esmolol	30mg/kg in 50ml 5% Dextrose	1ml/hr = 10mcg/kg/min	20 – 200 mcg/kg/min
GTN (Glyceryl Trinitrate)	3mg/kg in 50ml 5% Dextrose	1ml/hr = 1mcg/kg/min	1 – 8 mcg/kg/min (Max 200mcg/min)
Milrinone	1.5mg/kg in 50ml 5% Dextrose	1ml/hr = 0.5mcg/kg/min	0.3 – 0.75 mcg/kg/min
Noradrenaline	0.3 mg/kg in 50ml 5% Dextrose	1ml/hr = 0.1mcg/kg/min	0.1 – 1 mcg/kg/min
Phentolamine	30mg/kg in 50ml 5% Dextrose	1ml/hr = 10mcg/kg/min	5 – 50 mcg/kg/min
Prostaglandin E1/E2	50mcg in 50ml 5% Dextrose	0.15ml/kg/hr = 2.5 nanograms/kg/min	2.5 – 50ng/kg/min
SNP – Sodium Nitroprusside	3mg/kg in 50ml 5% Dextrose	1 ml/hr = 1mcg/kg/min	1 – 8 mcg/kg/min
Vasopressin	0.3 units/kg in 50ml 5% Dextrose (Max 50units in 50ml)	1ml/hr = 0.0001 units/kg/min	0.0001 – 0.0008 units/kg/min
Adrenaline (peripheral inf)	0.3mg/kg in 500ml 5% Dextrose ** see notes for infusion** (2)	10ml/hr = 0.1mcg/kg/min	0.1-1mcg/kg/min
Dopamine (peripheral inf)	3mg/kg in 50ml 5% Dextrose	1ml/hr = 1mcg/kg/min	5 – 10 mcg/kg/min

STANDARD DRUG INFUSIONS			
NEUROLOGICAL			
Drug	Volume in syringe	Rate of infusion	Dosing range
Atracurium	NEAT – 10mg/ml <10kg = 10ml syringe 10-30kg = 20ml syringe >30kg = 50ml syringe	(Weight ÷ 10) mL/hr = 1 mg/kg/hr	0.6 – 0.9 mg/kg/hr
Rocuronium	NEAT - 10mg/ml <10kg = 10ml syringe 10-30kg = 20ml syringe >30kg = 50ml syringe	(Weight ÷ 10) mL/hr = 1 mg/kg/hr	0.6-1 mg/kg/hr
Fentanyl	0.1mg/kg in 50ml 5% Dextrose OR NEAT (50mcg/ml) if >25kg	1ml/hr = 2mcg/kg/hr	1 – 5 mcg/kg/hr
Ketamine (sedation dose)	<16kg=30mg/kg in 50ml 5% Dextrose	1ml/hr = 10mcg/kg/min	5-20mcg/kg/min
	>16kg=500mg in 50ml 5% Dextrose	0.06ml/kg/hr=10mcg/kg/min	
Midazolam	3mg/kg in 50ml 5% Dextrose	1ml/hr = 1mcg/kg/min	1 – 4 mcg/kg/min
Morphine	1mg/kg in 50ml 5% Dextrose	1ml/hr = 20mcg/kg/hr	10 – 40 mcg/kg/hr
Propofol	NEAT	10mg/ml (1% solution)	2 – 4 mg/kg/hr
Thiopental	125mg (NOT mg/kg) in 50ml 0.9% NaCl ONLY (0.25%)	1ml/hr = 2.5mg/hr 0.4ml/hr = 1mg/hr	1 – 8 mg/kg/hr (Max 48hr continuous infusion)

The basis of many of these infusions is the rule of 3s i.e. 3 x WT (kg) of drug (mg) in 50ml will produce a solution of strength such that 1ml/hr = 1 mcg/kg/min.

Notes for infusion

- 500mcg Prostaglandin E1/E2 in 500ml 5% Dextrose and then take 50ml of this preparation and infuse accordingly.
- Adrenaline infusion can be delivered through a peripheral vein in an emergency until IO access or Central Venous access is obtained at 10 times dilution of the central preparation. (0.3mg/kg in 500ml of 5% Dex/ 0.9% Saline) – Take 50ml of this preparation and adjust infusion rates accordingly.**
- Central lines primed with N Saline – be aware that the dead space may become relevant when running inotropes/vasopressors at low rates.

Commonly used paediatric CVC priming volume/deadspace information, taken from Vygon and Cook websites November 2016.

Brand	Priming volume	Priming volume	Priming volume
VYGON Multicath 4.5Fr x 6cm	Distal (green) 0.20ml	Median (blue) 0.13ml	Proximal (orange) 0.17ml
COOK 5Fr x 8cm COOK 5Fr x 12cm	Distal (white) 0.3ml MINIMUM	Median (blue) 0.2ml MINIMUM	Proximal (red) 0.2ml MINIMUM
COOK 7Fr x 15cm	Distal (white) 0.5ml MINIMUM	Median (blue) 0.3ml MINIMUM	Proximal (red) 0.3ml MINIMUM

- Unless specified all infusions can be made up in either 0.9% NaCl or 5% Dextrose.
- Thiopental infusion: note this is a standard infusion (0.25%). Consider use of adult concentration (2.5%) in older children where large volumes are required.