10 kg

Monash Children's Hospital

Anaphylaxis

IM Adrenaline	**0.1 mL** of 1:1000 (small ampoule) or **GREEN autoinjector** *Repeat once if necessary*	→	**Fluid bolus** **200 mL IV**	→	**Adrenaline infusion** (See "infusions" below) — **If no infusion pump available, use 1 mg adrenaline** in **1 Litre** of crystalloid. Start at **50 mL/hour.**

Resuscitation / Arrhythmia

Adrenaline IV (cardiac arrest)	**10 micrograms/kg**	**100 micrograms**	**of 1:10,000 (large ampoule)** ETT dose 1 mL of 1:1000 (small ampoules), diluted to 10mL	**1 mL**
DC shock	4 J/kg		Use adult/child pads	**50 Joules**
ATROpine	20 micrograms/kg	200 micrograms	Dilute 600 micrograms in 6 mL	**2 mL**
AmIODAROne	5 mg/kg	50 mg	Dilute 1 ampoule (150 mg in 3mL) to 25 mL in Glucose 5% Over 3 mins in emergency, otherwise over 20-120 mins	**8.3 mL**
Adenosine (1st dose)	0.1 mg/kg	1 mg		**0.3 mL**
Adenosine (2nd dose)	0.2 mg/kg	2 mg	Undiluted (6 mg in 2 mL); *use 1 mL or 3 mL syringe*	**0.7 mL**
Adenosine (3rd dose)	0.3 mg/kg	3 mg		**1 mL**

Nebulised Adrenaline for upper airway obstruction / croup: **5 mL of 1:1000** (small ampoule) **OR 0.5 mL** of 1% solution diluted to 4 mL

Management of shock

FLUID BOLUS (Isotonic crystalloid) 5 mL/kg = **50 mL** 10 mL/kg = **100 mL** 20 mL/kg = **200 mL**

PUSH DOSE PRESSORS	**Metaraminol**	10 micrograms/kg	100 micrograms	10 mg (1 ampoule) in 100 mL bag. Draw up 10 mL. *(OR use **undiluted 3mg/6mL vial** and give **0.2 mL**)*	**1 mL**
	Adrenaline	1 micrograms/kg	10 micrograms	Dilute 1 mL of 1:10,000 Adrenaline (large ampoule) to total volume of 10 mL	**1 mL**

INFUSIONS *Can use either glucose 5% or sodium chloride 0.9%, except peripheral noradrenaline use glucose 5% + sodium chloride 0.9%*	**Medication**	**Dilution**	**1 mL/h =**	**Starting Dose**
	Adrenaline (Central / IO)	**1.5 mg** made up to 50 mL	0.05 micrograms/kg/min	0.2 – 5 mL/h
	Noradrenaline (Central / IO)	**1.5 mg** made up to 50 mL	0.05 micrograms/kg/min	0.2 – 10 mL/h
	Adrenaline (Peripheral)	**6 mg** made up to 1000 mL	*mL/h=microgram/kg/min: 5=0.05; 10=0.1; 15=0.15; 20=0.2; 25=0.25; 30=0.3; 40=0.4; 50=0.5; 100=1*	5 mL/h
	Noradrenaline (Peripheral)	**6 mg** made up to 1000 mL		5 mL/h
	Dobutamine	**150 mg** made up to 50 mL	5 micrograms/kg/min	1 - 3 mL/h

Intubation

EQUIPMENT *(prepare one size above/below)*			**Depth: 11** cm to lip	**Laryngoscope:** 1
	ET tube size (uncuffed) *(Age/4) + 4*	4	13 cm to nose	**Suction:** 10 Fr
	ET tube size (Microcuff™)	3.5	**LMA size:** 1.5-2	
	ET tube size (cuffed) *(Age/4)+3.5*	3.5		

INDUCTION AGENTS	Ketamine	1 - 2 mg/kg	**10-20** mg		Dilute 200mg in 20 mL OR dilute 100mg in 10mL	**1 - 2 mL**
	Propofol	2.5 – 3.5 mg/kg	**25-35** mg	*Risk CVS ↓*	Undiluted	**2.5 – 3.5 mL**
	Fentanyl	2-4 micrograms/kg	**20-40** micrograms		Dilute 100 micrograms to 10 mL	**2 - 4 mL**
	Midazolam	0.1 mg/kg	**1** mg		Dilute 5 mg to 5 mL	**1 mL**

PARALYTIC AGENTS	Suxamethonium	2 mg/kg	**20** mg	Dilute 100 mg to 10 mL	**2 mL**
	Rocuronium	1.2 mg/kg	**12** mg	Undiluted	**1.2 mL**
	Vecuronium	0.1 mg/kg	**1** mg	Reconstitute 10 mg in 10 mL water for injection	**1 mL**
	Pancuronium	0.1 mg/kg	**1** mg	Dilute 4mg to 4mL	**1 mL**
	Atracurium	0.5 mg/kg	**5** mg	Dilute 25mg to 10 mL	**2 mL**
	Cisatracurium	0.1 mg/kg	**1 mg**	Undiluted	**0.5 mL**

INFUSIONS *Can use either glucose 5% or sodium chloride 0.9%*				
	Morphine	**10 mg** made up to 50 mL	1 mL / h = 20 micrograms/kg/hour	Starting dose: 1 - 4 mL/h
	Midazolam	**30 mg** made up to 50 mL	1 mL / h = 1 microgram/kg/min	Starting dose: 1 – 4 mL/h
	Fentanyl	**1,000 micrograms** made up to 50 mL	1 mL / h = 2 microgram/kg/hour	Starting dose: 0.5 – 2.5 mL/h

All dilutions with Sodium chloride 0.9% unless otherwise specified

Edition 3. Due for Review 2027

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Blood products – *use WARMED fluids*

Packed red cells:	Fresh frozen plasma (FFP):	Platelets:	Cryoprecipitate:	Tranexamic acid
(10 mL/kg) **100 mL**	(10-20 mL/kg) **100 – 200 mL**	10 mL/kg of pooled plts **100 mL**	Whole blood (10 mL/kg): **3 units** Apheresis (5 mL/kg): **50 mL**	**Loading dose: 150 mg** (15 mg/kg) *(Dilute to 10 mg/mL, give 10 mL over 10 minutes)* **Infusion: 20 mg/hour for 8 hrs** (2 mg/kg/hr) *(Dilute to 10 mg/ml, give 2 mL/hour)*

Massive transfusion: 1:1 ratio of packed red cells and FFP (e.g. alternate units of red cells / FFP)

Acute respiratory illness (*NB –all need to be given as separate infusions*)

ASTHMA INFUSIONS		
Magnesium 50 mg/kg (0.2 mmol/kg)	Dilute 5 mL (10 mmol) of 50% $MgSO_4$ to 50 mL. Give **10 mL** (2 mmol = 500 mg) **over 20 minutes**
Aminophylline 10 mg/kg	**100 mg** diluted to at least 100 mL Give over 30 minutes
Salbutamol 5 micrograms/kg	**50 - 150 micrograms,** diluted to at least 10 mL. Give over 10 minutes

Corticosteroids

Methylprednisolone: 10 mg IV, 6 hourly
Prednisolone: 10 mg daily
Hydrocortisone: 40 mg IV, 6 hourly
Dexamethasone: *Mild/moderate croup* (oral): 1.5 mg
Mild/moderate asthma (oral) : 3 mg
Severe asthma / croup (IV/IM): 6 mg

Life-threatening asthma: ***Adrenaline IM*** or ***"push dose"*** or ***infusion*** **Life-threatening croup:** ***Nebulised Adrenaline***

Seizures / Neurology (see seizure flowchart)

MIDazolam (5 mg/ 1 mL – *small* ampoule) Intramuscular: (0.15 mg/kg) = 1.5 mg = **0.3 mL IM** Buccal / nasal: (0.3 mg/kg) = 3 mg **= 0.6 mL intranasal/buccal**	**IV MIDazolam** (5 mg/ 5 mL – *large* ampoule) IV: (0.15 mg/kg) = 1.5 mg = 1.5 **mL IV**	**IV Clonazepam** Child dose **0.5 mg**	**IV Diazepam** (0.3 mg/kg) **3 mg**

PhenyTOIN	20 mg/kg	**200** mg	Undiluted (preferred). May dilute up 40 mL (max); give over 20 min
Sodium Valproate	*Not recommended if <2 years of age. Weight-based dose for status epilepticus is 40 mg/kg (400 mg) over 5 minutes*		
Levetiracetam	40 mg/kg	**400** mg	Dilute 1 x 500mg vial to 10mL. Give **8 mL** over 5 min
PHENobarbitone	20 mg/kg	**200** mg	Dilute to at least 1:10; give over 20 min

Mannitol 20%	0.5 g/kg (2.5 mL/kg)	**25**mL	Over 20-30 minutes for raised ICP
Sodium chloride 3% ("Hypertonic Saline")	3 mL/kg	**30** mL	Over 10-20 minutes for raised ICP

Electrolyte abnormalities

HYPOglycaemia: 20 mL of **Glucose 10%** (2 mL/kg) – *consider need for critical blood tests*

HYPERkalaemia
- **Calcium gluconate 10%** 5 mL slow IV (peripheral / central)
OR **Calcium chloride 10%** 1 - 2 mL (central)
- **Salbutamol** 2.5 mg nebulised
- **Glucose 10%** 50 mL bolus with **Actrapid** 1 unit bolus followed by Actrapid 1 unit/hour + Glucose 10% + NaCl 0.9% maintenance (40 mL/h)
- **Sodium bicarbonate 8.4%** 10 - 30 mL (if acidosis) over 5 minutes
Calcium and bicarbonate should be given using different lines

Critical HYPOnatraemia with seizures *(Do NOT correct >8 mmol/L/day)*
30 mL of **Sodium Chloride 3%** over 20 minutes

Critical HYPOcalcaemia
Calcium gluconate 10% 5 mL slow IV (peripheral / central)

HYPOmagnesaemia
Dilute 5 mL (10 mmol) of 50% $MgSO_4$ to 50 mL.
Give **10 mL** (2 mmol = 500 mg) up to **20 mL** (4 mmol = 1000 mg) over 2-4 hours

Severe HYPOkalaemia needing urgent treatment
Use pre-mixed 100mL bag [isotonic]: 3 mmol (30 mL)
(Potassium Chloride 10 mmol in Sodium Chloride 0.29%)
Give over 1 hour using syringe driver

SEVERE Infection *NB – 1st dose only*

Aciclovir	200 mg
Ampicillin, Amoxycillin, Cefotaxime, Ceftriaxone*, Flucloxacillin	500 mg
Gentamicin	75 mg
Clindamycin or Lincomycin	150 mg
Metronidazole	150 mg
Vancomycin	150 mg
Piperacillin / Tazobactam	1000 mg

Antidotes

Sugammadex 16 mg/kg	**160** mg	Undiluted (100 mg/mL)	**1.6 mL**
Naloxone *(low dose)* 2 micrograms/kg	**20** micrograms	Dilute 400 micrograms (1mL ampoule) to 20 mL	**1 mL** *repeat PRN*
Naloxone *(emergency)* 10 micrograms/kg	**100** micrograms	Dilute 400 micrograms (1 mL ampoule) to 20 mL	**5 mL** *repeat PRN*

N-Acetylcysteine (1st bag)	**2000 mg** in 100 mL of glucose 5%	Over 4 hours
N-Acetylcysteine (2nd bag)	**1000 mg** in 250 mL of glucose 5%.	Over 16 hours

* *If serious bacterial infection, can give ceftriaxone 50 mg/kg (500mg)* ***OR*** *100 mg/kg (1000 mg)*
If treating meningitis, also give ***dexamethasone 1.5 mg IV*** *(0.15 mg/kg)*

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Gastrointestinal bleeding	
Pantoprazole *Dilute 40 mg in 10 mL*	Intermittent dose: 10 mg (**2.5 mL**) Bolus (pre-infusion): 20 mg (**5 mL**)
Pantoprazole infusion *Dilute 80 mg in 100 mL*	2 mg/hour (**2.5 mL/hour**)
Octreotide *Dilute 250 micrograms in 50 mL*	**Loading:** 10 micrograms (**2 mL**) **Infusion:** start at **2 mL/hour** ↑ by 2 mL/hour every 8 hours PRN

Dantrolene for malignant hyperthermia	Dilute 2 x 20 mg ampoule in 120 mL sterile H_2O **Give 75 mL (25 mg) every 5 minutes** *Maximum of 100 mg (4 doses)*

Other infusions	Dilution	Usual rate
Vasopressin	**10 units** in 50 mL Glucose 5%	1 – 3 mL/hour
Ketamine	**200 mg** in 50 mL	1 -6 mL/hour
Propofol	Undiluted	1 – 4 mL/hour
Milrinone	**15 mg** in 50 mL	0.5 – 1.5 mL/hour
Glyceryl Trinitrate	**30 mg** in 50 mL Glucose 5%	1 - 5 mL/hour
Sodium nitroprusside	**30 mg** in 50 mL Glucose 5%	1 – 10 mL/hour
Heparin *(arterial line transducer)*	**250 units** in 50 mL	1 – 2 mL/hour
Heparin *(central line transducer)*	**50 units** in 50 mL	1 – 2 mL/hour

Sedation for procedures / treatment

Chloral hydrate *(100 mg/mL)*
Administer *oral or NG
- ***Sedation:*** **500 mg** (up to 1000 mg in ICU)
- ***To facilitate O_2 therapy:*** 100 mg

Midazolam *(5 mg/mL – small ampoule - undiluted)*
- ***Oral:** 5 mg **(1 mL)**
- **Intranasal:** 3 mg **(0.6 mL)**

Ketamine *(Undiluted – 200 mg in 2 mL)*
- **Intramuscular: 30 - 40** mg **(0.3 – 0.4 mL)**
- ***Oral: 50 - 100** mg **(0.5 - 1 mL)**

Ketamine (IV) *Dilute 200 mg in 20 mL*
Usual dose: 10 - 15 mg **(1 – 1.5 mL)**

Dexmedetomidine
200 micrograms / 2 mL (Undiluted)
Intranasal: 20 – 40 micrograms
0.2 – 0.4 mL

Clonidine *150 microg/mL (Undiluted)*
- ***Oral:** 40 micrograms **(0.27 mL)**
- **Intranasal:** 20 micrograms **(0.13 mL)**

*Unpleasant taste! Consider mixing with 2-3 mL of sucrose, a dose of paracetamol and/or a few mL of juice.