

# PARAMETERS

|                               |                     |
|-------------------------------|---------------------|
| BODY WEIGHT                   | NEUTRAL AMBIENT T°C |
| 3-12 mth = 4 kg + mths/2      | Prem - 34           |
| 1-9 yo = (4kg + age) x 2      | Term - 32           |
| >9 yo = age x 3kg             | Adult - 28          |
| UO > 1ml/kg/hr (2 in infants) |                     |

| SBP >1 yo = 90 + Age x 2 | MAP Prem/Neonates ~ GA wks (+5) |              |
|--------------------------|---------------------------------|--------------|
|                          |                                 |              |
| SYSTOLIC BP              | Normal                          | Lower Limit  |
| 0 - 1 months             | > 60                            | 50-60        |
| 1 - 12 months            | > 75                            | 60-70        |
| 1 - 10 years             | 90 + 2 x Age                    | 70 + 2 x Age |
| > 10 years               | 120                             | 90           |

| Age   | Wt   | ETT ID | Lip cm | LMA | PR      | MAP    | RR     | BSA  | %PK |
|-------|------|--------|--------|-----|---------|--------|--------|------|-----|
| ~24   | <0.7 | 2.0    | 5      |     |         | 25     |        |      |     |
| ~25   | <1   | 2.5    | 5.5    |     |         |        |        |      |     |
| ~26   | 1    | 3.0    | 6      |     |         | 30     |        |      |     |
| ~31   | 2    | 3.0    | 7      |     |         |        |        |      |     |
| ~36   | 3    | 3.0    | 8      |     | 95-145  | 40-60  | 30 -60 | 0.23 | 1/8 |
| Birth | 3.5  | 3.0    | 9      | 1   |         |        |        |      |     |
| 3m    | 6    | 3.5    | 10     | 1.5 | 110-175 | 45-75  |        | 0.31 | 1/7 |
| 1yr   | 10   | 4.0    | 11     | -2  | 105-170 | 50-100 | 26 -34 | 0.47 | 1/4 |
| 4     | 15   | 5.0    | 14     | 2   | 80-140  |        |        |      |     |
| 6     | 20   | 5.5    | 15     | 2.5 | 70-120  | 60-90  | 18 -24 | 0.80 |     |
| 8     | 25   | 6.0    | 16     | 2.5 | 60-110  | 60-90  |        |      | 1/2 |
| 10    | 30   | 6.5    | 17     | 3   | 60-110  | 60-90  |        | 1.1  | 3/4 |
| 14    | 50   | 7.5    | 19     | 4   | 60-100  | 65-85  | 12 -20 | 1.5  | 4/5 |
| Adult | 70   | 8.0    | 21     | 5   | 65-100  | 70-110 |        | 1.8  | 1   |

# AIRWAY

#### General Guides

#### Fasting

All children Healthy Infants <6/12 old

Clear fluids 2/24 Breast Milk 3-4/24

Solids/milk 6/24 Formula 4/24

Filling Solids ~6-8/24

ETT ID mm = 4 + age/4, MicroCuffed = 3.5 +age/4

ETT Length
at the cords = (Tube size) cm
Prem & neonates ~ Gest Age in mths (VC to carina 1-4kg = 5-7.5cm)
>1mth= 12 + age/2
Nasal ETT ~ +2 (<1yo) +3cm (1-6yo), +4cm (>6yo)
Suction catheter Fr Gauge = (2 x ID ETT) +/-1

| COOK EXCHANGE CATHETERS |        |         |        |  |
|-------------------------|--------|---------|--------|--|
| Size                    | Length | Cath OD | ETT ID |  |
| 7 Fr                    |        |         | 2.5    |  |
| 8 Fr                    | 45 cm  | 3 mm    | 3.5    |  |
| 11 Fr                   | 83 cm  | 4 mm    | 4.0    |  |
| 14 Fr                   | 83 cm  | 5 mm    | 5.5    |  |
| 19 Fr                   | 83 cm  | 7 mm    | 7.0    |  |

| ENDOTRACHEAL TUBES |          |        |         |         |            |
|--------------------|----------|--------|---------|---------|------------|
| Age                | ETT(ID)  | BB(Fr) | Univent | DLT(Fr) | Scope Size |
| <0.5               | 2.5- 3   |        |         |         | 2.2mm      |
| 0.5-1              | 3.5- 4   | 2      |         |         | 2.8mm      |
| 1-2                | 4- 4.5   |        |         |         | 3.5mm      |
| 2-4                | 4.5- 5   | 3      |         |         |            |
| 4-6                | 5- 5.5   | 5      |         |         | 4.0mm *    |
| 6-8                | 5.5- 6   | 5      | 3.5     |         | 5.0mm      |
| 8-10               | 6 Cuffed | 5-7    | 3.5     | 26      |            |
| 10-12              | 6.5- 7   | 7      | 4.5     | 26 - 28 |            |
| 12-14              | 6.5-7 *  | 7      | 4.5     | 32      |            |
| 14-16              | 7 *      | 7-9    | 6       | 35 - 37 |            |
| 16-18              | 7-8 *    | 9      | 7       | 35 - 39 |            |

\* may have to remove ETT connector

#### LARYNGEAL MASK AIRWAYS (unofficial)

| Weight | Size        | Inflation | ETT through LMA            |
|--------|-------------|-----------|----------------------------|
| <5kg   | <b>#1</b>   | 2-5 ml    | 3.0 Uncuffed               |
| 5-10   | <b>#1.5</b> | 5-7 ml    | 3.5 Uncuffed               |
| 10-20  | <b>#2</b>   | 7-10 ml   | 4.5 Uncuffed or *** Cuffed |
| 15-30  | <b>#2.5</b> | 12-14 ml  | 5.0 Uncuffed or *** Cuffed |
| 30-50  | <b>#3</b>   | 15-20 ml  | 6.0 Cuffed                 |
| 50-70  | <b>#4</b>   | -> 30ml   | 7.0 Cuffed                 |
| 70-100 | <b>#5</b>   | -> 40ml   | 7.5 Cuffed                 |
| >100   | <b>#6</b>   | -> 50ml   |                            |

LMA Inflation volume ~ 5ml x size

# INTUBATION

LARYNGOSCOPE BLADE
Weight
<1kg - Miller 00 blade; <2.5kg - Miller 0 blade; >2.5kg - Miller 1 blade
Equipment
- Previous airway history, Suction, Masks, Guedels, Tubes, LMAs, Laryngoscopes, ET CO<sub>2</sub>
It is considered 'best practice' for two doctors to be present.

Drugs used are:

- Atropine 20 mcg/kg (max 600 mcg) (esp neonates, high spinal injury)
- Etomidate 0.3mg/kg iv, Ketamine 1-2mg/kg, Midazolam 0.1mg/kg
- Rocuronium 1mg/kg iv

Intubation conditions typically achieved within 60 seconds. In addition to the above or following intubation small doses of an opiate such as alfentanil (5-10micrograms/kg) may be used to provide additional analgesia

# VENTILATION

#### HFOV set:

MAP 2-6 cm above MAP on conventional vent (usually 20-30cmH2O)
Freq. 5-10Hz; amplitude 'enough to make the chest wriggle' (usually 20-50).

"Oxygenation" related to FIO<sub>2</sub> and MAP

"Ventilation" related to freq. (in some instances inversely related-decreased freq. increased amplitude) and amplitude (Vt2)(related to 'power' and ETT / tubing diameter). Check ABG within 20 min. as CO<sub>2</sub> may drop precipitously. Check CXR within 4 hrs (overdistension)

| Birth | 3.5 | 3.0 | 9  | 1   |         |        |        |      |     |
|-------|-----|-----|----|-----|---------|--------|--------|------|-----|
| 3m    | 6   | 3.5 | 10 | 1.5 | 110-175 | 45-75  |        | 0.31 | 1/7 |
| 1yr   | 10  | 4.0 | 11 | -2  | 105-170 | 50-100 | 26 -34 | 0.47 | 1/4 |
| 4     | 15  | 5.0 | 14 | 2   | 80-140  |        |        |      |     |
| 6     | 20  | 5.5 | 15 | 2.5 | 70-120  | 60-90  | 18 -24 | 0.80 |     |
| 8     | 25  | 6.0 | 16 | 2.5 | 60-110  | 60-90  |        |      | 1/2 |
| 10    | 30  | 6.5 | 17 | 3   | 60-110  | 60-90  |        | 1.1  | 3/4 |
| 14    | 50  | 7.5 | 19 | 4   | 60-100  | 65-85  | 12 -20 | 1.5  | 4/5 |
| Adult | 70  | 8.0 | 21 | 5   | 65-100  | 70-110 |        | 1.8  | 1   |

High approach RIJv or RSCV lateral to midpoint of clavicle then:
Height <100cm insert (Ht/10) - 1cm. >100cm insert (Ht/10) -2cm

| VASCATHS |        |        |         |         |
|----------|--------|--------|---------|---------|
| Weight   | Vscath | Length | Art Vol | Ven Vol |
| <10kg    | 6.5 Fr | 10 cm  | 0.75 ml | 0.78 ml |
|          |        | 15     | 0.81    | 0.84    |
| <20kg    | 8      | 10     | 0.80    | 0.82    |
|          |        | 15     | 0.88    | 0.90    |
| >20kg    | 11     | 15     | 1.05    | 1.1     |
|          |        | 25     | 1.36    | 1.42    |

ARTERIAL LINES
Arch/ CoA surgery - R Radial OR Ulna > Axillary > Brachial >Temporal
BT shunt - avoid side of surgery if possible
CPB - avoid DP/PostTib if possible
Axillary - CAUTION Higher risk of cerebral embolisation with flushes
Brachail - use smaller gauge eg 24g in <5kg as low collateral supply

# GLASGOW COMA

| EYE   | VERBAL  | MOTOR  |
|---|---|--|
| 1. No Response <p>2. to Pain</p> <p>3. to Command</p> <p>4. Spontaneous</p> | 1. No Response <p>2. Incomprehensible</p> <p>3. Inappropriate</p> <p>4. Confused</p> <p>5. Orientated</p> | 1. No Response <p>2. Extn Arms (decebrate)</p> <p>3. Flexion Arms (decor-ticate rigidity)</p> <p>4. Withdrawal</p> <p>5. Localises</p> <p>6. Obeys</p> |

| VERBAL < 23 mo   | 2-5 yo   | <1 yo MOTOR   |
|--|--|---|
| 1. No response <p>2. Grunts</p> <p>3. Persistent cries and/or screams</p> <p>4. Cries but consolable</p> <p>5. Smiles, coos, cries appropriately</p> | 1. No response <p>2. Grunts</p> <p>3. Cries +/- screams</p> <p>4. Inappropriate words</p> <p>5. Appropriate vocals</p> | 1. No response <p>2. Extension (decebrate)</p> <p>3. Flexion-abnormal (decor-ticate rigidity)</p> <p>4. Flexion-withdrawal</p> <p>5. Localises pain</p> <p>6. Spontaneously moves</p> |

# DIALYSIS

| Weight | Initial  | Target speeds | <10kg use blood prime as volume of circuit ~100ml                          |
|--------|----------|---------------|--|
| <5kg   | 15ml/min | 50ml/min      | NB: Storage lesion + Hyperkalaemia + Vascular mediator induced instability |
| <10kg  | 25ml/min | 75ml/min      |  |
| <20kg  | 50ml/min | 100ml/min     |  |
| <30kg  | 75ml/min | 50ml/min      |  |
| >30kg  | 75-100   | 200ml/min     |  |

PERITONEAL DIALYSIS
Ventilated - 10-20ml/kg/cycle (in & dwell 20 min, out 10 min). Normal - 10ml/kg/cycle (in 40min, out 20min).
- Cross-flow = 2 catheters
- Dextrose - 1.5% ISOTONIC - 4.25% HYPERTONIC.
- Additives: Heparin 200Units/L, Potassium prm 0-4mmol/l, 10mls 50% Dextrose increases concentration of 1L by 0.5%
- Bicarbonate PD (Na 140mmol/L, HCO3 40mmol/L, Dextrose 2.5%)
Mix 500mL 0.9% NaCl + 500mL 5% Dextrose (remove 40mL and replace with 8.4% NaHCO3 & 5mL 30% NaCl & Heparin 200U)

# RESUSCITATION

Paediatric arrests are usually secondary to hypoxia-remember to ensure/check O<sub>2</sub> delivery.
Resistant arrhythmias may require escalation above the doses given below.

ARRHYTHMIAS
Shocked VT/VF
Witnessed with imediate defibrillation can consider 2-4-4J/kg salvo
• CPR until DC cardioversion (4J/kg) then 2mins CPR
• then 4J/kg & 2mins CPR
• then Adr 0.1ml/kg (1:10,000) & 4J/kg & 2mins CPR
• Amiodarone 5mg/kg & 4J/kg & 2mins CPR
then continue defib every 2 mins and adr every 3 mins.
Consider;
• H's & T's - Reversible causes (see below)
• Magnesium 0.2ml/kg max 10ml iv over 3 mins if polymorphic VT.
• Bicarbonate & Calcium if indicated

EMD
• Asystole/ non-VT/VF arrest: CPR & Adrenaline every 3 mins.
Consider
• H's & T's - Reversible causes (see below)
• Bicarbonate & Calcium if indicated

SVT
• If shocked, DC cardioversion (1-2-2J/kg)
• If not vagal manoeuvres, adenosine rapid iv
• consider DC cardioversion & amiodarone 5mg/kg over 30 mins

AF
• if HR<60 - 3:1 compressions to breaths = 90:30 per minute (2 events per second) (1 fingers breadth below interniple line, >1/3rd of chest diameter)

JET
• Decrease exacerbators - inotropes, correct Ca<sup>2+</sup>/K<sup>+</sup>
• Decrease O2 consumption - analgesia/sedation, avoid pyrexia, ac-tive cooling 35°C (cold iv fluids, cooling mattress, cold PD cycles)
• Increase O2 delivery - use Amiodarone to slow rate and A-V se-quential pacing when ventricular rate <160, increase Hb

|          | Lone rescuer | Dual rescuer | ETT           |
|----------|--------------|--------------|---------------|
| Newborn  |              | 3:1 c pause  | 3:1 c pause   |
| Infant   | 30:2         | 15:2 c pause | 10:1 no pause |
| Children | 30:2         | 15:2 c pause | 10:1 no pause |
| Adults   | 30:2         | 30:2 c pause | 10:1 no pause |

| H ypovolaemia                   | T ension pneumothorax      |
|---------------------------------|----------------------------|
| • Effective eg Anaphylaxis      | T amponade                 |
| • Absolute eg Haemorrhage       | T hrombo/ embolism         |
| H ypoxia (check O2 & ETT)       | • coronary, pulmonary      |
| H ypo/ hyper K/ Ca/ H/ Glucose  | T oxins/ Tablets           |
| H ypothermia                    | T earing Aortic dissection |
| H yperinflation (intubated pt.) |                            |

| Preload  | Cardiac  | Afterload   |
|--|--|---|
| <b>•Absolute</b> <p>• Hypovolaemia</p> <p>- Concealed vs Revealed</p>  | <b>•Rate</b> <p>• VF/ VT/ SVT/ AF/ AF/ Stokes-Adams</p>  | <b>•Decrease</b> <p>• Sepsis</p> <p>• Anaphylaxis</p> <p>• Regional - sympa-tholysis</p> <p>• Addisonian Crisis</p>                               |
| <b>•Effective</b> <p>• Tension pneumo-thorax</p> <p>• Tamponade</p> <p>• Thromboembolic</p> <p>• Anaphylaxis</p> <p>- (AFE = RVF -&gt; decreased LVEDV)</p> <p>• Sympatholysis/ regional/ drugs</p> <p>• Mechanical</p> <p>- Cardiac Herniation</p> <p>- IVC obstruction</p> <p>- Supine Hypoten-sion Syndrome</p> <p>- Retractors</p> | <b>•Ejection</b> <p>• Hypoxia/ Ischae-mia eg ventilation</p> <p>• Cardiomyopathy</p> <p>• Hypothermia</p> <p>• Electrolytes</p> <p>• Toxins/ Drugs</p> <p>- LA toxicity</p> <p>• Fixed CO</p> <p>MS /AS /HOCM</p> <p>Pericardial Eff</p> <p>Pulm Htn</p> | <b>•Increase</b> <p>• HOCM/ AS/ SAM</p> <p>• Malignant HTN</p> <p>• PET</p> <p>• Phaeochromo-cytoma</p> <p>• Carcinoid</p> <p>• Thyroid storm</p> |

| Management   | Investigate  |
|--|--|
| Give <p>Fluids (10ml/kg) &amp; Adr/Epi (1-10mcg/ kg)</p> <p>• Hypovolaemia &amp; Anaphylaxis</p> <p>Examine</p> <p>Veins, Trachea &amp; Chest</p> <p>• Tamponade, Thromboembolic</p> <p>• Tension (Thoracocentesis)</p> <p>• Hyperinflation (Disconnect)</p> | do ABG <p>• Hypoxia, Hyper/Hypo K/ Ca/ H/ Gluc</p> <p>do Temperature (for ABG &amp; Core T)</p> <p>• Hypothermia</p> |

# RESUSCITATION

| DRUGS  | Endotracheal  |
|--|---|
| Adrenaline - 10 mcg/kg <p>Amiodarone - 5mg/kg <p>Atropine - 20 mcg/kg <p>Bicarbonate - 1 mEq/kg <p>Dextrose - 10% 2.5 ml/kg <p>Defibrillation - 4 J/kg <p>Lignocaine - 1 mg/kg <p>Magnesium ~ 30 mg/kg <p>Naloxone - 20 mcg/kg <p>Salbutamol - 1-5mcg/kg</p></p></p></p></p></p></p></p></p> | <b>A</b> tropine <p><b>L</b> ignocaine <p><b>I</b> soprenaline <p><b>E</b>* pinephrine <p><b>N</b> aloxone <p>* Adrenaline may require 3-10x increased dose</p></p></p></p></p> |

NEONATAL RESUSCITATION
Dry warm and stimulate
• If crying, good tone, term -> observe & support prm on mother
• If flat (apnoeic, HR<60, Pale/cyanosis) ETT/IPPV/CPR
• If Inadequate respiration
@ 0-30 secs
• Get midwife to tap out PR (stethoscope or Umb A), attach pulseoxi-meter to right arm (pre-ductal)
• Give stimulation/ Suction oral then nasopharynx
• Look at cords with laryngoscope
• If meconium can use an ETT or bronchial sucker as suction (stained fingernails and thick stained liquor is more worrying)
@ 30-60 secs
• 5 Inflation breaths - Positive pressure ventilation by mask laerdel or IPPV device (20-25cmH<sub>2</sub>O, initial ventilation may need higher pressure and prolonged application - max 40cmH<sub>2</sub>O in term)
• No improvement = ETT & IPPV = titrated O<sub>2</sub>
@ 60 secs -
• if HR<60 - 3:1 compressions to breaths = 90:30 per minute (2 events per second) (1 fingers breadth below interniple line, >1/3rd of chest diameter)
• Once ETT then 30 breaths
• If known cardiac cause consider using 15:2
Brady <60 bpm = Adr 10-30 mcg/kg (50-100 mcg/kg if ETT)
VF/VT = 4 J/kg - can escalate energy dose with resistant arrhythmia

ACCEPTABLE PRE-DUCTAL SpO<sub>2</sub>
• If SpO<sub>2</sub> lower than expected titrate O<sub>2</sub> using lowest FIO<sub>2</sub> to achieve
@ 2 min 60% @ 3 min 70% @ 4 min 80% @ 5 min 85% @ 10 min 90%

|          | Lone rescuer | Dual rescuer | ETT           |
|----------|--------------|--------------|---------------|
| Newborn  |              | 3:1 c pause  | 3:1 c pause   |
| Infant   | 30:2         | 15:2 c pause | 10:1 no pause |
| Children | 30:2         | 15:2 c pause | 10:1 no pause |
| Adults   | 30:2         | 30:2 c pause | 10:1 no pause |

| Airways   | Breathing  | Circulation   |
|---|--|---|
| Syndromes <p>Pierre Robin</p> <p>Choanal atresia</p> <p>Airway Mass</p> <p>Cleft Palate</p> | Respiratory distress with SpO <sub>2</sub> response to 100% O <sub>2</sub> <p>- HMD (RDS)-&gt; TTNB</p> <p>- Meconium Aspiration</p> <p>- Pneumonia</p> <p>- Aspiration</p> <p>- Trach Oesoph Fist (NGT)</p> <p>- PPHN 1° &amp; 2°</p> <p>'Space Occupying Lesion'</p> <p>- Cong Diaph Hern (NGT)</p> <p>- CCAM/ Lobar Emphysema</p> <p>- Tension/pneumothorax</p> | - Hypovolaemia: concealed vs effective- <p>Cyanosis with minimal respiratory distress or response to 100% O<sub>2</sub> (+/- tachypnoea and shock)</p> <p>Obstructive</p> <p>- Left (TAPVD, HLHS, Crit AS, IAA, CoA)</p> <p>- Right (PACuVS, PACvSD TOFCPA, PS, Ebstein)</p> <p>- Mixing (TGA, Truncus Arterio-sis, AVSD)</p> |

'Dont Ever Forget Glucose'
D - Asphyxia, ICH
E - Metabolic
F - #

G - Hypoglycaemia

# APGAR SCORE

| A ppearance  | P ulse   | G rimace reflex NP suction                           | A ctivity (tone)  | R espiration                            |
|--|--|--|---|---|
| 0 = blue <p>1 = pink</p> <p>central/ blue periph</p> <p>2 = pink</p> | 0 = none <p>1 = &lt;100</p> <p>2 = &gt;100</p> | 0 = none <p>1 = grimace</p> <p>2 = cough/ sneeze</p> | 0 = flaccid <p>1= flexion in periph</p> <p>2 = active</p> | 0 = none <p>1 = weak</p> <p>2 = cry</p> |

# ENDOCRINE

| Insulin                              | Onset   | Peak   | Duration |  |
|--------------------------------------|---------|--------|----------|--|
| Ultra short (NovoRapid, Humalog)     | < 0.5   | 1      | 3 - 4    | "Tight" Infusion regime <p>&gt; 12 mmol/l 0.05 Units/kg/hr</p> <p>9 to 12mmol/l 0.04 Units/kg/hr</p> <p>7 to 8.9mmol/l 0.03 Units/kg/hr</p> <p>4 to 6.9mmol/l 0.02 Units/kg/hr</p> <p>&lt;4mmol/l 0.01Units/kg/hr with 2ml/kg of 10% glucose</p> |
| Short Acting (Humulin S, Velosulin)  | 0.5 - 1 | 2 - 6  | 3 - 8    |  |
| Long Acting (Insulinair / Humulin I) | 3 - 4   | 4 - 12 | 10 - 20  |  |
| Detemir/ Levemir                     | 1       | None   | 12       |  |
| Glargine                             | 1       | None   | 24       |  |

# ECMO

CRITERIA
• Reversible - MAS, severe airleak, Acute Hypoxic Resp Failure, eg pneumonia, pertussis, septic shock (immuno-suppressed and herpes = poor outlook), cardiac shock, eCPR (early decision and preparation, unit dependent, but good outcomes post prolonged CPR),
• Failure conventional treatment - should rapidly escalate to HFOV/ NO, (if no response then can wean quickly, if no response quick trial at 40-80ppm though and if there is a response usually will continue to respond at 2-10ppm) (INO not recommended for prem neonates eg <32/40), if nonresponder then refer early to ECMO
• OI >40 - don't apply OI alone for CDH or in the presence of air-leaks – consider early rather than late. OI = (MAPx FIO<sub>2</sub> x100/ PaO<sub>2</sub> (mmHg)) (1kPa=7.5 mmHg)
• >34/40, >2kg
• Candidate for full anti-coagulation
• IVH Gde 1 or less (? Gde II)
• ? No major Chromosomal AbN
• ? <10-14/7 on ventilation
• ? No NEC
• ? No CPR

INFORMATION FOR REFERRAL
• Age, weight, blood group
• Indication - neonatal, post cardiac (failure to wean - protection, ischaemia, failure, ALCAPA, PHTN), arrest, malignant arrhythmias, respiratory failure, Pre-op (TAPVC, TOF c APV, TGA with PHTN, tracheal stenosis, Ebstein's c PDA)
• Sepsis/ inotropes
• Relevant history
• Neuro assessment - CrUSS (infants/neonates), CNS Hx in older
• Location/ transportation/ ETA/ Consent
**CONSENT**
• overall risk/indication, stroke and disability, technical problems, transfusion/ bleeding (operation very high risk should it be needed)

CANNULATION
• Peripheral - low threshold for BAS
• Transthoracic - vent LV
• LAP increase can get pulmonary oedema and sequestration of blood leading to haemorrhage. LV ischaemia can also occur and lead-ing to no cardiac recovery
• Shunted single ventricle - Inc flows, isolate membrane oxygenator (Equivalent to VAD 'NoMO') or , partial shunt clipping, beware Aa can-ula occluding RMBTS
• Glenn - SVC pressure needs to be 'vented' or 'bicaval' Vv cannulae
• Fontan - difficult to get adequate Vv drainage do 'BiCaval' drainage
• Severe LVH with LAE may indicate LA cannulation/venting

INITIATION
@ 1000-1500 rpm - may need to increase rapidly to achieve adequate flow (eg. with inotropes causing increased SVR)
Sweep and flow use fluids type estimation eg 100ml/kg/min for first -10kgs

TROUBLE SHOOTING
Beware high neg Vv pressure (low blood return)
• DDx tension pneumo, tamponade, cannulas migrated
Complications
• bleeding (if 4hr without heparin or FVIIa - need 2nd circuit available)
• Infections- especially those that are actively septic... Try not to stop anticoagulation during acute phase
• Consumptive coagulopathy
• Strokes - often early death cohort

# DRUGS A - F

|   |  |
|---|--|
| <b>IMPORTANT NOTE:</b> To be used as a guide only. Drug doses from RBHMelbourne/Guy's Meads for Children/Toronto/GS guidelines. Whilst all care has been taken in the preparation of this guide, no responsibility will be taken by the authors for the drug doses, which should always be confirmed independently by the prescriber. |  |
| <b>Acetazolamide</b>  | (Meta Alk) po/iv 5-10 mg/kg (up to 250 mg) bd-qds for 1-2 days   |
| <b>Acetylcysteine</b>   | Lung Disease: neb 20% soltn 0.1ml/kg (adult 5ml) q6-12h  |
| <b>Adenosine</b>  | SVT iv 100 mcg/kg (max 3mg) rapid iv; increase by 100 mcg/kg/dose to 500 mcg/kg (max 18mg) (300 mcg/kg in neonates) Pulmonary Hypertension: 50 mcg/kg/min into central vein  |
| <b>Adrenaline</b>   | Airway obstruction 1:1000 neb 0.5 ml/kg, to max 6 ml, via neb. Arrest: iv 10 µg/kg (1:10,000 = 0.1 ml/kg). ETT 50-100 µg/kg Anaphylaxis: (not for arrest - IM 1:1000) > 12 yr: 500 µg, 6-12 years: 300 µg, <5 yr: 150 µg Hypotension: iv 10 µg/kg in 10ml (1mcg/kg/ml) incremental LAAdjunct: 5mcg/kg Large volume eg burns 10mcg/ml   |
| <b>Alfentanil</b>   | iv 5-10 mcg/kg, ventilated 30-50 mcg over 5/60 then 10mcg/kg prn, 0.5-4mcg/kg/min. 1mg/200mg or 3mg/500mg Propofol TCI   |
| <b>Alteplase (rtPA)</b>   | 0.1-0.6 mg/kg/hr for 6 - 12 hrs. keep fibrinogen >100mg/dL (give cryo 1bag/5kg, give heparin 10U/kg/hr IV, give FFP 10ml/kg iv daily. Local IA injection @ 0.05mg/kg/hr. Unblocking line <10kg-0.5mg/2ml, <10kg-2mg/2ml pre lumen left for 2-4 hrs, withdraw liquid and flush with saline, can repeat once in 24hrs.   |
| <b>Alimemazine</b>  | 1 mg/kg/dose q6h, po max 4 mg/kg/day or 100 mg/day   |
| <b>Amiloride</b>  | 0.2 mg/kg/dose q12-24h po, >12yr 5-10mg  |
| <b>Aminocaproic Acid</b>  | 3g/m2 (adult 5g) over 1hr iv then 1g/m2/2hr (adult 1-1.25g/hr). Prophylaxis: 70mg/kg q6h iv/po   |
| <b>Amiodarone</b>   | stat 5mg/kg VF/VT, po 4 mg/kg q8h wk1, then q12h wk2, then q24h (interacts with warfarin & digoxin-halfve dig dose)  |
| <b>Amitypyline</b>  | po 0.5-1 mg/kg (adult 25-50mg) q8h   |
| <b>Amiodipine</b>   | po 0.05 mg/kg (adult 2.5-10mg) q24h  |
| <b>Anithrombin III</b>  | no IU = (desired - actual)% x Wt / 1.4 50 U/kg/hr for 3hr then 6 U/kg/hr   |
| <b>Aprotinin</b>  | iv (10,000 IU/ml), test dose + 500,000 kiu/m2 or 1ml/kg loading then 1-2ml/kg/hour, 2ml/kg in pump   |
| <b>Atenolol</b>   | iv 0.05 mg/kg up to 2.5mg, po 1-2 mg/kg/dose q12-24h   |
| <b>Atracurium</b>   | iv neonates 0.3-0.5 mg/kg, >1mth 0.3-0.5/kg; ~1/3 repeat dose  |
| <b>Atropine</b>   | iv 20 µg/kg, then 10 µg/kg q4-6h, po 40 mcg/kg ~1.3 neostigmine  |
| <b>Aspirin</b>  | Anti-platelet po 5 mg/kg q24h Analgesia po 10-15 mg/kg q6h   |
| <b>Bicarbonate</b>  | 0.5-1 mmol/kg, or BE x wt/6 slow iv (<5kg BE x wt/4) Neonates dilute to <0.5mEq/ml (IVH assoc c-hyperk neonatal solution)  |
| <b>Bupivacaine</b>  | Infiltration 0.8 ml/kg of 0.25% (2 mg/kg), 0.1-0.4 ml/kg/hr of 0.125% up to 15 ml/hr (<5kg - 0.1-0.3 ml/kg/hr)   |
| <b>Ca Gluconate 10%</b>   | Bolus 0.5 ml/kg IV, 0.11 mmol/kg (max. 4.4 mmol) slow iv usually over 30 mins Incompatible with bicarbonate. Rapid transfusion 0.1ml/kg or infuse  |
| <b>CaCl<sub>2</sub> 10%</b>   | 0.2ml/kg (max 10ml) slow iv  |
| <b>Caffeine Citrate</b>   | LD = 20mg/kg, 5mg/kg od upto 10mg/kg bd  |
| <b>Canrenoate</b>   | iv 3-8mg/kg (adult 150-400mg) od   |
| <b>Captopril</b>  | po 0.1-1 mg/kg/dose q6h po (test dose of 0.05 mg/kg)   |
| <b>Chloral hydrate</b>  | po/pr 15-30 mg/kg q6h. Max 50 mg/kg 6 hly. Sedation >45/40 & <5kg - 50 mg/kg, 5-15kg upto 100 mg/kg, 12-18yo 0.5-1g  |
| <b>Chlorphenamine</b>   | po Child 6 - 12 years: 5 mg, Child 6 months - 6 years: 2.5 mg, Child <6 months: 250 µg/kg, Adult: 10 mg  |
| <b>Chorthiazide</b>   | iv/po 0.10-20mg/kg po (max 500mg) q12h   |
| <b>Cis-atracurium</b>   | 0.1-0.15 mg/kg 1/3 repeat doses  |
| <b>Clonidine</b>  | po/slow iv (test dose 1 mcg/kg) 1-5 mcg/kg/dose q6-8h upto 200mcg; sedation iv 0.5-2 mcg/kg/hr Opioid sparing or to prevent withdrawal: 3-8 mcg/kg tds or infusion 0.3mcg/kg/hr Epidural: 1 mcg/kg, infusion 1mcg/ml (instead of fentanyl), Rescue/bolus: 2 mcg/kg. Good for caudals, Caution don't use in day cases or <1yr, because can cause hypotension, bradycardia & drowsiness. |
| <b>Clopidogrel</b>  | po 2mg/kg once daily (Max 75mg)  |
| <b>Codeine</b>  | po/pr 1-1.5 mg/kg q4h  |
| <b>Cyclizine</b>  | iv 1 mg/kg q8h   |
| <b>Dalteparin</b>   | Plaxis: 100 u/kg od sc; >12 yrs: 2500 - 5000 u od, T ment (min vol 0.2mls): 100 u/kg q12h sc; >12 yrs: 200 u/kg (max 18000 u) od   |
| <b>Dantrolene</b>   | iv 2-3 mg/kg then po/iv 4 - 10 mg/kg/day   |
| <b>dd-AVP</b>   | iv 0.3mcg/kg   |
| <b>Dexamethasone</b>  | prevent post-extubation stridor: iv 0.25-0.5 mg/kg stat, then 0.1 mg/kg q6h x 3 doses. Anti-emetic: iv 0.1-0.15mg/kg   |
| <b>Dextrose</b>   | iv 0.25 - 1g/kg, HyperK give 1g/kg + 0.1u/kg insulin   |
| <b>Diazepam</b>   | iv 0.04-0.2 mg/kg, po 0.2-0.5 mg/kg, 0.4mg/kg  |
| <b>Diclofenac</b>   | iv/po/pr 1 mg/kg q8h (Cl - < 6mth, transplants, renal impairment, low platelets, coagulopathy, brittle asthma)   |
| <b>Digoxin</b>  | Load: See cBNF. Maintenance: slow iv/po <5 yrs 5 mcg/kg q12h; >5 years 3mcg/kg q12h  |
| <b>Domperidone</b>  | pro-kinetic po 0.2 - 0.4mg/kg (max 20mg) q6-8h   |
| <b>Entonox</b>  | C/I Pneumothorax, Intestinal obstruction, severe bullous emphysema, Decompression sickness, Air embolism, Severe pulm HTN, Head injuries with impaired consciousness, Max-Fax injuries, middle ear occlusion   |
| <b>Ephedrine</b>  | iv/im 0.1-1mg/kg max up to 60mg  |
| <b>Erythromycin</b>   | Pro-kinetic po/iv 3mg/kg q6h over 20-60mins  |
| <b>Etomidate</b>  | iv 0.3mg/kg  |

# DRUGS F- S

|                          |   |
|--------------------------|---|
| <b>Fentanyl</b>          | 2 mcg/kg initially iv bolus (Hypotension with high doses if sympathetic drive) Cardiac: up to 50mcg/kg PCA <50kg: 25mcg/Kg in 50ml (1ml = 0.5 mcg/kg) >50kg: 1250mcg in 50mls (1ml = 25mcg)   |
| <b>Flumazenil</b>        | 1 - 2 mcg/kg then 1-5mcg/kg/2hr   |
| <b>Furosemide</b>        | iv 0.5-5 mg/kg/dose 6-24 h iv/po, 0.1-0.3mg/kg/hr (max 1mg/kg/hr)   |
| <b>Glycopyrrolate</b>    | po 40-100mcg/kg q6h. iv/im 4-10mcg/kg/dose (max 200mcg) q6h   |
| <b>Heparin</b>           | CPB iv >300 U/kg (neonates 400U/kg) Anticoagulation load: iv 75 units/kg, initial maintenance <1 year: 28 units/kg/hr iv >1 year: 20 units/kg/hr iv   |
| <b>Hydralazine</b>       | iv 0.2mg/kg, po 0.5 - 1 mg/kg/dose  |
| <b>Hydrocorti-sone</b>   | HPA suppressed: iv 1mg/kg q6h until restart orals. Anaphylaxis: 4mg/kg (or banded Adult: 200 mg, Child 6-12yr: 100 mg, 6m-6yr: 50 mg, <6m: 25 mg)   |
| <b>Ibuprofen</b>         | po >1mo 5 mg/kg q6h, 12-18yo 200-400mg (Cl - <1mo, renal impairment, low platelets, coagulopathy, brittle asthma)   |
| <b>Ketamine</b>          | Induction: iv 1-2mg/kg, im 4-10mg/kg, increments 1mg/kg Analgesia: 0.1-0.5mg/kg bolus then infuse 0.1 mg/kg/hr up to 0.25mg/kg/hr. Infusion concentration eg, 0.1mg/kg/ml Pre-med: 2.5mg/kg po (+/- with midaz for very anxious pts)  |
| <b>Labetalol</b>         | iv 20mcg/kg, 1-3mg/kg/hr  |
| <b>Lignocaine</b>        | slow iv 1mg/kg, infusion 15-50 mcg/kg/min, Nerve Block max 4mg/kg. Topical spray 10% - 10mg/puff  |
| <b>Lorazepam</b>         | 0.05-0.1 mg/kg/dose (max 4mg) po iv over 2 min  |
| <b>Mg SO<sub>4</sub></b> | iv 25-50mg/kg, 0.4 mmol/kg (max. 8 mmol) slow iv  |
| <b>Mannitol 20%</b>      | iv 0.25-1.5g/kg/dose (= 1.25-7.5 ml/kg/dose)  |
| <b>Methy-predone</b>     | Anaphylaxis iv 2mg/kg, neuroprotection iv 30mg/kg   |
| <b>Metaraminol</b>       | iv 10 mcg/kg, Adult 0.25-0.5mg  |
| <b>Metoclopramide</b>    | iv 150 mcg/kg   |
| <b>Metolazone</b>        | po 0.1-0.2 mg/kg 12-24 max 20mg   |
| <b>Midazolam</b>         | iv 0.1 - 0.2mg/kg, 50 mcg/kg initial iv bolus (NB hypotension - high doses) Sedation: Intranasal = 0.3 mg/kg, Co-operative = 0.5 mg/kg, to Anxious = 1 mg/kg (max 20mg), to V. Anxious or autistic etc. = 0.5 mg/kg + 2 mg/kg ketamine & OBSERVE  |
| <b>Morphine Sulphate</b> | iv 50-200 mcg/kg, 20 mcg/kg iv boluses when on infusion; Oramorph po 0.1-0.4mg/kg q4-6h, 0.1mg/kg BTP dose q1h  |
| <b>Naloxone</b>          | iv 0.5 mcg/kg (tich/ urinary retention), 4 resp dep'n, 20 (arrest)  |
| <b>Neostigmine</b>       | iv 50 mcg/kg Neo 2.5mg + Glycopyrrolate 0.5mg: 1/10th per 5 kg  |
| <b>Nitric Oxide</b>      | Usually begin at 20ppm, if a definite response occurs, attempt to wean after an hour to 5-10ppm (brief 40-80ppm in extras to detect response). Do not withdraw suddenly - eg continue on transfers and suctioning. Before weaning off increase FIO2. Always discuss use of NO before commencing Rx. Cx = MethB, NO2/peroxytrite irritants |
| <b>Nystatin</b>          | po 1ml (100 000 Units) q6h after food   |
| <b>Omeprazole</b>        | po/iv 0.5-2mg/kg (max 40mg/day) q24h  |
| <b>Ondansetron</b>       | iv/po 0.1 mg/kg q6-8h   |
| <b>Oxycodone</b>         | iv/po 0.1-0.2 mg/kg (adult 5-15mg) q4-6h. Slow release adjust according to daily requirements of quick release ~40% q12h + BTP dose   |
| <b>Potassium Cl</b>      | iv 0.1-0.5 mmol/kg iv over 1hr [max 20 mmols, (max unmonitored rate 0.2mmol/kg/hr, max rate 0.5mmol/kg/hr, max conc 1mmol/ml)   |
| <b>Pancuronium</b>       | iv 0.1-0.2 mg/kg iv prn (50mcg/kg neonates iv)  |
| <b>Paracetamol</b>       | po/pr: <4/52 max 60 mg/kg/day eg 20mg/kg q8h to 10mg/kg q4h; Healthy & >1mth max 90mg/kg/day for 2 days eg. 30mg/kg q8h to 15mg/kg q4h then 60mg/kg/day; iv: <32/40=7.5mg/kg q8h; 32/40-10d=7.5mg/kg q8h; >10/7-50kg: 20mg/kg stat then 15mg/kg q4-6h; >50kg: 1g q4-6h (max 4g /day).   |
| <b>Phenobarbitone</b>    | Loading dose: neonates 20 mg/kg, infants 15 mg/kg iv over 30min. Repeat doses (for ongoing seizures) 5-10 mg/kg in ventilated patients. Maint: 5mg/kg/day in 1-2 divided doses po/iv  |
| <b>Phenylephrine</b>     | 1 - 4mcg/kg   |
| <b>Phenytoin</b>         | Loading dose: neonates iv 20 mg/kg, infants iv 15 mg/kg over 20 min (ECG monitoring). Maintenance: neonates iv/po 2-4 mg/kg q12h, infants iv/po 2.5-7.5 mg/kg q12h (usual maint = 5mg/kg bd, <12yrs po max 150 mg bd, >12 yrs max po 300 mg bd, or iv 100 mg qds)   |
| <b>Propranolol</b>       | (TOF) 0.02 mg/kg test dose, then 0.1 mg/kg/dose over 10 min q6h; maint po 1 mg/kg q8h, or iv 0.1 mg/kg q8h  |
| <b>Protamine</b>         | iv 1mg / 100IU Heparin or 1mg / 25ml pump blood, subsequent doses 1mg/kg  |
| <b>Ranitidine</b>        | iv 1mg/kg q6-8h (q12h in renal failure/dialysis) <6mth 1mg/kg tds po, >6mth 2-4mg/kg bd po  |
| <b>Remifentanyl</b>      | iv 0.25 - 1 mcg/kg, 2-4mcg/10mg propofol TCI  |
| <b>Rocuronium</b>        | iv 0.6 mg/kg, rpt dose 1/3. 1 mg/kg for RSI   |
| <b>Saline Hypertonic</b> | iv 3ml/kg of 3xN/S (2.7%)   |
| <b>Sildenafil</b>        | po 0.25-0.5 mg/kg/dose q4-6h. upto max 2 mg/kg q4h  |
| <b>Spironolac-tone</b>   | po neonate: 0.5-1mg/kg bd; infant: 0.5-1.5mg/kg bd; Adult: 25-50mg od   |
| <b>Sucralfate</b>        | (NOT/kg) po q6h 0-2yr 250mg; 3-12yrs 500mg; >12yr 1g  |
| <b>Sugammadex</b>        | iv 2-4 mg/kg, up to 15 mg/kg for immediate reversal   |
| <b>Surfactant</b>        | Exosurf 5ml/kg, Beractant 4ml/kg, Curosurf 200mg/kg   |
| <b>Suxamethonium</b>     | iv 3mg/kg neonates, 2mg/kg children, 1mg/kg adult, im double dose   |

# DRUGS T - Z

|                        |  |
|------------------------|--|
| <b>Temazepam</b>       | po Preop sedation adolescents & adults 10-20mg   |
| <b>Thiopentone</b>     | iv 4-6mg/kg, neonates 2mg/kg   |
| <b>Tramadol</b>        | iv LD = 3mg/kg, iv/po 0.5 - 1mg/kg (max 800mg) q4-6h                                     |
| <b>Tranexamic Acid</b> | CPB 50-100mg/kg to pt and pump then 10mg/kg/hr 10-15 mg/kg q8h, Adult 1-2g then infusion |
| <b>Triclofos</b>       | po Sedation >45/52 < 15kg - 50-75 mg/kg upto 1g, >15kg 100 mg/kg max 2g                  |
| <b>Vecuronium</b>      | iv 0.1 mg/kg/dose, repeat doses 30-50mcg/kg, infusion 1-10mcg/kg/min                     |

# INFUSIONS

| Drug                                   | Range  | Preparation  |
|--|--|--|
| (Nor)Adrenaline<br>*Use Dext 5%        | 0.01 - 0.5 µg/kg/min   | 0.3 mg/kg in 50 ml (up to 5mg) - 1ml/hr = 0.1 µg/kg/min<br>Peripheral 30 µg/kg in 50 ml until CVL  |
| Dopamine                               | 2 - 20 µg/kg/min   | 15 mg/kg in 50 ml (up to 250mg) = 1 ml/hr = 5 µg/kg/min<br>Peripheral 80 mg in 50ml, then: 0.375 ml/kg/hr = 10 µg/kg/min   |
| Dobutamine                             | 2-20 µg/kg/min   | 15 mg/kg in 50 ml (up to 250mg) - 1 ml/hr = 5 µg/kg/min<br>>15kg 250mg in 50ml, then: 1 µg/kg/min = 0.012 x wt(kg) ml/hr   |
| Labetalol                              | iv 20mcg/kg, 1-3mg/kg/hr   |  |
| Enoximem<br>*Use Water                 | LD - 1 mg/kg in 30min<br>5-20 µg/kg/min  | 15 mg/kg in 50 ml<br>- 1 ml/hr = 5 µg/kg/min   |
| Isoprenaline                           | 0.005 - 0.02 µg/kg/min   | 30 µg/kg in 50 ml<br>- 1 ml/hr = 0.01 mcg/kg/min   |
| Milrinone                              | LD - 50 µg/kg in 30min<br>0.25-0.75 µg/kg/min  | 10mg in 50 ml<br>- 0.33 µg/kg/min = 0.1 x wt(kg) ml/hr   |
| Vasopressin (Argipressin)              | 0.0003 - 0.004 U/kg/min (>40k 0.5 - 2.5U/hr)   | 1.5 units/kg in 50 ml (up to 20 U)<br>- 1 ml/hr = 0.0005 units/kg/min<br>Other indication: 25mg/kg   |
| Adenosine                              | 25 - 50 µg/kg/min  | 75mg/25ml Neat, 50 µg/kg/min = 1 x wt(kg) ml/hr  |
| Alfentanil                             | 0.5 - 5 µg/kg/min  |  |
| Amiodarone                             | 25 µg/kg/min for 4hrs then 5 - 15 mcg/kg/min max 1.2g/day  | 15 mg/kg in 50ml<br>- 1 ml/hr = 5 µg/kg/min.<br>Usual conc: 30 - 120mg/ 50ml.<br>Fluid restricted: 900 mg 50ml, via CVL.   |
| Atracurium                             | 5 - 10 mg/kg   | 10 mg/ml neat, then: 10 µg/kg/min = 0.06 x wt(kg) ml/hr  |
| Clonidine                              | 0.1 - 2 µg/kg/hr   | 50 µg/kg in 50 ml<br>- 1 ml/hr = 1 µg/kg/hr  |
| Dexmedetomidine                        | LD - 1 µg/kg in 15 mins<br>0.2 - 0.7 µg/kg/hr  |  |
| Esmolol                                | 25 - 200 µg/kg/min   | 1000 mg in 50 ml<br>50 µg/kg/min = 0.15 x wt(kg) ml/hr   |
| Fentanyl                               | 1 - 8 µg/kg/hr   | 100 µg/kg in 50 ml<br>- 1 ml/hr = 2 µg/kg/hr   |
| Frusemide                              | 0.25 - 0.5 mg/kg/hr  | 50 mg in 50 ml   |
| GTN<br>***Use Dextrose                 | 0.2 - 10 µg/kg/min   | 3 mg/kg in 50 ml (up to 50mg) - 1 ml/hr = 1 µg/kg/min<br>50mg in 50ml, then: 1 µg/kg/min = 0.06 x wt(kg) ml/hr   |
| Heparin (1mg = 100 units)              | LD = 75 units/kg (50 U/kg <35/40)<br>Low 10 - 15 units/kg/hr<br>Therapeutic 15 - 40                    | 500 units/kg in 50 ml<br>- 1 ml/hr = 10 units/kg/hr  |
| Hydralazine                            | 12.5 - 50 mcg/kg/hr max: 125 mg/kg/hr<br>ECMO: < 6mcg/kg/min   | 1 mg/kg in 50 ml (up to 50mg)<br>- 1 ml/hr = 20 mcg/kg/hr  |
| Insulin                                | 0.025-0.1 units/kg/hr  | 5 U/kg in 50 ml<br>- 1 ml/hr = 0.1 U/kg/hr   |
| Ketamine                               | 10 - 60 µg/kg/min  | 30 mg/kg in 50 ml (up to 2500mg)<br>- 1 ml/hr = 10 µg/kg/min   |
| Levosimendan                           | LD - 6-24 µg/kg in 10mins<br>0.2-0.4 µg/kg/min   |  |
| Midazolam                              | 1 - 6 µg/kg/min upto 10mg/hr in adult size   | 3 mg/kg in 50 ml<br>- 1 ml/hr = 1 µg/kg in 50 ml   |
| Morphine                               | 5 - 50 µg/kg/hr upto 2mg/hr in adult size  | 1 mg/kg in 50 ml<br>- 1 ml/hr = 20 µg/kg/hr  |
| Nitroprusside                          | 0.5 - 10 µg/kg/min   | 3 mg/kg in 50 ml<br>- 1 ml/hr = 1 µg/kg/min  |
| Propofol (sedation 1-14 - 20 mg/kg/hr) | 0.4 - 2 ml/kg/hr of 1% (caution with infusions >4hrs in children - use 2% for prolonged infusions)     |  |
| PG E <sub>1</sub> (Alprostadil)        | 10 - 60 nanograms/kg/min (maintain PDA)  | 60 µg/kg in 50 ml N/Saline - 1ml/hr = 20 ng/kg/min   |
| PG E <sub>2</sub> (Dinoprostone)       | 5 - 20 nanograms/kg/min (maintain PDA)   | 15 µg/kg in 50 ml - 1ml/hr = 5 ng/kg/min   |
| PG I <sub>2</sub> (Epoprostenol)       | 5 - 20 nanograms/kg/min  | 15 µg/kg in 50 ml - 1ml/hr = 5 ng/kg/min   |
| Remifentanyl                           | 0.1 - 2 µg/kg/min<br>Ce/Cp - 2-8 ng/ml   | 1 µg/kg/min<br>~ 10 ml/hr per 8.33kg or 12 ml/hr per 10kg (500mcg/ml)<br>= 60/concentration (mcg/ml) x BW in ml/hr   |
| Salbutamol                             | 1 - 10 µg/kg/min   |  |
| Vecuronium                             | 0 - 10 µg/kg/min   | 3 mg/kg in 25 ml (up to 30 kg) - 1 ml/hour = 2 µg/kg/min<br>>30 kg: 100 mg in 25 ml, then: 1 µg/kg/min = 0.015 x wt(kg) ml/hr  |
| <b>Rates</b>                           | 0.01 mcg/kg/min<br>0.1 µg/kg/min<br>1.0 µg/kg/min<br>5.0 µg/kg/min<br>0.1 µg/kg/min<br>- 2.5 µg/kg/min | 30 µg/kg in 50 ml - 1ml/hr<br>0.3mg/kg in 50ml - 1ml/hr<br>3mg/kg in 50ml - 1ml/hr<br>15mg/kg in 50ml - 1ml/hr<br>3mg/kg in 500ml - 1ml/hr<br>400mg in 250ml - wt/10 ml/hr |

# ANTIBIOTICS

|   |   |
|---|---|
| <b>Amikacin</b> (iv)<br>Levels:<br>Trough < 5mg/L<br>Peak = 20-30mg/L (P needed for doses <20mg/kg) | <2 kg <4/52: 10 mg/kg 24hrly; T+P<br>>2 kg >4/52: 15 mg/kg 24hrly; T+P<br>>2 kg <4/52: 15 mg/kg 24hrly; T+P<br>Renal Imp: 10mg/kg, take PEAK after 1st dose then T+H at 24hrs                           |
| <b>Aciclovir</b> (iv)<br>*Adjust in RF<br>For serious infections (cutaneous herpes =1/2)            | <30/40: 500mg/m2 q24h<br>30-32/40: 500mg/m2 q18h<br>Birth-12yrs: 500mg/m2 q8h<br>>12 yrs: 10mg/kg q8h   |
| <b>Amphotericin (Liposomal)</b><br>Test dose of 100 mcg/kg (max 1mg) over 10mins                    | Prophylaxis: 1 mg/kg q24h<br>Treatment: 3-6 mg/kg q24h over 1-2hr (give 1 hour after the test dose)   |
| <b>Ampicillin</b> (iv)<br>(Meningitis/ Neonatal Sepsis<br>*Adjust in RF)                            | 1st OT dose 50mg/kg<br><1 wk of life: 30mg/kg q12h<br>1-3 wks of life: 30mg/kg q8h<br>3-4 wks of life: 30mg/kg q6h<br>>4 wks of life: 25mg/kg   |
| <b>Augmentin Co-Amoxiclav</b><br>*Adjust in RF  | 1st OT dose 30mg/kg<br><3 mths of life: 30mg/kg q12h<br>>3 mths of life: 30mg/kg q8h upto 1.2g (Severe infections 60mg/kg)  |
| <b>Azithromycin</b>   | 15 mg/kg (up to 500mg) then 7.5mg/kg po   |
| <b>Benzyl Penicillin</b> (iv)<br>max 2.4g/dose  | 25-50 mg/kg/dose<br><1 wk of life: q12h<br>1-4 wks of life: q8h<br>>4 wks of life: q4-6h (Meningitis/Endocarditis 50mg/kg q4h)  |
| <b>Cefotaxime</b> (iv)  | <1 wk of life: 50mg/kg q8h<br>>1 wk of life: 50mg/kg q6h<br>Meningitis: 50mg/kg<br>Other indication: 25mg/kg  |
| <b>Ceftazidime</b> (iv)<br>*Adjust in RF  | 1st wk of life: 25mg/kg q24h<br>2nd & 3rd week of life: 25mg/kg q12h<br>4th wk of life: 25mg/kg q8h (Max 2g q8h, cystic fibrosis 3g q8h)<br>1st OT dose & severe infection: 50mg/kg                     |
| <b>Cephalexin</b>   | 1st OT dose 25mg/kg   |
| <b>Cephazolin</b>   | 1st OT dose 50mg/kg   |
| <b>Erythromycin</b> (iv/oral)   | 12.5mg/kg/dose 6hly all ages<br>Meningitis: 25mg/kg/dose iv 6hly all ages (max 4g/day)<br>Gastric Stasis: 3mg/kg qds po/ng  |
| <b>Flucloxacillin</b> (iv)  | 1st wk of life: q12h; 2-3wks - q8h >4wks: q6h (max 8g/day)<br>25mg/kg/dose Severe infection: 50mg/kg/dose (Surg prophylaxis 3 doses postop)   |
| <b>Gentamicin</b>   | Surg prophylaxis single dose 2 (Adult) 5 (Paeds) mg/kg <1mth: 4mg/kg q24h; 1- 6mths: 6mg/kg q24h; > 6mths: 7mg/kg q24h  |
| <b>Imipenem + Cilastin</b> (iv)<br>*Adjust in RF<br>(NB increase dose in CF - see BNF-C)            | < 1 wk of life: 20mg/kg q12h<br>2nd & 3rd week of life: 20mg/kg q8h<br>4th week of life: 20mg/kg q6h<br>>4th week of life: 15mg/kg q6h (max 500mg)<br>>12yrs: 500mg q6h, doubled in severe inf          |
| <b>Meropenem</b> (iv)<br>*Adjust in RF  | <1 wk of life: 20mg/kg q12h,<br>>1 wk of life: 20mg/kg q8h; (max 6g/day)<br>Meningitis: 40mg/kg/dose  |
| <b>Metronidazole</b> (iv/oral)<br>*Adjust in RF   | <1 mth: 15mg/kg stat, then 7.5mg/kg q12h after 24 hr<br>>1 mth of life: 7.5mg/kg q8h  |
| <b>Piptazobactam</b><br>*Adjust in RF   | <2mths of life: 90mg/kg q12h<br>>2mths of life: 90mg/kg q6h (up to 4.5g)  |
| <b>Teicoplanin</b> (iv)<br>*Adjust in RF on day 4   | <4 mth: 16mg/kg for 1 dose then 24 hrs later 8mg/kg q24h (Surg Prophylaxis single dose only)<br>>1 mth: 10mg/kg q12h for the first 3 doses then 10mg/kg q24h (Surg Prophylaxis 1 dose postop)           |
| <b>Timentin</b> (iv)<br>*Adjust in RF   | <1 wk of life: 80mg/kg q12h<br>2nd & 3rd wks of life: 80mg/kg q8h<br>4th wk of life: 80mg/kg (max 3.2 g) q6-8h  |
| <b>Vancomycin</b> (iv) Levels:<br>T=5-15mg/L P<40mg/L   | <2 kg<4/52: 15 mg/kg; T+H at 12hrs<br>>2 kg<4/52: 15 mg/kg 12hrly; T+P<br>>2 kg<4/52: 15 mg/kg 8hrly; T+P 2nd or 3rd dose<br>Renal Imp: 10mg/kg, mild-mod imp T+P at 12 hrs, severe imp T+H at 24 hours |

|  | Paeds (dose in mg/kg)                                   | Adult (dose in mg/kg)  |
|--|---|--|
| <b>CARDIAC</b>   | Flucloxacillin (25) + Gentamicin* (5)                   | Cefuroxime 1.5g + 1.5g post CPB <70kg 2nd dose 750mg               |
| <b>THORACICS Thoracotomy</b>                                       | Cefuroxime (30) upto 1.5g + 2nd dose if procedure >4hrs | Cefuroxime 1.5g + 2nd dose if procedure >4hrs <70kg 2nd dose 750mg |
| <b>Obstructed a/w, Pleu-ral sepsis, Tracheal, Oesophageal/Abdo</b> | add Metronidazole (7.5) upto 500mg at induction         |  |