

## Cardiac Medications: Antiarrhythmics

### Adenosine

**Indication:** *Supraventricular Tachycardia (stable)*

Dose: 100mcg/kg IV rapid push/flush in most proximal vein

Repeat dose: increase by 100mcg/kg up to 250mcg/kg

**Adult doses:** 6mg, 9mg and 12mg

### Amiodarone

**Indication:** *junctional ectopic tachycardia, Vtach without a pulse and VFib*

Dose: 5mg/kg (rapid bolus for pulseless VT/Vfib) over 20-60 minutes for more stable rhythms

**Adults:** ACLS for VT/Vfib 300mg in 20-30ml D5W as rapid IV push, supplemental doses of 150mg, 2.2gm/24hrs max

**Lidocaine:** 1mg/kg IV slowly, repeat q5-10min

Drip: 20-50mcg/kg/min

**Indication:** *second line for sustained VF or Vtach*

**Adult dose:** 1mg/kg, drip 1-4mg/min initially

### Magnesium Sulfate

**Indication:** *Torsades des Pointes*

Dose: 25-50mg/kg IV over 10-20 minutes, max dose 2gms

## Cardiac Medications: Vasoactive and Inotropic

**Dopamine** (inotropic and vasoconstrictor): 2-20mcg/kg/min

*Note: more vasoconstriction with higher doses*

**Dobutamine** (inotropic, weak vasodilator): 3-20mcg/kg/min

**Epinephrine** (potent inotropic, vasoconstrictor): 0.02-1mcg/kg/min

**Milrinone** (inotropic, vasodilator): 0.25-1.0mcg/kg/min

**Norepinephrine** (potent vasoconstrictor, inotrope): 0.05-1mcg/kg/min

**Phenylephrine** (vasoconstrictor): 0.1-1mcg/kg/min

Bolus doses: 1 amp in 100ml, 1cc push

**Nitroprusside** (vasodilator): 0.5-8mcg/kg/min

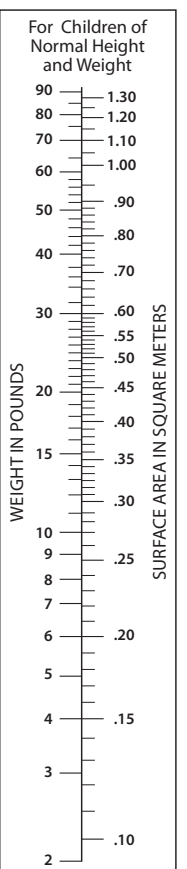
## Cardiac Medications: Other

**Prostaglandin E (Alprostadil)** 0.05-0.15mcg/kg/min

**Indication:** *to maintain patency of ductus arteriosus, watch for apnea*

ETT tube sizing table and Vital Signs: 50%ile

Age	Wt (kg)	ID (mm)	Blade (straight or curved)	Length (cm) tip to tip	NG tube	LMA	RR (avg/min)	HR	BP (sys mmHg)
Neonate	< 1kg	2.5	0	7	5	1	< 60	145	52
Neonate	1-2kg	3.0	0	8	5	1	< 60	145	52
Neonate	2-3kg	3.5	0-1	9	5	1	< 60	125	60
Neonate	> 3kg	3.5-4.0	0-1	10	8	1	< 60	125	60
1-6mo	4-6kg	3.5-4.0	1	12	8	1-1.5	24-30	120	80
6mo-1yr	6-10kg	4.0	1	13	8	1.5	—	130	89
1-2yr	10-12kg	4.5	1	14	10	2	20-24	130	96
2-4yr	2-14kg	5.0	1-2	15	10	2	—	120	99
4-6yr	16-18kg	5.5 (+/- cuffed)	2	16	12	2	—	100	99
6-8yr	20-26kg	6.0 cuffed	2s 2c	17	12	2.5	12-20	100	105
10-12yr	30-45	7.0 cuffed	2-3s (3c)	18	14	3	—	75	112
> 14yr	> 50kg	7.5-8.0	2-3s (3c)	20-22	18	4	10-14	70	120



Every effort has been made to ensure that this information is accurate and in accordance with good medical practice. It is the responsibility of the attending physician to evaluate the appropriateness of a particular option in the context of the clinical situation with due consideration of your knowledge, skills, new developments and FDA regulations.

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Pediatric  
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Management Guide

For transfers, consultation, or  
to admit a patient, call **888 346-0644**

## Arrest Medications

- ABC's – Airway Breathing Circulation
- Oxygen 100%
- Place IO after 3 IV attempts or 90 seconds

### Medications:

**Atropine** – 0.02mg/kg IV/IM/ET/IO (minimum dose 0.1mg), adult 1mg **Indication:** *bradycardia*

**Epinephrine** – 1:10 000–0.1ml/kg IV/IO all doses, may repeat q3-5 minutes. Intratracheal – 1:1000–0.1ml/kg  
**Indication:** *bradycardia, asystole, hypotension*

**NaBicarbonate** – 1mEq/kg — Adult dose 1 amp (50mEq)  
**Indication:** *suspected or documented severe acidosis*

**Calcium Chloride** – 10mg/kg — Adult dose 1gm (1000mg)  
**Indication:** *hypocalcemia, hypotension*

**Colloid** – 10ml/kg IV – 5% Albumin, pRBC's  
**Indication:** *volume expansion*

**Crystalloid** – 20ml/kg Normal Saline (NS) or Lactated Ringers (LR) **Indication:** *volume expansion*

**Glucose** – D102 4-5ml/kg for neonates  
D25 2ml/kg IV push for children  
Adult dose: 1 amp D50 = 25gms Dextrose  
**Indication:** *documented hypoglycemia*



## Asthma/Croup Medications

*Increase MDI doses to effect in intubated patients*

**Albuterol Single nebulization** 0.01-0.03ml/kg (5mg/ml solution) Typical 2.5mg child, 1.25mg infant (may repeat to effect)

**Continuous Albuterol nebulization** 5-15mg/hr

**Magnesium Sulfate** 25-75mg/kg IV slow bolus over 15 minutes for bronchospasm (*Adult dose: 2gms*)

**Methylprednisolone (Solumedrol)** 1-2mg/kg/dose IV Q6 hrs, up to 60mg Q6

*Ask about recent Varicella exposure*

**Ipratropium Bromide (Atrovent)** 2-4 puffs q4-6hrs

**Epinephrine** (1:1000) 0.01ml/kg SQ q20min times 3 max if unable to deliver other medications

**Racemic Epinephrine** for nebulization 0.05ml/kg

*Indication: stridor, wheezing, not responsive to Albuterol*

**Dexamethasone (Decadron)** 0.6mg/kg/dose IV/IM/PO

*Indication: airway edema*

## Blood Products

**pRBC's** 10ml/kg will raise Hct by 5%, can give larger amounts

*Indication: anemia, cyanosis*

*Note:* minimize exposures, can round up to 15 or more ml/kg if anticipate further transfusions (1 unit – 300-350ml)

**Platelets:** 1 pheresed unit = 6 random donor units (RDU)

typical dose 1RDU/10kg body weight

*Indication: bleeding, thrombocytopenia (1 pheresed unit – 120-200ml)*

**Cryoprecipitate** – 1button/5kg will raise fibrinogen 100-150mg/dl, also has Factor VIII

*Indication: Bleeding, platelet dysfunction, hypofibrinoginemia with bleeding (1button 10-15ml)*

**Fresh Frozen Plasma** – contains clotting factors, 10ml/kg

*Indication: bleeding, coagulopathy, INR > 1.5 (1 unit – 200-250ml)*

## Cardiac Electricity

*Note: in general, round up to nearest available dose, within reason*

**Defibrillation:**

Initial energy: 2J/kg

2nd dose: 4J/kg

3rd dose: 4J/kg

*Adult dosing:*

Initial dose: 200J

2nd dose: 200-300J

3rd dose: 360J

Indication: V. Fib and pulseless Vtach

**Cardioversion (synchronized)**

Initial energy: 0.5J/kg

2nd dose: 1J/kg

*Adult dosing:* 100J, 200J, 300J, 360J

*Indication: unstable SVT, VT (with pulse), a. fibrillation, a. flutter*

**Biphasic dosing:** Same in Peds, check manufacturer recs for Adults

## Diabetic Ketoacidosis

*Contact Pediatric Endocrinologist early*

• Do not bolus Insulin or Bicarb

• Watch early fluid resuscitation, avoid excessive fluid – use isotonic fluid (NS/LR)

• Watch electrolytes – Na, K, Phos, Mg

• Insulin gtt 0.05u/kg/hr

• Add dextrose (D5) when glucose < 300

• Add D10 when glucose < 200

• Watch for signs of cerebral edema

## Fluids

**Bolus** 20ml/kg of dextrose free, isotonic fluid (NS/LR)

In patients with non-cardiogenic shock, goal 60ml/kg within first hour if not more

**Maintenance Fluid Requirement** calculations per 24 hours

For first 10kg – 100cc/kg

For 10-20kg – 1000cc + 50cc/kg for weight over 10kg

For > 20kg – 1500cc + 20cc/kg for weight over 20kg

## Hyperkalemia – peaked T-waves on 12-lead

*If has intact renal function and urine output:*

**Furosemide** 1mg/kg IV may repeat for effect

*If no urine output: in addition to arranging urgent dialysis*

**Calcium Gluconate** 30mg/kg (or Calcium Chloride 10mg/kg if central line available)

*Effect: will stabilize myocardium*

**NaHCO<sub>3</sub>** 1mEq/kg

*Effect: drives K intracellular in exchange for H+ ion*

**Albuterol nebulization** 5-20mg

*Effect: pumps K intracellularly*

**Glucose** (0.5gm/kg) with **Insulin** (1u/4Gm glucose)

*Effect: drives K intracellularly with glucose*

**Kayexalate** 1-2Gm/kg PO/PR

*Effect: exchange resin, binds K in GI tract, causes increase in Na*

## Hypertensive Emergencies

*Investigate etiology of hypertension, and whether you want to rapidly drop BP (could be bad in case of increased ICP)*

**Esmolol** (β blocker) 50-250mcg/kg/min

**Labetolol** (β and α blocker) 0.2-0.5mg/kg/dose, up to 1mg/kg/dose, max 20mg;

*Adults initial 20mg, may give 40-80mg q10min up to 300mg total dose*

**Hydralazine** 0.1-0.2mg/kg initially; *Adults 10-20mg, up to 40mg q4-6hrs*

**Nifedipine** 0.25-0.5mg/kg, up to 10mg q4-6hrs

## Increased Intracranial Pressure

*Management varies depending on etiology*

*General Concept – assure adequate cerebral perfusion pressure*

*CPP = Mean Arterial Pressure - Intracranial Pressure*

**Methods to increase MAP:**

*Volume resuscitate: euvolemia before diuretic therapy*

*Blood pressure support: Phenylephrine gtt (see Cardiac section)*

**Methods to decrease ICP:**

*Hyperventilate: vasoconstricts cerebral blood flow, very effective at decreasing ICP, BUT at risk of causing injury to healthy brain, use only temporarily*

*Sedation: decrease cerebral metabolic rate*

*Treat seizures (see Seizures section)*

*Decadron: only helpful when pressure is due to Tumor*

*Mannitol (assure not hypovolemic first): dose 0.25-1gm/kg IV*

*Monitoring: Should consider when GCS < 8*

*Consultation with a Neurosurgeon comfortable with management of pediatric patients should be obtained early*

## Ingestions/Toxicity

**Charcoal** 0.5-1.0gm/kg/dose in 40% po/ng

**Naloxone (Narcan)**

*Unknown ingestion of possible narcotics*

FULL REVERSAL DOSE: 0.1 mg/kg up to 20kg, 2mg for > 20kg

Patient receiving narcotics for pain control with suspected overdose:

First stop infusion, then:

PARTIAL REVERSAL DOSE: start with 4-10mcg/kg IV, effect should be noticed quickly, dose can be repeated frequently q3-10 minutes until desired effect is seen

**Flumazenil (Romazicon)** Benzodiazepine reversal  
CONTRAINDICATED if on Benzo's for Seizure disorder or acute seizure  
Dosing 0.01mg/kg up to max of 0.2mg, may repeat q45sec to max of 0.05mg/kg or 1mg.

*Adult dose 0.2mg q45sec up to 1mg total max*

Monitor for re sedation after successful administration

## Other Medications

**Stress dose hydrocortisone** 50mg/m2/day, given as a continuous infusion or intermittent dosing, can load with 1-2mg/kg

**Glucagon** 0.1mg/kg up to 1mg IV

*Analgesics:*

**Fentanyl** 1-2mcg/kg IV, watch for signs of rigid chest in neonates

**Morphine** 0.1-0.2mg/kg IV

*Antibiotics – for sepsis/meningitis*

**Ampicillin** – 50mg/kg

**Ceftriaxone** – 50-100mg/kg

**Vancomycin** – 15mg/kg Adult dose: 0.5-1gm

## Rapid Sequence Intubation

*Indication: urgent need to control airway, unknown NPO status, or recent meal, not all intubations need to be RSI*

1 **Hyperoxygenate**

1a **Sellick Maneuver** (Cricoid Pressure) to prevent distension of stomach/reflux

2 **Atropine** 0.02mg/kg (0.1mg minimum, 0.5 or 1mg max) **OR,**

2 **Glycopyrrolate** 0.004-0.01mg/kg IV

3 **Deep Sedation:**

**Etomidate** 0.3mg/kg IV/IM, short acting

**Thiopental** 2-4mg/kg IV, short acting, causes hypotension

**Ketamine** 2mg/kg IV, preferred for asthma

**Versed** 0.2mg/kg IV for young infants

4 **Muscle Relaxant: quick onset, DO NOT USE if suspect a difficult airway**

**Rocuronium** 1mg/kg IV (45 seconds to full effect, 50min duration)

**Succinylcholine** 1-2mg/kg IV/IM (30sec to full effect, 10min duration)

*Caution:* if increased ICP, neuromuscular disease such as Muscular Dystrophy, or hyperkalemia, risk for malignant hyperthermia

## Seizures

ABC's protect patient from harm

Can allow up to 5 minutes for seizure to stop on own

**Lorazepam** 0.05-0.1mg/kg IV (onset in 3-5 minutes, duration 4 hours)

*Note: usually refrigerated*

**Midazolam** 0.1mg/kg IV/IM [onset 2-3 minutes (IV), duration 1-2 hours]

**Diazepam** 0.1mg/kg IV (onset 2 minutes, duration 20 minutes),  
0.3mg/kg PR (Diastat)

**Phenobarbitol** 10-20mg/kg load (onset 15-20 minutes)

**Fosphenytoin** 15-20mg PE/kg IV/IM (although should avoid IM if possible) load (onset 15-20 minutes) Load slowly 1-3mg/kg/min or 50-150mg/min max

## Severe Sepsis

*Upon recognition of a Severely Septic Neonate or Child obtain vascular access early and secure the airway.*

• Consult regional transport team.

• Administer up to 60cc/kg Isotonic (NS, LR) Fluid within 15 minutes.

• If fluid responsive, may administer more fluid.

• If not, obtain central access, consider Dopamine infusion at 10mcg/kg/min.

• Call for further consultation: **888 346-0644**