Cardiac Medications: Antiarrhythmics

Adenosine IV/IO
Indication: Supraventricular tachycardia (stable)
Dose: 0.1 mg/kg rapid IV push, then 5 mL saline flush
Repeat q2min x 2 doses: 0.2 mg/kg, 0.3 mg/kg (max 12 mg)

Amiodarone IV/IO
Indication: Pulseless VT/Vfib, stable ventricular tachycardia,
Dose: 5 mg/kg rapid IV push, or over 20–60 min (stable tachycardia) up to 15 mg/kg (max 300 mg/dose)

Lidocaine IV/IO:
Indication: 2nd line for pulseless VT/Vfib
Dose: 1 mg/kg IV slowly, repeat 0.5 mg/kg q5–10min up to 3 mg/kg total dose

Magnesium Sulfate IV/IO
Indication: Torsades des Pointes
Dose: 25–50 mg/kg (max 2g) slow IV push, or over 15 min if stable

Cardiac Medications: Vasoactive and Inotropic

Epinephrine IV/IO (potent inotropic, vasoconstrictor): 0.01–1mcg/kg/min

Norepinephrine IV/IO (potent vasoconstrictor, inotrope): 0.05–1mcg/kg/min

If considering milrinone, dobutamine, phenylephrine, nitroprusside, or vasopressin please call referral line for PICU consultation

Cardiac Medications: Other

Prostaglandin E (Alprostadil)
0.05–0.1 mcg/kg/min (monitor for apnea)
Indication: Ductal dependent lesion in neonate (e.g. hypoplastic left heart, critical coarctation, etc.).

▶ **Consult OHSU Pediatric Cardiology**

Please be advised that it is the responsibility of the patient along with their parent/guardian(s) and attending physician(s) to evaluate all available treatment options in the context of clinical presentation and symptoms reported prior to making any health decisions.

ETT tube sizing table and Vital Signs: 50%ile except BP
3 x tube size = cm @ lip

Use cuffed tubes when available.

Consider SVT if HR >220 for infants and >180 for children

AGE	WT (KG)	CUFFED ETT ID (MM)	DL BLADE (STRAIGHT OR CURVED)	GLIDESCOPE AVL: GVL	LENGTH (CM) TIP TO TIP	NG TUBE	LMA	RR (AVG/MIN)	HR	MINIMUM SYS BP
Neonate	< 1	2.5	0	GVL 0	7	5	1	< 60	145	52
Neonate	1–2	3.0	0	GVL 0	8	5	1	< 60	145	52
Neonate	2–4	3.5	0–1	GVL 1	9	5	1	< 60	135	60
1–6mo	4–6	3.5–4.0	1	GVL 2	12	8	1–1.5	24–30	130	70
6mo–1yr	6–10	3.5–4.0	1	GVL 2	13	8	1.5	24–30	130	70
1–2yr	10–12	4.0	1	GVL 2.5	14	10	2	20–24	130	72–74
2–3yr	12–14	4.5	1–2	GVL 2.5	15	10	2	20–24	120	74–76
4–5yr	16–20	5.0	2	GVL 2.5	16	12	2	20–24	100	78–82
6–7yr	23–28	5.0–5.5	2s 2c	GVL 2.5	16	12	2.5	12–20	100	82–84
8–9yr	31–34	5.5–6.0	2–3s (3c)	GVL3	17	12	3	12–20	85	86–88
10–11yr	37–40	6.0–6.5	2–3s or 3c	GVL3	18	14	3	12–20	75	>90
12–13yr	43–46	6.5–7.0	2–3s (3c)	GVL3	18	14	3	12–20	75	>90
> 14yr	> 50	7.0–8.0	2–3s (3c)	GVL3	20–22	18	4	10–14	70	>90

POISON Help 1-800-222-1222

PANDA Pediatric and Neonatal Doernbecher Transport

OHSU DOERNBECHER PEDIATRIC EMERGENCY DEPARTMENT & OBSERVATION OPEN 24/7

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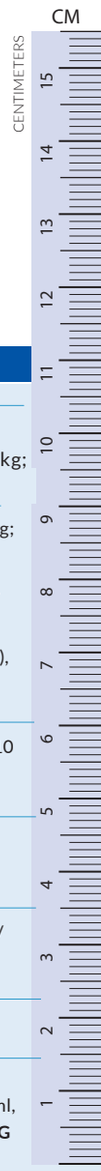
Pediatric Emergency Management Guide

2024, 7th edition

For transfers, consultation, or to admit a patient, call **503-494-7000**
www.doernbecher.com



Cardiac Arrest

- C-A-B: Compression (Ratio 15:2 for 2 rescuer CPR)
- With advanced airway, give 1 breath every 2-3 sec.
- Oxygen 100%
- Place IO

Rapid Sequence Intubation

Indication: Urgent need to control airway, unknown NPO status, or recent meal.

1 **Pre-oxygenate: nasal cannula for apneic oxygenation**
2 **Prepare atropine** 0.02mg/kg IV/IM/IO (min–max 0.1–1mg) for <6 months, Administer for reflex bradycardia
3 **Sedation:**
Etomidate (avoid in sepsis) 0.3 mg/kg IV
Ketamine 1–2 mg/kg/dose IV (or 3–5 mg/kg IM)
Midazolam (Versed) 0.2–0.3 mg/kg IV/IM
4 **Paralytic:**
Rocuronium 1 mg/kg IV
Succinylcholine 1–2 mg/kg IV/IO or 2–4 mg/kg IM
Contraindication: malignant hyperthermia, neuromuscular disease, hyperkalemia
5. **Post-intubation medications:**
Midazolam 0.05–0.1mg/kg/dose IV, max 6–10mg, q30 minutes prn
Fentanyl 0.5–2 mcg/kg/dose IV, max 50 mcg, q30 minutes prn
Propofol 25–100 mcg/kg/minute OR bolus 0.5–2 mg/kg q5 minutes prn

Cardiac Electricity

Defibrillation: INITIAL DOSE: 2J/kg; 2ND DOSE: 4J/kg; 3RD DOSE: 4–10J/kg

Cardioversion (Synchronized): INITIAL ENERGY: 0.5 J/kg; 2ND DOSE: 1 J/kg. Indication: Unstable SVT, VT (with pulse), a. fibrillation, a. flutter

Medications

Epinephrine — 0.1mg/mL (1:10,000): 0.1ml/kg (max 10ml), IV/IO push q3–5 min
Indication: Bradycardia, asystole, hypotension

Calcium Gluconate — 100 mg/kg (max 3 g) IV/IO over 5-10 minAdult Dose: 1–3 g dose
Indication: Hypocalcemia, hyperkalemia

Atropine — 0.02 mg/kg IV/IM/IO (minimum dose 0.1mg), max dose 1 mg and repeat doses 0.04 mg/kg up to 3 mg.
Indication: Bradycardia

Crystalloid (Normal Saline or Lactated Ringers) — 20 mL/kg IV/IO
Indication: Volume expansion

Colloid (5% Albumin, pRBC) — 10 mL/kg IV
Indication: Volume expansion

Glucose IV/IO —
NEONATES: D10W: 5-10ml/kg, **Indication: CBG < 40 mg/dL**

INFANTS AND CHILDREN: D10W: 5-10ml/kg or D25W: 2-4ml/kg, **Indication: CBG < 60mg/dL**

ADULTS: D50W: 25-50ml, **Indication: CBG < 60mg/dL**

DCH 3042167 6/24

Adrenal Crisis

Children with adrenal insufficiency or history of glucocorticoid use

Hydrocortisone: 2 - 3 mg/kg (max 100 mg) IV/IM

Asthma

Albuterol Nebs 2.5–5 mg (0.15 mg/kg) inhaled q20 min x 3 doses, then q1 hr as needed

Albuterol/Ipratropium (Duoneb) 3 mL inhaled q20 min x 3 doses for moderate to severe asthma

Continuous Albuterol Nebs weight based dosage. 5 to <10 kg: 5 to 7.5 mg/hour; 10 to <20 kg: 10 mg/hour; ≥20 kg: 15 to 20 mg/hour titrate dosage up to 20 mg/hr. Continuous nebulization to be delivered through face mask.

Dexamethasone (Decadron) 0.6 mg/kg/dose IV/IM/PO, max 16 mg

Epinephrine 1mg/ml (1:1000): 0.01ml/kg (max 0.3ml) IM in thigh q5min

Magnesium Sulfate 25–75 mg/kg (max 2 g) over 15 min (dilute to 40 mg/mL in NS)

Methylprednisolone (Solumedrol): 2 mg/kg IV/IO x 1 dose,

Allergic Reactions

Cetirizine (preferred): 6 month to 2 years: 2.5mg, 2-5 years: 2.5-5mg, 5 years and older: 5-10mg

Epinephrine: 1mg/ml (1:1000): 0.01ml/kg (max 0.5ml) IM in thigh q5min

Diphenhydramine: 1 mg/kg (max 50 mg) IV/IM/PO

Dexamethasone (Decadron): 0.5mg/kg IV/IM/PO, max 10mg

Behavioral Agitation

Lorazepam: 0.05 mg/kg (max 2mg) PO/IM

Olanzapine: 2.5 - 10 mg PO/IM

*Separate parental Olanzapine and Benzodiazepine at least 1 hour apart due to the risk of respiratory depression

Croup

Racemic Epinephrine (nebulized): 0.25 mL x 2 doses as needed for stridor. If no racemic epi, may use L-epi. L-epinephrine: 0.5 mL/kg per dose (maximum of 5 mL) of a 1 mg/mL (1:1000) preservative-free solution

Dexamethasone (Decadron): 0.6mg/kg/dose IV/IM/PO, max 16 mg

Diabetic Ketoacidosis

▶ **Contact pediatric endocrinologist early**

Do not bolus Insulin or Bicarb

Draw labs: Na, K, Phos, Mg, VBG, UA

Fluid

Avoid excessive fluid — use isotonic fluid
Bolus NS 10–20 ml/kg
Maintenance at 1.5 times normal rate:
CBG>300: NS - + 20 meqKCl
CBG200–300: D5NS - + 20 meqKCl
CBG<200: D10NS - + 20 meqKCl

▶ **If present turn off insulin pump before starting insulin drip**

Insulin drip 0.05–0.1 units/kg/hr

Watch for signs of cerebral edema (see "Increased ICP")

Fluids (IV/IO)

Bolus: 20 mL/kg of dextrose free, isotonic fluid (NS/LR)

Maintenance Fluid Requirement: Hourly rate use 4-2-1 rule
D5NS + 20KCl (D5 ½ NS + 20KCl in infants)
4 mL/kg for the 1st 10 kg +
2 mL/kg for the 2nd 10 kg +
1 mL/kg over 20 kg

Hyperkalemia — peaked T-waves on 12-lead

❶ **First, stabilize myocardium:**

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

❷ **Second, treat hyperkalemia. Consider:**

Sodium Bicarbonate: 1 m Eq/kg (max 50 mEq) IV

Albuterol Nebulization: 5–20 mg/hr

Glucose: 0.5 g/kg IV (max 25 g) **with Insulin:** Regular 0.1 units/kg IV (max 10 units

Furosemide: 1 mg/kg IV may repeat for effect
(Only if intact renal function and urine output)

Kayexalate: 1–2 g/kg (max 30 g) PO/PR

▶ **If no urine output, arrange for urgent dialysis**

Hypertensive Emergencies

Investigate etiology of hypertension
(treating may be harmful in case of increased ICP)

BOLUS:

Labetalol: (β and α blocker) 0.2–0.5 mg/kg/dose IV, up to 1 mg/kg/dose, max 20mg; **ADULTS** initial 20 mg, may give 40–80 mg q10 min up to 300 mg total dose

Hydralazine: 0.1–0.2 mg/kg IV initially; **ADULTS** 10–20 mg, up to 40 mg q4–6 hrs

INFUSION: Esmolol (β blocker) 50–250 mcg/kg/min IV

Increased Intracranial Pressure

▶ **Consult Neurosurgery early**

Prevent hypoxia or hypotension; allow permissive hypertension
Treat ICP

- **Positioning:** HOB 30 deg, Head midline
- **Minimize brain metabolic rate:** aggressively treat fevers, seizures; consider sedation
- **Hyperosmolar therapy:** 1st line Hypertonic Saline 3–6 ml/kg bolus over 10 min; 2nd line (if normotensive) Mannitol 0.25–1 g/kg bolus over 10 min
- **Maintain normoventilation** (EtCO2 30–35)

If...

- Signs of active herniation, consider acute hyperventilation (EtCO2 28–32) while making operative arrangements
- Brain tumor, consider decadron 1mg/kg (max dose 10 mg)

Ingestions/Toxicity

▶ **Poison Control Center: 1-800-222-1222**

Activated Charcoal: 0.5–1 g/kg/dose PO/NG (without sorbitol) max dose 50-100g. Contraindication: depressed mental status, other aspiration risk, bowel obstruction.

Flumazenil (Romazicon): 0.01 mg/kg (max 0.2 mg) IV q1 min until max 0.05 mg/kg (or 1 mg) total dose
Contraindicated in chronic benzodiazepine use or acute seizure

Naloxone (Narcan)

- Full reversal dose (for apneic patients or children whom opioid dependence is not suspected): 0.1 mg/kg IV (max dose 2 mg)
- Partial reversal dose: 0.04 mg IV q1 minutes PNR until respiratory rate reaches 12 per minute.40 mcg IV q1 minutes
- Clonidine toxicity (consult poison control): 0.4 mg to 2 mg IV

Pain Management and Anxiolysis

Analgesics:

Fentanyl: 1–2 mcg/kg/dose (max 50 mcg) IV (monitor for rigid chest symptoms in neonates) Intranasal: 1–3 mcg/kg/dose (max 50mcg per nostril)

Morphine: 0.1–0.2 mg/kg/dose (max 8 mg per dose) IV/IM

Midazolam: 0.05–0.1 mg/kg/dose (5 mg per dose) IV/IM, or 0.25–1 mg/kg/dose PO
Intranasal: 0.3–0.4 mg/kg/dose (max 10mg, 5mg per nostril)

Sweetease: Use as needed in infants

Seizures

❶ **First, attend to A,B,Cs. Second, treat hypoglycemia Third, treat seizures.**

FOR INFANTS AND CHILDREN:

FIRST LINE: Benzodiazepines: Administer x 2 doses prn

- **Lorazepam** 0.05-0.1mg/kg/dose (max 4mg) IV/IM
- **Midazolam** 0.2mg/kg/dose (max 10mg) IV/IM
  Intranasal: 0.4mg/kg (max 10mg)
- **Diazepam** 0.1-0.2mg/kg/dose (max 10mg) IV

SECOND LINE: For benzodiazepine refractory seizures

- **Levetiracetam (Keppra):** 40–60mg/kg (max 4.5g) IV loading dose
- **Fosphenytoin** 15-20 mg PE/kg IV loading dose over 10 minutes. May administer IM undiluted if no access.
- **Valproic acid** 20-40 mg/kg IV/IO over 10-20 min

FOR NEONATES:

Phenobarbital: 15–20mg/kg IV loading dose (max rate 1mg/kg/min), then 5mg/kg q15 min prn seizures

Sepsis

Golden Hour = Early recognition;
Goals for first 60 min of therapy:

Restore normal airway, oxygenation, and ventilation

Restore circulation (CRT < 2 sec, HR nl for age, BP > 70 + 2xage years (<10yrs), etc.

Early vascular access; Early antibiotics

- Obtain rapid access (IO if IV access not successful with 2 attempts);
- Secure airway as indicated
- Fluid Resus: 10 ml/kg neonates, 20 ml/kg infants/children NS or LR over 5–10 min, reassess after each bolus (may require up to 60 ml per kg wtihin the first hour)

Begin broad spectrum antibiotics
(ideally following blood cultures):

NEONATE:

Ampicillin 50mg/kg (less than 29 days) + **Gentamycin** 4–5mg/kg, +/- **acyclovir** 20 mg/kg

INFANT:

Vancomycin 15 mg/kg + **Ceftriaxone** 50mg/kg

HEALTHY CHILD:

Vancomycin 15 mg/kg + **Ceftriaxone** 50mg/kg

CHRONICALLY-ILL /IMMUNOSUPPR:

Vancomycin 15 mg/kg + **Cefepime** 50 mg/kg
OR **Meropenem** 30 mg/kg; +/- **acyclovir** 20mg/kg

Vasoactives: indicated if non-responsive to fluid at 60ml/kg, or patient develops rales/gallop/hepatomegaly

- **FIRST LINE:** Epi 0.05-0.15 mcg/kg/min (cold shock) or Norepi 0.01-1 mcg/kg/min (warm shock)
- **SECOND LINE:** Vasopressin .3ml per kg per minute: hydrocortisone 2 mg/kg IV x 1