Airway

Croup / upper airway edema

-**Racemic epi** (2.25%): 0.25-0.5mg in 3mL NS
-**Dexamethasone**: 0.6mg/kg PO/IM/IV (Max 16mg)

ETT sizing

ETT size = (age/4) + 4 (uncuffed) [subtract 0.5 for cuffed]
ETT x 3 = depth of ETT insertion

Intubation

1. Premedication
   -**Atropine**: 0.02mg/kg IV/IO (Max 0.5mg)
   -**Fentanyl**: 1-2mcg/kg IV (Max 100mcg)
   CI: hypOtension
2. Sedation
   -**Etomidate**: 0.3mg/kg IV/IO (Max 20mg)
   CI: Septic shock
   -**Midazolam**: 0.1mg/kg IV/IO/IM (Max 10mg)
   -**Ketamine**: 1-2mg/kg (IV/IO) (Max dose not defined)
   Useful for bronchospasm
   -**Propofol**: 2mg/kg IV/IO (Max dose not defined)
   CI: hypotension
3. Paralysis
   -**Rocuronium**: 1mg/kg IV/IO (Max dose not defined)
   -**Succinylcholine**: 1mg/kg IV/IO (Max dose not defined)
   CI: increased ICP/IOP
   -**Vecuronium**: 0.1mg/kg IV/IO (Max dose not defined)

Rapid sequence intubation checklist

1. **Preoxygenate** (nasal cannula)
2. **Gather & test** equipment: suction, ETT, scope, CO2 detector, NG tube, ventilator, alternative airways, syringe for cuff
3. **Plan** for backup/failure, need for anesthesia/ENT
3. **Premedicate**, **induce** & **paralyze**
4. **Verify** tube placement: chest rise, tube fogging, end-tidal, CXR

Breathing

Asthma

Inhaled meds
-**Albuterol** 0.083%: 2.5mg in 2mL NS neb
- Continuous: 0.5mg/kg/hr (Max 15mg/hr)
-**Ipratropium**: 0.125-0.25mg neb

IV
-**Mag sulfate**: 50mg/kg IV over 20mins (Max 2000mg)
recommend simultaneous bolus
-**Terbutaline**:
Load: 2-10mcg/kg IV (max 400mcg/dose)
MAINT: 0.08-0.4mcg/kg/min IV drip
-**Aminophylline**: 5mg/kg IV
Load over 20mins, then infuse 1mg/kg/hr

Subcutaneous
-**Epinephrine 1:1000**: 0.01mg/kg (0.01mL/kg of 1:1000 conc.)

Steroids
-**METHYLprednisolone**: 2mg/kg IV (Max 120mg)
-**PrednisOLOne**: 2mg/kg PO (Max 60mg)

Positive pressure ventilation (titrate to effect/safety)
-**Ventilator**
-TV: 8-10mL/kg
-PEEP: 3-5cm H20
(higher PEEPs required in ARDS)
-I-time: 0.5-0.8 (shorter in asthmatics)
-**"NIV"** (non-invasive ventilation: pressure control):
PEEP 5-10, PC above PEEP 8-16
-**BiPAP**: IPAP 8-16, EPAP 4-10
-**High-flow** nasal cannula: 1-2LPM/kg

Anaphylaxis

-**Epinephrine** 0.01mg/kg IM (0.01mL/kg of 1:1000 conc.)
-**Diphenhydramine**: 1-2mg/kg IV/IO/IM (Max 50mg)
-**Famotidine**: 0.3mg/kg IV (Max 20mg)
-**Solumedrol**: 2mg/kg IV (Max 120mg)

CI = Contraindication

Circulation

Blood products

-**pRBC**: 10-15mL/kg IV/IO (inc HCT by 10%)
-**Platelets**: 1RDU/10kg or 10mL apheresis unit/kg (increases count by 50,000)
-**FFP**: 10mL/kg increases factor level by 10%
-**Factor VIII**: 1 unit/kg increases level 2%
-**Massive transfusion** ratio: 1 pRBC : 1 FFP : 1 PLT

Pressors

-**Dopamine**: 2-20mcg/kg/min
(mid dose: cold shock) (hi dose: warm shock)
-**Epinephrine**: 0.1-1mcg/kg/min (central)
-**Norepinephrine**: 0.1-1 mcg/kg/min (central)
-**Dobutamine**: 2-20mcg/kg/min (central)
-**Vasopressin**: 0.002-0.005 unit/kg/min
(MAX 0.01Ux/kg/min)

Antihypertensives

-**Hydralazine**: 0.1-0.4 mg/kg IV
-**Nifedipine**: 0.25-0.5mg/kg SL (max 30mg)
-**Labetalol**: 0.2-1 mg/kg IV (over 2m, MAX 40mg)
-**Nicardipine**: 1mcg/kg/min (drip)

Hyperkalemia

-**Bicarb**: 1-2mEq/kg IV
-**Ca gluconate** 10%: 50mg/kg IV over 3mins (MAX 1000mg)
-**Glucose/insulin**: 1gm/kg gluc + 0.2 unit insulin/Gm gluc IV
-**Kayexalate**: 1gm/kg PR/PO
-**Albuterol**: 2.5mg flat dose NEB

Normal vitals by age

Hypotension in children is a sign of PRE-ARREST

	HR	RR	SBP
Preemie (Gest age~=MAP)	120-170	40-70	55-75
0-3 mos	110-160	30-60	65-85
3-6 mos	100-150	30-45	70-90
6-12 mos	90-130	25-40	80-100
1-3 yrs	80-125	20-30	90-105
3-6 yrs	70-115	20-25	95-110
6-12 yrs	60-100	14-22	100-120
>12 yrs	60-100	12-18	100-120

Disability (and Dextrose)

Antidotes

-**Activated charcoal**: 1gm/kg PO/NG (MAX 50gm)
-**Atropine** (organophosphate/cholinergic): 0.02mg/kg IV/IM (no max, titrate as needed)
-**Calcium Cl 10%** (CCBs): 20mg/kg slow CVC
-**Deferoxamine**: 50mg/kg IM (max 1000mg)
-**Flumazenil** (benzos): 0.01mg/kg IV (MAX 0.2mg)
-**Fomepizole** (ethylene glycol/methanol): 15mg/kg IV (no max)
-**Glucagon** (beta blockers): 0.04mg/kg IV/IM (MAX 1mg)
-**Methylene blue 1%**: 1-2mg/kg IV (no max)
-**N-acetylcysteine** (tylenol): 150mg/kg IV (over 1hr)
-**Naloxone**: 0.1mg/kg IV/IM/ETT (no max given, pen=2mg)
-**Physostigmine** (Anticholinergic, "mad as a hatter"): 0.02mg/kg SLOW IV (MAX 0.5mg)
-**Pralidoxime** (organophosphate): 25-50mg/kg IV max 2000mg
-**Pyridoxine (B6)** (isoniazid): 1gm per gm INH ingested
-**Sodium bicarb** (TCAs): 1-2mEq/kg IV

Diabetic Ketoacidosis

pH <7.3, HCO3 <15, elev. anion gap, glucose >200, +ketones

-**Insulin drip**: 0.5-1.0unit/kg/hour

Two-bag example (%s of 1-1.5x maintenance rate)

-**Bag 1**: NS+KCl+KPhos, **Bag 2:** D5 or D10+NS+KCl+KPhos

Blood glucose	Bag 1	Bag 2
>300	100%	0%
250-299	75%	25%
200-249	50%	50%
150-199	25%	75%
100-149	0%	100%

Hypoglycemia

D10: 2.5mL/kg (Max 100-200mL/dose)

Analgesia

-**Acetaminophen**: 15mg/kg Q4h, Max 4000mg/day or 75mg/kg/day (PR Max 20mg/kg/dose)
-**Ibuprofen**: 10mg/kg Q6h
-**Ketorolac**: 0.5mg/kg IV (Max 60mg)
-**Morphine** sulfate: 0.08-0.1mg/kg PO
0.025-0.03mg/kg IV
-**Fentanyl**: 1-2mcg/kg/dose IV (Max 100mcg)
-**Lidocaine**: SQ Max 3mg/kg/dose without Epi; 7mg/kg with Epi

Code Blue

PALS Cardiac Arrest Meds

-**Epinephrine**
- 1:10,000 = 0.1mg/mL: 0.01mg/kg IV/IO
- 1:1,000 = 1.0mg/mL: 0.1mg/kg ETT
-**Adenosine**: 0.1mg/kg rapid IV/IO, double for 2nd dose (first dose max 6mg, 2nd dose max 12mg)
-**Atropine**: 0.02mg/kg IV/IO/ETT (max 0.5mg)
-**Calcium CHLORIDE**: 20mg/kg IV/IO (CVC)
-**Calcium GLUCONATE**: 50-100mg/kg IV/IO max 3,000mg
-**Lidocaine**: 1mg/kg IV/IO bolus, 2-3mg/kg ETT
-**Amiodarone**: 5mg/kg IV/IO bolus
-**Magnesium Sulfate**: 50mg/kg IV/IO max 2,000mg
-**Vasopressin**: 0.5unit/kg IV/IO
-**Sodium bicarbonate**: 1-2mEq/kg IV/IO
-**Cardioversion**
- SYNCH (SVT): 0.5-1 J/kg (2x dose if repeat)
- DEFIB: 2-4 J/KG max 100J

Hs and Ts

(reversible causes of cardiac arrest)

-Hypoglycemia
-Hypovolemia
-Hypoxia
-Hydrogen ion (acidosis)
-Hyper/hypoKalemia
-Hypothermia
- Toxins/Tablets
- Tamponade
- Tension pneumothorax
- Thrombus (PE or MI)
- Trauma

Pediatric Glasgow Coma Scale

	1	2	3	4	5	6
E	None	To pain	To sound	Spont		
V	None	Moans/pain	Cry w/ pain	Irritable	Appropr	
M	None	Ext postur	Flex postur	Withdraws	Localizes	Spont/ obeys

The PEM Card (v2)

Developed at Maimonides Children's Hospital, Brooklyn, NY
This tool is intended to supplement, not replace, clinical judgment
Typeface: Libre Franklin Regular by Impallari Type

Miscellaneous/Microbes

Anticonvulsants

-**Lorazepam**: 0.1mg/kg IV/IO (Max 4mg)
-**Midazolam**: 0.1mg/kg IV/IO (Max 10mg)
-**Diazepam**: 0.1mg/kg IV/IO (Max 10mg);
0.5mg/kg PR (Max 20mg)
-**Fosphenytoin**: 20mg/kg IV/IO (load) (Max 1500mg)
-**Levetiracetam**: 20mg/kg IV/IO (load) (Max 3500-4000mg)
-**3% NaCl** (for hypoNa): 2-4mL/kg IV

Antimicrobials

Intravenous

-**Acyclovir**: 20mg/kg/dose (no max given)
-**Ampicillin**: 50mg/kg/dose (100mg/kg for meningitis)
-**CefTAZIDime**: 50mg/kg/dose (max 6gm/day)
-**CefTRIAXone**: (pts > 28 days old)
50mg/kg/dose (minor infection e.g. otitis)
75mg/kg/dose IV (bacteremia/pneumonia)
100mg/kg/dose (meningitis)
-**Clindamycin**: 10-15mg/kg/dose (max 600mg)
-**Gentamicin**: 2.5mg/kg/dose IV/IM (max 60mg)
-**Piperacillin/tazo**: 100mg pip/kg/dose (max 3375mg pip)
-**Vancomycin**: 15mg/kg/dose (max 1000mg)

Oral

-**Amoxicillin**: 50-90 mg/kg/day divided BID (max 875mg/dose)
(amox+clav has same range & dosed based on amox component)
-**Azithromycin**: 10mg/kg/day (day 1), then 5mg/kg/day (days 2-5) (max 500mg)
-**Cephalexin**: 50mg/kg/day (max 4000mg/day)
-**Cefdinir**: 14mg/kg/day (max 300mg BID)
-**TMP-SMX**: 6-12mg TMP/kg/day (max single dose 160mg TMP)

Increased intracranial pressure

-**Hypertonic saline** (3%, requires central line): 5mL/kg IV
-**Mannitol** (20%): 0.5-1.0gm/kg IV
-**Supportive measures**: elevate HOB, prophylactic antiepileptics, treat metabolic derangements, sedation, neuromuscular blockade, hyperventilation