Pediatric Medication Handbook

For 24-hour referral
or pediatric transport,
call our Doctors Direct
757-668-9999

Outside Hampton Roads: 800-207-2022

Pharmacy: 757-668-7163

Pediatric Clinical Pharmacist On-call:
757-456-6180

Doses provided are initial dose recommendations and guidelines only. Actual doses may vary depending on the child's condition.

Children's Hospital
of The King's Daughters

When referring a child, please have the following information available:

- Name, age, weight
- Vital signs including blood pressure, heart rate, respiratory rate, temperature, and oxygen saturations
- Pertinent history and physical findings: general appearance (e.g., degree of distress), capillary refill, quality of pulses, breath sounds, and level of consciousness
- Lab and X-ray data, if available
- IV access - site and type
- Therapies administered

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Emergency Guide

INTUBATION

Estimated ETT SIZE = 4 + $\frac{\text{(pt's age in yrs)}}{4}$

cuffed ETT tube = 3.5 + $\frac{\text{(pt's age in yrs)}}{4}$ (for age 2 or older)

ETT position at lip (in cm) estimated as 3 times ETT diameter (in mm). For example, 3.5 mm ETT should be 11.5 cm at the lip.

INITIAL VENTILATOR SETTINGS (volume mode; TV = tidal volume)

TV = 7-10 mL/kg
PEEP = 5 cm H_20
FiO_2 - 0.4 (Adjust to keep O_2 sat>90%)
IMV = 15/min for child & 20-30/min for infants
PIP less than 35 cm H_20
Inspiratory time = 0.5 – 0.6 sec infant; 0.7 – 0.8 sec child; 0.8 – 1 sec adolescent

HYPOVOLEMIC/SEPTIC SHOCK:

10 - 20 mL/kg as rapid bolus of an isotonic, non-glucose containing solution (i.e., lactated ringers or normal saline). Repeat bolus PRN based on distal pulses, blood pressure, and capillary refill. There is no maximum; the amount given is determined by the needs of the patient.

Consider colloid (e.g., 5% albumin or plasmanate) after 40 – 60 mL/kg of crystalloid if shock persists.

MINIMAL BLOOD PRESSURE VALUES

0 to 1 month	Systolic pressure > 60 mmHg
1 month to 1 year	Systolic pressure > 70 mmHg
Greater than 1 year	Systolic pressure > 70 mmHg + 2x (age in years)
≥10 years	Systolic pressure > 90 mmHg

RESUSCITATION MEDICATIONS

Amiodarone	5 mg/kg IV/IO; bolus for VF/pulseless VT or infuse over 20 – 60 min for perfusing tachycardias
Atropine	0.02 mg/kg IV; use 0.04 mg/kg IM/ET Min: 0.1 mg IV Max: 1 mg IV
Bicarbonate	1 mEq/kg IV
Calcium	Ca Chloride 20 mg/kg = 0.2 mL/kg of 10% solution Ca Gluconate 60 - 100 mg/kg = 0.6 - 1 mL/kg of 10% solution via slow IV push Max: 1000 mg/dose of Ca Chloride or 3,000 mg Ca Gluconate
Dextrose	0.5 - 1 gm/kg IV (2 - 4 mL/kg D25)
Epinephrine	0.01 mg/kg IV/IO (0.1 mL/kg 1:10,000) Max: 1 mg/dose (10 mL 1:10,000) High dose = 0.1 mg/kg (0.1 mL/kg ***1:1,000***) Max ET: 2.5 mg/dose
Lidocaine	1 mg/kg bolus IV/IO
Vasopressin	0.5 – 1 unit/kg bolus IV/IO in epinephrine-refractory cardiac arrest (not routinely recommended) Adult (>40 kg) 40 units

CARDIOVERSION/DEFIBRILLATION

(use lower energy dose initially and increase if needed)

Atrial Arrhythmias	0.5 - 1 joules/kg; synchronized
Ventricular Tachycardia with Pulse	0.5 - 2 joules/kg; synchronized
Ventricular Fibrillation or Pulseless Ventricular Tachycardia	2 - 4 joules/kg

CARDIOVASCULAR INFUSIONS

Alprostadil (Prostaglandin E1)	0.01 – 0.1 mcg/kg/min
Dopamine and dobutamine	2 - 20 mcg/kg/min
Epinephrine	0.05 - 1 mcg/kg/min

Esmolol	**Load: 300 – 500 mcg/kg** over 15 min; infusion: 50 – 250 mcg/kg/min
Labetalol	0.4 - 1 mg/kg/hr; max = 3 mg/kg/hr
Milrinone	May load with 25 - 50 mcg/kg over 30-60 min (check with attending), infusion: 0.25 - 1 mcg/kg/min
Nicardipine	0.25 – 5 mcg/kg/min; Prefer CVL administration to reduce volume administered
Norepinephrine	0.05 – 2 mcg/kg/min
Nitroprusside (Nipride®)	0.5 – 5 mcg/kg/min; **Adult** (≥40 kg) initial infusion at 0.1 mcg/kg/min
Nitroglycerin	0.25 – 10 mcg/kg/min; **Adult** (≥40 kg) initial infusion dose: 10 mcg/min (Note that dose is *not* weight based in adults). Commonly used maximum dose of 200 mcg/min
Vasopressin	Initial: 0.5 – 2 milliunits/kg/**min**; adjustment based on BP response **(DOSE FOR SHOCK)**. In **Adult** (≥40 kg) initial infusion dose: is 20 - 100 **mcg/min** (Note that dose is *not* weight based in adults)

ANTIARRHYTHMICS

Adenosine	100 mcg/kg – (max first dose = 6 mg) **rapid** IVP; may double dose up to 12 mg/dose and repeat in 1-2 min *****Contraindicated in heart transplant patients**
Amiodarone	Load: 5 mg/kg IV over 25 min, may repeat x 2, infusion 5-15 mcg/kg/min

INTUBATED PATIENT SEDATION/PAIN PROTOCOL

For sedation start with lorazepam or midazolam; for pain start with morphine or fentanyl

Dexmedetomidine (Precedex®)	Initial: 0.2 - 0.7 mcg/kg/hr Max: 1.5 mcg/kg/hr
Lorazepam (Ativan®)	Initial: 0.1 mg/kg/dose IV/PO every 6 hrs. If transitioning to lorazepam to wean off other benzodiazepines, larger doses may be needed – discuss with pharmacists. Available oral solution concentration: 2 mg/mL
Methadone	Initial: 0.1 mg/kg/dose IV/PO every 6 hrs. If transitioning to methadone to wean off other opioids, larger doses may be needed – discuss with pharmacists. Available oral solution concentration: 2 mg/mL
Midazolam (Versed®)	Initial: 0.1 mg/kg/hr. May consider loading dose of 0.05 – 0.1 mg/kg. In **Adults** (≥50 kg) an initial infusion of 0.02 - 0.05 mg/kg/hr is recommended. Max: 0.5 mg/kg/hr
Fentanyl	Initial: 1 - 2 mcg/kg/hr Max: 10 mcg/kg/hr (if in the PICU setting)
Morphine	Initial: 10 - 20 mcg/kg/hr Max: 50 mcg/kg/hr
Ketamine	Initial: 0.3 - 0.5 mg/kg/hr Max: 2 mg/kg/hr
Propofol	Initial: 1 - 3 mg/kg/hr. A loading dose of 1 – 2 mg/kg may be used (consult with attending) Max: 5 mg/kg/hr

PARALYTICS

Pancuronium (Pavulon®)	0.1 mg/kg/dose IV; lasts 30-60 min; **avoid in renal failure**
Rocuronium	0.5 - 1 mg/kg/dose IV; lasts 15-45 min; fastest onset of nondepolarizing agents
Vecuronium	0.1 - 0.2 mg/kg/dose IV; lasts 20-40 min

ANALGESICS

Acetaminophen	15 mg/kg PO or 20 mg/kg PR every 4 hrs PRN up to 5 doses; not to exceed 75 mg/kg/**day** or 4 gm/**day** < 13 yo: 15 mg/kg/dose IV Q6H (max: 750 mg/dose) > 13 yo + > 50 kg: 1000 mg IV Q6H > 13 yo + < 50 kg: 15 mg/kg dose IV Q6H **IV acetaminophen order set available** ****Consider all sources of acetaminophen to calculate total daily dose.** Available forms at CHKD: Suppositories in 120, 325, 650 mg; Tablets in 325, 500 mg; Meltaway tabs 80 mg, Liquid 32 mg/mL.

Acetaminophen w/codeine tablet	0.5 – 1 mg/kg/dose codeine component PO every 4 hrs PRN ****Because of variability in metabolism, use codeine containing products cautiously in children < 3 years of age**** Available forms at CHKD: Tylenol No. 3: Acetaminophen 300 mg and codeine phosphate 30 mg Tylenol No 2: Acetaminophen 300 mg and codeine phosphate 15 mg
Acetaminophen w/codeine liquid	0.2 – 0.4 mL/kg/dose PO every 4 hrs PRN (~0.5 – 1 mg/kg/dose of codeine component) ****Because of variability in metabolism, use codeine containing products cautiously in children < 3 years of age**** Available form at CHKD: 12 mg codeine & 120 mg acetaminophen per 5 mL
Fentanyl	1 – 2 mcg/kg/dose IV every 1 hr PRN
Gabapentin (Neurontin®)	Neuropathic pain: Children start with 5 mg/kg/dose. Day 2, 5mg/kg/dose twice a day; day 3, give dose 3 times each day. Titrate to effect; usual range: 3-12 mg/kg/dose three times each day. Adults, initial 100 mg/dose three times each day. Increase by 100 mg/dose weekly. Usual range: 600-800 mg/dose three times daily. Solution: 250 mg/5 mL. Capsule: 100 & 300 mg.
Ibuprofen	10 mg/kg/dose PO every 6 hrs PRN Max: 800 mg/dose ****Not for routine antipyretic use in patients < 6 months of age**** Available oral solution at CHKD: 100 mg/5 mL
Hydrocodone/ Acetaminophen (Lortab®)	Dosed on hydrocodone component: 0.1 - 0.2 mg/kg/dose (tablet) or 0.2 - 0.4 mL/kg/dose (liquid) PO q4 hrs PRN Max: 10 mg/dose Available forms at CHKD: 2.5 mg hydrocodone & 167 mg acetaminophen per 5 mL (Lortab Elixir) Hydrocodone 5 mg & acetaminophen 500 mg tablet (Lortab 5/500)

Hydromorphone (Dilaudid®)	0.015 mg/kg/dose IV every 4 hrs PRN or 0.03-0.08 mg/kg/dose PO every 4 hrs PRN Adult dose: 0.2 – 0.6 mg IV every 4 hrs PRN or 1 – 2 mg PO every 4 hrs PRN Available PO form at CHKD: 4 mg tablet (See separate order form for PCA dosing)
Ketorolac (Toradol®)	0.5 mg/kg/dose IV every 6 hrs Max: 30 mg IV every 6 hrs, not to exceed 5 days ****Not for use in patients < 2 months of age**** (CHKD standardized doses: 1.5, 2.5, 5, 7.5, 15, 30 mg)
Morphine	0.05 - 0.1 mg/kg/dose IV every 2 hrs or every 4 hrs PRN (caution in renal failure patients) Immediate release preparation: 0.2-0.5 mg/kg/dose PO every 4 hrs or every 6 hrs PRN Available forms at CHKD: 10 mg/5 mL oral solution, Immediate release tablets: 15, 30 mg Extended release tablets: 15, 30, 60 mg
Methadone	Initial: 0.1 mg/kg/dose IV/PO every 6 hrs Available forms at CHKD: 2 mg/mL elixir, 5 mg tablet. Methadone conversion is highly variable depending on the purpose of its use (i.e., chronic vs. acute pain treatment vs. prevention or treatment of withdrawal). Please consult pain service or pharmacy MED service for methadone dosing recommendation.
Nalbuphine (Nubain®)	Analgesia: 0.1 – 0.15 mg/kg/dose IM/IV/SQ every 6 hrs PRN Max: 20 mg/dose Pruritus: 0.02 – 0.05 mg/kg/dose IV/IM/SQ every 3 to 4 hrs PRN Max: 5 mg/dose
Naloxone (Narcan®)	Used for pruritus from epidural or IV PCA narcotics as IV continuous infusion at 0.25 - 2 mcg/kg/hr ****An order set is available at CHKD****

Oxycodone	Immediate release preparation: 0.05 – 0.15 mg/kg/dose PO every 4 hrs or every 6 hrs PRN. Extended release in adults; start with 10 mg every 12 hrs Initial adult dose (>50 kg) 5 mg/dose every 4 or every 6 hrs PRN Available forms at CHKD: Immediate release capsule in 5 mg and Extended release tablet in 10 mg
Oxycodone/ Acetaminophen (Percocet®)	Same dosing as oxycodone; Max: 10 mg/dose; 12 tablets/**day** Available forms at CHKD: Oxycodone 5 mg/Acetaminophen 325 mg (Percocet®) tablet
Tramadol (Ultram®)	1 – 2 mg/kg/dose PO every 4 to 6 hrs prn Adult dose: 50 – 100 mg PO every 4 to 6 hrs prn (maximum dose: 400mg)

Approximate Equianalgesic Doses

Narcotic Analgesic	Equianalgesic IV Dose	Equianalgesic PO Dose
Morphine	1 mg	3 mg
Fentanyl	0.01 mg (10 mcg)	N/A
Hydromorphone	0.1- 0.2 mg	0.75 mg
Codeine	N/A	20 mg
Hydrocodone	N/A	3 - 4.5 mg
Oxycodone	N/A	1.5 - 3 mg

*Methadone conversion is highly variable depending on the purpose of its use (i.e. chronic vs. acute pain treatment vs. withdrawal). Please consult pain service or pharmacy MED service for methadone dosing recommendation. **Consider initiating at ½ to ¾ of an equianalgesic dose when switching agents and titrate up as needed.**

SEDATIVES

Chloral hydrate	25 - 50 mg/kg/dose PO/PR every 6 hrs PRN Max: 1 gm/dose
Clonidine	1.5 - 5 mcg/kg/dose PO every 8 hrs in addition to opioid and/or benzodiazepine Available solution: 100 mcg/mL. Tablets: 0.1 mg Patches: 0.1, 0.2, 0.3 mg/day
Dexmedetomidine (Precedex®)	ED sedation protocol: a loading dose of 2 mcg/kg IV over 10 minutes, then 2 mcg/kg/hour. May repeat load up to 2 more times if needed.
Diazepam (Valium®)	0.12 - 0.8 mg/kg/**day** PO div every 6 hrs; long half-life with chronic dosing; may dose BID or TID. 0.04 - 0.3 mg/kg/dose IV every 2 to 6 hrs CHKD - oral soln: 1 mg/mL; tablets 2 mg, 5 mg
Etomidate	0.5 mg/kg/dose IV once for intubation
Ketamine	1 - 2 mg/kg/dose IV every 2 hrs PRN 2 - 4 mg/kg IM for procedural sedation
Lorazepam (Ativan®)	0.05 - 0.1 mg/kg/dose IV/PO every 6 hrs Max: 4 mg/dose
Midazolam (Versed®)	0.1 mg/kg/dose **IV** every 1 hr PRN Max: 5 mg/dose 0.25 - 0.5 mg/kg/dose **PO** Max: 20 mg/dose 0.2 - 0.3 mg/kg/dose **INTRANASAL** Max: 10 mg/dose
Pentobarbital	2 - 3 mg/kg/dose IV/IM (max: 100 mg/dose)

ANTIMICROBIALS

(VA Medicaid preferred agents: cefuroxime tab, cefdinir cap/susp, cefprozil susp)

Acyclovir	(Neonates and infants) 20 mg/kg/dose IV every 8 hrs (Adolescents) 10 mg/kg/dose every 8 hours (VZV) 500 mg/m²/dose IV every 8 hrs (HSV) 250 mg/m²/dose IV every 8 hrs Oral dosing: 750 mg/m²/dose PO every 12 hrs Suspension: 200 mg/5 mL; capsule: 200 mg; tablet: 200 mg, 400 mg
Amoxicillin	< 3 mos: 10 - 15 mg/kg/dose PO BID > 3 mos: 15 - 25 mg/kg/dose PO BID AOM: 40 - 45 mg/kg/dose PO BID (Max: 875 mg/dose) Available oral solution concentrations: 125 mg/5mL, 200 mg/5 mL, 250 mg/5 mL, 400 mg/5 mL

Amoxicillin/ Clavulanic Acid (Augmentin®)	15-20 mg/kg/dose (amoxicillin component) PO BID Multi drug resistant OM: 40 – 45 mg/kg/dose (amoxicillin component) PO BID (Max: 875 mg/dose) Available oral solution concentrations: 125 mg/5 mL, 200 mg/5 mL, 250 mg/5 mL, 400 mg/5 mL, 600 mg/5 mL. Tablet: 250 mg, 500 mg, 875 mg
Ampicillin	50 - 100 mg/kg/dose IV every 6 hrs Adult dose: 2 gm every 6 hrs Max: 14 gm/day
Azithromycin	10 mg/kg IV/PO on Day 1 5 mg/kg IV/PO every 24 hrs on Day 2 - 5 < 6 mos: 10 mg/kg IV/PO on Day 1 - 5 Adult dose: 500 mg on Day 1, then 250 mg on Day 2 - 5. Available oral solution concentration: 200 mg/5 mL. Tablet: 250 mg, 500 mg, 600 mg
Cefazolin	25 - 30 mg/kg/dose IV every 8 hrs Adult dose: 2 gm IV every 8 hrs
Cefdinir (Omnicef®)	> 6 mos: 14 mg/kg/**day** once daily or **divided** BID > 12 yo – adults: 600 mg PO once daily Dosage forms: capsule 300 mg, 125 mg/5mL, 250 mg/5mL
Cefotaxime	50 mg/kg/dose IV every 8 hrs Meningitis: 50 mg/kg/dose IV every 6 hrs Adult dose: 2 gm IV every 8 hrs
Cefoxitin	30 mg/kg/dose IV every 8 hrs Adult dose: 1 gm IV every 8 hrs Serious infection/peritonitis: 30 mg/kg/dose IV every 6 hrs Adult dose: 2 gm IV every 6 hrs
Cefprozil (Cefzil®)	15 mg/kg/dose PO every 12 hours; max: 1 gm/day Available oral solution concentrations: 125 mg/5mL; 250 mg/5mL
Ceftazidime*	**Restricted to ID/HemOnc/CF** 50 mg/kg/dose IV every 8 hrs Adult dose: 2 gm IV every 8 hrs
Ceftriaxone	50 mg/kg/dose IV every 24 hrs Adult dose: 2 gm every 24 hrs Adult meningitis: 2g IV every 12 hrs
Cefuroxime	50 mg/kg/dose IV every 8 hrs Adult dose: 1.5g IV every 8 hrs
Clindamycin	10 mg/kg/dose IV every 8 hrs Adult dose: 600 mg IV every 8 hrs Available oral solution concentration: 75 mg/5 mL
Doxycycline	2.1 mg/kg/dose IV/PO every 12 hrs Adult dose: 100 mg IV/PO every 12 hrs **Use with caution in children < 8 years of age** Available oral solution concentration: 25 mg/5 mL
Fluconazole (Diflucan®)	3 -12 mg/kg/dose IV/PO every 24 hrs Adult dose: 200 - 800 mg/day Available oral solution concentrations: 10 mg/mL, 40 mg/mL
Gentamicin	**NICU or preterm infants see page 37** Term infants < 1 mo: 2.5 mg/kg/dose IV every 8 hrs > 1 mo: 5 - 7.5 mg/kg/**day** IV every 24 hrs Max: 500 mg/**day (except cystic fibrosis patients)** Synergy dosing: 1 mg/kg/dose IV every 8 hrs CF: 10 mg/kg/dose IV every 24 hrs **MED Service to follow and order levels**
Meropenem	20 mg/kg/dose IV every 8 hrs Adult dose: 1 gm/dose IV every 8 hrs
Metronidazole (Flagyl®)	7.5 mg/kg/dose IV/PO every 6 hrs Adult dose: 500 mg/dose every 6 hrs (50 mg/mL compounded suspension available)
Oseltamivir (Tamiflu®)	< 3 mo: 12 mg PO every 12 hrs for 5 days 3 – 5 mo: 20 mg PO every 12 hrs for 5 days 6 – 11 mo: 25 mg PO every 12 hrs for 5 days > 12 mo and < 15 kg: 30 mg PO every 12 hrs for 5 days 15 – 23 kg: 45 mg PO every 12 hrs for 5 days 23 – 40 kg: 60 mg PO every 12 hrs for 5 days > 40kg: 75 mg PO every 12 hrs for 5 days Available oral solution concentrations: 6 mg/mL, 12 mg/mL ****ID consult required for patients < 6 months of age****

Oxacillin	50 mg/kg/dose IV every 6 hrs Adult dose: 2 gm IV every 6 hrs
Penicillin	250,000 - 400,000 units/kg/**day** IV **divided** every 6 hrs Adult dose: 12 - 24 million units/**day** IV **divided** every 4-6 hrs
Piperacillin/ Tazobactam (Zosyn®)	80 mg/kg/dose IV every 8 hrs Adult dose: 3 gm/dose IV every 8 hrs
Rifampin	S. aureus synergy: 10 mg/kg/dose IV/PO every 12 hrs Adult dose: 300 mg IV/PO every 12 hrs (60 mg/mL compounded suspension available)
Trimethoprim/ Sulfamethoxazole (TMP/SMX) (Bactrim/Septra®) (Cotrimoxazole)	3-6 mg TMP/kg/dose PO every 12 hrs for mild/ moderate infections Adult dose: TMP 160 mg/ SMX 800 mg PO every 12 hrs PCP/ Severe infections: 5 mg TMP/kg/dose IV every 6 hrs PCP Prophylaxis: 2.5 mg TMP/kg/dose PO twice daily, 3 times per week (See page 31) ****Not for routine use in patients < 2 months of age**** Available oral solution concentration: sulfamethoxazole 200 mg/trimethoprim 40 mg/5 mL Tablet sizes: single-strength: TMP 80 mg/SMX 400 mg, double-strength: TMP 160 mg/ SMX 800 mg
Tobramycin	Same dosing as Gentamicin
Vancomycin	15 mg/kg/dose IV every 8 hrs Meningitis/Ventriculitis: 15 mg/kg/dose IV every 6 hrs Adult dose: 1000 mg IV every 12 hrs **MED Service to follow and order levels**

*restricted by ID consult/MEDS consult

PID/CERVICITIS

Inpatients: Cefoxitin	2 gm IV every 6 hrs + Doxycycline 100 mg IV/PO every 12 hrs for 14 days
Outpatients: Ceftriaxone	250 mg IM once + Doxycycline 100 mg PO every 12 hrs for 14 days ± Metronidazole 500 mg PO every 12 hrs for 14 days
Cervicitis	Azithromycin 1000 mg PO once + Ceftriaxone 250 mg IM once

ELECTROLYTE REPLACEMENTS

Calcium Chloride	10 - 20 mg/kg/dose IV over 30 - 60 min Max: 2 gm/dose (for patients with central venous lines)
Calcium Gluconate	60 - 100 mg/kg/dose IV over 30 - 60 min Max: 4 gm/dose - may be given via peripheral IV
Magnesium Sulfate	25 - 50 mg/kg/dose IV over 2 hours for electrolyte replacement Max: 2 gm/dose
Potassium Chloride	0.5 - 1 mEq/kg/dose IV over 1 hour (with cardiac monitoring) Max: 20 mEq/dose. Usual starting oral replacement dose: 1 mEq/kg/dose PO one to four times a day (1 – 4 meq/kg/day). Potassium usually given as chloride salt but can use acetate salt depending on goal.
Potassium Phosphate	0.2 - 0.4 mmol/kg/dose IV over 4-8 hours (1 mmol KPhos = 1.47 mEq K+) Max: 15 mmol/dose
Sodium chloride 3% (Hypertonic soln = 513 mEq Na/L)	Infuse 4 – 6 ml/kg over 15 – 30 mins (delivers ~2 – 3 mEq/kg of Na) to rapidly treat **symptomatic** hyponatremia in the ICU or ED setting only!
Sodium Phosphate	0.2 - 0.4 mmol/kg/dose IV over 4-8 hours (1 mmol NaPhos = 1.33 mEq Na+) Max: 15 mmol/dose

Oral Electrolyte Replacement Chart

This serves only as a reference for initiating therapy!
Close monitoring and ongoing adjustment is warranted based upon patient's clinical status, change in nutrition and drug therapy

Electrolyte	Starting IV Dose Range (mEq/kg/day)	mEq = mg equivalence	Bioavailability	Commonly Used Oral Product(s)
Sodium (Na)	1-2	1 mEq = 58 mg (NaCl)	~100%	NaCl tabs: *1 gm (~17 meq Na) *(NaCl injection for oral use: *2.5 mEq/ml)*
Potassium (K)	1-2	1 mEq = 75 mg (KCl)	~100%	KCL solns: *20 mEq/15 ml & 40 mEq/15 ml KCL **ER** tabs: 8, 10, 15, 20 mEq KCL **ER** caps: 8 mEq,*10 mEq KCL powder (per packet): 20 mEq, 25 mEq
Calcium (Ca)	0.5	1 mEq = 20 mg (elemental Ca) 100 mg Ca Carbonate = 40 mg elemental Ca = 2 mEq	25-35% (up to 60% in infants)	Calcium Carbonate Chewtabs: 400 mg, 420 mg, *500 mg **[10 mEq]**, 600 mg, 650 mg, 750 mg, 850 mg, 1000 mg, 1250 mg, 1500 mg Calcium Carbonate Softchew(Rolaids®): 1177 mg [471 mg] Calcium Carbonate tab: 364 mg, *1250 mg **[25 mEq]**, 1500 mg Calcium Carbonate susp: *250 mg/ml [100 mg/ml; **5 mEq/ml**] Calcium glubionate syrup: *360 mg/ml [23 mg/ml; **1.15 mEq/ml**] Calcium gluconate tab: *500 mg [45 mg], 650 mg [58.5 mg], 975 mg [87.75 mg]
Magnesium (Mg)	0.25-0.5	1 mEq=12 mg (elemental Mg)	Up to 30%	Mg Oxide tabs: *400 mg **[20 mEq]**, 500 mg Mg Oxide caps: 140 mg, 600 mg Mg Gluconate tabs: *500 mg **[2.4 mEq]** Mg Gluconate soln: *200 mg/ml **[0.96 mEq/ml]**
Phosphate (PO4)	0.5-1.5 **mmol**/kg/day	1 mmol = 31 mg (elemental PO4)	1-20%	*Phos-Na K powder: **250 mg phos [8 mmol]** & 7.1 mEq K/Na each per packet *KPhos Neutral or Phospha 250 Neutral tabs: **250 mg phos [8 mmol]** & 13 mEq Na & 1.1 mEq K per tab *Fleet Phospho-soda: **128.5 mg phos [4.1 mmol]** & 1.9 mEq Na per mL
Bicarbonate (HCO3)	1-3	1 mEq = 84 mg (NaHCO3)	~100%	Na Bicarb tabs: 325 mg **[3.8 mEq]** & *650 mg **[7.6 mEq]** *(Na Bicarb injection for oral use: *1 mEq/ml)*

ER = Extended release
***CHKD Formulary Products**
[amount in unit] represents the amount of the elemental form of the ion
Underlined items represent the different strengths of Calcium Carbonate available under the Brand name of Tums®

Examples:

A) Magnesium Oxide Oral Replacement in a 25-kg patient:
0.25 mEq/kg/day elemental Magnesium x 25 kg = 6.25 mEq elemental Mg/day
Account for only 30% oral absorption: 6.25 mEq/0.3 = 20.8 mEq elemental Mg/day PO
Patient should receive Magnesium Oxide 400 mg tab (=20 mEq elemental Mg) PO daily

B) Potassium Chloride Oral Replacement in a 10-kg patient:
2 mEq/kg/day Potassium x 10 kg = 20 mEq Potassium/day (100% bioavailable)
Patient should receive Potassium Chloride 10 mEq cap PO bid or 10 mEq/7.5 ml liquid PO bid

ANTICONVULSANTS

Carbamazepine (Tegretol®)	Initial: 10 - 20 mg/kg/**day** PO **divided** every 6 -12 hrs depending on dosage form; titrate to response (trough 4 - 12 mcg/mL) (40 mg/mL compounded suspension available)
Ethosuximide (Zarontin®)	< 6 years: Initial: 15 mg/kg/**day** PO **divided** every 12 hrs (Max: 250 mg/dose) ≥ 6 years: Initial: 250 mg PO every 12 hrs
Levetiracetam (Keppra®)	Loading: 20 - 30 mg/kg/dose IV once Initial: 10 mg/kg/dose IV/PO every 12 hrs Maintenance: 10 - 30 mg/kg/dose IV/PO every 12 hrs. Available oral solution: 100 mg/mL
Lorazepam (Ativan®)	0.1 mg/kg/dose IV (for seizures > 5 mins) Max: 4 mg/dose; Repeat as needed every 10 - 15 min
Midazolam	0.1 - 0.3 mg/kg IM for status epilepticus when no IV access Max: 10 mg/dose
Oxcarbazepine (Trileptal®)	4-5 mg/kg/dose PO every 12 hours (initial starting dose); lower doses may be used when given in combination with other anticonvulsants. Adult dose 600 mg PO twice a day. Available oral solution: 300 mg/5 mL
Phenobarbital	Loading dose: 20 mg/kg/dose IV Maintenance: 5 - 10 mg/kg/**day divided** every 12 hrs IV/PO, begin 12 hours post-load (trough 15 – 40 mcg/mL) Available oral solution: 20 mg/5 mL
Phenytoin (Fosphenytoin PE)	Loading dose: 20 mg/kg/dose IV Maintenance: 5 - 10 mg/kg/**day divided** every 12 hrs IV/PO **Fosphenytoin is not available orally** (trough 10 – 20 mcg/mL, Free phenytoin trough 1 – 2 mcg/mL) Available oral phenytoin suspension: 125 mg/5 mL. Chewable tablet: 50 mg; extended release capsule: 100 mg
Valproic acid	Initial: 10 - 15 mg/kg/**day** PO **divided** every 8 – 24 hrs; maintenance: 30 - 60 mg/kg/**day divided** every 8 – 12 hrs depending on dosage form. (trough 50 - 100 mcg/mL) Available oral solution: 250 mg/5 mL

STATUS EPILEPTICUS

Start with lorazepam 0.1 mg/kg [maximum: 4 mg/dose] IV; may repeat lorazepam dose every 5-10 mins as needed to stop seizures. If no IV access, can use midazolam 0.1 - 0.3 mg/kg (Max: 10 mg/dose) IM

Load with phenytoin or fosphenytoin 20 mg/kg IV over 30 min (max of 1 mg/kg/min up to 50 mg/min for phenytoin). Check level 2 hours after loading dose to assure therapeutic concentration. (Usual therapeutic concentration: 10 - 20 mcg/mL)

Begin phenytoin/fosphenytoin maintenance dose 5 -10 mg/kg/**day** divided q12h beginning 6 - 8 hours after loading dose (max starting dose = 400 mg/**day**).

If still seizing after phenytoin load and concentration in upper end of range, consider phenobarbital load 20 mg/kg IV over 10 - 15 min (max 30 mg/min). (Usual therapeutic concentration: 20 - 40 mcg/mL)

Phenytoin and phenobarbital dosing guide to increase concentration – Blood concentration will rise approx. 1 mcg/mL for every 1 mg/kg mini-load that is given.

For refractory status epilepticus, consider loading with IV valproic acid 25 mg/kg at a rate of 2 to 3 mg/kg/min.

Midazolam infusion may also be used for refractory status epilepticus - load with 0.15 mg/kg IV then begin infusion of 0.1 mg/kg/hr; increase by 0.05 mcg/kg/hr every 15 min until seizures are controlled.

CARDIOVASCULAR/ANTIHYPERTENSIVE

Amlodipine (Norvasc®)	Initial: 0.05 mg/kg/dose PO once daily Adults: 2.5 - 5 mg/dose PO once or twice daily Available tablets: 2.5 mg, 5 mg & 10 mg
Captopril	Neonates: 0.05 – 0.1 mg/kg/dose PO every 6 – 12 hours Infants & Children: 0.2 - 0.5 mg/kg/dose PO every 6 - 12 hrs; *First Dose*: 0.1 mg/kg – monitor for hypotension Adults: 6.25 – 25 mg/dose PO BID-TID; Max: 6 mg/kg/**day** Tablets: 12.5 mg, 25 mg, 50 mg
Clonidine	5 - 25 **mcg**/kg/**day** PO **divided** every 8 hrs for hypertension Tablets: 0.1, 0.2 & 0.3 mg. Compounded solution: 0.1 mg/mL. Patches: 0.1, 0.2, 0.3 mg/day
Digoxin	Total digitalizing dose varies based on patient's age. Please refer to Lexicomp for dosing information. Maintenance: 5 -10 **mcg**/kg/**day** PO/IV **divided** BID Solution: 50 **mcg**/mL Tablet: 125, 250 **mcg**
Enalapril (Vasotec®)	Initial: 0.1 mg/kg/**day** PO **divided** every 12 – 24 hrs; Max 0.5 mg/kg/**day** up to 40 mg/**day** Adult: 10 – 40 mg/**day** PO q day or **divided** BID Compounded solution: 1 mg/mL. Tablets: 2.5, 5, 10 & 20 mg. [There also are extended release capsules in 30, 60 & 90 mg, but not on CHKD formulary]
Enalaprilat	Initial: 5 -10 **mcg**/kg/dose IV every 6 – 24 hrs Adult dose: 0.625 - 1.25 mg IV every 6 hrs
Hydralazine	0.1 - 0.2 mg/kg/dose every 1 - 2 hrs IV PRN hypertensive urgency (Renal consult required in non-ICU patients) Max: 20 mg/dose IV
Labetalol	0.2 mg/kg/dose IV every 1 – 2 hrs PRN hypertensive urgency Max: 20 mg/dose IV
Nifedipine	0.25 - 0.5 mg/kg/dose PO or NG/ND every 4 – 6 hrs PRN Max: 10 mg/dose Capsule: 10 mg; extended release tablet: 30, 60 & 90 mg
Propranolol	**PO:** 0.5 - 1 mg/kg/**day divided** every 6 -12 hrs Max: 8 mg/kg/**day** **IV:** 0.01 - 0.1 mg/kg/dose every 6 – 12 hrs Max: Infants - 1 mg/dose Children- 3 mg/dose Solution: 4 mg/mL & 8 mg/mL. Immediate release tablet: 10, 20, 40, 60 & 80 mg

ASTHMA/RESPIRATORY

Albuterol	Continuous aerosolized: 0.5 mg/kg/hour; increase by 0.25 mg/kg/hr as needed (max = 40 mg/hr) Intermittent nebulization: ≤20 kg: 2.5 mg, >20 kg: 5 mg
Dexamethasone	0.6 mg/kg/dose IV/PO for two doses given 24 hours apart (Max: 16 mg/dose)
Methylprednisolone	Load with 2 mg/kg IV then 0.5 mg/kg/dose IV every 6 hrs Max: 60 mg/dose every 12 hours
Prednisone/ Prednisolone	1-2 mg/kg/**day** PO **divided** every 12 – 24 hrs (Maximum for asthma: 60 mg/day) Tablets: 1, 2.5, 5, 10, & 20 mg Available solution: 15 mg/5 mL
Magnesium Sulfate	25 - 75 mg/kg/dose IV over 20 minutes Max: 2 gm/dose
Ipratroprium (Atrovent®)	0.5 mg INH every 6 - 8hrs x 24hrs (0.5 mg INH every 20 min X 3 doses in ED)
Racemic epinephrine	0.25 mL (infants and small children) to 0.5 mL (older children) of 2.25% in 2.5 mL saline nebulized (3 ml 1:1000 epinephrine ~ 0.25 ml of racemic epi)

Terbutaline	10 **mcg**/kg slow IV bolus (10 min); then 0.2 **mcg**/kg/min; may titrate by 0.1 **mcg**/kg/min every 30 min to 2 **mcg**/kg/min
Theophylline	Load with 5 mg/kg IV over 30 min; then begin continuous infusion (< 1 yr = 0.6 mg/kg/hr; 1 - 9 yr = 1 - 1.2 mg/kg/hr; 9 - 12 yr = 0.9 mg/kg/hr; >12 yr = 0.7 mg/kg/hr); theophylline level 4 hrs after infusion started (target 10 - 18 mcg/mL) 1 mg/kg bolus increases level ~2 mcg/mL

ACUTE ALLERGIC REACTIONS

Epinephrine	**(1:1000)** 0.01 mg/kg/dose **IM** (Max: 0.5 mg/dose)
Diphenhydramine	1 mg/kg/dose IV (Max: 50 mg/dose)
Methylprednisolone	2 mg/kg/dose IV (Max: 60 mg/dose)

DIURETICS

Acetazolamide (Diamox®)	5 mg/kg/dose IV/PO every 6 -12 hrs x 24 hrs Compounded solution: 50 mg/mL Tablets: 125 & 250 mg
Chlorothiazide (Diuril®)	< 6 mo: 10 - 20 mg/kg/dose PO every 12 hrs > 6 mo: 10 mg/kg/dose PO every 12 hrs Suspension: 250 mg/5 mL Tablets: 250 & 500 mg
Bumetanide (Bumex®)	0.01 - 0.05 mg/kg/dose IV/PO (0.025 mg/kg equiv to 1 mg/kg Lasix); continuous infusion: 0.05 mg/kg/hr titrated to effect
Furosemide (Lasix®)	1 mg/kg/dose (Initial Adult dose: 20 mg) (PO bioavailability ~60% of IV) Continuous infusion: 0.05-0.4 mg/kg/hr titrated to effect Solution: 10 mg/mL Tablet: 20, 40 & 80 mg
Metolazone (Zaroxyln®)	0.1 – 0.2 mg/kg/dose PO q12 hrs Adults (>40 kg) 5-10 mg/**day** Tablets: 2.5, 5 & 10 mg
Spironolactone (Aldactone®)	1 - 3 mg/kg/**day** PO **divided** every 12 hrs
Lasix/Diuril Infusion	Lasix 1 mg/mL and Diuril 5 mg/mL; begin continuous infusion at 0.1 mg/kg/hr of Lasix component and titrate to effect; max 0.4 mg/kg/hr of Lasix

GI/METABOLIC

Docusate (Colace®)	5 mg/kg/**day** PO **divided** every 12 – 24 hrs Solution: 10 mg/mL Capsule: 50 & 100 mg
Erythromycin (for GI motility)	15 - 20 mg/kg/**day** PO **divided** every 6 – 8 hrs ethylsuccinate: 200 mg/5 mL or 400 mg/5 mL; estolate: 250 mg/5 mL
Esomeprazole (Nexium®)	<10 kg: 0.5 – 1 mg/kg/**day** IV/PO, may increase dosing to twice a day 10 - 20 kg: 10 mg, may increase dosing to twice a day up to 10 mg/dose > 20 kg: 1 mg/kg/**day** IV/PO Max: 80 mg divided BID Suspension: 10 & 20 mg packets Capsule: 20, 40 mg
Famotidine (Pepcid®)	0.5 mg/kg/**dose** IV every 12 hrs **Adult** dose: 20 mg/dose IV BID Solution: 10 mg/mL Tablet: 20 mg (Use Ranitidine as oral agent at CHKD)
Gastrografin/ Normal Saline/ Mineral oil (PoleyBomb)	15 mL/kg rectally Max: 1000 mL Must order as follows: Gastrografin/NS/Mineral oil 1:1:1 # of mL
Lactulose	For constipation, 1 -3 mL/kg/**day** divided every 8-12 hrs. Max 60 mL/**day** Solution: 10 g/15 mL
Metoclopramide (Reglan®)	0.1 mg/kg/dose IV/PO every 6 hrs Max: 10 mg/dose Solution: 5 mg/mL; Syrup: 5 mg/5 mL Tablets: 5 & 10 mg
Omeprazole (Prilosec®)	**Restricted to kids < 10 kg at CHKD** 0.5 – 1 mg/kg/dose PO, daily or every 12 hrs Pre-term infants: 0.7 mg/kg/**day** Solution: 2 mg/mL

Ondansetron (Zofran®)	0.15 mg/kg/dose IV/PO every 8 hrs PRN Max: 8 mg/dose Liquid: 0.8 mg/mL; Solution: 2 mg/mL Tablet: 4, 8 mg Disintegrating tablet: 4 mg
Polyethylene glycol with electrolytes (Miralax®)	1 gm/kg/**day** PO, may increase to twice a day (CHKD standardized doses: 2.12, 4.25, 8.5, 17gm)
Promethazine (Phenergan®)	0.25 - 0.5 mg/kg/dose IV/IM/PO every 6 hrs PRN (do not exceed 6.25 mg/dose IV if given peripherally) **Contraindicated in children <2 yo** Elixir: 6.25 mg/5 mL Tablet: 25 mg Suppository: 12.5 or 25 mg
Ranitidine (Zantac®)	4 - 10 mg/kg/**day** PO **divided** every 8-12 hrs Adult dose: 150 mg BID Solution: 25 mg/mL Syrup: 15 mg/mL Tablet: 150 mg
Senna+Docusate (Peri-colace®)	Children 2 to <6 yrs: 0.5 tablet PO daily at bedtime Children 6 to <12 yrs: 1 tablet daily at bedtime ≥12 yrs: 2 tablets daily at bedtime Max <12 yr: 1 tablet twice a day Max ≥12 yr: 2 tablets twice a day
Ursodiol (Actigall®)	30 mg/kg/**day** PO **divided** every 8-12 hrs Adult dose: 300 mg PO BID Solution: 60 mg/mL Capsule: 300 mg

STEROIDS (Standard Doses)

Dexamethasone (Decadron®)	0.6 mg/kg/dose IV/PO x1 dose for croup 0.25 - 0.5 mg/kg/dose IV every 6 hrs for extubation (not to exceed 24 hours unless per attending) max: 15 mg/dose Increased ICP: 0.5 -1 mg/kg/dose IV q6h – Adult dose 4 - 10 mg/dose q6h Solution: 10 mg/mL or 1 mg/mL Tablet: 0.5, 0.75, 1 & 4 mg
Hydrocortisone	Stress dose: 50 mg/m²/**day** IV **divided** every 6 hrs or 1 mg/kg/dose IV every 6 hrs May also use 2 – 4 times home dose for stress dosing. Adult stress dose: 100 mg
Methylprednisolone	2 mg/kg/**day** IV **divided** every 6-12 hrs; usual max 60 mg/dose every 12 hours Spinal cord injury: 30 mg/kg IV over 15 min followed by 5.4 mg/kg/hr infusion x 23 hours
Prednisone/ Prednisolone	1-2 mg/kg/**day** PO **divided** every 12-24 hrs Usual adult max 60 mg/day Tablets: 1, 2.5, 5, 10, 20 mg Available solution: 15 mg/5 mL

TOXICOLOGY/REVERSAL AGENTS

Acetylcysteine	**Acetaminophen poisoning** – use in conjunction with Rumack-Matthew nomogram **NG dosing:** 140 mg/kg loading dose followed by 70 mg/kg every 4 hrs x 17 doses **IV dosing** (Acetadote®): Loading dose = 150 mg/kg over 15 min, maintenance dose = 50 mg/kg over 4 hours then 100 mg/kg over 16 hours as continuous infusion
Activated Charcoal	1 - 2 gm/kg NG/PO (avoid repeat doses of charcoal with sorbitol)
Albuterol	**Hyperkalemia:** albuterol 5 mg nebulized
Flumazenil	**Benzodiazepine reversal** (*contraindicated* with history of seizures) 0.01 mg/kg/dose IV; lasts less < 1 hr Max: 0.2 mg/dose, may repeat every 1 min, up to 1 mg PRN
Glucagon	**Hypoglycemia secondary to insulin excess** 0.02 mg/kg IV/IM/SQ Max: 1 mg; may repeat every 20 min **Beta-blocker overdose** Child: 0.025 - 0.05 mg/kg IV bolus followed by 0.07 mg/kg/hr infusion Adolescent: 2 - 3 mg IV followed by 5 mg/hr infusion

Insulin, Regular + glucose	**Hyperkalemia:** 0.5 gm/kg glucose + 0.1 unit/kg insulin; infuse over 30 - 60 min
Kayexalate	1 gm/kg/dose PO; 1.5 - 2 gm/kg/dose PR mixed with 20% Sorbitol
Naloxone (Narcan®)	Respiratory depression: 0.001 - 0.01 mg/kg/dose IV (1-10 **mcg**/kg/dose), may repeat every 2 - 3 min PRN Max: 0.4 mg/dose. Titration of small (1-2 **mcg**/kg) doses limits risk of acute pain/stress Rapid, full reversal of narcotic overdose: 0.1 mg/kg/dose IV, may repeat every 2 – 3 min PRN Max: 2 mg/dose

MISCELLANEOUS MEDICATIONS

Albumin	4 mL/kg (1 gm/kg) of 25% solution; round to 50 mL increments if possible
Aspirin	5 mg/kg/dose PO/PR q24h (CHKD standardized doses: 20.25, 40.5, 81 mg)
Glycopryrrolate	4 - 10 mcg/kg/dose IV q6h 40 - 100 mcg/kg/dose PO q6h Solution: 2 mg/4 mL
Haloperidol	0.05 - 0.15 mg/kg/**day** IV/IM/PO **divided** q6 - 8 hr (see algorithm for acute behavior management, page 34-35)
Hydroxyzine	0.5- 1 mg/kg/dose PO/IM* q4-6 hr prn (adult dose: 50mg/dose) ***Has been administered slow IV push** Syrup 10 mg/5 mL; Tablet 10 mg, 25 mg
Iron Supplementation	3 - 6 mg/kg/**day** PO elemental iron **divided** q8 - 24h
Insulin (regular)	0.05 - 0.1 unit/kg SQ; begin IV infusion at 0.1 unit/kg/h
THAM	3 - 4 mL/kg/dose IV (~1 mmol/kg/dose) 3 mL = 0.9 mmol THAM; requires renal function
Vasopressin **(for DI):**	Begin infusion at 0.5 milliU/kg/**hr** – increase by 0.5 milliU/kg/hr every 5-10 min until UOP < 2 mL/kg/hr

BLOOD PRODUCTS **Blood Bank phone number: (757) 668-7255**

Cyroprecipitate 1 unit = 15 mL	Dose = (desired increase in fibrinogen level (mg/dL) x patient's plasma volume)/250 mg/unit for fibrinogen
FFP 1 PediFFP unit = 50 mL	10 mL/kg (do not infuse rapidly – may decrease ionized calcium concentration)
PRBCs 1 PediSplit unit = 80 mL	10 -15 mL/kg (in infants & children 10 mL/kg raises hgb by ~3 g% and hct by ~9%)
Platelets <10 kg one-half pheresis unit >10 kg one pheresis unit One pheresis unit ~ 6-10 single donor units	Patients less than 2 yo: 10 mL/ kg body weight Patients greater than 2 yo: 1 unit / 10 kg body weight (1 random donor unit/5 kg raises platelets by ~50,000/mm^3)

CONVERTING WEIGHT (POUNDS) TO BODY SURFACE AREA (M^2)

[assumes normal proportion of length to weight]

Weight (pounds)	BSA (m^2)
3	0.1
6	0.2
12	0.3
18	0.4
24	0.5
30	0.6
36	0.7
42	0.8
48	0.9
60	1.0
70	1.1
80	1.2
90	1.3
100	1.4

CHKD Hematology-Oncology Medications Dosing Guide

CHKD Hem/Onc Clinical Pharmacist: Cisco phone 8-8058, Simon 2861

Anti-infectives

Acyclovir	250 mg/m²/dose IV q8h (HSV in immunocompromised host) 500 mg/m²/dose IV q8h (VZV in immunocompromised host) 250 mg/m²/dose IV q12h for prophylaxis post-BMT Suspension: 200 mg/5 mL Capsule: 200 mg Tablet: 400 & 800 mg
Liposomal Amphotericin B (Ambisome®)	3 mg/kg/dose IV q24h (empiric therapy) 5 mg/kg/dose IV q24h (documented infection) *round to nearest 50 mg vial size*
Azithromycin (Zithromax®)	10 mg/kg/dose PO/IV x1 on day 1 then 5 mg/kg/dose PO/IV daily on day 2-5 (adult dose: 500 mg PO x 1 on day 1 then 250 mg PO daily on day 2-5)
Trimethoprim/ Sulfamethoxazole (TMP/ SMX) (Bactrim/ Septra®) (Cotrimoxazole)	PCP prophylaxis -->Refer to page 31 Infections -->Refer to page 12
Caspofungin (Cancidas®)	70 mg/m²/dose IV on day 1, then 50 mg/m²/dose IV daily (adult dose: 70 mg IV x 1 on day 1, then 50 mg IV daily)
Cefepime (Maxipime®)	50 mg/kg/dose IV q8h (adult dose: 2 gm/dose)
Cefotaxime (Claforan®)	50 mg/kg/dose IV q8h (adult dose: 2 gm/dose)
Ceftriaxone (Rocephin®)	50 mg/kg/dose IV q24h (adult dose: 2 gm/dose)
Clindamycin (Cleocin®)	10 mg/kg/dose IV q8h (adult dose: 600 mg/dose)
Fluconazole (Diflucan®)	5 mg/kg/dose (max: 200 mg/dose) PO/IV qday for prophylaxis; 6-12 mg/kg/dose IV/PO qday for systemic candidiasis
Gentamicin/ Tobramycin	10 mg/kg/dose IV q24h (Dose based on dosing body weight if patient is obese) **MED Service to follow and order levels**
Levofloxacin (Levaquin®)	6 mos-5 years 10 mg/kg/dose IV/PO q12h; >5 years 10 mg/kg/dose IV/PO every 24 hours
Linezolid (Zyvox®)	10 mg/kg/dose IV/PO q8h (pt ≥ 12yo: 600 mg IV/PO q12h)
Meropenem (Merrem®)	20 mg/kg/dose IV q8h (adult 1 g IV q8h; severe infection: 2 g IV q8h)
Metronidazole (Flagyl®)	7.5 mg/kg/dose IV/PO q6h (adult dose: 500 mg/ dose)
Oxacillin	50 mg/kg/dose IV q6h (adult dose: 2 gm/dose)
PenicillinVK	For pneumococcal prophylaxis <2 mos: 62.5 mg PO BID; 2 mos-3 yo: 125 mg PO BID; >3 yo: 250 mg PO BID; pt>50 kg: 500 mg PO BID *Suspension: 125 mg/5 mL, 250 mg/5 mL;* *Tablet: 250 mg, 500 mg*
Vancomycin	15 mg/kg/dose IV q8h (pt ≥45 kg: 1 gm IV q12h) **MED Service to follow and order levels**
Voriconazole (Vfend®)	8 mg/kg/dose (adult dose 200 mg) IV/PO q12h. **Avoid IV formulation in patients with renal insufficiency.**

Oral antibiotics

(VA Medicaid preferred agents: cefuroxime tab, cefdinir cap/susp, cefprozil susp)

Cefuroxime (Ceftin®)	15 mg/kg/dose PO q12h (adult dose: 250-500 mg PO q12h) *Suspension: **125 mg/5 mL**, 250 mg/5 mL; Oral tablet: **250 mg**, 500 mg*
Cefdinir (Omnicef®)	14 mg/kg/dose PO daily or 7 mg/kg/dose PO q12h (max: 600 mg/day) *Suspension: **125 mg/5 mL**, 250 mg/5 mL; Oral capsule: 300 mg*
Cefixime (Suprax®)	8 mg/kg/dose PO daily or 4 mg/kg/dose PO q12h (max: 400 mg/day) *Suspension: **100 mg/5 mL**, 200 mg/5 mL; Oral tablet: 400 mg*

Cefprozil (Cefzil®)	15 mg/kg/dose PO q12h (adult dose: 250-500 mg PO q12h) Oral susp: 125 mg/5 mL, ***250 mg/5 mL***; Oral tablet: 250 mg, 500 mg

Anti-emetics

Aprepitant (Emend®)	125 mg PO 1 hr prior to chemo on day 1, 80 mg PO once prior to chemo on days 2 and 3 combined w/scheduled 5HT-3 antagonist (eg, ondansetron) & steroid in pts ≥12 yo & ≥40 kg
Dexamethasone (Decadron®)	10 mg/m²/dose IV/PO prior to chemo (max: 10 mg/dose) Delayed emesis: 8 mg IV/PO q12h x 2 days then 4 mg IV/PO q12h x 2 days in combination w/ scheduled 5HT-3 antagonist (eg, ondansetron) in adult-size patients
Diphenhydramine (Benadryl®)	1 mg/kg/dose PO/IV q6h prn (max: 50 mg/dose)
Dronabinol (Marinol®)	5 mg/m²/dose PO q4h or q6h prn (dose in 2.5 mg increments)
Granisetron (Kytril®)	10 - 20 mcg/kg/dose IV BID (adult dose: 1 mg IV BID)
Lorazepam (Ativan®)	0.02-0.04 mg/kg/dose IV q6h prn for nausea/vomiting (max: 2 mg/dose)
Ondansetron (Zofran®)	0.15 mg/kg/dose IV q8h scheduled/prn (max: 8 mg/dose) or 0.45 mg/kg/dose IV q24h prior to chemotherapy (max = 24 mg/dose)
Prochlorperazine (Compazine®)	0.1-0.15 mg/kg/dose IV q8h prn (max: 10 mg/dose; 40 mg/day)
Promethazine (Phenergan®)	0.25-1 mg/kg/dose IV/PR/PO q4h or q6h prn (max: 25 mg/dose) (avoid in children<2 yo; max dose: 6.25 mg if given via peripheral IV)

GI Agents

Bisacodyl (Dulcolax®)	3-12 yo: 5 mg PO BID; >12yo: 10 mg PO BID
Docusate (Colace®)	2.5 mg/kg/dose PO BID (max: 400 mg/day); round to nearest 50-mg cap size or use liquid
Lactulose (Chronulac®)	For constipation, 1-3 mL/kg/**day** divided every 8-12 hrs. Max 60 mL/**day** Solution: 10 g/15 mL
Magnesium Citrate	<6yo: 2-4 mL/kg; 6-12 yo: 100-150 mL; >12yo: 150-300 mL PO q6h until stooling
Polyethylene glycol (Miralax®)	8.5-17 gm PO daily or BID
Senna/Docusate (Peri-Colace®)	<6yo: 0.5 tab PO BID; 6-12 yo: 1 tab PO BID; >12yo: 2 tabs PO BID
Senna	<2yo: 1.25 mL PO BID; 2-6yo: 2.5 mL BID; 6-12yo: 5 mL PO BID; >12yo: 10 mL BID
Famotidine (Pepcid®)	0.5 mg/kg/dose IV q12h (adult: 20 mg/dose)
Ranitidine (Zantac®)	2-3 mg/kg/dose PO BID (adult: 150 mg/dose)
Esomeprazole (Nexium®)	<10 kg: 0.5-1 mg/kg/dose IV daily or BID; 10-20 kg: 10 mg PO/IV daily or BID >20-30 kg: 20 mg PO/IV daily or BID; ≥30 kg: 40 mg PO/IV daily or BID
Omeprazole (Prilosec®)	**Restricted to kids < 10 kg at CHKD:** 0.5-1 mg/kg/dose PO daily or BID

Pain Management

Acetaminophen	10-15 mg/kg/dose PO q4h or q6h prn (adult: 650 mg/dose; Max: 4 g/day)
Acetaminophen/ Codeine	0.5-1 mg/kg/dose codeine or 0.2-0.4 mL/kg/dose PO q4h or q6h prn/scheduled *Oral liquid: 12 mg codeine/120 mg acetaminophen per 5 mL* *Oral tablet: 30 mg codeine/300 mg acetaminophen (Tylenol No. 3 tab) 15 mg codeine/300 mg acetaminophen (Tylenol No. 2 tab)*
Fentanyl	0.5-1 **mcg**/kg/dose IV q1h prn

Hydrocodone/ Acetaminophen (Lortab®)	0.2 mg/kg/dose hydrocodone PO q4h prn (max: 10 mg/dose) *Oral elixir: 2.5 mg hydrocodone/167 mg acetaminophen per 5 mL* *Oral tablet: 5 mg hydrocodone/500 mg acetaminophen (Lortab 5/500)*
Hydromorphone (Dilaudid®)	0.015 mg/kg/dose IV q4h prn (adult: 0.2-0.6 mg IV q4h prn) 0.03-0.08 mg/kg/dose PO q4h prn
Ibuprofen (Motrin®/Advil®)	10 mg/kg/dose PO q6h scheduled/prn (max: 800 mg/dose; 3200 mg/**day**)
Ketorolac (Toradol®)	0.5 mg/kg/dose IV q6h scheduled/prn (max: 30 mg/dose); do not exceed 5 days
Morphine	0.05-0.1 mg/kg/dose IV q2h or q4h prn (adult: 2.5-10 mg/dose)
Morphine Immediate Release	0.2-0.5 mg/kg/dose PO q4h prn (adult: 10-30 mg PO q4h prn)
MS Contin Controlled Release	24-h PCA total morphine x 3 divided in 2-3 doses scheduled (dose in 15-mg increments)
Nalbuphine (Nubain®)	*Analgesia:* 0.1-0.15 mg/kg/dose IV/SQ/IM q6h prn (max: 20 mg/dose) *Pruritus:* 0.05 mg/kg/dose IV/IM/SQ q4h prn (max: 5 mg/dose)
Naloxone (Narcan®)	*Pruritus from PCA:* 0.25-2 **mcg**/kg/hr IV as continuous infusion
Oxycodone/APAP (Percocet®)	0.05-0.15 mg/kg/dose oxycodone PO q4h or q6h prn/scheduled (max: 10 mg/dose) *Oral tablet: 5 mg oxycodone/325 mg acetaminophen (Percocet 5/325)*

Miscellaneous

Allopurinol (Zyloprim®)	≤10 yo: 10 mg/kg/**day** or 200-300 mg/m²/**day PO** in 2-3 divided doses >10 yo: 600-800 mg/**day PO** in 2-3 divided doses (max: 800 mg/**day**)
Folic Acid	1 mg PO daily
Magic Mouthwash	(Benadryl: Maalox: Viscous lidocaine 1:1:1) 3-5 mL swish/spit or swallow q6h prn
Peridex® Mouthwash	10-15 mL swish/spit tid
Caphosol	Mix blue and white ampules together. Give 15mL (1/2 dose) swish x 1 minute then spit. Repeat with remaining 15mL
Rasburicase (Elitek®)	0.15 mg/kg IV once (max: 6 mg/dose) may repeat after 12 hours if necessary

Electrolyte Supplements

Magnesium dosing: [IV daily requirement (mEq) x 3.3] / 20 mEq = # Magnesium Oxide tabs per day (in 2-3 divided doses)

- ✓ **Mg Oxide tablet:** 20 mEq Mg/400 mg tab
- ✓ **Mg Gluconate solution:** 0.96 mEq Mg/mL

Phosphorous dosing:[IV daily requirement (mmol) x 5]/ 8 mmol = # Phos-Na K powder packets per day (in 2-3 divided doses)

- ✓ **Phos-Na K powder:** 250 mg Phos (8 mmol), 7.1 mEq K, 7.1 mEq Na per packet
- ✓ **KPhos Neutral or Phospha 250 Neutral tablet:** 250 mg Phos (8 mmol), 1.1 mEq K, 13 mEq Na per tablet

Bactrim® Dosing Chart for PCP Prophylaxis

(Dose to be given BID on Friday, Saturday and Sunday each week)

Weight (kg)	Dosing range (mg/kg/dose)	Dose (mg)	Liquid (mL)	SS Tabs	DS Tabs
< 8	> 2.5	20	2.5	–	–
8 – 11	2.5 – 3.5	28	3.5	–	–
12 – 17	2.4 – 3.3	40	5	0.5	–
18 – 24	2.5 – 3.3	60	7.5	–	–
25 – 34	2.4 – 3.2	80	10	1	0.5
35 – 50	2.4 – 3.4	120	15	1.5	–
> 50	< 3.2	160	20	2*	1

*Bactrim DS® tablets are oblong-shaped, large and can be difficult to swallow for some patients. Consider using Bactrim SS® x 2 in place of DS® tab in these patients to improve compliance!

INFANT FORMULAS

	Term Formulas Milk-Protein Based		Soy-Based		Protein Hydrolysate & Amino Acid			
	Enfamil Lipil w/ Iron	Similac Advance Early Shield w/ Iron	Similac Isomil Advance	Enfamil ProSobee	Pregestimil	Alimentum	Nutramigen	Neocate
Availbility	Ready to Feed (RTF), Powder(Pwd), & concentrate(C)				RTF and pwd		Pwd	
Calorie/oz	20	20	20	20	20	20	20	20
Kcal/cc	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Protein g/dl	1.42	1.4	1.7	1.7	1.9	1.9	1.9	2
Source	Whey & Nonfat Milk	Nonfat Milk & Whey Protein Concentrate	Soy Protein w/ L-methionine	Soy Protein w/ L-methionine	Casein Hydrolysate & Amino Acids	Casein Hydrolysate & Amino Acids	Casein Hydrolysate & Amino Acids	L-Amino Acids
CHO (g/dl)	7.4	7.6	7	7.2	6.9	6.9	7.4	7.8
Source	Lactose	Lactose GOS (Prebiotic)	Corn Syrup & Sucrose	Corn Syrup Solids	Corn Syrup Solids & Corn Starch	Sucrose & Modified Tapioca Starch	Corn Syrup Solids & Corn Starch	Corn Syrup Solids
Fat (g/dL)	3.65	3.65	3.7	3.6	3.8	3.7	3.4	3
Source	Palm, Olein, Soy, Coconut, High Oleic Sunflower Oils	High-Oleic Safflower, Coconut & Soy Oils	High Oleic Safflower, Coconut & Soy Oils	Palm Olein, Soy, Coconut, High-Oleic Sunflower Oils	MCT (55%), Soy, Corn, High Oleic Oils	MCT (33%), Safflower & Soy Oils	Palm, Olein, Soy, Coconut, High Oleic Sunflower Oils	Hybrid Safflower, Refined Vegetable Oil (Coconut, Soy)
mOsm/Kg H2O	300	300	200	200	280-340	370	320	375
Uses/ Features	Standard infant formula. Lipil and Similac Advance contain added DHA and ARA.		Milk-free, lactose-free infant formula		Hypoallergenic formula with MCT Oil		Hypoallergenic formulas for infants sensitive to intact proteins of milk.	Elemental infant formula with 100% free amino acids

Also available: Enfamil LactoFree Lipil, Similac Sensitive w/ Iron, Portagen, Monogen, Similac PM 60/40 (renal)

PEDIATRIC/ADOLESCENT FORMULAS

Standard Formula 1-10 yrs		Standard Formula > 10 yrs		Protein Hydrolysates		Elemental Formula > 10 yrs		Oral Supplements > 10 yrs	
	Pediasure (w/ & w/out Fiber)	Jevity® 1 cal (1.2 cal)	Nutren 1.5 (Nutren 2.0)	Pediasure Peptide	Peptamen Jr.	EleCare Jr.	Vivonex RTF	Carnation Inst. Breakfast	Resource Fruit Beverage
Availbility	8 oz can	8 oz can	250mL can	8 oz can	250mL can	Powder	250mL can	250mL can	8 oz carton
Calorie/oz	30 / 45	30 (36)	45 (60)	30 / 45	30	30	30	30	32
Kcal/cc	1 / 1.5	1 (1.2)	1.5 (2)	1 / 1.5	1	1	1	1	1.06
Protein g/L	30 / 59	44.3 (55.5)	60 (80)	30 / 45.1	40	30	50	35	38
Protein Source	Whey Protein	Sodium and Calcium Caseinate	Ca & K Caseinate	Whey Protein	Whey Protein	Free Amino Acids	Free Amino Acids	Calcium Caseinate	Whey Protein
CHO Source	Maltodextrin, sucrose	Maltodextrin	Maltodextrin, Corn Syrup	Corn Maltodextrin, Sucrose	Maltodextrin	Corn syrup	Maltodextrin	Corn Syrup	Sugar, Corn Syrup
Fat Source	Safflower & Soy Oil, 15% MCT oil	Safflower & Canola Oil, 19% MCT oil	Canola Oil, 50% MCT (75% MCT for Nutren 2.0)	Structured Lipids (Interesterified Canola and MCT) 50% MCT	Soybean Oil, 70% MCT Oil	Safflower Oil, 33% MCT Oil	Soybean Oil, 40% MCT Oil	Canola Oil, Corn Oil	None added
mOsm/Kg H2O	480	300 (450)	430-510 (745)	390	270	596	630	480-490	700
Uses/Features	For children 1 to 10 yrs	For children 10 yrs-adult		Semi-elemental for 1-13 yr old with malabsorption	Elemental for GI impaired children 10 yrs -adult	Elemental for GI impaired children 1-10 yrs	Very low fat elemental tube feed formula designed for GI impaired children 10 y/o-adult		Like fruit juice with added protein and vitamins.

Also available: Perative, Suplena (renal), Nepro (renal), Portagen

Pharmacologic Management of Anxiety and/or Violent/Aggressive Behavior of Pediatric Patients

Agitated or Hostile Behavior

1 Behavioral Interventions

Poor Response AND Extreme Physical Aggression → **4 Neuroleptic**

Poor Response

2 Antihistamine

Diphenhydramine (Benadryl)

Dose	1 mg / kg / dose		
Route	PO	IM	IV
Repeat	q 30 min x 2	q 30 min x 2	q 10 min x 2
Max	50 mg / dose		
Caution	Avoid Antihistamine if Delirium Suspected		

Poor Response

3 Benzodiazepine

Lorazepam (Ativan)

Dose	0.05 to 0.1 mg / kg / dose		
Route	PO	IM	IV *
Repeat	q 30 min x 2	q 15 min x 2	q 5 min x 2
Max	2 mg / dose		
Caution	**If >** 0.3 mg / kg **or** **If >** 6 mg in 1 hour **Use Monitored Bed**		

* IV Route Associated with Respiratory Depression

Poor Response

4 Neuroleptic

(Choose One)

Haloperidol (Haldol) **OR** **Olanzapine (Zyprexa)**

Dose	0.025 to 0.075 mg / kg / dose			Dose	For < 12 y/o: 5 mg / dose For > 12 y/o: 10 mg / dose	
Route	PO	IM	IV **	Route	PO	IM
Repeat	q 5 min x 2			Repeat	q 30 min x 2	q 15 min x 2
Max	5 mg / dose			Max	20 mg / dose	
Caution	**If >** 0.2 mg / kg **or** **If >** 10 mg in 1 hour **Use Monitored Bed**			Caution	**If <** 12 y/o & Total Doses > 5mg **or** **If >** 12 y/o & Total Doses >10mg **Use Monitored Bed**	

IV Route Increases Risk of QT Prolongation **Use Monitored Bed

Poor Response

5 Combination of Benzodiazepine AND Neuroleptic

Dose	0.05 mg / kg **Lorazepam**	+	0.05 mg / kg **Haloperidol**
Route	IM (Can Administer Lorazepam & Haloperidol in Same Syringe)		IM
Max	2 mg / dose		5 mg / dose

References:
1 Use of Chemical & Physical Restraints in the Pediatric Emergency Dept, Pediatric Emergency Care, Vol 16(5), 2000
2 Chemical Restraints for the Agitated, Violent or Psychotic Patient in the Pediatric Emergency Dept, Pediatric Emergency Care, Vol16 (2), 2004
3 Review of Benzodiazepine Use in Children and Adolescents, Psychiatric Quarterly, Vol 76(3), 2005
4 Prehospital Evaluation and Management of Violent or Agitated Children, Clinical Pediatric Emergency Medicine, Vol 8, 2007
5 Harriet Lane Handbook, 17th Ed, 2005
6 Agitation Treatment for Pediatric Emergency Patients, J Am Academy Child & Adolescent Psychiatry Vol 47(2), 2008

Version 06.01.12

CHKD Neonatal Medications and Dosing Guidelines

CHKD NICU Clinical Pharmacist: Cisco phone
Red Team: 8-8002, Blue Team: 8-5491

Antibiotics/Antivirals/Antifungals/Immune Globulin

Acyclovir IV

Preterm Neonate ≤ 33 weeks:	20 mg/kg/dose IV q12hr
Neonate ≥ 34 weeks:	20 mg/kg/dose IV q8hr
Dosing Adjustment in Renal Impairment:	
SCr = 0.8 – 1.1	20 mg/kg/dose IV q12hr
SCr = 1.2 - 1.5	20 mg/kg/dose IV q24hr

SCr> 1.5 or urine output < 1ml/kg/hr (oliguria): 10 mg/kg/dose IV q24hr

Amikacin IV: Infuse over 30 mins. (Base dose on actual weight in neonates)

0-4 weeks,	**<1200gm:**	7.5 mg/kg/dose q24hr
Postnatal age ≤ 7 days:	**1200-2000gm:**	7.5 mg/kg/dose q12hr
	>2000 gm:	10 mg/kg/dose q12hr
Postnatal age > 7 days:	**1200-2000gm:**	7.5 mg/kg/dose q12hr
	>2000gm:	10 mg/kg/dose q8hr

Amoxicillin **(for UTI prophylaxis)** PO only
10-15 mg/kg/dose q24hr
If NPO, use Ampicillin 50 mg/kg/dose IV qPM

Amphotericin B **(over 4 hr per NICU protocol)** 1 mg/kg IV q24hr
Extend interval to q48hr with renal dysfunction. Needs a separate line/ port if infusing w/ TPN & fats. With 1 line: Run TPN over 20hrs, check blood sugars while off TPN during Ampho infusion.

Ampicillin IV, IM

Postnatal age: ≤ 7 days OR < 1200gm	100 mg/kg/dose q12hr
> 7 days & 1200-2000gm	100 mg/kg/dose q8hr
> 7 days & > 2000gm	100 mg/kg/dose q6hr
UTI Prophylaxis while NPO:	50 mg/kg/dose qPM

Cefazolin (Ancef®) IV, IM

Postnatal age: ≤ 7days OR < 2000gm	20 mg/kg/dose q12hr
> 7 days & ≥ 2000gm	20 mg/kg/dose q8hr

Cefotaxime (Claforan®) IV, IM

Postnatal age: ≤ 7 days OR < 1200gm	50 mg/kg/dose q12hr
> 7 days & ≥ 1200gm	50 mg/kg/dose q8hr
Meningitis dose after 28 days of life	50 mg/kg/dose q6hr

Cefoxitin (Mefoxin®) IV, IM 30 mg/kg/dose every 8hrs

Cefuroxime Infuse IV over 30 mins.

All neonates	
≤ 7 days OR < 2000gm:	50 mg/kg/dose q12hr
> 7 days AND > 2000gm:	50 mg/kg/dose q8hr

Clindamycin IV, IM – Infuse IV over 30 mins.

All neonates	**< 1200gm:**	5 mg/kg/dose q12hr
Postnatal age:	**≤ 7 days & < 2000gm**	5 mg/kg/dose q12hr
	≤ 7 days & ≥ 2000gm	5 mg/kg/dose q8hr
	> 7 days & < 1200gm	5 mg/kg/dose q12hr
	> 7 days & 1200-2000gm	5 mg/kg/dose q8hr
	> 7 days & > 2000gm	5 mg/kg/dose q6hr
Term infant:	**> 30 days & > 2.5kg**	10 mg/kg/dose IV q8hr

Cotrimoxazole (Bactrim™) PO (UTI prophylaxis)
(Sulfamethoxazole/Trimethoprim (TMP)
>2 months of age: Based on TMP component
2 mg TMP/kg/day or 5 mg TMP/kg/dose twice weekly

Fluconazole IV/ PO—Infuse IV over 60 mins.

≤ 29 weeks Postmenstrual Age:	0-14 days:	6 mg/kg/dose q72hr
	>14 days:	6 mg/kg/dose q48hr
30-36 weeks Postmenstrual Age:	0-14 days:	6 mg/kg/dose q48hr
	>14 days:	6 mg/kg/dose q24hr
37-44 weeks Postmenstrual Age:	0-7 days:	6 mg/kg/dose q48hr
	>7 days:	6 mg/kg/dose q24hr
≥ 45 weeks Postmenstrual Age:	ALL:	6 mg/kg/dose q24hr

Thrush: 6 mg/kg PO x1 then 3 mg/kg/dose q24hr

Gentamicin/ Tobramycin IV, IM Infuse IV over 30 mins.

Preterm Infants (ALL 0-4 weeks of age)		3 mg/kg/dose q24hr
Preterm Infants > 4 weeks old:	**< 1200gm**	3 mg/kg/dose q24hr
	1200-2000gm	2.5 mg/kg/dose q12hr
	> 2000gm	2.5 mg/kg/dose q8hr
TERM Infants	**Postnatal age: ≤ 7 days**	4 mg/kg/dose q24hr
	Postnatal age: > 7 days &< 1200 gm	3 mg/kg/dose q24hr
	> 7 days & 1200-2000gm	2.5 mg/kg/dose q12hr
	> 7 days & > 2000gm	2.5 mg/kg/dose q8hr

Hepatitis B Vaccine and Hep B Immune Globulin IM
Hepatitis B Vaccine: 0.5 ml IM x 1
Hepatitis B Immune Globulin: (HBIG) 0.5 ml IM x 1
- **HbsAg-positive mother:** Give Hep B vaccine and HBIG w/in 12hr of birth.
- **Preterm infant < 2kg & HbsAg-unknown mother:** Give Hep B vaccine. Give HBIG if mom tests positive or if results are unknown within 12hrs of birth.
- **Infant ≥ 2kg & HbsAg-unknown mother:** Give Hep B vaccine and obtain HbsAg on mother. Give HBIG within 7 days of birth, only if mother tests positive.

Immune Globulin (IVIG): IV only
DAT positive hemolytic anemia: 1,000 mg/kg/dose IV over 2 hours
Sepsis/Neutropenia: 750 mg/kg/dose IV over 4hr

Meropenem (Merrem®) **IV** – Infuse over 30 mins.

≤ 7 days OR < 2000gm:	20 mg/kg/dose IV q12hr
> 7 days & > 2000gm:	20 mg/kg/dose IV q8hr
Meningitis (Pseudomonas):	40 mg/kg/dose IV q8hr

Metronidazole (Flagyl®) IV/PO - Infuse IV over 30 mins.

All neonates	**< 1200gm**	7.5 mg/kg/dose q48hr
Postnatal age:	**≤ 7 days & 1200 - 2000gm**	7.5 mg/kg/dose q24hr
	≤ 7 days & > 2000gm	7.5 mg/kg/dose q12hr
	> 7 days & 1200-2000gm	7.5 mg/kg/dose q12hr
	> 7 days & > 2000gm	15 mg/kg/dose q12hr
Postmenstrual age ≥ 45 weeks (all)		7.5 mg/kg/dose q6hr
Term Infant	**> 30 days & > 2.5kg**	10 mg/kg/dose IV q6hr

Nystatin PO = {100,000 units/ml} suspension
Preterm Infant: 0.5 ml to each side of mouth q6hr
Term Infant: 1 ml to each side of mouth q6hr
Cream/Ointment: apply to area topically BID - QID

Oxacillin IV, IM: Infuse IV over 30 mins.

Postnatal age:	**≤ 7 days OR < 1200gm**	50 mg/kg/dose q12hr
	≤ 7 days & > 2000gm	50 mg/kg/dose q8hr
	> 7 days & 1200-2000gm	50 mg/kg/dose q8hr
	> 7days & > 2000gm	50 mg/kg/dose q6hr

Penicillin G IV, IM – Infuse IV over 30 mins.

Postnatal age:	**≤ 7 days OR < 1200gm**	50,000 units/kg/dose q12hr
	≤ 7 days & > 2000gm	50,000 units/kg/dose q8hr
	> 7 days & 1200-2000gm	50,000 units/kg/dose q8hr
	> 7 days & > 2000gm	50,000 units/kg/dose q6hr
GBS Meningitis:		100,000 units/kg/dose q6hr

Penicillin G Benzathine IM Only
Asymptomatic congenital syphilis >1200g:
50,000 units/kg x 1 dose IM

Rifampin IV or PO – Infuse IV over 30 mins.
10 mg/kg/dose IV/PO q12hr
Synergy for MRSA in combination w/other ABX:
5-10 mg/kg/dose IV/PO q12hr

Piperacillin-Tazobactam (Zosyn®) Infuse over 30 mins.

≤ 29 weeks (GA):	0 to 28 days	80 mg/kg/dose q12hr
	>28 days	80 mg/kg/dose q8hr
30-36 weeks (GA):	0 to 14 days	80 mg/kg/dose q12hr
	>14 days	80 mg/kg/dose q8hr
37-44 weeks (GA):	0 to 7 days	80 mg/kg/dose q12hr
	>7 days	80 mg/kg/dose q8hr
≥ 45 weeks (GA):	ALL	80 mg/kg/dose q8hr

Vancomycin IV – Infuse over 60 mins.
Postnatal age

All neonates	**< 1200gm:**	15 mg/kg/dose q24hr
	≤ 7 days & ≥ 1200gm:	15 mg/kg/dose q12hr
	> 7 days & 1200 – 2000gm:	15 mg/kg/dose q12hr
	> 7 days & > 2000gm:	15 mg/kg/dose q8hr

Zidovudine (Retrovir®/AZT™) IV or PO
GA ≤ 29 weeks, 0-28 days:
IV: 1.5 mg/kg/dose q12hr; PO: 2 mg/kg/dose q12hr
GA ≤ 29 weeks, > 28 days:
IV: 1.5 mg/kg/dose q8hr; PO: 2 mg/kg/dose q8hr
GA 30-34 weeks, 0-14 days:
IV: 1.5 mg/kg/dose q12hr; PO: 2 mg/kg/dose q12hr
GA 30-34 weeks, > 14 days:
IV: 1.5 mg/kg/dose q8hr; PO: 2 mg/kg/dose q8hr
GA ≥ 35 weeks, ALL:
IV: 1.5 mg/kg/dose q6hr; PO: 4 mg/kg/dose q12hr

Anticonvulsants

Fosphenytoin (Cerebyx®)	IV only **Load:** 15-20 mg PE/kg IV over at least 10 mins **Maintenance:** 2.5-4 mg/kg/dose every 12 hours (Fosphenytoin 1 mg PE= Phenytoin sodium 1 mg)
Phenobarbital	IV or PO **Load:** 20 mg/kg x 1 **Maintenance:** 3 - 5 mg/kg/**day** IV/PO q24hr

Phenytoin (Dilantin®)	IV or PO **Load:** 15 - 20 mg/kg x1 (IV over 30min) **Maintenance:** 2.5-4 mg/kg/dose every 12 hours

Cardiac

Alprostadil (Prostaglandin E_1)	**Standardized Drip Concentration** Continuous IV infusion: 0.01 to 0.1 mcg/kg/min
Bosentan (Tracleer®)	PO only (for PAH); limited peds data. Avoid if impaired liver function and monitor LFT during therapy. Initial dose: 1-2 mg/kg/dose PO BID Titrate to maintenance dose of 2-4 mg/kg/dose BID
Dobutamine	**Standardized Drip Concentration** Continuous IV infusion: 2 to 20 mcg/kg/min
Dopamine	**Standardized Drip Concentration** Continuous IV infusion: 2 to 20 mcg/kg/min
Epinephrine	**Standardized Drip Concentration** Continuous IV infusion: 0.1 to 1 mcg/kg/min
Hydralazine	IV or PO (specify BP parameters) (PO is approximately 2 times the IV dose) IV: 0.25 - 0.5 mg/kg/dose q6-8hr prn (max. 2 mg/kg/dose) PO: 0.25 - 1 mg/kg/dose q6-8hr prn
Hydrocortisone	IV or PO **Stress Dosing:** 1.5 mg/kg/dose IV/PO q6hr Taper dose: Stress → ½ stress → Maintenance **Maintenance Dose for Adrenal Insufficiency:** For pt < 1 kg, 0.3 mg IV/PO q6hr (lowest maintenance dose recommended) **1 – 1.5kg**, Hydrocortisone 0.4 mg IV/PO Q6hr Once pt > **1.5kg**: 1 mg qAM and 0.5 mg qPM IV/PO ACTH stim test once 1800 gm or ≥ 32 weeks
Ibuprofen (NeoProfen®)	IV for PDA closure PDA Tx: Load 10 mg/kg x 1 dose then 5 mg/kg/dose Q24h x 2 doses starting 24hr after load (max. 2 courses)
Indomethacin (Indocin®)	IV **PDA Prophylaxis:** 0.1 mg/kg/dose IV q24hr x 3 doses **PDA Tx:** 0.2 mg/kg/dose IV q24hr x 3 doses per course (maximum 2 courses)
Propranolol (Inderal®)	IV or PO (per Cardiology) IV: 0.01 mg/kg/dose IV Q6hr or Q8hr PO: 0.25 mg/kg/dose PO Q6hr or Q8hr
Sildenafil (Revatio®) (Viagra®)	PO only (for PPHN) Initial dose: 0.5-1 mg/kg/dose PO every 6-12 hrs. (Max: 3 mg/kg/dose in term infant)

Gastrointestinal

Erythromycin (for GI motility)	IV or PO 3-5 mg/kg/dose q6hr (PO preferred) Salts: PO = EES / IV= Erythromycin Lactobionate
Famotidine (Pepcid®)	**CHKD's only IV H_2 Blocker** < 1 month of age: 0.5 mg/kg/day IV Qday ≥ 1 month (corrected term): 0.5 mg/kg/dose IV BID *** Use Total Daily dose in TPN*** **Dosing Adjustment in Renal Impairment:** CrCl 10-50 ml/min/m^2: 0.5 mg/kg/dose q24hr CrCl <10 ml/min/m^2: 0.5 mg/kg/dose q48hr
Ranitidine (Zantac®)	**CHKD's only PO H_2 Blocker** 2 mg/kg/dose PO q8hr (not recommended in <1500g, incr. sepsis risk)
Esomeprazole (Nexium®)	**CHKD's only IV proton pump inhibitor** 0.5 - 1 mg/kg/day. May increase to BID if needed. (not recommended in <1500g, incr. sepsis risk)
Hyoscyamine (Levsin® drops)	SL or PO < 2kg 1 to 2 drops every 4 - 6hr 2 - 3.4kg 3 drops every 4 - 6hr > 3.4kg 4 drops every 4 - 6hr
Omeprazole (Prilosec®)	**CHKD's PO proton pump inhibitor for patients < 10kg** for < 10kg: 0.5 - 1 mg/kg/dose PO daily. May increase to BID if needed. (not recommended in <1500g, incr. sepsis risk)

Simethicone (Mylicon®) drops	PO only 20 mg/dose q6hr PRN
Ursodiol (Actigall™)	PO only 10-15 mg/kg/dose q12hr

Miscellaneous

3% Saline (Hypertonic Solution)	IV: 5-6 mL/kg x 1 over 2hr. ***To be used only after Attending's approval***
Calcium Supplementation	**Ca Gluconate (IV):** 100 - 200 mg/kg/dose q6hr over 1 hour **Ca Glubionate (PO):** 90 - 315 mg/kg/dose q6hr
Cholecalciferol, vit D3, 400 IU/mL (D-Vi-Sol®)	PO only 200 - 400 International Units PO daily
Granulocyte Colony Stimulating Factor (GCSF)/filgrastim	Neutropenia/Sepsis: 10 mcg/kg IV q24hr until ANC >1000 (order 1 dose at a time) IV over 15-30 mins
Hyaluronidase (Amphadase®)	SubQ: only up to 24 hours after extravasation injury. Draw up 0.1 ml (150 units/ml conc.) and mix w/0.9 ml NS to make 15 units/ml conc. Administer 0.2 ml SubQ in a circular pattern around injured site.
Insulin (Regular only)	**Standard Drip Conc.** Continuous IV infusion: 0.01 to 0.1 units/kg/hr; titrated to blood glucose
Levothyroxine (Synthroid®)	(IV=75% of oral dose) IV: 7-12 mcg/kg/day q24hr PO: 10-15 mcg/kg/day q24hr
Magnesium Supplementation	Magnesium Sulfate (IV): 25 mg/kg/dose x 1 Mag. Gluconate (PO): 185-370 mg/kg/day PO q6hr
Pentacel®	(Inactivated Polio, dTaP & HIB) 0.5 ml IM @ 2, 4 and 6 months of age Order Prevnar & Hepatitis B separately.
Poly-Vi-Sol Plain or with Iron	PO only 0.5 - 1 mL daily
Potassium Chloride (Chloride Supplement)	PO: 1 mEq/kg/dose; frequency dependent upon level of deficiency, start @ q12hr

Respiratory

Albuterol (HHN)	1.25 mg - 2.5 mg nebulized Q4 - 6hr PRN
Aldactazide (Spironolactone/HCTZ)	PO only 1 mg/kg/dose (each component) BID
Budesonide (Pulmicort® (HHN))	0.25 mg nebulized Qday - BID
Bumetanide (Bumex®)	IV or PO: 0.05 mg/kg/dose Q8-Q12 hr, titrate based on diuresis
Caffeine Citrate	IV or PO IV: Infuse Load over 30mins, daily IV dose over 10 mins Loading dose: 40 mg/kg x 1 Initial Maintenance dose: 8 mg/kg/day
Curosurf® (Poractant Alfa)	Via ETT only (divided into 2 aliquots) Max. total dose 5 ml/kg. **Load:** 2.5 ml/kg/dose. **Subsequent doses:** 1.25 ml/kg/dose q12hr – up to 2 additional doses.
Dexamethasone (Decadron®)	IV or PO Day 1-3 0.25 mg/kg/dose q12hr Day 4-6 0.15 mg/kg/dose q12hr
Furosemide (Lasix®)	1 mg/kg/dose IV or 2 mg/kg/dose PO Frequency from Qday – Q12hr, (max q6hr)
Ipratropium (Atrovent®) (HHN)	0.25 mg INH q8hr
Racemic Epinephrine (HHN)	0.125 mL of 2.25% solution diluted in 3ml NS
Sodium Bicarbonate	IV only: 2 mEq/kg/dose. Mix 1:1 w/sterile H_20. Infuse over 30 mins. HCO_3 (mEq) = 0.3 x weight (kg) x base deficit

Sedation/Analgesia/Paralytics

Acetaminophen (Tylenol®)	PO or PR 10 - 15 mg/kg/dose q6hr PRN
Diazepam (Valium®)	IV or PO *reserved for older/TERM infants due to decreased metabolism*; very long half-life with chronic dosing and often only need to dose two to three times per day. ***Consult your NICU Pharmacist for dosing.***
Fentanyl	**Standard Drip Concentration** Continuous IV infusion: 1 to 5 mcg/kg/hr: titrate IV bolus: 1 - 2 mcg/kg/dose IV q2hr - q4hr PRN
Lorazepam (Ativan®)	IV or PO: 0.05 to 0.1 mg/kg/dose q4-6hr PRN titrate to effect
Methadone	IV or PO (=analgesic to Morphine, but > sedating) 0.05 - 0.1 mg/kg/dose q6hr-q12hr, titrate to effect **Neont'l Narcotic w/d:** 0.05-0.1 mg/kg/dose q6hr After 24-48hr, extend interval to q12-q24hr. To taper, wean by 0.05 mg/kg/day.
Midazolam (Versed®)	IV or PO **Standard Drip Concentration** continuous IV infusion: 0.05 to 0.2 mg/kg/hr IV bolus: 0.05 - 0.15 mg/kg/dose IV q2hr- q4hr PRN
Morphine	IV or PO **Standard Drip Concentration** Continuous IV infusion: 10 to 20 mcg/kg/hr: titrate IV bolus: 0.05-0.2 mg/kg/dose IV q4hr - q6hr PRN PO: 0.1-0.2 mg/kg/dose PO q4hr - q6hr PRN
Pancuronium (Pavulon®)	IV only; prolonged duration with poor renal function 0.1 mg/kg/dose IV Q1hr PRN movement NO analgesic effect-use with sedation/analgesia For multiple doses/day, also order Lacri-lube OU PRN
Vecuronium	**Standardized Drip Concentration** Continuous IV infusion: 0.05 to 0.15 mg/kg/hr Recommend ordering Lacri-lube OU PRN while on drip

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