

**Pediatric Intensive Care Unit**  
 Intravenous Push (IVP) Drug List - Approved for RN Administration  
 Ventura County Medical Center

Generic Name (Brand Names)	Therapeutic Category	Typical Pediatric Dose	Maximum Pediatric Dose	Maximum Concentration	Maximum rate of Administration	Administration Considerations	Adverse Effects/ Monitoring Parameters
<b>Adenosine</b>	Antiarrhythmic	0.1 mg/kg (max: 6 mg) Second dose: 0.2 mg/kg (max: 12 mg)	Max single dose: 12 mg	Give undiluted (3 mg/mL)	Rapid IVP over 2-3 seconds.	EMERGENCY USE ONLY. Follow dose with rapid 5-10 mL NS flush.	Monitor for transient bradycardia, asystole, and ventricular arrhythmias. PSVT may re-occur. Monitor EKG, HR, BP & RR.
<b>Amiodarone</b>	Antiarrhythmic (Class III)	5 mg/kg May repeat dose up to 15 mg/kg/DAY.	Max single dose: 300 mg Max daily dose: 15 mg/kg/DAY	Dilute in D5W only. PIV: 2 mg/mL Central: 6 mg/mL	Give over 10 mins. For perfusing tachycardias, give over 20-60 mins.	IV PUSH FOR EMERGENCY USE ONLY. Carefully monitor for rate-related hypotension.	HR, BP, EKG. For long-term therapy, consider monitoring chest X-ray and lung function. <i>Black Box Warning: pulmonary toxicity, hepatotoxicity, and proarrhythmic effects</i>
<b>Ampicillin</b>	Antibiotic Beta-Lactam (Penicillin)	100-200 mg/kg/DAY divided every 6 hours	Max single dose: 2000 mg Max daily dose: 400 mg/kg/DAY, up to 12 GM/day for meningitis	Neonates/infants: 50 mg/mL Pediatrics: 100 mg/mL	IVP over 3-5 mins.	Do not administer with gentamicin in the same tubing or administer concurrently.	Contraindicated in patients with a history of penicillin allergy.
<b>Atropine Sulfate</b>	Anticholinergic Agent	0.02 mg/kg/dose. May repeat once. Minimum dose = 0.1 mg.	Max single dose: 0.5 mg	May give undiluted (0.1 mg/mL)	IVP over 1-2 minutes.	Doses < 0.1 mg may cause paradoxical bradycardia.	Monitor VS & EKG. Minor side effects: Dry mouth, dizziness & palpitations.
<b>Bumetanide</b> (Bumex)	Loop Diuretic	0.01-0.1 mg/kg/dose every 6-12 hours	Max single dose: 2 mg	May give undiluted (0.25 mg/mL)	IVP over 1-2 minutes.	None	Contraindicated in sulfonamide allergy. <i>Black Box Warning: may cause profound diuresis and water/electrolyte depletion.</i>

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<b>Calcium Chloride</b>	Electrolyte  HIGH ALERT	10-20 mg/kg* <i>*dose expressed in mg of calcium chloride</i>	Max single dose: 1000 mg	For IV push, may give undiluted (100 mg/mL). For IV infusion, dilute to 20 mg/mL.	IVP over 3-5 minutes. IV infusion over 1 hour	IV PUSH FOR EMERGENCY USE ONLY. Do not use scalp vein or small hand or foot vein. Do NOT give IM or SQ.	Bradycardia, cardiac arrhythmias, lethargy, EEG. Stop infusion if patient complains of pain at injection site.
<b>Calcium Gluconate</b>	Electrolyte  HIGH ALERT	50-100 mg/kg/dose* <i>*dose expressed in mg of calcium gluconate</i>	Max daily dose: 500 mg/kg/DAY	For IV push, may give undiluted (100 mg/mL). For IV infusion, dilute to 50 mg/mL.	IVP over 3-5 min, not to exceed 50- 100 mg/per min. IV infusion over 1 hour.	IV PUSH FOR EMERGENCY USE ONLY. Do not use scalp vein or small hand or foot vein. Do NOT give IM or SQ.	Bradycardia, cardiac arrhythmias, lethargy, EEG. Stop infusion if patient complains of pain at injection site.
<b>Cefazolin</b> (Ancef, Kefzol)	Antibiotic (Cephalosporin, 1st Generation)	25-100 mg/kg/DAY divided every 6-8 hours.	Max daily dose: 100 mg/kg/DAY, up to 6 gm/day in children.	100 mg/mL For IV infusion, dilute to 20 mg/mL.	IVP over 3-5 minutes. IV infusion over 10-60 minutes.	None	Caution in patients with a history of penicillin allergy.
<b>CefoTAXime</b>	Antibiotic (Cephalosporin, 3rd Generation)	50 mg/kg/dose every 8 hours Meningitis: 75 mg/kg/dose every 6 hours	Max single dose: 2000 mg	60 mg/mL	IVP over 5 minutes. IV infusion over 30 minutes.	Fast IVP (<1 minute) may cause arrhythmias	Caution in patients with a history of penicillin allergy.
<b>CefTAZidime</b>	Antibiotic (Cephalosporin, 3rd Generation)	50 mg/kg/dose every 8 hours	Max single dose: 2000 mg	180 mg/mL. For IV infusion, dilute to 40 mg/mL.	IVP over 5 minutes. IV infusion over 30 minutes.	None	Caution in patients with a history of penicillin allergy.

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<b>CefTRIAxone</b> ( <i>Rocephin</i> )	Antibiotic ( <i>Cephalosporin, 3rd Generation</i> )	50-75 mg/kg/DAY divided every 12-24 hours Meningitis: 50 mg/kg/dose every 12 hours	Max single dose: 2000 mg	40 mg/mL	IVP over 5 minutes. IV infusion over 15-30 minutes.	Do not administer with calcium containing IV solutions or TPN. Flush line before infusing ceftriaxone.	Caution in patients with a history of penicillin allergy. May cause hyperbilirubinemia in neonates.
<b>DEXamethasone</b> ( <i>Decadron</i> )	Anti-inflammatory Agent: <i>Corticosteroid</i>	Airway edema or extubation: 0.25 mg/kg/dose every 8 hours x 4 doses Anti-inflammatory/ Immunosuppressive: 0.02-0.075 mg/kg/dose every 6 hours	Max daily dose: 1.5 mg/kg/DAY or 16 mg/DAY	4 mg/mL	If dose <10 mg: IVP over 1-4 minutes If >10 mg: dilute in D5W or NS & give over 15-30 minutes.	Contraindicated in patients with psychosis, TB, VRE, or systemic fungal infections.	Insomnia, nervousness, increased appetite, hyperglycemia & hypertension.
<b>Dextrose 50%</b>	Caloric Agent	0.5-1 GM/kg/dose (=2-4 mL/kg/dose of dextrose <b>25%</b> )	Max single dose: 25 GM/dose	<b>MUST BE DILUTED TO 25%;</b> Dilute dextrose 50% 1:1 with sterile water for injection.	Do not exceed 0.8 GM/kg/hr	IV PUSH FOR EMERGENCY USE ONLY. Phlebitis risk, pain at injection site; large bore IV access preferred.	Hyperglycemia, pulmonary edema.
<b>Diazepam</b> ( <i>Valium</i> )	Benzodiazepine	Sedation/muscle relaxant/anxiety: 0.05-0.3 mg/kg/dose every 2-4 hours Status epilepticus: 0.1-0.3 mg/kg; may repeat every 5-10 minutes.	Max single dose: 10 mg	Do NOT dilute.	Slowly over 3-5 minutes; not to exceed 1-2 mg/min.	Phlebitis risk, pain at injection site.	Hypotension, decreased respiratory rate.
<b>Diphenhydramine</b> ( <i>Benadryl</i> )	Antihistamine	1-2 mg/kg/dose every 6-8 hours	Max single dose: 50 mg	May give undiluted (50 mg/mL)	Slowly over 5 minutes; not to exceed 25 mg/min.	Do not give SQ or intradermal.	Sedation, hypotension, dizziness, paradoxical excitement.

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<b>EPInephrine</b>	Sympathomimetic	PALS: 0.01 mg/kg/dose every 3-5 minutes of the 1:10,000 concentration (=0.1 mg/mL).	Max single dose: 1 mg	1 mg/10mL =0.1 mg/mL (=1:10,000)	IVP over 1-3 minutes.	EMERGENCY USE ONLY. Watch for injection site blanching or extravasation.	Tachycardia, hypertension.
<b>Etomidate</b>	Sedative	0.2-0.4 mg/kg/dose	Max single dose: 1.1 mg/kg/dose	May give undiluted	IVP over 30-60 seconds	May cause pain at injection site; avoid administration into small vessels	May cause adrenal insufficiency.
<b>Famotidine (Pepcid)</b>	Gastrointestinal Agent: <i>Histamine 2 Receptor Antagonist</i>	0.25-0.5 mg/kg/dose every 12 hours	40 mg/DAY	4 mg/mL	IVP over ≥2 min, not to exceed 10 mg/min. IV infusion over 15-30 min.	Medication is usually placed inline, but may be pushed.	Headaches, dizziness.
<b>FentaNYL</b>	Opioid Analgesic  HIGH ALERT	Initial dose: 0.5-2 mcg/kg/dose	None	May give undiluted (50 mcg/mL)	IVP over 3-5 minutes. For doses >5 mcg/kg, slow IVP over 5-10 minutes.	Rapid IVP may result in apnea.	RR, BP, HR, bowel sounds.
<b>Flumazenil</b>	Antidote: <i>GABA receptor antagonist</i>	0.01 mg/kg (max: 0.2 mg); may repeat dose every minute up to maximum of 0.05 mg/kg or 1 mg total	Max single dose: 0.2 mg Max total dose: 1 mg	May give undiluted (0.1 mg/mL)	Infuse over 15 to 30 seconds via a freely running IV infusion into a large vein.	EMERGENCY USE ONLY. Do not exceed 0.2 mg/min.	<i>Black Box Warning: administration has been associated with seizures.</i>

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<b>Furosemide</b> (Lasix)	Loop Diuretic	0.5-1 mg/kg/dose every 6-12 hours	Do not exceed 10mg/kg total for a 24-hour period.	May give undiluted (10 mg/mL)	IVP over 1-2 minutes.	Rapid & high dose administration can cause irreversible hearing loss.	Contraindicated in sulfonamide allergy. Hypotension, headache & dizziness. Monitor for hearing loss. <i>Black Box Warning: may cause profound diuresis and water/electrolyte depletion.</i>
<b>Glycopyrrolate</b> (Robinul)	Anticholinergic Agent	Control of secretions: 4-10 mcg/kg every 6-8 hours. Neuromuscular blockade reversal: 0.2 mg for every 1mg neostigmine used	Max single dose: 100 mcg (May exceed max single dose when used with neostigmine reversal).	May give undiluted (0.2 mg/mL)	IVP over 1-2 minutes.	Dysrhythmias have been reported with administration.	Blurred vision, dry mouth, N/V, urinary hesitancy & retention.
<b>Haloperidol Lactate</b> (Haldol)	Antipsychotic	0.01-0.2 mg/kg/dose	0.1 mg/kg/dose, not to exceed 5 mg.	May give undiluted (5 mg/mL)	Slow IVP	Do NOT inject haloperidol decanoate. QT-prolongation and torsades de pointes have been reported with IV administration.	Hypotension, extrapyramidal symptoms, dystonic reactions, QT-prolongation, torsades de pointes. ECG should be monitored. <i>Black Box Warning: increased risk of death in elderly patients with dementia</i>

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<b>HydrALAZINE</b>	Antihypertensive: <i>Vasodilator</i>	0.1-0.2 mg/kg/dose every 4-6 hours	Max single dose: 20 mg	May give undiluted (20 mg/mL)	IVP over 1-2 minutes, not to exceed 0.2 mg/kg/minute.	May cause reflex tachycardia.	Palpitations, flushing, tachycardia, hypotension, arthralgias. Monitor heart rate, BP.
<b>Hydrocortisone Succinate (Solu-Cortef)</b>	Anti-inflammatory Agent: <i>Corticosteroid</i>	1-5 mg/kg/DAY every 6- 8 hours	None	50 mg/mL	IVP over ≥30 seconds	Medication is usually placed inline, but may be pushed.	Hypertension, hyperglycemia, insomnia, nervousness
<b>Hydromorphone (Dilaudid)</b>	Opioid analgesic  HIGH ALERT	Initial dose: 5-15 mcg/kg/dose	None	May give undiluted (2 mg/mL)	IVP over 2-3 minutes	Reversal agent – naloxone (Narcan)	Respiratory rate, hypotension. <i>Black Box Warning:</i> <i>risk of respiratory</i> <i>depression, drug</i> <i>interactions with other</i> <i>CNS depressants, abuse</i> <i>and medication errors.</i>
<b>Insulin</b>	Insulin  HIGH ALERT	0.1 unit/kg	N/A	100 units/mL	For life-threatening hyperkalemia: give over 10 seconds after dextrose 25%. For non-life- threatening hyperkalemia: Give over 15-30 minutes with dextrose 25%.	Use only <b>regular insulin for IV administration</b>	Monitor blood sugars, signs/symptoms of hypoglycemia

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<b>Ketoralac</b> ( <i>Toradol</i> )	Non-steroidal anti-inflammatory drug	Loading dose: 1 mg/kg/dose Maintenance dose: 0.5 mg/kg/dose every 6-8 hours	Age <16 years: 15 mg Age >16 years & >50 kg: 30 mg	30 mg/mL	Give over >15 seconds.	Requires dose adjustment in renal dysfunction.	Edema, drowsiness, renal toxicity. Contraindicated in pts with active or recent bleeds, or taking aspirin or other NSAIDs. <i>Black Box Warning: Increased risk of bleeding, nephrotoxicity, and cardiovascular thrombotic events.</i>
<b>Labetalol</b>	Antihypertensive: <i>Mixed alpha-beta blocker</i>	0.2-0.5 mg/kg/dose	Max single dose: 20 mg	May give undiluted (5 mg/mL)	IVP over 2-3 minutes; not to exceed 2 mg/minute	Medication is usually placed inline, but may be pushed.	BP, HR, EKG
<b>Levothyroxine</b> ( <i>Synthroid</i> )	Thyroid Product	2-8 mcg/kg/dose	Not established.	100 mcg/mL; dilute in NS only	Give over 2-3 minutes.	Use immediately after reconstitution.	Palpitations, tachycardia, cardiac arrhythmias, nervousness, tremor.
<b>Lidocaine</b>	Antiarrhythmic	1 mg/kg	Max single dose: 100 mg/dose Max cumulative dose: 5 mg/kg	20 mg/mL	IVP over 5-10 min, not to exceed 0.7 mg/kg/min or 50 mg/min.	EMERGENCY USE ONLY. Can be given via ETT at 2-2.5 times the normal dose.	Contraindicated in patients with severe heart block.
<b>LORazepam</b> ( <i>Ativan</i> )	Benzodiazepine	0.05-0.1 mg/kg/dose	Max single dose: 4 mg	1 mg/mL	0.05 mg/kg over 2-5 minutes, not to not exceed 2 mg/min.	Can cause infiltration with IVP.	Sedation, hypotension, dizziness, headache, HR, RR

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<b>Magnesium Sulfate</b>	Electrolyte  HIGH ALERT	25-50 mg/kg/dose	100 mg/kg/dose Max single dose: 2 GM	200 mg/mL	Slow IVP over at least 5 minutes in emergencies only. IV infusion over 2-4 hours.	IV PUSH FOR EMERGENCY USE ONLY.	Hypotension, CNS depression, loss of deep tendon reflexes, heart block.
<b>Meperidine (Demerol)</b>	Opioid Analgesic  HIGH ALERT	1-1.5 mg/kg/dose	Max single dose: 100 mg, not to exceed 2 mg/kg	10 mg/mL	IVP over at least 5 minutes.	Dilute to 10mg/mL with NS.	Sedation, hypotension, dizziness, constipation, RR
<b>MethylpredniSOLONE Sodium Succinate (Solu-Medrol)</b>	Anti-inflammatory Agent: <i>Corticosteroid</i>	Varies by indication: Asthma: 2-4 mg/kg/DAY Pulse dose: 15-30mg/kg/DAY x 3 days	30 mg/kg/dose	125 mg/mL	Dose <15 mg/kg IVP over 3-5 minutes. Doses >15 mg/kg, infuse over 30 minutes	Use only <b>succinate</b> salt for IV administration. Rapid administration of doses ≥15 mg/kg can cause cardiac arrhythmias & cardiac arrest	Hypertension, hyperglycemia, insomnia, nervousness
<b>Metoclopramide (Reglan)</b>	Antiemetic Prokinetic gastrointestinal agent	0.1-0.2 mg/kg/dose every 6-8 hours	Max single dose: 10 mg	5 mg/mL	IVP over >2 minutes. If dose is >10mg, give IVPB over 15-30 minutes.	Too rapid rate may cause intense anxiety and/or drowsiness. Medication usually placed in the line, but may be pushed.	Hypotension, sedation, dizziness, rash, dystonias & other extrapyramidal effects. <i>Black Box Warning: tardive dyskinesia</i>



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<b>MIDazolam</b> ( <i>Versed</i> )	Benzodiazepine	0.05-0.1 mg/kg	None	5 mg/mL	Give over 2-5 mins, not to exceed 1 mg/min	Reversal agent- Flumazenil	Respiratory depression, hypotension, drowsiness. <i>Black Box Warning: respiratory depression.</i>
<b>Morphine Sulfate</b>	Opioid Analgesic  HIGH ALERT	0.05-0.1 mg/kg	None	5 mg/mL	Give over >5 minutes.	Reversal agent- Naloxone (Narcan)	Sedation, dizziness, heart palpitations, hypotension, bradycardia, respiratory depression. <i>Black Box Warning: risk of respiratory depression, drug interactions with other CNS depressants, abuse and medication errors.</i>
<b>Naloxone</b> ( <i>Narcan</i> )	Antidote: <i>Opioid antagonist</i>	For full reversal: <5 years old or <20 kg: 0.1 mg/kg >5 years old: 2 mg/dose For partial reversal: 0.005-0.01 mg/kg, repeat every 2-3 min as needed	N/A	May give undiluted (1 mg/mL)	IVP over 30 seconds.	EMERGENCY USE ONLY.	Use with caution with use of narcotics after surgery. May precipitate withdrawal symptoms in patients with opioid dependence.

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<b>Neostigmine</b>	Antidote: <i>Neuromuscular blocker reversal agent</i>	0.025-0.1 mg/kg/dose	2.5 mg/dose	May give undiluted (1 mg/mL)	Slow IVP over several minutes.	EMERGENCY USE ONLY. Give atropine or glycopyrolate prior to administration.	Increased salivation, muscle fasciculations, cardiac dysrhythmias, LOC, seizure, anaphylaxis.
<b>Ondansetron (Zofran)</b>	Anti-emetic	0.1-0.15 mg/kg/dose IV Q6-8H	0.45 mg/kg/dose, up to 32 mg.	May give undiluted (2 mg/mL)	Give over 2-5 minutes.	Blood pressure changes and increased QT-interval have been reported.	Flushing, ECG changes, QT prolongation, dizziness, fatigue.
<b>Pancuronium (Pavulon)</b>	Non-depolarizing neuromuscular blocking agent  HIGH ALERT	0.05-0.15 mg/kg/dose	None	May give undiluted (2 mg/mL)	Rapid IVP	None	Monitor train of fours. Cardiac dysrhythmias, tachycardia, hypertension & prolonged neuromuscular blockade
<b>Pantoprazole (Protonix)</b>	Gastrointestinal agent: <i>Proton pump inhibitor</i>	1 mg/kg/dose every 12-24 hours	40 mg/dose	4 mg/mL	Give over at least 2 minutes.	Thrombophlebitis and injection site reactions have been reported.	Abdominal pain, headache, diarrhea.
<b>Phenylephrine (Neo-Synephrine)</b>	Sympathomimetic	5-20 mcg/kg/dose	500 mcg/dose (=0.5 mg/dose)	1 mg/mL	Give over 20-30 seconds.	EMERGENCY USE ONLY. Watch for injection site blanching or extravasation.	Hypertension, arrhythmias.
<b>Rocuronium</b>	Non-depolarizing neuromuscular blocking agent  HIGH ALERT	0.6-1.2 mg/kg/dose	None	May give undiluted (10 mg/mL)	Rapid IVP	None	Monitor train of fours. Rare: hypotension & arrhythmias.

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<b>Sodium Bicarbonate</b>	Electrolyte	0.5-1 mEq/kg/dose	2 mEq/kg/dose	< 5kg: 0.5 mEq/mL >5kg: 1 mEq/mL	Slow IVP in emergencies; otherwise, give over one hour.	IV PUSH FOR EMERGENCY USE ONLY. May dilute 1 mEq/mL solution 1:1 with SWEL.	Serum electrolytes, urine pH, blood gases.
<b>Vecuronium</b>	Non-depolarizing neuromuscular blocking agent  HIGH ALERT	0.1 mg/kg/dose	None	1 mg/mL	Rapid IVP	None	Monitor train of fours. Flushing, erythema, pruritis, urticaria, brochospasm & hypotension may arise. <i>Black Box Warning: administration by adequately trained individuals only.</i>