D-NICE NURSING
IV DRUG HANDBOOK

Updated: August 1, 2023

ACEPROMAZINE

ACETYLCYSTEINE

ALBUMIN

ALFAXALONE

AMIKACIN

AMINOCARPROIC ACID

AMINOPHYLLINE

AMIODARONE

AMPICILLIN

AMPICILLIN/SULBACTAM

AZITHROMYCIN

BUPRENORPHINE

BUTORPHANOL

CALCIUM GLUCONATE 10%

CEFAZOLIN

CEFOTAXIME

CEFOXITIN

CEFTRIAXONE

CHLORAMPHENICOL

CHLORPROMAZINE

CLINDAMYCIN

DEXTROSE 50%

DIAZEPAM

DILTIAZAM

DOBUTAMINE

DOLASETRON

DOPAMINE

DOXYCYCLINE

ETHANOL

ENROFLOXACIN

ERYTHROMYCIN

FAMOTIDINE

FENTANYL

FOMIPAZOLE

FUROSEMIDE

GENTAMICIN

IMIPENEM-CILASTATIN

LEVITERACETAM

LIDOCAINE

MAGNESIUM SULFATE

MANNITOL 20%

MEROPENEM

METHADONE

METHOCARBAMOL

METOCLOPRAMIDE

METRONIDAZOLE

MIDAZOLAM

MYCOPHENOLATE MOFETIL

NALOXONE

NITROGYLCERIN

NITROPRUSSIDE

NOREPINEPHRINE

ONDANSETRON

PANTOPRAZOLE

PIPERACILLIN/TAZOBACTAM

POTASSIUM CHLORIDE

POTASSIUM PHOSPHATE

PROCAINIMIDE

RANITIDINE

SODIUM BICARBONATE

TICARCILLIN

VASOPRESSIN

VINCRISTINE

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References:

Plumbs VDH 9th Edition

ASHP's Handbook on Injectable Drugs (Trissel)

2022 IV Medications: A Handbook for Nurses and Health Professionals 38th Edition

The Veterinary Information Network

Manufacturer Package Inserts

NAME	**Acepromazine** *PromAce, Aceproject*
CLASS	Phenothiazine tranquilizer
COMMON INDICATIONS	Sedation, premedication
COMMON DOSES	0.005 – 0.05 mg/kg IV
FORMULATION AVAILABLE	10 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution for 1mg/ml solution: Take 1 mL of the 10 mg/mL solution and inject into 10 mL of sterile water. Yields a 1 mg/mL solution. Administration: Slow push IV as 10mg/ml or diluted. Storage: room temperature, protect from light
SPECIAL CONSIDERATIONS	• Incompatible IV: with diazepam, glycopyrrolate • Exact mechanism of action unknown but acts to block dopamine • Also provides antihistamine, antiemetic, antihypertensive, and hypothermic effects • Slow onset (15 minutes), Peaks at 30-60 minutes • Does **NOT** provide pain or anxiety control • Causes vasodilation and can cause hypotension • Use in seizure patients is considered acceptable (controversial)

NAME	**Acetylcysteine** *Mucomyst, N-acetylcysteine, NAC*
CLASS	Mucolytic, Antidote
COMMON INDICATIONS	• Treatment of acetaminophen toxicity and other hepatotoxic conditions • Mucolytic
COMMON DOSES	• Acetaminophen toxicity: 140 mg/kg IV once loading dose (case dependent), then 70 mg/kg IV q6h for 7 doses (or PO) • Mucolytic: 50-70 mg/kg IV
FORMULATION AVAILABLE	Two formulations: 1. Oral 20% solution (can be given IV through 0.25-micron filter) 2. Compounded sterile 10% solution (PO or IV without a filter) Also available as an inhaled solution for nebulization
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Dilute to 5% solution in 0.9% NaCl, 0.45% NaCl, or D5W Administration: If giving PO, can be diluted in dextrose for palatability. If using IV (either formulation), give over 15-30 minutes as 5% solution. The oral 20% solution can be given IV but is not sterile and must be administered through a filter. Compounded 10% solution is made by a compounding pharmacy and is a sterile solution. Storage: must be refrigerated, discard after 24 hours (no antimicrobial)
SPECIAL CONSIDERATIONS	• Incompatible IV: amphotericin B, ampicillin, doxycycline, erythromycin, tetracycline, oxytetracycline • 20% solution must be given through a filter if administering IV. • Works by restoring glutathione levels in liver disease/toxicity. • Also acts in pulmonary tree to reduce viscosity of secretions. • Concentrations above 5% can cause phlebitis.

NAME	**Albumin (Canine)**
CLASS	Natural Protein Colloid
COMMON INDICATIONS	Hypoalbuminemia/increasing intravascular oncotic pressure
COMMON DOSES	Goal = raise Alb to 2.0 - 2.5 Hypotensive patients: 800 - 844 mg/kg IV over 6 hours Normovolemic patients: 450 mg/kg OR BW (kg) x 90 mL/kg x (2 g/dL - patient Alb g/dL) x 0.2 dL/g OR 0.45g per kg BW to raise 0.5 g/dL
FORMULATION AVAILABLE	Canine lyophilized Albumin 5g
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Add 30mL of sterile NaCl (0.9%) to 5g canine albumin to get a solution of 16% (166mg/mL). Alternatively, you can add 100mL of sterile NaCl (0.9%) to 5g canine albumin to get a 5% (50mg/mL) solution. **Do NOT use sterile water.** Gently swirl the solution intermittently to avoid foaming until all powder is rehydrated (this may take up to 30 minutes). **Do not aggressively agitate the bottle.** Administration: IV as CRI over 6 hours using a blood or inline hemo-nate filter. Storage: Store in refrigerator until use. The product is stable for 15 months. Once reconstituted, the solution should be used in 6 hours. Do not freeze.
SPECIAL CONSIDERATIONS	Incompatible IV: Sterile water, amino acid solutions, any solution containing alcohol, or protein hydrolysates. Do not give with other supplements or blood products. See Plumb's or package insert for further details including monitoring parameters and citations.

NAME	**Alfaxalone** *Alfaxan*
CLASS	Intravenous Anesthetic
COMMON INDICATIONS	Induction and maintenance of anesthesia
COMMON DOSES	Dogs: 2 mg/kg IV Cats: 5 mg/kg IV IM use: 2-5 mg/kg is off label in USA (approved abroad in cats only) CRI dosing: 4 - 10 mg/kg/hr IV
FORMULATION AVAILABLE	10mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Slow to effect IV (similar to Propofol) Storage: Does not contain preservatives, discard after use. Some practice refrigerating once opened and discard after 72 hours or if not refrigerated discard after 24 hours. **Discard any bottles that become discolored or have particulate matter.**
SPECIAL CONSIDERATIONS	• Class IV controlled substance. • Volume can be limiting for IM use. • Can be cost prohibitive. • Works well for aggressive cats with cardiac disease in combination with opiate and benzodiazepine. • See also Alfaxan Info from Jurox : http://www.alfaxan.com/what-is-alfaxan

NAME	**Amikacin** *Amiglyde-V*
CLASS	Aminoglycoside antibiotic
COMMON INDICATIONS	Antibiotic for gram-negative aerobe and some gram-positive infections
COMMON DOSES	15-20 mg/kg IV or IM q24h
FORMULATION AVAILABLE	50 or 250 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution for IV use: Dilute with 0.9% NaCl, LRS or D5W to a final concentration of 2-5mg/ml Administration: Administer over 30-60 minutes IV Storage: Store at room temperature. Stable for 2 years. May become pale yellow with time but this does not indicate loss of efficacy.
SPECIAL CONSIDERATIONS	• Incompatible IV: Aminophylline, Ampicillin, Cefazolin, Dexamethasone SP, Heparin, Vitamin B complex, KCl (when in Dextran 6% in 0.9% NaCl; stable with KCl in all other solutions) • Bacteriostatic antibiotic • Common SE: Nephrotoxicity (potential increased risk if on concurrent cephalosporins), ototoxicity, and neuromuscular blockade. Also, facial edema, injection site pain/inflammation, and GI signs are reported. • For nephrotoxicity, monitor urine output daily for casts (effects are usually reversible once drug is discontinued) • Do not use in patients that are pregnant

NAME	**Aminocaproic acid** *Epsilon aminocaproic acid, EACA, Amicar*
CLASS	Fibrinolysis inhibitor / Antiprotease
COMMON INDICATIONS	• Hyperfibrinolysis-induced hemorrhage (post-operative Greyhounds) • Degenerative myelopathy (questionable) • Adjunctive treatment of thrombocytopenia (experimental)
COMMON DOSES	• No published dose: reported 50-100 mg/kg IV (or PO) q6h (Hopper) • JVECC study protocol for post-op Greyhounds: 500-1000 mg IV total dose (15-40 mg/kg) immediately after surgery. Then 500-1000 mg PO total dose (15-40 mg/kg) q8h for 5 days. **Study authors currently aim for 20 mg/kg IV or PO q8 starting the night prior to surgery and continuing for 3-5 days.**
FORMULATION AVAILABLE	250 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Dilute to 15 mg/mL (1mL EACA in 15mL of saline). Can dilute in 0.9% NaCl or D5W. Administration: Administer over 30 minutes. Storage: No special considerations.
SPECIAL CONSIDERATIONS	• Incompatible IV: unknown, consult Trissel. • If administered too rapidly may induce hypotension, bradycardia or arrhythmia. • Can cause phlebitis if administered undiluted. • Can cause GI upset if administered orally. • Contraindicated in hypercoagulable cases or cases of DIC. • Editorial reference: https://avmajournals.avma.org/view/journals/ajvr/ajvr-overview.xml: Volume 77: Issue 11

NAME	**Aminophylline**
CLASS	Phosphodiesterase inhibitor bronchodilator
COMMON INDICATIONS	Broncho-constrictive diseases (feline asthma, tracheal collapse, pulmonary edema)
COMMON DOSES	5-10 mg/kg IV q6h-8h
FORMULATION AVAILABLE	25 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Diluted 1:1 in saline or given undiluted Administration: IV over 20-30 minutes (do not exceed 25 mg/minute) Storage: No special considerations
SPECIAL CONSIDERATIONS	• Incompatible IV: Can be given with most IV fluids. Incompatible with **numerous** drugs – see Plumb's or Trissel for full list. • Narrow therapeutic range • Side effects: CNS stimulation, GI irritation, tremors, seizures, panting, agitation, tachycardia, arrhythmias, or hypertension • Aminophylline has many harmful drug interactions.

NAME	**Amiodarone** *Nexterone*
CLASS	Class III anti-arrhythmic
COMMON INDICATIONS	An alternative treatment of refractory ventricular tachycardia. Used as an alternative to lidocaine or an add-on to lidocaine for refractory VT, instead of or after procainamide fails.
COMMON DOSES	Administer 2mg/kg boluses IV over 10 minutes up to 5-10mg/kg total (usually do not exceed 7mg/kg) followed by a CRI of 0.8mg/kg/h IV for 6h then decrease to 0.4mg/kg/h IV.
FORMULATION AVAILABLE	Each vial contains 360mg/200mL (1.8mg/mL) and is single use.
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None. Administration: See common doses above. If further dilution is desired 0.9% NaCl or D5W should be used (isotonic or hypotonic). **An in-line filter must be used for administration.** Storage: Single use vial.
SPECIAL CONSIDERATIONS	Incompatible IV: Cefazolin, Zosyn, heparin, furosemide, aminophylline, magnesium sulfate and potassium phosphate. Considerations: Does not contain polysorbate or benzyl alcohol carriers in solvent, thus avoids the reaction of facial pruritus and occasional anaphylactic shock. Vomiting has been reported with higher doses. It does inhibit P450 enzyme systems.

NAME	**Ampicillin** *Polyflex, Ampicillin trihydrate, Ampicillin sodium*
CLASS	Aminopenicillin antibiotic
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	15-22 mg/kg IV q8h, up to 40 mg/kg IV if sepsis
FORMULATION AVAILABLE	1- and 2-gram vials
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Given as 30 mg/mL solution. If 2g vial: Add 66 mL of 0.9% NaCl to powder If 1g vial: Add 33 mL of 0.9% NaCl to powder *Can be reconstituted at solutions greater than 30mg/mL but is relatively unstable after reconstitution and should generally be used within 1 hour of reconstitution. As the concentration of the drug in solution increases, the stability of the drug decreases. Administration: Give slowly of over 5-10 minutes (rapid administration has been reported to cause seizures) Storage: Refrigerate after reconstitution. When reconstituted to 30 mg/mL in sterile water or 0.9% NaCl, studies showed stability up to 48 hours when refrigerated at 4°C (39.2°F).
SPECIAL CONSIDERATIONS	• Incompatible IV: Amikacin, Chlorpromazine, Dopamine, Erythromycin, Gentamycin, Sodium Bicarbonate • Bactericidal time-dependent antibiotic • Side Effects: excitation/seizure, diarrhea, thrombocytopenia, leukopenia, neutropenia, agranulocytosis, phlebitis

NAME	**Ampicillin/sulbactam** *Unasyn*
CLASS	Potentiated aminopenicillin antibiotic
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	20-30 mg/kg IV q6h-q8h, up to 40-50 mg/kg IV q6h for sepsis
FORMULATION AVAILABLE	1.5 gram vials
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Give as 30 mg/mL solution. 1.5g vial: Add 50 mL of 0.9% NaCl to powder Reconstitution instruction in 50 mL bag of 0.9% NaCl: take ~3 mL from 0.9% NaCl from 50 mL bag and place into 1.5g vial of Unasyn. Shake well to dissolve all powder. Removal all liquid from vial and return to 50 mL bag of saline and mix well. Administration: Give over 15-30 minutes (rapid administration has been reported to cause seizures) Storage: Refrigerate after reconstitution. When reconstituted to 30 mg/mL in 0.9% NaCl, studies showed stability of 72 hours when refrigerated. See package insert.
SPECIAL CONSIDERATIONS	Incompatible IV: Aminoglycoside antibiotics (amikacin, gentamicin) Bactericidal time-dependent antibiotic

NAME	**Azithromycin** *Zithromax*
CLASS	Macrolide antibiotic
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	5-10 mg/kg IV q24h
FORMULATION AVAILABLE	500 mg vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Give as 1 -2 mg/mL solution. Add 4.8 mL sterile water, 0.9% NaCl, D5W, or LRS to 500 mg vial. Then further dilute to 1-2 mg/mL solution. Administration: Given over 3 hours if 1 mg/mL dilution or 1 hour if 2 mg/mL dilution. Flush IV catheter prior to and after administration. Must not be given with any other IV fluid additives or medications. Storage: Store for 7 days if refrigerated after reconstitution. Discard if particulate matter is noted.
SPECIAL CONSIDERATIONS	• Incompatible IV: None documented but follow above guidelines. Safe to give with LRS, 0.9% NaCl, D5W (as long as no additives). • Local reactions are possible at IV site, vomiting can be noted at high doses, and should never be given IM or as IV bolus.

NAME	**Buprenorphine** *Buprenex*
CLASS	Opiate – partial *mu* agonist
COMMON INDICATIONS	Analgesia, sedation
COMMON DOSES	0.005 to 0.02 mg/kg IV (or PO/IM/SQ)
FORMULATION AVAILABLE	0.3 mg/mL or compounded 0.5 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Slow push Storage: No special considerations.
SPECIAL CONSIDERATIONS	• Incompatible IV: Diazepam • **DEA Schedule III substance** • IV and PO formulations have similar onset 15-45 minutes and last 4-12 hours. IM/SQ formulations are slower. • Minimal side effects – respiratory depression is possible but rare. • Naloxone can temporarily reverse but high doses are needed.

NAME	**Butorphanol** *Torbugesic, Torbutrol*
CLASS	Opiate – *kappa* agonist / *mu* antagonist
COMMON INDICATIONS	Sedation, premedication, antitussive
COMMON DOSES	0.1 – 0.4 mg/kg IV
FORMULATION AVAILABLE	10 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: No special considerations Storage: No special considerations
SPECIAL CONSIDERATIONS	• Incompatible IV: Pentobarbital • **DEA schedule IV substance** • Provides analgesia but only for 30 – 60 minutes. Sedation effects persist for 3 – 4 hours. • Can reverse other opiate pain medications (i.e.: hydromorphone, methadone, fentanyl)

NAME	**Calcium Gluconate**
CLASS	Electrolyte solution
COMMON INDICATIONS	Hypocalcemia, Cardio protection in hyperkalemia, calcium channel blocker toxicity
COMMON DOSES	50-150 mg/kg (0.5-1.5 mL/kg) IV as bolus over 10-20 minutes CRI: 60-90 mg/kg/day added to IV fluids
FORMULATION AVAILABLE	10% (100 mg/mL)
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Dilute 1:1 in 0.9% NaCl. Always give IV slowly over at least 10-20 minutes. **Monitor ECG while administering.** Storage: No special considerations
SPECIAL CONSIDERATIONS	Incompatible IV: Amphotericin B, dobutamine, metoclopramide HCl Rapid infusion can cause bradycardia and other cardiac arrhythmias, and hypotension.

NAME	**Cefazolin** *Ancef, Kefzol, Zolicef*
CLASS	Cephalosporin antibiotic (1st generation)
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	20-30 mg/kg IV q8h
FORMULATION AVAILABLE	1 gram vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Given as 100mg/mL solution. Add 10 mL of sterile water to 1 gram powder. Administration: IV slowly over 3-5 minutes Storage: Stable at 100 mg/mL for 96 hours if refrigerated (24 hours at room temperature). May change color to yellow without changes in efficacy.
SPECIAL CONSIDERATIONS	Incompatible IV: Amikacin, calcium gluconate, erythromycin, lidocaine, vitamin B complex

NAME	**Cefotaxime** *Claforan*
CLASS	Cephalosporin antibiotic (3rd generation)
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	25-50 mg/kg IV q8h
FORMULATION AVAILABLE	1 gram vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Given as 50 mg/mL solution. Add 10 mL of 0.9% NaCl, D5W, or sterile water to 1g powder. Administration: Give IV slowly over 10-15 minutes. Storage: Stable for 7 days in refrigerator (24 hours if at room temperature). Darkening of solution may indicate a decreased efficacy.
SPECIAL CONSIDERATIONS	Incompatible IV: Sodium bicarbonate Life-threating arrhythmias reported if injected too rapidly.

NAME	**Cefoxitin** *Mefoxin, Cephamycin*
CLASS	Cephalosporin antibiotic (2nd generation)
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	25-30 mg/kg IV q4h – q8h
FORMULATION AVAILABLE	1 gram vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Given as 100 mg/mL solution. Add 10 mL of 0.9% NaCl, D5W, or sterile water to 1g powder. Administration: Given slowly IV over 3-5 minutes. Storage: Stable for 7 days in refrigerator (24 hours if at room temperature).
SPECIAL CONSIDERATIONS	Incompatible IV: None known.

NAME	**Ceftriaxone** *Rocephin*
CLASS	Cephalosporin antibiotic (3rd generation)
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	Dog: 25 mg/kg IV q8h – 12h Cat: 25-50 mg/kg IV q8 – 12h Can be given as IM injection, see literature.
FORMULATION AVAILABLE	250mg, 500mg, 1g and 2g vials
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Given as 100 mg/mL solution. Add 10 mL of 0.9% NaCl or D5W to 1g powder. Administration: Given slowly IV over 3-5 minutes. Storage: Solutions at 100mg/mL are stable for 3 days at room temperature and 10 days when refrigerated. Solutions at 250mg/mL are stable for 24 hours at room temperature and 3 days when refrigerated.
SPECIAL CONSIDERATIONS	Incompatible IV: Do not use diluents containing calcium, such as Ringer's solution, to reconstitute ceftriaxone bottles or to further dilute a reconstituted bottle for IV administration because a precipitate can form. Precipitation of ceftriaxone-calcium can also occur when ceftriaxone is mixed with calcium-containing solutions in the same IV administration line. Ceftriaxone must NOT be administered simultaneously with calcium-containing IV solutions, including continuous calcium-containing infusions such as parenteral nutrition via a Y-site. However, in patients other than neonates, ceftriaxone and calcium-containing solutions may be administered sequentially of one another if the infusion lines are thoroughly flushed between infusions with a compatible fluid.

NAME	**Chloramphenicol** *Chloromycetin, Duricol, Viceton*
CLASS	Broad spectrum antibiotic
COMMON INDICATIONS	Bacterial infections (and some rickettsial infections)
COMMON DOSES	40-60 mg/kg IV q6h - q8h
FORMULATION AVAILABLE	1 gram vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Given as 100 mg/mL solution. Add 10 mL sterile water or D5W to 1 gram powder. Administration: Give slowly IV over 10-30 minutes. Storage: Stable for 30 days at room temperature after reconstitution. Discard if solution becomes visibly cloudy.
SPECIAL CONSIDERATIONS	• Incompatible IV: Doxycycline, metoclopramide, glycopyrrolate, • Bacteriostatic antibiotic • **Wear gloves when handling** – Reported to cause fatal aplastic anemia in humans.

NAME	**Chlorpromazine** *Thorazine*
CLASS	Phenothiazine sedative/antiemetic
COMMON INDICATIONS	Vomiting
COMMON DOSES	0.5 mg/kg IV / IM / SQ (*see below)
FORMULATION AVAILABLE	25 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: No special considerations (compatible with most IV fluids) Administration: IM route is recommended over SQ as it causes discomfort. If used IV, it should be diluted and given very slowly. Storage: Protect from light and store at room temperature. Discard if solution is darkened in color or if precipitates are noted. Slight yellow color does not affect efficacy.
SPECIAL CONSIDERATIONS	• Incompatible IV: **Many** (see Plumb's VDH) • Sedation effects can be profound. Monitor for hypotension and bradycardia as well. • Had tremoring and CNS signs can be seen with or without concurrent use of metoclopramide.

NAME	**Clindamycin** *Antirobe, Cleocin*
CLASS	Lincosamide antibiotic
COMMON INDICATIONS	Bacterial and protozoal (*Toxoplasma*) infections
COMMON DOSES	10-15 mg/kg IV q12h
FORMULATION AVAILABLE	150 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Dilute 1:10 in 0.9% NaCl (or most types of IV fluids); final concentration of 15mg/mL. Administration: Give diluted solution very slowly (suggested over 1 hour), not to exceed 1 mL per 5 minutes. Storage: Store at room temperature and protected by light. Stable for at least 2 weeks when reconstituted. Stability of compounded formulations is at least 60 days.
SPECIAL CONSIDERATIONS	Incompatible IV: aminophylline, ranitidine, ampicillin, aminophylline, Ca gluconate, barbiturates (phenobarbital).

NAME	**Dextrose 50%**
CLASS	IV fluid
COMMON INDICATIONS	Hypoglycemia
COMMON DOSES	0.5-1.0 g/kg IV CRI at 2.5-10% in IV fluids Quick Dosing Note: 0.5 g/kg corresponds to 1mL/kg of the 50% solution.
FORMULATION AVAILABLE	50% (500mg/mL)
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: When giving as bolus dilute it at least 1:1, recommend 1:4, in 0.9% NaCl. When using as a CRI: 2.5% = 50mL of 50% dextrose in 1 liter of IV fluid 5.0% = 100mL of 50% dextrose in 1 liter of IV fluid Administration: Give slowly over 5-10 minutes. Storage: Solution contains no bacteriostatic or antimicrobial agents, and the recommendation is to discard bottle after opening (**bottle is for single use**).
SPECIAL CONSIDERATIONS	• Incompatible IV: Should not be mixed with hypertonic solutions (reported to decrease stability of some drugs) • CRI concentrations greater than 5% should be given in a central IV line to avoid phlebitis. • Keep this formula in mind when making up a CRI: (want x have) / concentration of dextrose. o Example: make a 2.5% solution in 500 mls o I “want” 2.5%, I “have” 500. So, 2.5 x 500 = 1250. o Then divide 1250 by 50 = 25. So 25mL is the amount of 50% dextrose to add to a 500 ml bag of fluids.

NAME	**Diazepam** *Valium*
CLASS	Benzodiazepine
COMMON INDICATIONS	Sedation, seizures, anxiety, muscle relaxation
COMMON DOSES	0.2-0.5 mg/kg IV
FORMULATION AVAILABLE	5 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Give IV slowly. IM and SQ routes not preferred (unreliable absorption because contains propylene glycol). Storage: Protect form light, discard after 4 hours in a syringe/plastic. Never store in plastic (diazepam adsorbs plastic)
SPECIAL CONSIDERATIONS	• Incompatible IV: OK to combine in syringe with ketamine. Otherwise, should not be mixed with other drugs (forms precipitates with most other drugs when combined IV). • Can cause severe thrombophlebitis if extravasated. • Midazolam is preferred for CRIs over diazepam (because of plastic binding and thrombophlebitis with diazepam) • Not recommended as sole sedative due to paradoxical hyperexcitement (especially in cats)

<table>
<tr><td>NAME</td><td>Diltiazem
Cardizem, Dilacor XR</td></tr>
<tr><td>CLASS</td><td>Calcium channel blocker</td></tr>
<tr><td>COMMON INDICATIONS</td><td>Supraventricular arrhythmias, hypertension, atrial fibrillation, HCM</td></tr>
<tr><td>COMMON DOSES</td><td>Emergency bolus 0.25 mg/kg IV (repeated up to 0.75 mg/kg max)
CRI: 2.5 mcg/kg/min</td></tr>
<tr><td>FORMULATION AVAILABLE</td><td>5 mg/mL</td></tr>
<tr><td>RECONSTITUTION, ADMINISTRATION & STORAGE</td><td><u>Reconstitution:</u> No special considerations for boluses.

To prepare diltiazem for CRI, aseptically transfer the appropriate quantity (see chart below) to the desired volume of normal saline, D5W, or D5W in 0.45% NaCl. Mix thoroughly. Use within 24 hours. Keep refrigerated until use.

<table>
<tr><th>Diluent Volume</th><th>Quantity of Diltiazem to Add</th><th>Final Concentration</th><th>Administration Dose</th><th>Infusion Rate</th></tr>
<tr><td>100 ml</td><td>125 mg(25ml) for a final volume of 125 mls</td><td>1 mg/ml</td><td>10 mg/h

15 mg/h</td><td>10 ml/h

15 ml/h</td></tr>
<tr><td>250 ml</td><td>250 mg (50 ml) for a final volume of 300 mls</td><td>0.83 mg/ml</td><td>10 mg/h

15 mg/h</td><td>12 ml/h

18 ml/h</td></tr>
<tr><td>500 ml</td><td>250 mg (50 ml) for a final volume of 550 mls</td><td>0.45 mg/ml</td><td>10 mg/h

15 mg/h</td><td>22 ml/h

33 ml/h</td></tr>
</table>

<u>Administration:</u> No special considerations

<u>Storage:</u> No special considerations</td></tr>
<tr><td>SPECIAL CONSIDERATIONS</td><td><u>Incompatible IV:</u> Many – see Plumb’s.
Effects should be seen on heart rate within 2 to 7 minutes. Can be given as a CRI. After 24 hours of CRI, effects can be seen for up to 10 hours after stopping CRI. The same time is noted for hypotension. Boluses will last for 1 to 3 hours.
Monitor with ECG and frequent NIBPs while on CRI.</td></tr>
</table>

NAME	**Dobutamine** *Dubutrex*
CLASS	Beta adrenergic ionotrope
COMMON INDICATIONS	Heart failure, fluid-resistant hypotension/shock, post-resuscitation
COMMON DOSES	2.5 – 15 mcg/kg/min CRI IV
FORMULATION AVAILABLE	12.5 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Calculate CRI using a very low fluid rate and dilute with enough volume to last for 6-12 hours. Never make up for more than 24 hours. Administration: Typically given in separate IV line at a low fluid rate Storage: CRI volume can be stored for 24 hours from time of reconstitution.
SPECIAL CONSIDERATIONS	• Incompatible IV: Aminophylline, calcium gluconate, diazepam, Digoxin, furosemide, heparin, regular insulin, magnesium sulfate, high concentrations of KCL (160 mEq/L), KPhos, sodium bicarbonate • Common side effects include tachycardia, facial twitching, tremors and seizures. • Monitor heart rate, blood pressure, mucous membranes, pulses and neurologic changes frequently. • If possible, monitor CVP and UOP • Low doses >5mcg/kg/min in cats can cause seizures/tremors.

NAME	**Dolasetron** *Anzemet*
CLASS	Antiemetic (5HT receptor antagonist)
COMMON INDICATIONS	Vomiting
COMMON DOSES	0.5 - 1 mg/kg IV q24h
FORMULATION AVAILABLE	20 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: No special considerations Storage: No special considerations
SPECIAL CONSIDERATIONS	• Incompatible IV: None listed, however suggested to flush IV line prior to administrating. • Reported to rarely cause dose-related EKG interval changes (self-limiting)

NAME	**Dopamine** *Intropin*
CLASS	Adrenergic/Dopaminergic Inotrope
COMMON INDICATIONS	Heart failure, fluid-resistant hypotension/shock, post-resuscitation
COMMON DOSES	5 – 15 mcg/kg/min CRI IV
FORMULATION AVAILABLE	40 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Calculate CRI using a very low fluid rate and dilute with enough volume to last for 6-12 hours; in 5% dextrose in water or normal saline solution. Never make up for more than 24 hours. Administration: Typically given in separate IV line at a low fluid rate Storage: CRI volume can be stored for 24 hours from time of reconstitution, a pink, yellow, brown, or purple color indicate decomposition of the drug, anything darker than a light yellow should be discarded.
SPECIAL CONSIDERATIONS	• Incompatible IV: Ampicillin, metronidazole, sodium bicarbonate • Extravascular administration can cause severe necrosis/sloughing of surrounding tissue. • Monitor heart rate, blood pressure, mucous membranes and pulses frequently. • Common side effects: nausea/vomiting, tachycardia, arrhythmias, hypertension.

NAME	**Doxycycline** *Vibramycin*
CLASS	Tetracycline antibiotic
COMMON INDICATIONS	Bacterial and rickettsial infections
COMMON DOSES	5-10 mg/kg IV q12h – q24h
FORMULATION AVAILABLE	100 mg vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Add 10 mL sterile water or D5W to 100 mg powder for an initial concentration of 10mg/mL. Administration: Further dilute to 0.8 to 1mg/mL solution in a compatible solution (i.e.: 0.9% NaCl, Plasma-lyte, Normosol R, D5W). Give over 1-4 hours (but no longer than 6 hours). Protect from direct sunlight (artificial light OK). Storage: Protect from light and refrigerate after reconstitution. Good for 12-48 hours at 10 mg/mL and 72 hours if diluted to 1 mg/mL.
SPECIAL CONSIDERATIONS	Incompatible IV: Acetylcysteine, chloramphenicol Too rapid injection may cause arrhythmias or acute collapse and death.

NAME	**Ethanol** *Grain alcohol, Vodka*
CLASS	Antidote (ethylene glycol toxicity)
COMMON INDICATIONS	Ethylene glycol or methanol toxicity
COMMON DOSES	Using 20% solution: Dogs: 5.5 mL/kg IV q4h for five treatments, then q6h for four treatments or CRI at 1.25 mL/kg/hr for 48 hours Cats: 5 mL/kg IV q6h for five treatments, then q8h for four treatments or CRI at 0.75 mL/kg/hr for approximately 60 hours
FORMULATION AVAILABLE	20% solution (40 proof) is preferred.
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: If higher proof alcohol is used, dilute in LRS, 0.45% NaCl, or D5W. To make 20% ethanol from 80 proof alcohol (Vodka, 80 proof), add 125 mL of 80 proof alcohol to 875 mL of IVF bag (remove 125 mL of fluid from bag). Administration: Use an in-line filter. No further dilution is necessary than noted above. Storage: No special considerations.
SPECIAL CONSIDERATIONS	• Incompatible IV: Designated IV catheter and line • Only effective within first 24 hours of ingestion of ethylene glycol • Works by binding the enzyme alcohol dehydrogenase preventing the enzyme from converting ethylene glycol from being converted to toxic metabolites. • Monitor for severe sedation / CNS depression, increased serum osmolality, and respiratory depression.

NAME	**Enrofloxacin** *Baytril*
CLASS	Fluoroquinolone antibiotic
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	5-20 mg/kg IV q24h
FORMULATION AVAILABLE	22.7 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Further dilute to 1:10 in 0.9% Na Cl (for a final concentration of 2 to 3 mg/mL) and give slowly over 45 to 60 minutes. Administer via designated line with no other fluids or medications. **More rapid injections can cause seizures.** Storage: Store at room temperature.
SPECIAL CONSIDERATIONS	• The 100 mg/mL large animal injectable product is not recommended (see Contraindications/Precautions/Warnings) for use in small animals. • Incompatible IV: Magnesium chloride; This drug should NOT be mixed with other drugs or other IV fluids that contain calcium, magnesium, or other divalent cations. • Doses >5 mg/kg in cats can caused blindness.

NAME	**Erythromycin** *Gallimycin*
CLASS	Macrolide antibiotic
COMMON INDICATIONS	Bacterial infections, mycoplasma, chlamydia, campylobacter
COMMON DOSES	5-20 mg/kg IV q8h
FORMULATION AVAILABLE	500 mg vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Add 10 mL of sterile water to make a 50 mg/mL concentration. *Note: Will precipitate with inorganic ions initially so first reconstitution must be with sterile water. Then can further dilute with 0.9% Saline, Norm-R, or D5W for administration (see below). Administration: Dilute further with 0.9% NaCl to a concentration of 1 to 5 mg/mL and give over 20 to 60 minutes Storage: After reconstitution, stable for 24 hours at room temperature or 14 days if refrigerated.
SPECIAL CONSIDERATIONS	Incompatible IV: **Many** – see Plumb's and Trissel.

NAME	**Famotidine** *Pepcid*
CLASS	H2 receptor antagonist
COMMON INDICATIONS	Used in the treatment or prophylaxis of gastric, abomasal and duodenal ulcers, uremic gastritis, stress related or drug induced erosive gastritis, esophagitis, duodenal gastric reflux and esophageal reflux.
COMMON DOSES	0.5-1.0 mg/kg IV
FORMULATION AVAILABLE	10 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: For IV use, dilute 1:3 then administer slowly. Rapid infusion can cause bradycardia and vomiting. Storage: Refrigeration required. Once diluted out in most commonly used IV solutions, it is stable at room temperature for 48 hours.
SPECIAL CONSIDERATIONS	If giving a metoclopramide CRI, stop the infusion and flush the line prior to administering the famotidine. Flush the line again prior to restarting the metoclopramide CRI. Use caution in animals with impaired renal or hepatic function. If giving with sucralfate, administer sucralfate at least 2 hours before famotidine, as sucralfate works best in an acidic environment.

NAME	**Fentanyl** ***Sublimaze, Duragesic***
CLASS	Opiate
COMMON INDICATIONS	Analgesic, adjunct to inhalant anesthetics
COMMON DOSES	2-5 mcg/kg IV (up to 10 mcg/kg) for pain management; 10-25 mcg/kg/hr as anesthetic adjunct
FORMULATION AVAILABLE	0.05 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None necessary. Administration: For perioperative pain, administer loading dose (2 -10 mcg/kg) followed by CRI of same dose per hour (2-10 mcg/kg/hr). Storage: Store at room temperature, protected from light.
SPECIAL CONSIDERATIONS	Use extreme caution when additional respiratory or CNS depression would be deleterious. Use caution in geriatric, critically ill or debilitated patients and those with pre-existing respiratory problems. Adverse effects: Dose related respiratory, CNS and circulatory depression (bradycardia); also, urine retention, constipation, dysphoria or agitation. Lab values (ie: amylase, lipase) may be altered.

NAME	**Fomepizole** *4-methylpyrazole (4-MP), Antizol, Antizol-vet*
CLASS	Antidote
COMMON INDICATIONS	Synthetic alcohol dehydrogenase inhibitor used to treat dogs and cats for ethylene glycol and methanol toxicity.
COMMON DOSES	• Dogs: Initial loading dose 20 mg/kg; at 12 hours post initial dose, give 15 mg/kg IV; at 24 hours post initial dose give another 15 mg/kg IV; at 36 hours post initial dose give 5 mg/kg IV. Additional doses at 5 mg/kg may be given as necessary if the animal has not recovered or there is still ethylene glycol in the blood. • Cats: Initially, 125 mg/kg slow IV; at 12, 24 and 36 hours post initial dose give 31.25 mg/kg IV. In addition, treat supportively with supplemental fluids. Cats must be treated within 3 hours of ingestion. Cats whose treatment began 4 hours pest ethylene glycol had 100% mortality with either fomepizole or ETOH therapy.
FORMULATION AVAILABLE	1 g/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution of Antizol: Draw out the entire contents of the vial (1.5ml which is 1000 mg) and inject it into at least 100 ml of 0.9% NaCl or D5W for a resultant concentration of 10 mg/ml. Reconstitution of Antizol-vet: This is sold as a 1.5g kit. For reconstitution, add the entire contents to the 30 ml vial of 0.9% NaCl provided in kit, mix well. Resultant solution is 50 mg/ml. Further dilute in 0.9% NaCl or D5W for a final concentration of 10 mg/ml. Administration: Administer each dose over 30 minutes. Storage: Antizol diluted in 0.9% NaCl or D5W remains stable and sterile for at least 24 hours when stored refrigerated or at room temperature. Antizol does not contain preservatives. Therefore, maintain sterile conditions and after dilution do not use beyond 24 hours. Solutions showing haziness, particulate matter, precipitate, discoloration or leakage should not be used. Antizol-vet™ can be stored at room temperature in provided vial. Discard after 72 hours. Antizol™ and Antizol-vet™ solidify at temperatures less than 25 degrees Celsius. If the fomepizole solution has become solid in the vial, the solution should be liquefied by running the vial under warm water or by holding in the hand. Solidification does not affect the efficacy, safety or stability of Antizol.
SPECIAL CONSIDERATIONS	Do not use in addition to ethanol. Ethanol metabolism is reduced significantly, and alcohol poisoning (CNS depression, coma, and death) can occur. Use together is not recommended. If both drugs are used, monitoring of ethanol blood levels is mandatory.

NAME	**Furosemide** *Lasix, Salix*
CLASS	Loop diuretic.
COMMON INDICATIONS	General diuretic, cardiogenic or pulmonary edema, acute oliguric renal failure, hypercalcemia/hypercalcuric nephropathy. Used for treatment of congestive cardiomyopathy, pulmonary edema, udder edema, hypercalcuric nephropathy, uremia, as an adjunctive therapy in hyperkalemia and occasionally as an antihypertensive agent.
COMMON DOSES	Bolus: 1 to 2 mg/kg IV (up to 4 mg/kg IV cats or 8mg/kg dogs) CRI: 0.1 to 1 mg/kg/hr
FORMULATION AVAILABLE	50 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Dogs: Administer up to 8 mg/kg IV every 1 to 2 hours until respiratory rate and/or effort improves; alternately a CRI of 0.1 – 1 mg/kg/hr may be used and potentially can produce greater diuresis, natriuresis and less kaliuresis. Cats: Initially, administer 2 – 4 mg/kg IV (onset of action should be approximately 5 minutes, opposed to 30-minute onset of action with IM dosing, patient may only be able to tolerate IM). The dose may be repeated within 1 -2 hours. Decrease dosing once respiratory rate starts to decrease to avoid severe dehydration. Storage: Store at room temperature.
SPECIAL CONSIDERATIONS	• Incompatible IV: ascorbic acid, dobutamine HCl, epinephrine, gentamicin sulfate, merilmicin sulfate and tetracyclines. Lasix should not be mixed with antihistamines, local anesthestics, alkaloids, hypnotics or opiates. • Lasix is contraindicated in patients with anuria, hypersensitivity, or seriously depleted electrolytes. • Use caution in patients with pre-existing electrolyte or water balance abnormalities, impaired hepatic function and diabetes mellitus. • Some side effects may include electrolyte abnormalities (more specifically hyponatremia), ototoxicity, GI distress, hematologic effects, weakness and restlessness. • Pre-renal azotemia if dehydration occurs. • Encourage normal food and water intake.

NAME	**Gentamicin**
CLASS	Aminoglycoside antibiotics
COMMON INDICATIONS	Used to treat many types of bacterial infections, particularly those caused by Gram-negative organisms.
COMMON DOSES	2-10 mg/kg IV q24
FORMULATION AVAILABLE	5 mg/mL or 100 mg/ml
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Dilute 1:1 with 0.9% NaCl. Administer over 30 to 60 minutes. Storage: Store at room temperature.
SPECIAL CONSIDERATIONS	• Incompatible IV: amphotericin –B, Ampicillin sodium, carbenicillin disodium, cefamandole naftate, cephalothin sodium, cephapirin sodium, dopamine HCl, furosemide, and heparin sodium. • Stagger doses if given concurrently with Ampicillin. Gentamicin is incompatible with heparin; do not flush line with heparinized saline due to physical incompatibility. • Gentamicin is nephrotoxic and ototoxic. Use caution in dehydrated and renal failure patients. Use caution in working dogs. • Concurrent use with cefazolin and diuretics can increase nephrotoxic effects. • Side effects may include nausea, vomiting and ataxia.

NAME	**Imipenem-Cilastatin** *Primaxin*
CLASS	A beta-lactam antibiotic
COMMON INDICATIONS	A broad-spectrum antibiotic for use in serious infections that are resistant to other antibiotics with narrower spectrums. Imipenem is also useful in treatment of serious infections that may include gram positive and gram-negative bacteria as well as anaerobic bacteria.
COMMON DOSES	3-10 mg/kg IV q6 to q8
FORMULATION AVAILABLE	Available in 250 mg and 500 mg vials
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Add 10 mL of 0.9% NaCl (or D5W) from a 100 ml bag to the vial of imipenem. Transfer this solution to the 100 ml bag of saline. Do not exceed a concentration of 5 mg/ml. Administration: Infuse over 30 to 60 minutes. If nausea or vomiting occurs the rate of infusion should be decreased. Storage: Once reconstituted with 100 mL of saline, imipenem is stable for 4 hours at room temperature and 24 hours if refrigerated.
SPECIAL CONSIDERATIONS	Incompatible IV: PRIMAXIN I.V. should not be mixed with or physically added to other antibiotics. However, PRIMAXIN I.V. may be administered concomitantly with other antibiotics, such as aminoglycosides. Rapid injection may cause chemical phlebitis or thrombophlebitis. Caution in animals with renal impairment or CNS disorders. May cause GI upset.

NAME	**Levetiracetam** *Keppra*
CLASS	A pyrrolidone-derivative antiepileptic agent
COMMON INDICATIONS	In dogs, may be useful as a third drug adjunct for refractory canine epilepsy or when either phenobarbital or bromides are not tolerated. Dogs may become refractory to therapy with time. In cats, probably a second-line drug when phenobarbital alone does not control seizures but can be tried as sole therapy when phenobarbital is not tolerated.
COMMON DOSES	20 mg/kg IV q8 (may require loading dose 60 mg/kg, case dependent)
FORMULATION AVAILABLE	100 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: May be given straight or diluted 1:1 in 0.9% NaCl over 5 to 15 minutes Storage: Store at room temperature.
SPECIAL CONSIDERATIONS	The therapeutic range for animals has not been specifically determined. Monitoring (CBC/Chemistry panel) is recommended approximately one week after starting levetiracetam and then every 6 to 12 months. Because the drug appears to be very safe, therapeutic drug monitoring is used primarily to adjust dosage.

NAME	**Lidocaine**
CLASS	Antiarrhythmic, anesthetic
COMMON INDICATIONS	Local and topical anesthetic and antiarrhythmic agent. Lidocaine is used to treat ventricular arrhythmias, principally ventricular tachycardia and ventricular premature complexes in all species.
COMMON DOSES	Dogs: Initial bolus 1 to 4 mg/kg IV, up to 8 mg/kg. If effective, then give constant rate infusion of 25-80 mcg/kg/minute.
FORMULATION AVAILABLE	20 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Administer bolus straight then can be given straight or is compatible with normal saline, D5W, Normosol-R or LRS as a CRI. Storage: Store at room temperature
SPECIAL CONSIDERATIONS	Incompatible IV: dopamine, epinephrine, norepinephrine, ampicillin, cefazolin Lidocaine solutions with epinephrine should not be given IV. Preservative-free solutions are preferred for IV use due to reports of higher instances of anaphylaxis in humans with the preservative containing solutions. Cats are more sensitive to CNS and cardio-depressant effects. **EXAMPLE:** Give a lidocaine CRI at 60 μg/kg/min to a 15 kg dog. Add the lidocaine to 1L of Normosol-R which is running at a rate of 41 mL/hr. How much lidocaine do you add to the 1000 mL of Normosol-R? 1. Calculate the number of minutes that the liter will last. a. 1000 mL/41mls/hr = 24 hours b. 24 hours X 60 minutes = 1440 minutes 2. Solve the equation. a. 60 μg X 15kg X 1440 minutes = 1,296,000 μg 3. Convert μg to mg. a. 1,296,000/1000 = 1,296 mg 4. Calculate the amount of drug needed per 1000 ml bag by dividing the amount of drug needed by the concentration of drug that you are using (2% lidocaine = 20mg/ml). a. 1,296 mg/20mg/ml = 64.8 mL of lidocaine 5. In order to be precise in your dosage, 64.8 mL of Normosol-R should be discarded and then the 64.8 mL of lidocaine to the bag.

NAME	**Magnesium Sulfate**
CLASS	Electrolyte
COMMON INDICATIONS	Hypomagnesemia, refractory ventricular tachycardia
COMMON DOSES	1 mEq/kg/24 hours IV as a CRI (can be titrated to effect)
FORMULATION AVAILABLE	1.97 mEq/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: 1 mEq/kg/d as a CRI and/or titrate to effect. Do not exceed 150 mg/minute IV. Storage: Store at room temperature. Discard any unused portion after use.
SPECIAL CONSIDERATIONS	Incompatible IV: alkali hydroxides, salicylates and many metals, including the following solutions: fat emulsion 10%, calcium gluceptate, dobutamine HCl, polymyxin B sulfate, procaine HCl, and sodium bicarbonate. Caution in animals with renal impairment. Magnesium is contraindicated in animals with myocardial damage or heart block. Caution when using with other CNS depressants, neuromuscular blocking agents and digitalis cardioglycosides.

NAME	**Mannitol**
CLASS	Osmotic diuretic
COMMON INDICATIONS	Increased intracranial pressure, oliguric/anuric renal failure, glaucoma.
COMMON DOSES	0.25 -1.0 g/kg IV q6h-8h PRN or as CRI.
FORMULATION AVAILABLE	200 mg/mL (20%)
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Draw out of vial with a filter needle or use a medication filter for administration. Give undiluted over 10 to 40 minutes as directed by clinician. Storage: Store at room temperature or in fluid warmer. Do not refrigerate, avoid freezing. Crystallization may occur at low temperatures. Dissolution of the crystals can be accomplished by heating the bottle in a hot water bath (up to 60 degrees C). Discard if unsuccessful in dissolving the precipitate. Cool to body temperature before administering. Discard any unused portion.
SPECIAL CONSIDERATIONS	Incompatible IV: Mannitol may be physically incompatible when mixed with strongly acidic or alkaline solutions. Mannitol should NOT be added to whole blood products to be used for transfusion. Sodium or potassium chloride can cause mannitol to precipitate out of solution when mannitol concentrations are 20% or greater. GI (nausea, vomiting), cardiovascular (pulmonary edema, CHF, tachycardia) & minor CNS effects. May cause severe electrolyte and fluid imbalances. Electrolytes should be checked both before and after administration of mannitol. Extravasation of mannitol may cause skin necrosis.

NAME	**Meropenem** *Meronem (UK), Merrem I.V.*
CLASS	Beta-lactam (carbapenem) antibiotic.
COMMON INDICATIONS	Bacterial infections, particularly for resistant infections.
COMMON DOSES	Dog: 8-12 mg/kg IV q8h (or 12mg/kg SC q 12h to go home) Cat: 8-12 mg/kg IV q 8-12h (or 12 mg/kg SC q 12h to go home)
FORMULATION AVAILABLE	500 mg or 1 g vials
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Reconstitute to 20 mg/ml in 0.9% NaCl for SC administration or 1-20 mg/ml in normal saline or sterile water for IV administration. Administration: IV administration over 15 to 30 minutes, dependent on fluid rates. Storage: Protect from light. Once reconstituted, refrigerate for up to 96 hours at 20 mg/ml in 0.9 % NaCl (once brought back to room temperature, use within 6 hours); refrigerate for up to 48 hours at 1-20 mg/ml in normal saline or sterile water; refrigerate for up to 12 hours at 50 mg/ml in sterile water (2 hours at room temperature).
SPECIAL CONSIDERATIONS	Incompatible IV: Compatibility of meropenem with other drugs has not been established. Meropenem should not be mixed with or physically added to solutions containing other drugs.

NAME	**Methadone** *Dolophine, Methadose*
CLASS	Opiate - pure *mu* agonist (and NMDA-blocker)
COMMON INDICATIONS	Analgesia, sedation
COMMON DOSES	0.1 - 0.5 mg/kg IV q4h - q6h (Can also be given IM/SQ)
FORMULATION AVAILABLE	10 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Slow push Storage: Protect from light.
SPECIAL CONSIDERATIONS	Incompatible IV: The injection is reportedly **not compatible** with pentobarbital, phenobarbital, or thiopental. Methadone injection is reportedly **incompatible** at Y-sties with acyclovir, allopurinol, amphotericin B conventional, dantrolene, fluorouracil, methohexital, pentobarbital, phenytoin, piperacillin-tazobactam, sulfamethoxazole-trimethoprim, and thiopental. Methadone has reported variable compatibility at Y-sites with furosemide. **DEA schedule II-controlled substance** Reported to cause less histamine release, sedation, vomiting than morphine and less panting/dysphoria than hydromorphone. Monitor for respiratory depression at high doses.

NAME	**Methocarbamol** *Robaxin*
CLASS	Muscle relaxant
COMMON INDICATIONS	Central muscle relaxation and the relief of pain associated with musculoskeletal injury/conditions or treating muscle tremors associated with toxic agents.
COMMON DOSES	20 to 40 mg/kg IV q8h to q12h or 44-220 mg/kg IV until tremors are controlled. Do not exceed 330 mg/kg/day.
FORMULATION AVAILABLE	100 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: administered slowly (do not exceed 2 ml/min) and to effect as needed; caution not to or if to exceed 330 mg/kg/d. Note: Administer half the estimated dose rapidly, then wait until the animal starts to relax before continuing administration to effect. Storage: Store at room temperature. Because a haze or precipitate may form, all diluted intravenous solutions should be physically inspected before administration.
SPECIAL CONSIDERATIONS	Incompatible IV: No specific information noted. Avoid extravasation, can cause severe thrombophlebitis; do not give subcutaneously. Can be diluted with saline due to hypertonic nature; can cause venous irritation. Adverse effects: Sedation, salivation, emesis, lethargy, weakness, & ataxia.

NAME	**Metoclopramide** *Reglan*
CLASS	Anti-emetic, GI prokinetic
COMMON INDICATIONS	Vomiting, GI promotility/ileus, increase lower esophageal sphincter tone.
COMMON DOSES	1 to 2 mg/kg/d IV as a CRI, 0.2-0.4mg/kg SC
FORMULATION AVAILABLE	5 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: as a CRI or as intermittent injections Storage: Metoclopramide is photosensitive and must be stored in light sensitive containers at room temperature. Discard unused portion after 24 hours.
SPECIAL CONSIDERATIONS	Incompatible IV: If giving by CRI, line should be flushed before and after with ampicillin, calcium gluconate, erythromycin, and sodium bicarbonate. Concurrent use of chlorpromazine can cause head tremoring/CNS signs; notify clinician if seen. Can intensify CNS effects if given concurrently with sedatives/narcotics. Concurrent use of narcotics can negate GI effects. Will only be compatible with KCl or vitamin B complex for 48 hours. GI hemorrhage, obstruction or perforation, hypersensitivity. Caution in patients with seizure disorders. May cause mentation and behavior changes in dogs, cats may become frenzied and disoriented. May cause constipation.

NAME	**Metronidazole** *Flagyl*
CLASS	Antibiotic/Antiprotozoal with GI anti-inflammatory properties
COMMON INDICATIONS	Bacterial or protozoal (Giardia) infections, large bowel diarrhea
COMMON DOSES	7.5 - 15 mg/kg IV q12h – q24h
FORMULATION AVAILABLE	5 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Give slowly over 30 minutes IV Storage: Store at room temperature, protect from sunlight, do not refrigerate.
SPECIAL CONSIDERATIONS	Incompatible IV: aztreonam, cefamandole naftate, dopamine HCl, may be incompatible with ampicillin (see Trissel). Side effects may include neurologic behavior, lethargy, weakness, anorexia, vomiting, hepatotoxicity. Rapid infusion may cause hypotension/collapse. Discard if solution precipitates. Watch for neurologic changes when using doses greater than 30 mg/kg/d.

NAME	**Midazolam** *Versad*
CLASS	Benzodiazepine
COMMON INDICATIONS	Anticonvulsant, sedation, anti-anxiety, muscle relaxation
COMMON DOSES	0.2 – 0.5 mg/kg IV
FORMULATION AVAILABLE	5 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: As a CRI, can be given straight or diluted in 0.9% NaCl or 5% Dextrose based on fluid rate. Storage: Store at room temperature, protected from light.
SPECIAL CONSIDERATIONS	• Reversed with flumazenil. • Midazolam is light sensitive for long-term storage. While a patient is hospitalized, there would be minimal loss of efficacy if using a CRI. Syringe can be covered if danger of exposure to direct sunlight. • Use caution in patients with renal or hepatic disease. Do not use in patients with glaucoma. Side effects may include respiratory depression.

NAME	**Mycophenolate Mofetil** *CellCept, Myfortic*
CLASS	Immunosuppressive agent
COMMON INDICATIONS	Inhibits lymphocyte proliferation. Used in treatment of immune mediated diseases such as IMHA, ITP and myasthenia gravis.
COMMON DOSES	10-20mg/kg IV or PO
FORMULATION AVAILABLE	Injection available as 500mg vial for reconstitution.
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Manufacturer states injection should be diluted in D5W to 6mg/mL concentration. Stability data indicates, however, that a 5mg/mL concentration is also stable. Remove 20mL of D5W from a 100mL bag and add to mycophenolate 500mg vial. Swirl gently to dissolve powder. Remove that 20mL and put back into 100mL bag of D5W for a final concentration of 5mg/mL. Administration: Wear gloves and avoid contact to skin and mucous membranes when handling. Do not open capsules or crush tablets. DO NOT administer mycophenolate through the same IV catheter or administration set as any other fluids or medications. Obtain a new infusion set or place a new IV catheter. **Slow infusion over at least 2 hours.** Storage: Reconstituted solution must be used within 4 hours of reconstitution.
SPECIAL CONSIDERATIONS	Incompatible IV: DO NOT administer mycophenolate through the same IV catheter or administration set as any other fluids or medications. Obtain a new infusion set or place a new IV catheter. Rapid injection may cause chemical phlebitis or thrombophlebitis. Caution in animals with renal impairment or CNS disorders. May cause GI upset.

NAME	**Naloxone** *Narcan*
CLASS	Opiate (mu, kappa, sigma) antagonist (antidote)
COMMON INDICATIONS	Opiate reversal
COMMON DOSES	0.01 - 0.04 mg/kg IM, IV, SQ
FORMULATION AVAILABLE	0.4 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: No special considerations Storage: Store at room temperature and protect from light.
SPECIAL CONSIDERATIONS	Incompatible IV: No special considerations Not a good reversal agent for butorphanol and buprenorphine (may require very high doses to have an effect) Duration of action may be short-lived (30-90 minutes) requiring re-dosing or CRI.

<table>
<tr><td>NAME</td><td>Nitroglycerine</td></tr>
<tr><td>CLASS</td><td>Vasodilator</td></tr>
<tr><td>COMMON INDICATIONS</td><td>Organic nitrate that causes vascular smooth muscle relaxation leading to both arterial and venous vasodilation. The degree of venous vasodilation is greater than arterial. This results in decreases in systemic arterial pressure, preload reduction and coronary artery dilatation.</td></tr>
<tr><td>COMMON DOSES</td><td>1 to 10mcg/kg/min as CRI</td></tr>
<tr><td>FORMULATION AVAILABLE</td><td>5mg/mL, 10mL vial</td></tr>
<tr><td>RECONSTITUTION, ADMINISTRATION & STORAGE</td><td>Reconstitution: Must be diluted for administration, recommend D5W
<table>
<tr><th>Nitroglycerin 5mg/mL</th><th>Dextrose 5% in Water</th><th>Final Concentration</th></tr>
<tr><td>1mL</td><td>99mL</td><td>50mcg/mL</td></tr>
<tr><td>5mL</td><td>95mL</td><td>250mcg/mL</td></tr>
<tr><td>10mL</td><td>90mL</td><td>500mcg/mL</td></tr>
<tr><td>25mL</td><td>225mL</td><td>500mcg/mL</td></tr>
</table>
Administration: Absorbed by plastic. Can dilute up to 2 hours in syringe or dilute > 2 hours in glass bottles (only pull up 2 hours’ worth at a time in syringe)

Storage: Protect from light until use. Can be exposed to light for up to 72 hours during infusion. Store at room temperature. See package insert</td></tr>
<tr><td>SPECIAL CONSIDERATIONS</td><td>• Incompatible IV: Do not co-administer with any other medications or fluids. (needs designated line)

• Adverse Reactions: 1. Nitroglycerin induced hypotension has been associated with paradoxical bradycardia in some human patients. 2. Headache is also reported in human patients. 3. Methemoglobinemia- Nitrate ions can oxidize hemoglobin to generate methemoglobinemia. This is extremely rare in human patients unless they have abnormal methemoglobinemia reductase function or quantity.</td></tr>
</table>

NAME	**Nitroprusside** *Nitropress, Sodium Nitroprusside*
CLASS	Vasodilator (fast-acting)
COMMON INDICATIONS	Acute/severe (or refractory) congestive heart failure Hypertensive crisis emergencies
COMMON DOSES	0.5 - 5 mcg/kg/min IV as CRI
FORMULATION AVAILABLE	25 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None. Administration: Administer as a CRI in **D5W**, in an ICU setting only. Effects are immediate and will last 1 to 10 minutes after cessation of CRI. **SUGGESTED SOP FOR NITROPRUSSIDE CRI:** - CRI must never stop suddenly. - Patient needs two IV catheters (one dedicated to nitroprusside only!) - The pump and line must be checked every 2 hours. - If the patient leaves the cage for any reason, the nitroprusside and pump always go with them (walks, visits, etc) - The battery on the syringe pump must be charged and functional so if disconnected, the pump still is able to deliver the medication. Storage: Store at room temperature. Extremely light sensitive. Protective cover supplied by manufacturer or foil must be kept over syringe or bag (IV line does NOT need to be wrapped). Vet Wrap is not an adequate means to cover. If solution turns blue, dark red or green, discard.
SPECIAL CONSIDERATIONS	• Incompatible IV: It is not recommended to use IV infusion solution other than D5W or to add any other medications to the infusion solution. • Nitroprusside is a potent vasodilator so profound hypotension can result. Careful monitoring of blood pressures is critical. **Notify a doctor if the blood pressure is below 90 mmHg.** • Cyanide toxicity can occur with prolonged use (36-48 hours). Monitor for brick red mucous membranes and CNS signs (seizures, tremoring). Tolerance may be a sign of toxicity. • Extravasation can cause tissue irritation. Monitor acid/base balance as well as electrolytes (especially sodium)

NAME	**Norepinephrine**
CLASS	Vasopressor
COMMON INDICATIONS	First line pressor for hypotension due to sepsis and anesthesia. Lower morbidity in reference to negative cardiac effects of vasopressors.
COMMON DOSES	• 0.5 to 2 µg/kg/min • Recommended starting dose 0.3 µg/kg/min. • Increase every 5 to 10 minutes based on response. • Max dose is 3 µg/kg/min. Add another pressor if get in the 2 to 3 µg/kg/min range.
FORMULATION AVAILABLE	1mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: • Calculate CRI using a very low fluid rate and dilute with enough volume to last for 6-12 hours; in 5% dextrose in water or 0.9% NaCl. Never make up for more than 24 hours. Given through designated catheter and/or separate IV line at a low fluid rate. • It is highly recommended to infuse norepinephrine through large-bore peripheral intravenous catheters or central venous catheters. Ideally, the peripheral infusion should be in a more cranial extremity to provide the least risk of ischemia secondary to extravasation. Caudal extremity veins should be avoided as occlusive vascular diseases are more likely to occur in the lower extremities. Extravasation into local tissue can cause significant ischemia and subsequent necrosis. Should extravasation be suspected, the infusion should stop immediately. Storage: Store at room temperature. Protect from light. (also during CRI administration)
SPECIAL CONSIDERATIONS	• Incompatible IV: aminophylline and sodium bicarbonate. *Y set compatible* with other vasopressors/inotropes (ie: epinephrine, vasopressin, dobutamine). Ideally, should NOT be administered with LRS/Norm-R/P-lyte. (Can alter pH and effect drug stability.) • Correct hypocalcemia (calcium is needed for vascular tone).

NAME	**Ondansetron** *Zofran*
CLASS	Serotonin 5-HT3 receptor antagonist. It affects both peripheral and central nerves.
COMMON INDICATIONS	Anti-emetic.
COMMON DOSES	0.2 to 0.5 mg/kg IV
FORMULATION AVAILABLE	2 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Administer IV, undiluted, over 2 to 5 minutes. Storage: Store at room temperature. Protect from light.
SPECIAL CONSIDERATIONS	• Incompatible IV: None listed. • Minimal side effects, caution in collie breeds • Extensively metabolized by the liver

NAME	**Pantoprazole** *Protonix*
CLASS	Proton pump inhibitor
COMMON INDICATIONS	Used in treatment or prevention of gastric acid-related pathologies in dogs, cats, foals and camelids.
COMMON DOSES	0.5 - 1 mg/kg IV only, once daily
FORMULATION AVAILABLE	40 mg vial, dilute to a final concentration of 0.8 mg/ml.
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: • Add 1 bottle of 40 mg pantoprazole to a 50 ml bag of 0.9% NaCl to make 0.8 mg/mL. • ***OR*** Add 10 mL of 0.9% NaCL to 40 mg vial to make 4mg/mL (then further dilute to 0.4 to 0.8mg/mL for administration) Administration: Administer IV over 15 minutes at a final concentration of 0.4 to 0.8mg/mL. *DO NOT give IM or SC. Storage: Once reconstituted, keep refrigerated for up to 11 days.
SPECIAL CONSIDERATIONS	Incompatible IV: midazolam

NAME	**Piperacillin/tazobactam** *Zosyn*
CLASS	Penicillin/beta-lactamase inhibitor
COMMON INDICATIONS	While piperacillin/tazobactam has broad activity against gram-positive aerobic, gram-negative aerobic, and anaerobic bacteria, it is specifically indicated in humans for appendicitis and peritonitis, dermatitis, post-partum endometritis and certain types of bacterial pneumonia.
COMMON DOSES	50 to 100 mg/kg (piperacillin) IV q 6h or as CRI @ 3.2mg/kg/h following a 4mg/kg bolus.
FORMULATION AVAILABLE	4.5g vial
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution /Administration: Add 20mL of 0.9% NaCl or D5W and swirl contents until completely dissolved. This results in a 225mg/mL concentration. Then further dilute in 80mL of 0.9% NaCl or D5W for a final concentration of 40mg/mL (piperacillin). Storage: Once reconstituted, vials should be used immediately. It is recommended to discard after 24 hours if kept at room temperature or 48 hours if stored in the refrigerator. IV bags (100mL after dilution) containing further diluted product are stable for 24 hours at room temperature or 5 to 7 days if refrigerated.
SPECIAL CONSIDERATIONS	Incompatible IV: Not compatible with LRS. Do not combine in Y-set or line with any other drugs as compatibility is VERY limited.

<table>
<tr><td>NAME</td><td>Potassium Chloride</td></tr>
<tr><td>CLASS</td><td>Electrolyte</td></tr>
<tr><td>COMMON INDICATIONS</td><td>Used for treatment or prevention of hypokalemia</td></tr>
<tr><td>COMMON DOSES</td><td>See chart below</td></tr>
<tr><td>FORMULATION AVAILABLE</td><td>2 mEq/mL</td></tr>
<tr><td>RECONSTITUTION, ADMINISTRATION & STORAGE</td><td>Reconstitution: None

Administration: Intravenous potassium salts must be diluted before administering and must be given slowly (usually as CRI) and must not exceed 0.5 mEq/kg/hr. See supplementation chart:

<table>
<tr><td>Serum Potassium Concentration</td><td>mEq KCl to add to 250ml of fluid</td><td>mEq KCl to add to 1 L of fluid</td><td>Maximal Fluid Infusion Rate (ml/kg/hr)</td></tr>
<tr><td><2</td><td>20</td><td>80</td><td>6</td></tr>
<tr><td>2.1 to 2.5</td><td>15</td><td>60</td><td>8</td></tr>
<tr><td>2.6 to 3</td><td>10</td><td>40</td><td>12</td></tr>
<tr><td>3.1 to 3.5</td><td>7</td><td>28</td><td>18</td></tr>
<tr><td>3.6 to 5</td><td>5</td><td>20</td><td>25</td></tr>
</table>

Storage: Store at room temperature.</td></tr>
<tr><td>SPECIAL CONSIDERATIONS</td><td>• Incompatible IV: amphotericin-B, diazepam (at Y-site) and phenytoin sodium (at Y-site)
• Contraindicated in cases of hyperkalemia, renal failure or severe renal impairment, severe hemolytic reactions, untreated Addison’s disease, acute dehydration, GI motility impairment (oral forms).
• Use caution in patients taking digoxin</td></tr>
</table>

NAME	**Potassium Phosphate**
CLASS	Electrolyte
COMMON INDICATIONS	Used in the treatment and prevention of hypophosphatemia.
COMMON DOSES	0.01 – 0.06 mM/kg/hr
FORMULATION AVAILABLE	3mM of phosphate and 4.4mEq of potassium per ml
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Must be diluted or preferably given as CRI in saline or D5W. Storage: Store at room temperature.
SPECIAL CONSIDERATIONS	• Incompatible IV: dobutamine HCl, LRS, Ringer's injection, D2.5 in half normal Ringers or LRS, D5 in Ringers and D10 in 0.9% NaCl. • Contraindicated in cases of hyperphosphatemia, hypocalcemia, oliguric renal failure. Potassium phosphate is contraindicated in cases of hyperkalemia and sodium phosphate is contraindicated in cases of hypernatremia. • Use caution in patients with cardiac or renal disease. • Some side effects may include: hyperphosphatemia, resultant hypocalcemia, hypotension, renal failure, or soft tissue mineralization

NAME	**Procainamide** *Pronestyl*
CLASS	Class IA antiarrhythmic agent
COMMON INDICATIONS	Class IA antiarrhythmic agent used in the treatment of atrial fibrillation, supraventricular tachycardia, ventricular tachycardia and ventricular premature contractions.
COMMON DOSES	Dogs: 1 - 4 mg/kg IV bolus then CRI at 10 -100 mcg/kg/min Cats: 1-2 mg/kg IV bolus then CRI at 10-20 mcg/kg/min
FORMULATION AVAILABLE	100 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Can be administered as a bolus, slowly over 5 minutes and as a CRI. Dilute in normal saline Storage: Store at room temperature. Do not use if solution is any other color than a light amber.
SPECIAL CONSIDERATIONS	• Incompatible IV: none listed. • Caution during administration, if given too quickly can cause severe hypotension. • Monitor blood pressure • Monitor ECG as procainamide can cause AV block, widened QRS complex and QT intervals and multiform ventricular tachycardias. • Some side effects may include: GI signs, weakness, hypotension and in rare cases, fevers and leukopenias. • Procainamide is contraindicated in cases of myasthenia gravis, torsade de pointes or 2nd/3rd degree heart block • Use caution in patients with systemic lupus, hepatic disease, renal disease, CHF or any patient that is critically ill

NAME	**Ranitidine** *Zantac*
CLASS	H2 receptor antagonist; Prokinetic
COMMON INDICATIONS	Gastric acid reducer, GI promotility
COMMON DOSES	0.5 - 2 mg/kg IV q 8-12h
FORMULATION AVAILABLE	25 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Dilute 1:10 in 0.9% NaCl. Do not administer any faster than 4mL/min. Storage: Store protected from light and at a temperature less than 30 degrees Celsius. A slight darkening of the solution does not affect the potency of the drug.
SPECIAL CONSIDERATIONS	Incompatible IV: None listed. Rapid administration can cause vomiting, reflex bradycardia and other arrhythmias.

NAME	**Sodium Bicarbonate**
CLASS	Alkalinizer
COMMON INDICATIONS	Alkalinizing agent used to treat metabolic acidosis and alkalinize urine; may be used adjunctively for hypercalcemic or hyperkalemic crises.
COMMON DOSES	Case dependent. See Plumb. Metabolic acidosis: 1-2mEq/kg IV as slow bolus Therapeutic: mEq of NaHCO3 required = 0.5 x body weight in kg x (desired total CO2 mEq/mL minus measured total CO2 mEq/L)
FORMULATION AVAILABLE	(8.4%) 1 mEq/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None Administration: Case dependent. Storage: Store at room temperature.
SPECIAL CONSIDERATIONS	• Incompatible IV: alcohol 5%/dextrose 5%, D5 LRS, amrinone lactate, ascorbic acid, carmustine, cisplatin, codeine phosphate, corticotrophin, dobutamine HCl, epinephrine HCl, glycopyrrolate, hydromorphone HCl, imipenem-cilastatin, regular insulin, isoproterenol HCl, labetolol HCl, levorphanol bitartrate, magnesium sulfate, meperidine HCl, methadone HCl, metoclopramide HCl, norepinephrine bitartrate, oxytetracycline HCl, pentazocine lactate, and succinylcholine chloride. • Some adverse effects include metabolic alkalosis, hypokalemia, hypocalcemia, “overshoot” alkalosis, hypernatremia, volume overload, CHF, shifts in the oxygen dissociation curve causing decreased tissue oxygenation and paradoxical CNS acidosis leading to respiratory arrest. In cases of CPR, hypercapnia if the patient is not properly ventilated; patients may be predisposed to ventricular fibrillation.

NAME	**Ticarcillin** *Timentin (Ticarcillin/clauvulanate)*
CLASS	Extended spectrum penicillin and beta-lactamase inhibitor
COMMON INDICATIONS	Bacterial infections
COMMON DOSES	50 mg/kg IV q 6-8h
FORMULATION AVAILABLE	3.1 g vials
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: Initially, reconstitute with 26 mL of 0.9% NaCl; resulting concentration will be 100 mg/mL Administration: Further dilute to a concentration of 10 to 100 mg/ml and administer (as slow as possible) over at least 30 minutes. Concentrations of 50 mg/ml or less will cause less vein irritation. Storage: In 0.9% NaCl, solution is stable for 24 hours at room temperature and 72 hours when refrigerated.
SPECIAL CONSIDERATIONS	• Incompatible IV: Do not give with aminoglycosides (i.e.: gentamicin, amikacin). Timentin may not be compatible when infused at a Y-site with solutions containing amphotericin-B, azithromycin or vancomycin. • Patients with significantly impaired renal function or those receiving very high dosages may be more prone to develop platelet function abnormalities or CNS effects.

NAME	**Vasopressin** *Pitressin*
CLASS	Anti-diuretic hormone
COMMON INDICATIONS	• Diabetes Insipidus • Vasodilatory shock that is unresponsive to fluid resuscitation and catecholamine administration. • CPR with PEA or ventricular asystole
COMMON DOSES	Diabetes Insipidus: See SOP for WTD (water deprivation test). Vasodilatory Shock: 0.01-0.04 Units/minute IV NOTE: This dose is NOT dependent on patient's weight. CPR: 0.2-0.8 Units/kg IV, once
FORMULATION AVAILABLE	20 Units/ml
RECONSTITUTION, ADMINISTRATION & STORAGE	Diabetes Insipidus: See SOP for WTD (water deprivation test) Vasodilatory Shock: Dilute in D5W or normal saline to a concentration of 0.1-1 Unit/mL.
SPECIAL CONSIDERATIONS	Do not exceed 0.04 Units/minute (risk of myocardial ischemia). Do not use in patients with cardiogenic shock.

NAME	**Vincristine** *Vincristine Sulfate, Oncovin*
CLASS	Antineoplastic (Vinca alkaloid)
COMMON INDICATIONS	Various chemotherapy protocols Immune-mediated thrombocytopenia (ITP)
COMMON DOSES	Anti-neoplastic: 0.5 - 0.75 mg/m2 IV q1-2 weeks ITP uses: 0.02 mg/kg IV (up to 0.05 mg/kg)
FORMULATION AVAILABLE	1 mg/mL
RECONSTITUTION, ADMINISTRATION & STORAGE	Reconstitution: None. Administration: Drawn up using closed system under chemo hood. Given in a new, clean IV catheter or butterfly catheter. Should not be given slowly (give as fast push) to lessen chance of patient moving and causing extravasation. **Take extreme care to avoid extravasation. If extravasation is suspected, immediately pull back as much as possible, cold compress, and alert doctor.** Storage: Protect from light and store in refrigerator
SPECIAL CONSIDERATIONS	• Incompatible IV: furosemide. Many others - recommended to consult Trissel Handbook (see references on home screen) • Use caution in MDR-1 mutation suspects (Collies, etc.) or patients with suspect hepatic dysfunction. • Avoid contact with urine, saliva, and feces for up to 7 days after treatment. • Plumb's: Reportedly physically **compatible** with the following intravenous solutions and drugs: D_5W, bleomycin sulfate, cytarabine, fluorouracil, and methotrexate sodium. In syringes or at Y-sites with bleomycin sulfate, cisplatin, cyclophosphamide, doxorubicin HCl, droperidol, fluorouracil, heparin sodium, leucovorin calcium, methotrexate sodium, metoclopramide HCl, mitomycin, and vinblastine sulfate.