



TOXIC AGENT	ANTIDOTES AND SPECIFIC TREATMENTS	QUANTITY RECOMMENDED
	ADULT DOSES are given for most drugs. This table is not intended for individual patient care. Please call the Missouri Poison Center for specific recommendations for an individual patient.	
<b>Acetaminophen</b>	<b>Acetylcysteine ORAL:</b> (diluted to 5% solution): <b>All ages: Loading:</b> 140 mg/kg; <b>Maintenance:</b> 70 mg/kg every 4 hrs for 5 doses starting 4 hrs after loading dose. MAX dose is for $\geq 100$ kg patient weight. <b>OR</b> <b>Acetylcysteine (Acetadote®) IV: IMPORTANT:</b> IV dosing regimens vary, check with your institution. FDA-approved dosing, <b>All ages: #1:</b> 150 mg/kg infuse over 1 hr; then <b>#2:</b> 50 mg/kg infuse over 4 hrs; then <b>#3:</b> 100 mg/kg infuse over 16 hrs. MAX dose is for $\geq 100$ kg patient weight.	<b>NAC 20%:</b> 27 x 30 mL <b>NAC 10%:</b> 52 x 30 mL <b>Acetadote® 20%:</b> 12 x 30 mL
<b>Anticholinergic Delirium</b>	<b>Benzodiazepines:</b> First-line treatment. <b>Physostigmine (Antilirium®) IV/IM:</b> Use with caution. <b>Adult:</b> 0.5-1 mg over 5-10 min by slow IV push. May repeat dose in 10-15 min if delirium persists and cholinergic excess is not present. Maximum dose <b>2 mg total</b> during the first hour.	<b>Physostigmine:</b> 4 to 10 x 2 mL ampules, 1 mg/mL
<b>Arsenic</b>	<b>Dimercaprol (BAL in Oil®) Deep IM Only;</b> for severe acute poisoning: <b>All ages:</b> 2.5-3 mg/kg every 4 hrs on Days 1-2, then a tapering schedule. Switch to Succimer as soon as tolerated. <b>OR</b> <b>Succimer (Chemet®) ORAL</b> (Off label, <b>All ages:</b> ) 10 mg/kg every 8 hrs for 5 days; then 10 mg/kg every 12 hrs for 14 days.	<b>BAL:</b> 10 x 3 mL ampules, 100 mg/mL <b>Succimer:</b> 100 x 100 mg cap
<b>Benzodiazepine</b>	<b>Flumazenil IV:</b> Not recommended for intentional overdose; may precipitate seizures. <b>Adult:</b> Initial 0.2 mg over 30 seconds; if needed, give additional 0.3 mg dose over 30 seconds. <b>Repeat doses:</b> 0.5 mg over 30 seconds at 1 min intervals PRN to MAX cumulative dose of 3 mg.	6 mg as 6 x 1 mg/10 mL vials
<b>Beta Blocker</b>	<b>Glucagon (GlucaGen®) IV:</b> 3-5 mg bolus slow IV push; If no response, <b>repeat</b> in 5-10 min up to total dose 10 mg. Immediately start continuous infusion at an hourly rate equal to effective bolus dose. <b>High-Dose Insulin Euglycemic Therapy (HIET):</b> Consider if other therapy is failing. See Calcium Channel Blocker below for dosing.	<b>Glucagon:</b> 50 x 1 mg vials
<b>Black Widow Spider</b>	<b>Benzodiazepines &amp; Opiates</b> <b>IV Black Widow Spider (Latrodectus mactans) Antivenin (equine) IV or IM:</b> (For severe envenomation) <b>All ages:</b> 1 vial, reconstituted, given IM, or diluted and infused IV over 15 min. Shipped from Merck within 24 hrs on request for confirmed, symptomatic bites.	Merck Service Center: <b>800-672-6372</b>
<b>Botulism, Infant</b>	<b>BabyBIG® Botulism Immune Globulin IV (Human):</b> 100 $\pm$ 20 mg per vial; Dose 50 mg/kg Available from California Department of Health, Infant Botulism Treatment & Prevention Program.	CA Infant Botulism Program: <b>510-231-7600</b>
<b>Botulism, Other</b>	<b>Botulism AntiToxin Heptavalent (equine) Types A-G ("BAT"):</b> <b>All ages:</b> 1 vial; weight based dosing. Call state Department of Health, which will contact CDC to obtain BAT from nearest CDC cache.	Missouri 24/7 Public Health Emergency Hotline: <b>800-392-0272</b>
<b>Calcium Channel Blocker</b>	<b>Calcium Chloride 10% IV OR Calcium Gluconate 10%:</b> <b>Initial:</b> 0.2 to 0.6 mEq/kg bolus of Ca <sup>2+</sup> ; <b>Repeat Bolus</b> every 15-20 min as needed, up to 3-4 doses. If needed, follow bolus dosing with a <b>continuous infusion:</b> 0.2 to 0.6 mEq/kg per hour of Ca <sup>2+</sup> ; titrate based on response. <b>High-Dose Insulin Euglycemic Therapy (HIET):</b> D50W initial bolus if Blood Glucose < 200 mg/dL; maintain Blood Glucose at 100-200 mg/dL. <b>Regular Insulin IV:</b> <b>Initial Loading:</b> 0.5-1 unit/kg; followed immediately by <b>Maintenance</b> continuous infusion at 0.5-1 unit/kg per hour (match loading dose). If no BP response to insulin bolus in 20 min, repeat insulin bolus at a higher dose, and raise the infusion rate to match the re-bolus dose. Bolus dose and hourly infusion rate may be as high as 10 units/kg and 10 units/kg per hour or even higher in severe poisoning cases. Calcium channel blocker poisoning causes severe insulin resistance.	<b>Calcium Chloride:</b> 10 x 10 mL <b>QR</b> <b>Calcium Gluconate:</b> 30 x 10 mL ampules (1 g each)
<b>Carbamate Insecticides</b>	<b>Atropine IV:</b> for muscarinic effects of excessive secretions, bradycardia, diarrhea, etc. <b>Adult:</b> 1-2 mg slow IV push. Repeat if needed.	<b>Atropine:</b> 1 gram
<b>Chloroquine Hydroxychloroquine</b>	<b>High-dose Diazepam</b> for severe cardiotoxicity: <b>All ages:</b> 1-2 mg/kg infused over 30 min, followed by 1 mg/kg total over the next 24 hours by continuous infusion or by 0.08 mg bolus every 2 hrs.	<b>Diazepam:</b> 10 x 10 mL vials, 5 mg/mL
<b>Clonidine</b>	<b>Naloxone IV:</b> <b>All ages: Initial:</b> 5 mg IV. If inadequate response after 2-3 min, <b>repeat</b> 5 mg IV.	<b>Naloxone:</b> 5 x 10 mL vials, 1 mg/mL
<b>Cyanide</b>	<b>Hydroxocobalamin (Vitamin B12-a, Cyanokit®) IV:</b> preferred in fire victims with concurrent CO poisoning. <b>Adult:</b> 5 grams over 15 min; May repeat 5 grams over 15-120 min for severe toxicity. <b>OR</b> <b>Sodium Nitrite/Sodium Thiosulfate Kit (Nithiodote®) IV:</b> <b>Adult:</b> <b>Sodium nitrite</b> 300 mg (10 mL) at 2.5-5 mL/min; then <b>Na thiosulfate</b> 12.5 grams (50 mL) at 5 mL/min. May repeat HALF dose if symptoms return.	<b>2 x Cyanokit® and/or</b> <b>2 x Nithiodote®</b>
<b>Dabigatran (Pradaxa®)</b>	<b>Idarucizumab (Praxbind®) IV:</b> <b>Adult:</b> 5 grams (2 x 2.5 g vials) over 15 min; Repeat dose not usually required. <b>OR 4 Factor Prothrombin Complex Concentrate (Kcentra®) IV:</b> for partial reversal if Praxbind® is unavailable.	<b>Dabigatran:</b> 5 g, as a package of two 2.5g/50 mL vials
<b>Digoxin or other Cardiac Glycoside drugs or botanicals</b>	<b>Atropine IV:</b> for bradycardia or AV block: 0.5-1 mg every 3-5 min; MAX total dose: 3 mg. <b>Digoxin Immune Fab (DigiFab®) IV:</b> Dose (in vials) = Serum Digoxin Level (ng/mL) x Weight (kg) $\div$ 100 (Round up to nearest whole vial.) Use HALF - dose or 2 vials initially in patient who needs therapeutic digoxin effect then reassess.	<b>DigiFab®:</b> 10 vials Each 40 mg vial binds 0.5 mg digoxin
<b>Drug-Induced Dystonic Reaction</b>	<b>Benzodiazepines IV or IM:</b> Adjunct treatment for acute dystonia. <b>Diphenhydramine IV or IM or ORAL:</b> <b>All ages:</b> 0.5-1 mg/kg (MAX single dose 50 mg)	<b>Diphenhydramine:</b> 5 x 10 mL vial, 10 mg/mL
<b>Ethylene Glycol</b>	<b>Fomepizole IV:</b> <b>All ages: Loading Dose:</b> 15 mg/kg; then <b>Maintenance Dose:</b> 10 mg/kg every 12 hrs for 4 doses, then 15 mg/kg every 12 hrs until ethylene glycol or methanol levels < 20 mg/dL. Adjust dose during dialysis. <b>OR</b> <b>Ethyl Alcohol PO if fomepizole not available.</b> Discontinue PO ethanol once fomepizole is available.	<b>Fomepizole:</b> 4 x 1.5 mL vial, 1 g/mL
<b>Factor Xa Inhibitors (DOAC) Direct Oral Anticoagulants</b>	<b>Andexanet alfa (Andexxa®) IV:</b> To reverse anticoagulation due to apixaban and rivaroxaban, and betrixaban and edoxaban (off label) when there is life-threatening bleeding. Dose depends on DOAC dose and recency. <b>High-Dose Bolus:</b> 800 mg at 30 mg/min; then <b>Continuous Infusion</b> of 8 mg/min for up to 120 min (960 mg) <b>OR</b> <b>4 Factor Prothrombin Complex Concentrate (Kcentra®) IV</b> if Andexxa® is unavailable.	<b>Andexxa®:</b> 18 x 100 mg vials 9 x 200 mg vials
<b>Heparin UFH and LMWH</b>	<b>Protamine Sulfate IV:</b> Give by slow IV over 10 min. MAX single dose 50 mg: 1 mg for every 100 units of <b>heparin</b> remaining in the patient; 1 mg for every 1 mg of <b>enoxaparin</b> ; 1 mg for every 100 anti-Xa IU of <b>dalteparin</b> or <b>tinzaparin</b> .	<b>Protamine sulfate:</b> 1 x 25 mL vial, 10 mg/mL
<b>Hydrofluoric Acid Dermal exposure</b>	<b>Calcium Gluconate Gel 2.5% (Calgonate®, H-F Gel®):</b> Apply liberally to burn until pain resolution. <b>Alternative:</b> 1 g calcium gluconate mixed with 40 mL water-soluble lubricant. <b>Alternative:</b> 500-600 mg calcium carbonate tabs crushed & mixed with 20 mL water-soluble lubricant.	<b>Calcium gluconate gel:</b> 2 x 90 g tubes
<b>Iron Acute overdose</b>	<b>Deferoxamine (Desferal®) IV:</b> for <b>significantly symptomatic</b> acute overdose. <b>All ages:</b> Start slowly at 5-10 mg/kg per hour and increase to 15 mg/kg per hour for 8-12 hrs, MAX 6 grams/day.	<b>Deferoxamine:</b> 12 x 500 mg vials
<b>Isoniazid (INH)</b>	<b>Benzodiazepines IV:</b> Use with Vitamin B6 for management of seizures. <b>Pyridoxine (Vitamin B6) IV:</b> <b>All ages:</b> 1 gram for each gram of INH ingested to MAX 5 gram single dose by slow IV push. If INH ingested is unknown, use 5 g pyridoxine. May repeat as needed until seizures controlled.	<b>Pyridoxine:</b> 20 grams as 20 x 10 mL vials, 100 mg/mL
<b>Lead</b>	<b>Succimer (Chemet®) ORAL:</b> for BLL > 45 mcg/dL in Child or > 80 mcg/dL in Adult. <b>All ages:</b> 10 mg/kg every 8 hrs for 5 days; then 10 mg/kg every 12 hrs for 14 days, in a lead-free environment. Combination parenteral chelators, reserved for BLL $\geq$ 70 mcg/dL in patients with lead encephalopathy. <b>Dimercaprol (BAL in Oil®) IM only:</b> 3-4 mg/kg/dose every 4 hrs for 2-7 days. Use in conjunction with Calcium Disodium EDTA. <b>Calcium Disodium EDTA (Versenate®) IV or Deep IM:</b> (Begin treatment with 2nd dose of Dimercaprol.) 25 mg/kg/day IV over 8-12 hrs for 5 days. Max daily dose: <b>Child:</b> 1,000 mg, <b>Adult:</b> 2,000-3,000 mg.	<b>Succimer:</b> 100 x 100 mg capsules <b>EDTA:</b> 10 x 2.5 mL ampules, 200 mg/mL <b>BAL:</b> 10 x 3 mL ampules, 100 mg/mL
<b>Local Anesthetic (Systemic Toxicity)</b>	<b>Lipid Emulsion 20% (Intralipid®) IV:</b> <b>All ages: Bolus:</b> 1.5 mL/kg (MAX: 100 mL) 20% lipid emulsion over 1-3 min; may repeat bolus for persistent asystole or pulseless electrical activity. Immediately follow with 0.25 mL/kg per min by <b>continuous infusion</b> to total dose of 8-10 mL/kg (MAX: 1 liter), usually 30-60 min.	<b>Lipid emulsion 20%:</b> 4 x 500 mL bags
<b>Mercury</b>	<b>Succimer (Chemet®) ORAL:</b> <b>All ages:</b> 10 mg/kg every 8 hrs for 5 days; then 10 mg/kg every 12 hrs for 14 days. <b>Dimercaprol (BAL in Oil®) Deep IM:</b> <b>Initial dose:</b> 5 mg/kg for 1 dose. <b>Subsequent doses:</b> 2.5 mg/kg, once or twice daily for 10 days <b>OR</b> Switch to Succimer when tolerated.	<b>Succimer:</b> 100 x 100mg capsules <b>BAL:</b> 10 x 3 mL ampules, 100 mg/mL
<b>Methanol</b>	<b>Fomepizole IV:</b> See Ethylene Glycol above for dosing. <b>OR</b> <b>Ethyl Alcohol PO if fomepizole not available.</b> Discontinue PO ethanol once fomepizole is available.	<b>Fomepizole:</b> 4 x 1.5 mL vial, 1 g/mL
<b>Methemoglobin</b>	<b>Methylene Blue (Provyablue®) IV:</b> <b>All ages: Initial:</b> 1 mg/kg IV over 5-30 min; <b>Repeat dose:</b> 1 mg/kg after 1 hr if methemoglobin > 30%.	6 x 10 mL ampules, 5 mg/mL
<b>Methotrexate</b>	<b>Leucovorin (Folinic Acid) IV or IM or ORAL:</b> for single acute oral overdose or chronic therapeutic overdose. <b>Child:</b> 0.25 mg/kg every 6 hrs for 4 doses; <b>Adult:</b> 15 mg every 6 hrs for 4 doses.	<b>Leucovorin:</b> 2 x 10 mL vial, 10 mg/mL Oral: 24 x 15 mg tablets
<b>Opiate/Opioid</b>	<b>Naloxone IV or IM or Sub-Q:</b> <b>Adult:</b> 0.4 to 2 mg (MAX 10 mg); <b>Repeat</b> every 2-3 min as indicated by response. Continuous infusion of 2/3 of total initial bolus per hour if needed, for long acting opioid agents.	<b>Naloxone:</b> 5 x 10 mL vials, 1 mg/mL
<b>Oral ingestions, Various</b>	<b>Activated Charcoal (Actidose Aqua®) ORAL: Limited indications:</b> If patient presents within 1-2 hrs of a significant ingestion and has not/will not develop CNS depression or vomiting, can consider administration of aqueous charcoal suspension. <b>Infant:</b> 1 gram/kg; <b>Child:</b> 25 grams; <b>Teen &amp; Adult:</b> 50-100 grams.	<b>Activated Charcoal:</b> 3 x 50 g bottles
<b>Organophosphate Insecticides</b>	<b>Atropine IV:</b> for management of muscarinic symptoms. <b>Diazepam IV:</b> Adjunct for management of CNS symptoms (confusion, agitation, seizures). <b>Pralidoxime (Protopam®) IV:</b> adjunct treatment with <b>atropine</b> and <b>diazepam</b> for severe skeletal muscle nicotinic effects (muscle fasciculation, weakness, poor respiratory effort): <b>Initial:</b> 30 mg/kg over 15-30 min (MAX: 2,000 mg). A 2 <sup>nd</sup> dose can be given in 1 hour, and additional doses every 10-12 hrs if muscle weakness persists.	<b>Atropine:</b> 1 gram <b>Pralidoxime:</b> 6 x 20 mL vials, 50 mg/mL (1 g each)
<b>Serotonin Toxicity</b>	<b>Benzodiazepines IV:</b> adjunct for management of agitation. If needed, add cyproheptadine. <b>Cyproheptadine ORAL:</b> <b>Initial:</b> 4-12 mg, then 4-8 mg every 4-6 hrs if symptoms persist. (MAX dose 32 mg/day.)	<b>Cyproheptadine:</b> 100 x 4 mg tablets
<b>Snakebite, Endogenous Pit Vipers</b>	Many Missouri copperhead bites are self-limited & do not require antivenin. If toxic edema is predicted to cross a major joint within 6 hrs after the bite, or there is significant coagulopathy at any time, give initial dose. <b>CroFab® Antivenin Crotalidae Polyvalent Immune Fab IV:</b> <b>Initial:</b> 4 vials for copperhead; 6 to 12 for rattlesnake, MAX 12 vials initially. <b>OR</b> <b>ANAVIP® crotalidae immune F(ab)'2 (equine) IV:</b> <b>Initial:</b> 10 vials.	<b>Crofab®:</b> 8-10 vials <b>Anavip®:</b> 20 vials More if receiving transfer patients
<b>Sulfonylurea Oral Hypoglycemic Drugs</b>	<b>Dextrose IV:</b> treatment as needed to correct hypoglycemia. <b>Octreotide (SandoStatin®) Sub-Q:</b> adjunct for recurrent hypoglycemia after initial dextrose dose. <b>Adult:</b> 50 mcg Sub-Q; repeat every 6-12 hrs if hypoglycemia recurs; 2-3 doses usually sufficient.	<b>Octreotide:</b> 1 x 5 mL vial, 0.2 mg/mL
<b>Valproic Acid</b>	<b>L-Carnitine IV (Carnitor®) IV or ORAL:</b> for management of hyperammonemic encephalopathy from overdose. <b>All ages:</b> 50 mg/kg (MAX: 3 grams) IV bolus over 15-30 min. <b>Maintenance:</b> 50 mg/kg (MAX dose: 3 grams) every 8 hrs for 1-2 days or until ammonia levels are decreasing and clinical improvement is evident.	<b>L-carnitine:</b> 10 x 5 mL vials, 200 mg/mL (1 g ea) Tablets: 90 x 330 mg Liquid: 118 mL, 100 mg/mL
<b>Warfarin/related anticoagulants</b>	<b>Vitamin K1 (Phytonadione) IV, Mephyton® ORAL:</b> <b>Initial:</b> 2.5-10 mg; <b>Repeat:</b> every 12-24 hrs if needed. Modify dosage based on INR and clinical condition.	<b>Vit K1 IV:</b> 5 x 1 mL ampules, 10 mg each Oral: 5 mg tablets