

Illinois Poison Center Antidote List

Uses and Suggested Minimum Stock Quantities for Poison Antidotes for Hospitals with Emergency Departments

Illinois Poison Center 24-hour Hot line: 1-800-222-1222

I. Poison Antidotes

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
N-Acetylcysteine (Mucomyst, [®] Acetadote [®])	Acetaminophen Carbon tetrachloride Other hepatotoxins	IV: 150 mL Acetadote PO: 8 x 30 ml of 20% NAC This would be enough to treat one 100 kg patient x 24 hours	Acetaminophen is the most common drug involved in intentional and unintentional poisonings. 600 mL (120 g) of the oral product provides enough to treat an adult for an entire 3-day course of therapy, or enough to treat 3 adults for 24 h. Several vials may be stocked in the ED to provide a loading dose and the remaining vials in the pharmacy for the q 4 h maintenance doses. 150 mL (30 g) of IV product will treat 1 100 kg adult patient for an entire 21-hour IV protocol. Note: While controversial, IV NAC may be preferable in patients who have hepatic encephalopathy or are pregnant.
Amyl nitrite, sodium nitrite and sodium thiosulfate (Cyanide antidote kit)	Acetonitrile Acrylonitrile Bromates (thiosulfate only) Chlorates (thiosulfate only) Cyanide (e.g., HCN, KCN and NaCN) Cyanogen chloride Cyanogenic glycoside natural sources (e.g., apricot pits and peach pits) Hydrogen sulfide (nitrites only) Laetrile Mustard agents (thiosulfate only) Nitroprusside (thiosulfate only) Smoke inhalation (combustion of synthetic materials)	1 to 2 kits Each kit contains: 12x 0.3 mL amyl nitrite ampules 2 vials 3% sodium nitrite, 10 mL each 2 vials 25% sodium thiosulfate, 50 mL each	Stock 1 kit in the ED. Consider also stocking 1 kit in the pharmacy. Note: This kit has a short shelf life of 24 months. Stocking this kit may be unnecessary if an adequate supply of hydroxocobalamin HCl is available. Significant adverse reactions include methemoglobinemia and hypotension. For smoke inhalation victims, thiosulfate, without the use of nitrites, may be considered.
Antivenin, Crotalidae Polyvalent (Equine Origin)	Pit viper envenomation (e.g., rattlesnakes, cottonmouths, and copperheads)	None	As of March 31, 2007, this product is no longer available from the manufacturer. However, some supplies may still be available. See Antivenin, Crotalidae Polyvalent Immune Fab – Ovine in this chart.

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Antivenin, Crotalidae Polyvalent Immune Fab – Ovine [®] (CroFab [®])	Pit viper envenomation (e.g., rattlesnakes, cottonmouths, and copperheads)	12-18 vials	Advised in geographic areas in Illinois with endemic populations of copperhead, water moccasin, eastern massasauga, or timber rattlesnake. In low-risk areas, know nearest alternate source of antivenin. This product has a lower risk of hypersensitivity reaction than previously marketed equine product. Average dose in pre-marketing trials was 12 vials but more may be needed. 12 vials will cover 8 hours of treatment, while 18 vials will cover 24 hours of treatment. Stock in pharmacy. Store in refrigerator. Equine product is no longer available after March 31, 2007.
Antivenin, Latrodectus mactans (Black widow spider)	Black widow spider envenomation	0 to 1 vial	Serious Latrodectus envenomations are rare in Illinois. This product is only used for severe envenomations. Antivenin must be given in a critical care setting since it is an equine-derived product which may cause anaphylaxis. Stock in pharmacy. Product must be refrigerated at all times. Know the nearest source of antidote.
Atropine sulfate	Alpha ₂ agonists (e.g., clonidine, guanabenz and guanfacine) Alzheimer drugs (e.g., donepezil, galantamine, rivastigmine, tacrine) Antimyasthenic agents (e.g., pyridostigmine) Bradycardia-producing agents (e.g., beta blockers, calcium channel blockers and digitalis glycosides) Cholinergic agonists (e.g., bethanechol) Muscarine-containing mushrooms (e.g., Clitocybe and Inocybe) Nerve agents (e.g., sarin, soman, tabun and VX) Organophosphate and carbamate insecticides	175 mg or greater Available in various formulations: 0.4 mg/mL (1 mL, 0.4 mg ampules) 0.4 mg/mL (20 mL, 8 mg vials) 0.1 mg/mL (10 mL, 1 mg ampules) Atropine Sulfate military-style auto-injectors: (ATROPEN [®]): 2 mg/0.7 mL, 1 mg/0.7 mL, 0.5 mg/0.7 mL, 0.25 mg/0.3 mL Atropine Sulfate 2.1mg/0.7mL with Pralidoxime Chloride 600mg/2mL (DuoDote [®])	The product should be immediately available in the ED. Some also may be stored in the pharmacy or other hospital sites, but should be easily mobilized if a severely poisoned patient needs treatment. Note: Product is necessary to be adequately prepared for WMD incidents; the suggested amount may not be sufficient for mass casualty events. Auto-injectors are available from Bound Tree Medical, Inc. Drug stocked in chempack containers is intended only for use in mass casualty events.

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
<p>Botulinum antitoxin</p> <p>As of March 13, 2010, the only botulinum antitoxin available is HBAT (heptavalent types A-G). This product replaces bivalent antitoxins type AB and antitoxin type E.</p> <p>Baby Botulism Immune Globulin (BIG)</p>	<p>Food-borne botulism</p> <p>Wound botulism</p> <p>Botulism as a biological weapon</p> <p>Note: Heptavalent antitoxin not currently recommended for infant botulism</p>	<p>None.</p> <p>Product is stored at 9 CDC regional centers (including the Chicago Quarantine). To obtain antitoxin, hospitals must call the Illinois Department of Public Health which contacts the CDC in Atlanta. The CDC emergency operation center can be reached at 770-488-7100.</p>	<p>Antitoxin must be given in a critical care setting since it is an equine-derived product.</p> <p>Note: Product must be refrigerated at all times.</p> <p>Heptavalent antitoxin is stored in the CDC SNS.</p> <p>BabyBIG is available for infant botulism types A and B, through the Infant Botulism Treatment and Prevention Program, sponsored by the California Department of Public Health, telephone: 510-231-7600, http://www.infantbotulism.org/physician/obtain.php</p>
<p>Calcium disodium EDTA (Versenate[®])</p>	<p>Lead</p> <p>Zinc salts (e.g., zinc chloride)</p>	<p>2x 5 mL amp (200 mg/mL)</p>	<p>One vial provides 1 day of therapy for a child. 2 to 4 g per 24 hours may be necessary in adult patients. Stock in pharmacy.</p> <p>Important note: Edetate disodium (Endrate[®]) is not the same as calcium disodium EDTA, and is used primarily as an IV chelator for emergent treatment of hypercalcemia, etc.</p>
<p>Calcium chloride and Calcium gluconate</p>	<p>Calcium channel blockers</p> <p>Fluoride salts (e.g., NaF)</p> <p>Hydrofluoric acid (HF)</p> <p>Hyperkalemia (not digoxin-induced)</p> <p>Hypermagnesemia</p>	<p>10% calcium chloride: 10x 10 mL vials</p> <p>10% calcium gluconate: 30x 10 mL vials</p>	<p>Many ampules of calcium chloride may be necessary in life-threatening calcium channel blocker or HF poisoning. Stock in ED. More may be stocked in pharmacy.</p> <p>The chloride salt provides 3 x more calcium than the gluconate salt. Calcium chloride is very irritating and administration through a central line is preferable. Topical calcium gluconate or carbonate gels may be extemporaneously prepared by the pharmacy. Calgonate[®] (calcium gluconate 2.5% gel) is not FDA approved but is manufactured in an FDA-GMP approved facility and is distributed by Calgonate Corp in Port St. Lucie, Florida.</p>
<p>Deferoxamine mesylate (Desferal[®])</p>	<p>Iron</p>	<p>12- 36g</p> <p>(Available in 500mg and 2g vials)</p>	<p>Quantity recommended supplies 8 to 24 hours of therapy for a 100 kg adult. Per package insert, the maximum daily dose is 6 g (12 vials). However, this dose may be exceeded in serious acute iron poisonings. Stock in pharmacy.</p>
<p>Digoxin immune Fab (Digibind[®], Digifab[®])</p>	<p>Cardiac glycoside-containing plants (e.g., foxglove and oleander)</p> <p>Digitoxin</p> <p>Digoxin</p>	<p>15 vials</p> <p>Each vial (38 mg) neutralizes 0.5 mg of digoxin</p>	<p>An initial dose of 2-3 vials for chronic poisoning or 10 vials for acute poisoning may be given to a digoxin-poisoned patient in whom the digoxin level is unknown. More may be necessary in severe intoxications. 15 vials would effectively neutralize a steady-state digoxin level of 15 ng/mL in a 100 kg patient. Know nearest source of additional supply. Stock in ED or pharmacy.</p>

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Dimercaprol (BAL in oil)	Arsenic Copper Gold Lead Lewisite Mercury	2x 3 mL ampules (100 mg/mL)	This amount provides 2 doses of 3 to 5 mg/kg/dose given q 4 h to treat 1 seriously poisoned adult or provides enough to treat a 15 kg child for 24 h. Stock in pharmacy.
DMPS (2,3-dimercaptopropanol-sulfonic acid, Dimaval [®] , Unithiol)	Arsenic Bismuth Lead Mercury	None (Available as 50mg/ml vials from McGuff Pharmacy)	DMPS is a water soluble analog of BAL. Unlike BAL, it does not have a potential risk of redistributing metals to the CNS. Also has a more favorable side effect profile, though further study is needed to fully elucidate advantages/disadvantages compared to other chelators.
Ethanol	Ethylene glycol Methanol	Consider stocking 180-360g in the form of 95% ethanol or equivalents. 10% alcohol in D ₅ W was discontinued in 2004; 5% alcohol in D ₅ W was discontinued in 2007. However, 10% alcohol can be prepared from dehydrated alcohol and D ₅ W. Consult PCC.	180 g provides loading and maintenance doses for a 100 kg adult for 8-24 h. More alcohol or fomepizole will be needed during dialysis or prolonged treatment. 95% or 40% alcohol diluted in juice may be given PO if IV alcohol is unavailable. Stock in pharmacy. Note: Ethanol is unnecessary if adequate amounts of fomepizole are stocked. See also fomepizole in this chart. May cause hypotension or metabolic abnormalities (e.g. hypoglycemia) esp. in pediatric patients.
Fat emulsion (Intralipid [®] , Liposyn II [®] , Liposyn III [®])	Local anesthetics and possibly other cardiac toxins (e.g., bupropion, calcium channel blockers, cocaine, beta blockers, tricyclic antidepressants)	Quantity determined by institution. Available in 100 mL of 20% emulsion.	Fat emulsion is an experimental therapy showing promise in the reverse of cardiac toxicity induced by local anesthetics and other cardiac toxins. The evidence for the efficacy of fat emulsion therapy is solely based on animal studies and human case reports, and its safety has not yet been established. Consultation with a regional PCC toxicologist is advised. Initial dose: 1.5 mL/kg IV over 1 minute. Follow with infusion of 0.25 mL/kg/min over 30 minutes. Loading dose may be repeated once. Rate may be increased to 0.5 mL/kg/min for 60 minutes if blood pressure drops. Maximum total dose is 8 mL/kg. Consider storage in pharmacy, ED, and possibly surgical units.
Flumazenil (Romazicon [®])	Benzodiazepines Zaleplon Zolpidem	Total 6-12 mg Available in 5 and 10 mL vials (0.1 mg/mL)	Due to risk of seizures, use with extreme caution, if at all, in poisoned patients. More may be stocked in the pharmacy for use in reversal of conscious sedation. Stock in ED, pharmacy, and any unit where procedural sedation is performed.
Folic acid and Folinic acid (Leucovorin)	Formaldehyde/Formic Acid Methanol Methotrexate, trimetrexate Pyrimethamine Trimethoprim	Folic acid: 3x 50 mg vials Folinic acid: 1x 50 mg vial	For adjunctive treatment of methanol-poisoned patients with an acidosis, give 50 mg folic acid initially, then 50 mg of folic acid q 4 h for 6 doses. For methotrexate poisoned patients administer folic acid only. Stock in pharmacy.

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Fomepizole (Antizol [®]) 4-methylpyrazole (4-MP)	Ethylene glycol Methanol	1 to 2x 1.5 g vials Note: Available in a kit of 4x 1.5 g vials	One 1.5 g vial provides an initial dose of 15 mg/kg/12 h to an adult weighing up to 100 kg. Hospitals with critical care and hemodialysis capabilities should consider stocking 1 kit of 4 vials or more. More frequent dosing (i.e., every 4 h) is required if the patient is dialyzed. Note: Product has a 2-year shelf life; however, the manufacturer offers a credit for unused, expired product. Ethanol is unnecessary if adequate supply of fomepizole is stocked. Fomepizole is preferred to ethanol because of ease of use, fewer adverse effects, simplicity of dosing, less need for close monitoring Stock in pharmacy. Know where nearest alternate supply is located.
Glucagon HCl	Beta blockers Calcium channel blockers Hypoglycemia Hypoglycemic agents	50 to 90x 1 mg vials	This quantity provides 4 to 8 hours of maximum dosing, i.e., a 10 mg IV bolus dose followed by 10 mg/h. More may be necessary. Know where nearest alternate supply is located. Stock 30 mg in ED and remainder in pharmacy. .
Hydroxocobalamin HCl (Cyanokit [®])	Acetonitrile Acrylonitrile Cyanide (e.g., HCN, KCN and NaCN) Cyanogen chloride Cyanogenic glycoside natural sources (e.g., apricot pits and peach pits) Laetrile Nitroprusside Smoke inhalation (combustion of synthetic materials)	2 to 4 kits Each kit contains 2x 2.5 g vials. Note: Diluent is not included in the kit.	Seriously poisoned cyanide patients may require 5 to 10 grams (1 to 2 kits). Stock 2 kits in ED. Consider also stocking 2 kits in the pharmacy. The product has a shelf-life of 30 months post-manufacture.
Hyperbaric oxygen (HBO)	Carbon monoxide and possibly the following: Carbon tetrachloride Cyanide Hydrogen sulfide Methemoglobinemia	Post the location and phone number of nearest HBO chamber in the ED.	Consult PCC to determine if HBO treatment is indicated.
Insulin and dextrose	Calcium channel blockers (diltiazem, nifedipine, verapamil) and possibly beta blockers	Quantity determined by institution. Humulin R is available as 100 units/mL in a 1.5 mL cartridge and 10 mL bottle. Dextrose 50% in water is available in 50 mL ampules and syringes. Dextrose 25% is available in 10 mL vials and syringes for pediatric use.	High dose insulin and dextrose therapy has reversed cardiovascular toxicity associated with calcium channel blocker overdose. Begin with 10 units to 1 unit/kg regular insulin IV bolus (with 1 amp D ₅₀), then start a drip at 0.5 units/kg/h (consider addition of D ₁₀ drip with insulin drip) and titrate upward until hypotension improves. Stock in ED and pharmacy.

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Methylene blue	Methemoglobin-inducing agents including: Aniline dyes Dapsone Dinitrophenol Local anesthetics (e.g., benzocaine) Metoclopramide Monomethylhydrazine-containing mushrooms (e.g., Gyromitra) Naphthalene Nitrates and nitrites Nitrobenzene Phenazopyridine	6x 10 mL ampules (10 mg/mL)	The usual dose is 1 to 2 mg/kg IV (0.1 to 0.2 mL/kg). A second dose may be given in 1 hour. More may be necessary. 6 ampules provides 3 doses of 2 mg/kg for a 100 kg adult. Stock in pharmacy.
Naloxone (Narcan [®])	Alpha ₂ agonists (e.g., clonidine, guanabenz and guanfacine) Unknown poisoning with mental status depression Opioids (e.g., codeine, diphenoxylate, fentanyl, heroin, meperidine, morphine and propoxyphene)	Naloxone: total 40 mg, any combination of 0.4 mg, 1 mg and 2 mg ampules	Stock 20 mg naloxone in the ED and 20 mg elsewhere in the institution. Note: Nalmefene (Revex), a longer-acting opioid antagonist was discontinued by the manufacturer in July 2008.
Octreotide acetate (Sandostatin [®])	Sulfonylurea hypoglycemic agents (e.g., glipizide, glyburide)	225 mcg Available in 1 mL ampules (0.05 mg/mL, 0.1 mg/mL, and 0.5 mg/mL) and 5 mL multidose vials (0.2 and 1 mg/mL).	Octreotide acetate blocks the release of insulin from pancreatic beta cells that along with IV dextrose can reverse sulfonylurea-induced hypoglycemia. The usual adult dose is 50 to 100 mcg IV or SC q 6 to 12 h. The usual pediatric dose is 1 to 1.5 mcg/kg IV or SC q 6 to 12 h. 225 mcg provides 4x 75 mcg adult doses. Stock in pharmacy.
D-Penicillamine (Cuprimine [®])	Arsenic Copper Lead Mercury	None required as an antidote. Available in bottles of 100 capsules (125 mg or 250 mg/capsule)	D-Penicillamine is no longer considered the drug of choice for heavy metal poisonings. It may be stocked in the pharmacy for other indications such as Wilson's disease or rheumatoid arthritis.
Physostigmine salicylate (Antilirium [®])	Anticholinergic alkaloid-containing plants (e.g., deadly nightshade and jimson weed) Antihistamines Atropine and other anticholinergic agents	2x 2 mL ampules (1 mg/mL)	Usual adult dose is 1 to 2 mg slow IV push. Note: Duration of effect is 30 to 60 min. Stock in ED or pharmacy.
Phytonadione (Vitamin K ₁) (AquaMEPHYTON [®] , Mephyton [®])	Indandione derivatives Long-acting anticoagulant rodenticides (e.g., brodifacoum and bromadiolone) Warfarin	100 mg injectable; 100 mg oral. Available as: 0.5 mL ampules (2 mg/mL) and 1 mL ampules (10 mg/mL) 5 mg tablets in packages of 10, 12, and 100	Patients who are poisoned by long-acting anticoagulant rodenticides may require 50 to 100 mg/day or more for weeks to months to maintain normal INRs. An oral suspension for pediatric patients may be extemporaneously prepared by the pharmacy. Stock in pharmacy.

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Pralidoxime chloride (2-PAM) (Protopam [®])	Organophosphate insecticides (OPI) Nerve agents (e.g., sarin, soman, tabun and VX) And possibly: Anticholinergic agents (e.g., pyridostigmine) Tacrine	18x 1 g vials. Also available as: Pralidoxime chloride military-style auto-injectors: 600 mg/2 mL Atropine Sulfate 2.1mg/0.7mL with Pralidoxime Chloride 600mg/2mL (DuoDote [®])	18 g provides an adult dose of 750 mg/h for 24 h. More may be needed in severe poisoning. Health-care facilities located in agricultural areas where OPIs are used should maintain adequate supplies. Product is necessary to be adequately prepared for WMD incidents; the suggested amount may not be sufficient for mass casualty events. Auto-injectors are available from Bound Tree Medical, Inc. The drugs stocked in chempack containers is intended for use in mass casualty events only. Stock in ED or pharmacy.
Protamine sulfate	Heparin Low molecular weight heparins (e.g., enoxaparin, dalteparin, tinzaparin)	Variable, consider recommendation of hospital P&T Committee Available as 5 mL ampules (10 mg/mL) and 25 mL vials (250 mg/25 mL)	The usual dose is 1 to 1.5 mg for each 100 units of heparin. Stock in pharmacy in refrigerator. Preservative-free formulation does not require refrigeration.
Pyridoxine hydrochloride (Vitamin B ₆)	Acrylamide Ethylene glycol Hydrazine Hydrazine MAOI's (isocarboxazid, phenelzine) Isoniazid (INH) Monomethylhydrazine-containing mushrooms (e.g., Gyromitra)	10 g (100 vials) Available as 1 mL vials (100 mg/mL)	Usual dose is 1 g pyridoxine HCl for each g of INH ingested. If amount ingested is unknown, give 5 g of pyridoxine. Repeat 5 g dose if seizures are uncontrolled. More may be necessary. Know nearest source of additional supply. For ethylene glycol, a dose of 100 mg/day may enhance the clearance of toxic metabolite. Stock in ED or pharmacy.
Silibinin (Legalon-SIL [®])	Cyclopeptide-containing mushrooms (e.g., Amanita phalloides, Amanita verna, Amanita virosa, Galerina autumnalis, Lepiota jossierandi, and others)	None. 350 mg/vial	Silibinin is a water-soluble preparation of silymarin; a flavonolignone extracted from the milk thistle plant. It inhibits uptake of cyclopeptides in hepatocytes. These hepatotoxins are responsible for high morbidity and mortality following ingestion of these mushrooms. Silibinin is manufactured by Madaus, Inc. in Germany, and has been widely used in Europe since 1984. The initial adult loading dose consists of a 1 h infusion of 5 mg/kg followed by the recommended daily dosage of 20 mg/kg via continuous IV infusion. Product is now available in the U.S. under an open-treatment IND. Physicians can obtain the product free-of-charge by contacting the primary investigator at 866-520-4412.

Antidote	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Sodium bicarbonate	Chlorine gas Hyperkalemia Serum Alkalinization: Agents producing a quinidine-like effect as noted by widened QRS complex on EKG (e.g., amantadine, carbamazepine, chloroquine, cocaine, diphenhydramine, flecainide, propafenone, propoxyphene, tricyclic antidepressants, quinidine and related agents) Urine Alkalinization: Weakly acidic agents (e.g., chlorophenoxy herbicides, chlorpropamide, methotrexate, phenobarbital and salicylates)	20 to 25x 50 mL vials of either 8.4% (50 mEq/50 mL) or 7.5% (44 mEq/50 mL) Consider stocking 4.2% (5 mEq/10 mL) for pediatric patients.	Stock 20 vials in ED and remainder in pharmacy. Nebulized 2.5-5% sodium bicarbonate has been demonstrated in anecdotal case reports to provide symptomatic relief for chlorine gas inhalation.
Succimer (Chemet [®]) Dimercaptosuccinic acid (DMSA)	Arsenic Lead Lewisite Mercury	0 to 10 capsules Available in bottles of 100 capsules (100 mg/capsule)	Initial treatment of severely symptomatic heavy metal poisoning consists of parenterally administered chelators, e.g., BAL, Ca Na ₂ EDTA. Patients who markedly improve may eventually be started on oral DMSA. Asymptomatic or minimally symptomatic patients do not require parenteral therapy and are often treated as outpatients with an oral chelator. FDA approved only for pediatric lead poisoning, however it has shown efficacy for other heavy metal poisonings. 10 capsules represent an initial dose of 10 mg/kg in a 100 kg adult. Stock in pharmacy.

IV=intravenous; HCl=hydrochloride, ED=emergency department; WMD=weapons of mass destruction; CDC=Centers for Disease Control and Prevention; SNS=Strategic National Stockpile; EDTA=ethylenediaminetetraacetic acid; FDA=Food and Drug Administration; BAL=British anti-Lewisite; PCC=poison control center; OPI=organophosphate insecticide; P&T=pharmacy and therapeutics

II. Adjunctive Agents

Adjunctive Agent	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Benztropine mesylate (Cogentin [®])	Medications causing a dystonic reaction or other EPS	Quantity determined by institution. Available in tablets of 0.5 mg, 1 mg, 2 mg (Bottles of 100 or 1,000) and in 2 mg/mL injectable ampules.	Maximum daily adult dose is 6 mg/d. Stock some in ED and some in pharmacy. See diphenhydramine also.
Bromocriptine mesylate (Parlodel [®])	Medications causing NMS	Quantity determined by institution. Available in 2.5 mg tablets or 5 mg capsules (Bottles of 30 or 100).	Dose for NMS is 2.5 to 10 mg every 6 to 8 hours. Bromocriptine is a centrally-acting dopamine agonist that reverses excessive dopamine blockade. Use with caution as this may worsen serotonin syndrome, Stock in pharmacy.
Centruroides Immune F(ab) ₂ – Equine (Anascorp [®])	Scorpion envenomation by Centruroides sculpturatus, the most venomous scorpion in the U.S. Note: It is found in southeastern California, Arizona, Nevada, southern Utah, and southwestern New Mexico.	None	This product is manufactured in Mexico by the Instituto Bioclon. In the U.S., it is marketed by Rare Disease Therapeutics, Inc. in Nashville, Tennessee. It is not FDA approved; however, it is available as an investigational new drug. Currently, the product is distributed to zoos and venom banks only. Usual dose: 1 to 3 vials.
L-Carnitine (Carnitor [®])	Valproic acid	Quantity determined by institution. Available as 330 mg and 500 mg tablets, 250 mg and 300 mg capsules, 200 mg/ml IV solution and 100 mg/ml PO solution.	L-Carnitine may be considered in valproate intoxication associated with elevated serum ammonia levels and/or hepatotoxicity. Doses of 100 mg/kg/d up to 2 grams a day PO divided into 3 doses, or 150-500 mg/kg/d IV (maximum 3 grams daily) in 3 or 4 divided doses are recommended for a period of 3 to 4 days or until clinical improvement. Stock in pharmacy.
Cyproheptadine HCl (Periactin [®])	Medications causing serotonin syndrome	Quantity determined by institution. Available in 4 mg tablets (Bottles of 100, 250, 500 and 1,000) and 2 mg/5 mL PO solution.	Cyproheptadine HCl is a nonspecific 5-HT antagonist that has been used in the treatment of serotonin syndrome. Adult dose is 4 to 8 mg PO repeated every 1 to 4 h until therapeutic effect is observed or maximum of 32 mg administered. Stock in pharmacy.
Dantrolene sodium (Dantrium [®])	Medications causing NMS Medications causing malignant hyperthermia	Quantity determined by institution. Available in 25, 50 and 100 mg capsules (Bottles of 100 or 500) and injectable 20 mg/vial form.	The recommended dose for NMS is 1 mg/kg IV; may repeat as needed every 5 to 10 minutes for a maximum of 10 mg/kg. Dantrolene sodium inhibits calcium release from the sarcoplasmic reticulum of skeletal muscle and thereby reduces rigidity. Stock in pharmacy. Any hospital using inhalational anesthetics should strongly consider stocking dantrolene for treatment of malignant hyperthermia.

Adjunctive Agent	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Diazepam (Valium [®])	Chloroquine and related antimalarial drugs NMS Serotonin syndrome Severe agitation from any toxic exposure/overdose (e.g. cocaine, PCP, methamphetamine)	Quantity determined by institution. Available as 5 mg/mL injectables in 2mL Ampules, 2 mL disposable syringes, and 10 mL multidose vials. Diazepam military-style auto-injectors for nerve agent-induced seizures: 10 mg/2 mL.	Diazepam is used in conjunction with epinephrine for patients with chloroquine toxicity (seizures, dysrhythmias, hypotension) or if the amount ingested is more than 5 g. Intravenous loading dose 2 mg/kg over 30 minutes. Maintenance dose of 1 to 2 mg/kg per day for 2 to 4 days. Diazepam and other benzodiazepines are also used in poisoned and nonpoisoned patients as an anticonvulsant, muscle relaxant, and anti-anxiety agent. They are usually the first-line therapy for drug-induced agitation, tachycardia, and hypertension. Benzodiazepines are a mainstay in the treatment of NMS and serotonin syndrome. Stock in ED and pharmacy. Adequate supply is necessary to be prepared for WMD incidents. Auto-injectors are available from Bound Tree Medical, Inc.
Diphenhydramine HCL (Benadryl [®])	Medications causing a dystonic reaction or other EPS	Quantity determined by institution. Available in 25 and 50 mg capsules (Bottles of 30, 100 or 1,000). Also in oral liquid formulation of 12.5 mg/5mL (4 ounce bottle) and 50 mg/mL injectable syringes.	In addition to its use as an anticholinergic agent, diphenhydramine is a widely used antihistamine in the management of minor or severe allergic reactions. Stock in ED and pharmacy.
Glycopyrrolate Bromide (Robinul [®])	OPIs Nerve agents	Quantity determined by institution. Available as 0.2 mg/mL in vials of 1 mL, 2 mL, 5 mL, and 20 mL.	The dose of glycopyrrolate for OPI poisoning is 0.01 to 0.02 mg/kg IV. Glycopyrrolate is a quaternary ammonium antimuscarinic agent which may assist in the control of hypersecretions caused by acetylcholinesterase inhibition. This agent produces less tachycardia and CNS effects than atropine. Stock in ED and pharmacy.
Phentolamine mesylate (Regitine [®])	Catecholamine extravasation Intradigital epinephrine injection	Quantity determined by institution. Available as a 5 mg/vial powder with 1 mL diluent.	Phentolamine is an alpha adrenergic antagonist which will reverse vasoconstriction and peripheral ischemia associated with extravasation of adrenergic agents. When phentolamine is not available, consider using subcutaneous terbutaline sulfate (Brethine [®]). Phentolamine also offers an additional option in the management of drug-induced hypertension. Stock in ED and pharmacy.
Sodium nitrite	Hydrogen sulfide (H ₂ S)	0 to 1 vial. Available as 3% sodium nitrite in 10 mL vial.	Nitrite therapy for H ₂ S poisoning is controversial. Seriously poisoned patients should receive nitrites within 1 hour of exposure. Sodium thiosulfate is not administered in H ₂ S poisoning. The product is available from Hope Pharmaceuticals in Scottsdale, Arizona. If the amyl nitrite/sodium nitrite/sodium thiosulfate CN antidote kits are stocked, additional sodium nitrite vials may not be necessary. Stock in pharmacy.

Adjunctive Agent	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Sodium thiosulfate	Bromates Chlorates Mustard agents Nitroprusside Smoke inhalation	Quantity determined by institution. Available in 100 mg/mL, 10 mL vials and 250 mg/mL, 50 mL vials.	Sodium thiosulfate (without nitrites) has been advocated in the treatment of smoke inhalation related to CN exposure; however, it would not be necessary if hydroxocobalamin is available. Sodium thiosulfate may be used in conjunction with cisplatin to reduce toxicity of this chemotherapy agent. Sodium thiosulfate is found in the amyl nitrite/sodium nitrite/sodium thiosulfate CN antidote kits; however, additional vials may be stocked. Stock in pharmacy.
Thiamine	Ethanol Ethylene glycol	Quantity determined by institution. Available as 100 mg/mL in 2 mL vials.	Parenteral thiamine precedes IV dextrose in patients with chronic ethanol abuse. Thiamine 100 mg every 6 hours enhances clearance of toxic metabolites of ethylene glycol. Stock in ED and pharmacy.

EPS=extrapyramidal symptoms; ED=emergency department; NMS=neuroleptic malignant syndrome; FDA=Food and Drug Administration; IV=intravenous; PO=oral; HCl=hydrochloride; WMD=weapons of mass destruction; OPI=organophosphate insecticide; CNS=central nervous system; CN=cyanide.

III. Agents for Radiological Exposures

Agent	Poison/Drug/Toxin	Suggested Minimum Stock Quantity	Rationale/Comments
Calcium-diethylenetriamine pentaacetic acid (Ca-DTPA; Pentetate calcium trisodium injection) Zinc-diethylenetriamine pentaacetic acid (Zn-DTPA; Pentetate zinc trisodium injection)	Internal contamination with transuranium elements: americium, curium, plutonium	Quantity determined by institution. Supplied as 200 mg/mL, 5 mL ampules for IV or inhalation administration. The product is sponsored through Hameln Pharmaceuticals, GmbH, of Hameln, Germany. Distributed in the United States by Akorn, Inc.	1 ampule provides the usual adult dose of 1 g q 24 hours. More would be necessary in a mass casualty event. Ca-DTPA and Zn-DTPA are available through the SNS and REAC/TS, Oak Ridge, Tennessee at 865-576-3131 (business hours) or 865-576-1005 (after hours).
Potassium Iodide, KI tablets (Iostat, [®] Thyrosafe [®]) KI liquid (Thyroshield [®] , SSKI [®])	Prevents thyroid uptake of radioactive iodine (I-131)	Quantity determined by institution. Available in 130 mg and 65 mg tablets, and PO solutions: 65 mg/mL (30 mL bottle) and 1 g/mL (30 mL and 240 mL bottle).	One 130 mg tablet represents the initial daily adult dose. More would be necessary in a mass casualty event. KI tablets and oral solution are non-prescription. The Illinois Department of Nuclear Safety makes KI tablets available to healthcare facilities and the general public located near nuclear reactors.
Prussian blue, ferric hexacyanoferrate (Radiogardase [®])	Radioactive cesium (Cs-137), radioactive thallium (Tl-201), and non-radioactive thallium	None recommended at the present time. Available in bottles of 30 capsules (500 mg/capsule).	The usual oral adult dose is 3 g, 3 times a day. The product is manufactured by Haupt Pharma Berlin GmbH for distribution by HEYL Chemisch-pharmazeutische Fabrik GmbH & Co. KG, Berlin, Germany, and is available in the U.S. from Heyltex Corporation. Prussian Blue is also available through the SNS and REAC/TS, Oak Ridge, Tennessee at 865-576-3131 (business hours) or 865-576-1005 (after hours).

IV=intravenous; SNS=Strategic National Stockpile; PO=oral; REAC/TS=radiation emergency assistance center/training site