



This educational poster is not intended for individual patient care. Information is believed accurate as of 09/2023.

If you are caring for a known or suspected toxic exposure patient, please call your poison center (1-800-222-1222) for patient specific management advice and assistance with locating antidotes.

Poison/Condition	Antidote	Minimum Stocking Level A	Dose	Comments
Acetaminophen	Acetylcysteine for IV use (Acetadote®)	120 g* = 20 vials [30 mL vials (200 mg/mL) x 20] for 4 patients x 24 hr	150 mg/kg IV over 1 hr, then 12.5 mg/kg for 4 hr, then 6.25 mg/kg/hr for 16 hr or until APAP < 10 and liver enzymes normal or improving. <b>Higher doses may be needed.</b>	Generally preferred over oral NAC. Both IV and PO are most effective if initiated within 8 hours of acute ingestion. May be of value even in late presenters. Administration protocols may vary. Continue beyond 21 hr if acetaminophen level remains elevated or worsening liver injury. Fomepizole may be helpful with severe overdoses. Call PC for case-specific advice.
	N-acetylcysteine (NAC; Mucomyst®)	54 g [30 mL 20% sol. vials x 9]	Loading Dose: 140 mg/kg PO. Maintenance Dose: 70 mg/kg q 4 hr PO x 5 doses. May require antiemetic for first few doses.	Duration may be extended beyond 24 hr, depending on clinical situation. Contact PC for case-specific dosing advice.
Anticholinergics	Physostigmine (Antilirium®)	4 mg* [2 mL vials (1 mg/mL) x 2]	1.5-2 mg IV (adult); 0.02 mg/kg IV (child, max 0.5 mg) diluted in 10 mL 0.9% saline over 5 min.	Physostigmine may cause seizures or life-threatening arrhythmias (if used in tricyclic antidepressant overdose with QRS widening or bradycardia). Physostigmine is currently unavailable; rivastigmine 3 mg PO along with a transdermal patch may be used as an alternative. Contact PC for guidance.
Anticoagulant Therapies: Dabigatran	Idarucizumab (Praxbind®)	5 g [2 vials, each contains 2.5 g/50 mL vial]	5 g IV (2 vials, each contains 2.5 g) as two consecutive infusions or bolus by injecting one vial after another.	Do not mix with other medicinal products. A pre-existing IV line may be used, but the line must be flushed with 0.9% saline prior to infusion. No other infusion should be administered in parallel via the same IV access.
Anticoagulant Therapies: Factor Xa Inhibitors, e.g., Apixaban, Rivaroxaban	Andexanet Alfa (Andexa®)	1800 mg [100 mg vials x 18]	LOW DOSE: Initial: 400 mg IV bolus at a target rate of 30 mg/min followed by 4 mg/min for up to 120 min. HIGH DOSE: Initial: 800 mg IV at a target rate of 30 mg/min followed by 8 mg/min for up to 120 min.	Dosing is dependent on the specific FXa inhibitor, dose of FXa inhibitor, and time since the patient's last dose of FXa inhibitor. Contact PC for case-specific dosing advice. Monitor for possible thrombotic, ischemic and/or cardiac events that may develop following the use of this reversal agent. Inform patients these events may be delayed.
Anticoagulant Therapies: Heparin	Protamine sulfate	1.2 g*	Dose varies by heparin type. Protamine sulfate single dose vials are available as 50 mg (10 mg/mL, 5 mL) and 250 mg (10 mg/mL, 25 mL), for IV use only.	High doses and rapid administration may result in severe hypotension, cardiovascular collapse, pulmonary edema, and pulmonary hypertension. Do not administer with other medications without ensuring compatibility.
Anticoagulant Therapies: Warfarin/Superwarfarins	Phytonadione (Vitamin K1)	200 mg* [10 mg/1 mL, 1 mL vials x 20]	Dose varies by heparin type. Protamine sulfate single dose vials are available as 50 mg (10 mg/mL, 5 mL) and 250 mg (10 mg/mL, 25 mL), for IV use only.	Do not use Vitamin K1 prophylactically with normal PT/INR. If active bleeding, also administer fresh frozen plasma.
Benzodiazepines	Flumazenil (Romazicon®) NOT RECOMMENDED FOR OVERDOSE PATIENTS	4 mg [1 mg/vial x 4]	Adult: 0.2 mg IV to total dose max 3 mg. Child: 0.01 mg/kg IV to total dose max 3 mg FOR IATROGENIC OVERDOSE ONLY.	Contraindicated in benzodiazepine-dependent patients, poly-drug overdoses and unknown ingestions due to risk of seizures. Can almost always manage benzodiazepine exposure with supportive care.
Beta Blockers	Glucagon	240 mg* [1 mg/vial x 240 vials]	50-100 mcg/kg IV bolus. If response, start 50 to 100 mcg/kg/hr infusion.	Continuous ECG monitoring. May cause nausea/vomiting. Phenol diluent should not be used for preparing infusion.
Calcium Channel Blockers	1) Calcium gluconate and/or Calcium chloride 2) High dose insulin/glucose	Calcium 500 mEq* [CaCl 13.6 mEq/10 mL x 50; CaGlu 4.65 mEq/10 mL x 100] Regular insulin 3500 Units ***	Dose varies by agent/cont.	Ca chloride 10% recommended for administration by central venous catheter. Ca gluconate can be given through a peripheral vein.
Carbon Monoxide	Oxygen	***	Bolus 1 U/kg regular insulin + 25-50 g dextrose (adult); Infuse 0.5-1 U/kg/hr insulin and dextrose to maintain euglycemia. 1) 100% Oxygen 2) Hyperbaric Oxygen	Give in ICU setting; monitor glucose. Response may be delayed 30-60 min. Has also been used in beta blocker toxicity.
Cesium (radioactive) or Thallium (radioactive or non-radioactive)	Prussian blue (Radiogardase®)	Prussian blue 0.5 g per capsule; one bottle (38 capsules) would treat one adult for 2 days **	Adults and Adolescents: 3 g (6 capsules) taken orally tid (daily dose of 9 g). Child: 1 g (2 capsules) taken orally tid (daily dose of 3 g).	Call PC for indications for using hyperbaric oxygen. Treatment with Prussian blue may be needed for at least 30 days. May cause constipation. Is excreted primarily in feces and turns stools blue. May bind to electrolytes in the GI tract and cause hypokalemia. Monitor serum electrolytes during treatment. Access to a regional supply may be sufficient for most hospitals.
Cholinesterase Inhibitors (Organophosphates; Carbamates; Nerve Agents)	1) Atropine 2) Pralidoxime (2-PAM, Protopam®)	1) 165 mg* [20 mL (0.4 mg/mL) x 2]; OR 1 mL (0.4 mg/mL) x 413; OR 10 mL (0.1 mg/mL) x 165 2) 18 g* [10 mL vials 100 mg/mL x 18]	Initial dose, Adult: 1-5 mg IV repeat q 5 min until reversal of bronchospasm and excessive secretions. Child: 0.02 mg/kg IV repeat q 10-15 min pm. Continuous IV atropine: 10-20% of the initial dose required to reverse muscarinic s/sx can be given as an hourly infusion. Adult: initial bolus 30 mg/kg IV, up to 2 g over 30-60 min. Maintenance infusion of 8-10 mg/kg/hr (up to 650 mg/hr). Child: initial bolus 25-50 mg/kg over 15-30 min. Maintenance infusion of 10-20 mg/kg/hr (up to 650 mg/hr).	Dosing of atropine in adults should be increased if there is no response, and should be given until cessation of excessive oral and pulmonary secretions. Stockpiles of atropine and pralidoxime IV vials and auto-injectors are available in CHEMPACKS in all states. Contact PC or state health department for access information. Pralidoxime may be given over 2 min for life-threatening nicotinic effects. Indicated in organophosphate poisoning. Give in addition to atropine. Efficacy in carbamate toxicity is controversial. Contraindicated in carbaryl (Sevin®) exposure.
Cyanide	1) Hydroxocobalamin (Cyanokit®) 2) Sodium Nitrite and Sodium Thiosulfate (Nitiodote®)	1) 10 g* (2 kits) 2) 600 mg/25 g (2 kits)	Adult: 5 g; Child: 70 mg/kg IV over 15-30 min. Repeat dose as needed. Sodium Nitrite: Adult: 10 mL IV at rate of 2.5-5 mL/min; Child: 0.2 mL/kg (6 mg/kg) IV at rate of 2.5-5 mL/min. Followed by Sodium Thiosulfate: Adult: 50 mL 25% solution IV, Child: 1 mL/kg 25% solution IV.	Preferred treatment (especially for cyanide poisoning due to smoke inhalation). If possible, draw labs prior to administration as hydroxocobalamin may interfere with certain laboratory assays. Can be repeated as clinically necessary. Na thiosulfate can be co-administered through a separate IV line. Side effects include transient hypertension, red skin discoloration, and chromaturia. Sodium thiosulfate (but not sodium nitrite) can be given as adjunctive treatment to hydroxocobalamin to enhance cyanide clearance. Do not give through same IV line as hydroxocobalamin.
Cyclic Antidepressants and Other Sodium Channel Blockers (e.g., Diphenhydramine)	Systemic alkalization with Sodium Bicarbonate	Na bicarbonate*** [50 mL vials (1 mEq/mL) x 20]	Na bicarbonate: 1-2 mEq/kg IV bolus followed by maintenance infusion at a rate of 2-3 mL/kg/hr. Goal pH is 7.45-7.55.	Systemic alkalization for demonstrated sodium channel blockade (widened QRS). PC consultation strongly recommended. Prepare infusion by placing 3 ampules of Na bicarbonate (50 mEq each) in one liter of D5W. Sodium acetate may be used as an alternative if Na bicarbonate is unavailable (infusion only).
Digoxin	Digoxin Immune Fab (Digibind®, DIGIFab®)	10-20 vials*	#Vials = (Digoxin Serum Conc (ng/mL) x Wt. (kg))/100. If unknown: Acute OD = 10-20 vials; Chronic Adult OD = 3 to 6 vials; Chronic Child OD = 1 vial.	Monitor ECG and potassium levels. Digoxin assay may not be accurate after administration of Digoxin Immune Fab.
Ethylene Glycol	1) Fomepizole (Antizol®) 2) Thiamine 3) Pyridoxine	Fomepizole 7 g* [1.5 g vials x 5] ***	Fomepizole: 15 mg/kg IV LD; 10 mg/kg IV q 12 hr x 4 doses, then 15 mg/kg thereafter. During dialysis, re-dose q 4 hr. Thiamine 100 mg IV q 8 hr and Pyridoxine 50 mg IV q 6 hr for 24 hours.	Fomepizole is preferred over ethanol. Call PC for use of ethanol and for hemodialysis indications. Thiamine and pyridoxine for enhanced elimination of metabolic acids.
GI Decontamination	1) Activated charcoal without cathartic 2) Polyethylene glycol (PEG)	100 g* 10 L	Adult: 25 - 100 g; Child: 1 g/kg	Use only if patient is alert enough to protect airway and bowel sounds are present. Concern for aspiration if patient is obtunded. Contraindicated with caustics. Ineffective with many metals. Whole bowel irrigation with PEG reserved for GI decontamination following toxic ingestions. Consult PC for guidance.
Hydrofluoric Acid	Calcium gluconate	Calcium 500 mEq* [CaCl 13.6 mEq/10 mL x 50; CaGlu 4.65 mEq/10 mL x 100]	Topical: calcium gluconate or crushed calcium carbonate tablets mixed with water-soluble lubricant applied to burn and covered. Call PC for details. For topical treatment failures, give SQ: Inject 0.5 mL/cm <sup>2</sup> with 10% calcium gluconate (do not use calcium chloride).	Selection of agent, route and dose varies by exposure history and symptomatology. Calcium chloride should be given through a central line, use calcium gluconate if given peripherally. Calcium chloride should not be given subcutaneously. Hypocalcemia and life threatening arrhythmias possible from all routes of exposure. Contact PC for case-specific advice.
Iodine (radioactive) (I-131)	Potassium iodide (KI)	130 mg*	Adult: 130 milligrams/day orally; Child: 3-18 yrs: 65 mg/day; Infant: 1 mo-3 yrs: 32 mg/day; Neonate: 0-1 mo: 16 mg/day.	Start as soon as possible (< 3-4 hr). Adults 18-40 years with exposure ≥10 centigray (cGy). Over 40 years of age need KI only with large internal dose (≥500 cGy). Children, pregnant and lactating women should be treated at lower exposure doses.
Iron	Deferoxamine (Desferal®)	8-12 g* [500 mg/5 mL vials x 12-24]	Start infusion at 5 mg/kg/hr and increase to 15 mg/kg/hr over 15 min. Mild to moderate toxicity, duration 6-12 hr; Severe toxicity, duration 24 hr, then reassess.	Indications for treatment: asymptomatic patient with peak serum iron ≥500 mcg/dL, symptomatic patient with peak serum iron ≥350 mcg/dL or severe symptoms following iron ingestion. Benefit of deferoxamine beyond 24-48 hours unlikely and increased risk of pulmonary toxicity.
Isoniazid	Pyridoxine	8 g* (100 mg/mL) x 80]	Mg for mg ingested dose. Empiric dose: Adult: 5 g; Child: 75 mg/kg. IV infusion 0.5 g/min till seizures stop, then remainder over 4-6 hours. 10 mg/kg (max per dose 500 mg) PO tid x 5 days, then bid x 14 days.	Consider stocking 20 g in tuberculosis-endemic areas. Pyridoxine also used with Gyromitra (false morel) mushroom and hydrazine (e.g., jet fuel) toxicity. BAL given for encephalopathy and/or unable to take PO. Access to a regional supply may be sufficient for most hospitals.
Metals: Lead, Mercury, Arsenic	1) Succimer (DMSA) 2) BAL (dimercaprol) 3) Calcium disodium EDTA	3 g** 3 g** [3 mL ampules (100 mg/mL) x 10] 15 g**	3-5 mg/kg/dose deep IM q 4 hr x 2 days, then q 4-6 hr x 2 days. 1500 mg/m <sup>2</sup> /day IV (up to 2-3 g) over 8-12 hr x 5 days (started 4 hr after BAL).	BAL given only if encephalopathic (with calcium disodium EDTA) or unable to take PO Succimer. May induce hemolysis in G6PD deficient patients. May only be given IM. Contraindicated in patients with peanut allergy. BAL is currently unavailable. Calcium disodium EDTA must be started after BAL to decrease CNS lead penetration. Access to a regional supply may be sufficient for most hospitals.
Methanol	1) Fomepizole (Antizol®) 2) Folic acid or folic acid (leucovorin)	Fomepizole 7 g* [1.5 g vials x 5] Folic acid 300 mg*** [10 mL vials (5 mg/mL) x 6]	Fomepizole 15 mg/kg IV LD; 10 mg/kg IV q 12 hr x 4 doses, then 15 mg/kg IV q 12 hr thereafter. During dialysis, re-dose q 4 hours. 1 mg/kg up to 50 mg in an adult q 4 hr for 24 hours.	Fomepizole is preferred over ethanol. Call PC for use of ethanol and for hemodialysis indications. Folic acid and folic acid may hasten elimination of methanol metabolic products. Folic acid (leucovorin) should be used if there is any acidosis. Dilute in 100 mL D5W and give IV over 30-60 minutes.
Methemoglobin-Producing Agents	Methylene Blue	600 mg* [10 mL ampules (10 mg/mL) x 6]	1 mg/kg IV over 5-30 min. If methemoglobin level remains above 30% or clinical symptoms persist, give a repeat dose of up to 1 mg/kg one hour after first dose.	Use methylene blue for symptomatic patients. Visible cyanosis occurs at methemoglobin levels of 10-15% but may not require treatment if patient is asymptomatic.
Methotrexate	Folic acid (leucovorin)	***	Mg for mg ingested dose. Empiric dose for adult is 100 mg/m <sup>2</sup> q 6 hr IV.	Folate reductase inhibitor requires folic acid instead of folate. Most effective if given within 1 hr; may be ineffective beyond 4 hr.
Opioids	Naloxone (Narcan®)	20 mg* [10 mL ampules (0.4 mg/mL) x 5]	0.4-2.0 mg IV, titrated to effect. An IV infusion may be used once reversal achieved.	Give minimum of 10 mg before concluding no response. Contraindicated in the neonate born to an opioid-dependent mother. Can precipitate opioid withdrawal in chronic opioid users.
Salicylates	Urinary alkalization with Na bicarbonate	Na bicarbonate*** [50 mL vials (1 mEq/mL) x 20]	Na bicarbonate: 1-2 mEq/kg IV bolus followed by maintenance infusion at a rate of 2-3 mL/kg/hr. Goal is urine pH of 8 and serum pH of 7.50-7.55.	Prepare infusion by placing 3 ampules of NaBicarb (50 mEq each) in one liter of D5W. Caution with pulmonary edema, or severe renal or CNS toxicity. Keep serum K > 4.0. Monitor urine pH at bedside hourly. Call PC for hemodialysis indications.
Snakebites: Rattlesnake, Copperhead, Cottonmouth	1) Crotalidae Polyvalent Immune Fab Antivenom (CroFab®) 2) Crotalidae Immune F(ab)'2 (equine) (Anavip®)	12-18 vials* 14 vials	4-6 vials until initial control, then 2 vials q 6 hr x 3 doses. Vials are reconstituted with 18 mL of 0.9% saline then further diluted to 250 mL.	Either CroFab® or Anavip® should be stocked in areas with indigenous venomous snakes. Areas with snakes known to produce severe envenomation may wish to stock greater amounts. May see recurrent thrombocytopenia and coagulopathy post-discharge.
Sulfonureas	Octreotide	800 mcg* [100 mcg/mL x 6]	Adult: 1-1.5 mcg/kg SQ or IV q 6 hr; Child: 1 mcg/kg SQ or IV q 6 hr.	Glucose is primary intervention. Octreotide antagonizes insulin release. Observe in health care facility for at least 8 hr after IV deslore and octreotide have been stopped to ensure hypoglycemia does not recur.

A The minimum stocking amount needed to treat at least one 100 kg patient for 24 hours.  
Higher levels of stocking should be considered and arrangements in place to rapidly obtain additional quantities.  
\* Stocking is recommended for all acute care hospitals.  
\*\* No consensus of expert panel regarding stocking requirements.  
\*\*\* Stocking is usually based on other indications/uses.  
Ref: Dart, et al. Ann Emerg Med 2018; Vol 71, No 3.

