

- **Bathing**

Patient should be bathed in a mild liquid dishwashing detergent. Baths may need to be repeated. Afterwards, the animal should be rinsed well with warm water and towel dried to prevent chilling.

- **Dilution**

Dilution with milk or water is recommended in cases of corrosive ingestion. A suggested dose is 1-3 ml/lb.

- **Emesis**

Emesis is most productive if performed within 2-3 hours post-ingestion. Feeding the animal a small moist meal before inducing vomiting can increase chances of an adequate emesis. Emetics generally empty 40-60% of the stomach contents and are assumed to be more beneficial than gastric lavage.

Dogs, cats, ferrets, and potbelly pigs are examples of house pets that can vomit. Emetics should not be used in rodents, rabbits, birds, horses, and ruminants.

Induction of emesis is contraindicated with ingestion of alkalis, acids, corrosive agents, or hydrocarbons. Pre-existing condition of the animal also determines the indication for using an emetic. Emesis should not be attempted if the animal has already vomited or is exhibiting clinical signs.

3% hydrogen peroxide is a useful emetic for dogs and potbellied pigs. It generally is unhelpful in cats, and the use may lead to marked gastritis. The dosage is 1 teaspoon/5 lbs body weight, not to exceed 3 tablespoons. Vomiting usually occurs within minutes and the dose can be repeated once if not initially successful.

Apomorphine can be used in dogs to induce vomiting. The eye should be rinsed well after conjunctival usage.

Alpha-2 agonists (dexmedetomidine at 0.01 mg/kg or xylazine at 0.4 mg/kg) can be used to induce vomiting in cats.

- **Activated Charcoal (ToxiBan®)**

Activated charcoal adsorbs a toxicant and facilitates its excretion via the feces. The recommended dose of activated charcoal for all species of animals is 1-3 gms/kg body weight. Repeated doses of activated charcoal every 6-8 hours at half the original dose may be indicated when enterohepatic recirculation is known to occur. Watch for hypernatremia. Ensuring free access to water may help to limit risk of this condition.

Activated charcoal is given orally with a large syringe or via a stomach tube. In symptomatic or uncooperative animals, anesthesia may be needed. A cuffed endotracheal tube should be used in the sedated or clinically depressed animal to prevent aspiration. Activated charcoal should not be given to animals that have ingested caustic materials. Other chemicals not effectively adsorbed by activated charcoal include ethanol, methanol, fluoride, petroleum distillates, most heavy metals, iodides, nitrates, nitrites, sodium chloride, chlorate, and xylitol.

- **Cathartics**

Enhance elimination of the activated charcoal. Without cathartics, the toxicant bound by charcoal can eventually be released and reabsorbed. Cathartics are not to be used if the animal has diarrhea or is dehydrated. There are saline, osmotic and bulk cathartics.

- **Enemas**

Enemas are helpful when elimination of toxicants from the lower gastrointestinal tract is desired.

- **Gastric Lavage**

Gastric lavage should not be performed in cases of caustic or petroleum distillate ingestion. General anesthesia must be used when performing gastric lavage. Lavage should be used for potentially lethal exposures in situations where emesis cannot be induced such as in a comatose patient.

## DRUGS USED IN TOXICOLOGY

	DOSE	USE	COMMENTS
<b>Acepromazine</b>	Dogs and Cats: Administer in increments of 0.025-0.05 mg/kg, assess response before repeating.	Treatment of CNS excitation due to serotonergic medications, pseudoephedrine, and amphetamines.	Can alternatively use chlorpromazine 3.3 mg/kg PO, 1.1-6.6 mg/kg IM, 0.55-4.4 mg/kg IV SID-QID (triflate dose to effect).
<b>Atipamezole</b>	Dogs and Cats: 50 mcg/kg IV or IM	Used as an alpha-2 antagonist to reverse toxic effects of amitraz, clonidine, and other alpha-2 agonists.	Can use yohimbine 0.1-0.2 mg/kg IV; if atipamezole is not available.
<b>Atropine</b>	Dogs and Cats: 0.1-0.2 mg/kg; give ¼ of the initial dose IV and the rest IM or SQ	To control muscarinic signs associated with organophosphate (OP) or carbamate toxicity.	Consider giving a test dose of 0.01-0.02 mg/kg first. A response to this dose is unlikely to be seen with true OP/carbamate toxicity.
<b>Cyproheptadine</b> ( <i>Periactin</i> ®)	Dogs: 1.1 mg/kg PO q 8 hr if needed Cats: 2-4 mg PO q 8-12 hr if needed	Serotonin syndrome	May be given rectally if patient is vomiting. Limit 2-3 doses.
<b>Diazepam</b> ( <i>Vallium</i> ®)	Dogs: 0.2-2.2 mg/kg IV Cats: 0.05-1 mg/kg IV	Control of seizures	Always give slowly IV to effect. <b>Do not give</b> in cases of ephedra, amphetamine, or pseudoephedrine toxicity
<b>Ethanol</b>	Dogs and Cats: Using 7% ethanol load at 600 mg/kg slow IV (or 8.6 ml/kg), then maintain at 100 mg/kg/hr (or 1.43 ml/kg/hr) CRI IV	Ethylene glycol (antifreeze) toxicity	CRI preferred to avoid high blood ethanol levels. <b>Do not give along with 4-MP</b>
<b>Flumazenil</b> ( <i>Romazicon</i> ®)	Dogs and Cats: 0.01 mg/kg IV	Benzodiazepine antagonist	Dose can be repeated if severe depression returns.
<b>Fomepizole</b> ( <i>4-MP</i> )	Dogs: Load at 20 mg/kg, slow IV infusion over 5-10 minutes, 15 mg/kg slow IV at 12 hours and again at 24 hours. 5 mg/kg IV at 36 hours. Cats: 125 mg/kg IV then 31.25 mg/kg q 12, 24, 36 hours.	Ethylene glycol (antifreeze) toxicity	May continue treatment at 5 mg/kg IV every 12 hours if EG is still present in the dog's system (per EG test results). <b>Effective within 3 hr of exposure in cats. Do not give along with ethanol.</b>
<b>Lipids</b>	Recommend 20% solution. (no brand preference) Initial bolus at 1.5 ml/kg then 0.25 ml/kg/min for 30-60 minutes.  20% emulsion	Remove lipid soluble agents from body, likely acting as sink.  May be less effective in ABCB1 deficient animals.	Check for hyperlipemia before repeating the dose. <b>Do not</b> repeat intralipid dose until serum has become clearer. <b>Do not</b> give more than 3 doses if no significant response is seen after giving 3 doses.
<b>Methocarbamol</b> ( <i>Robaxin</i> ®)	Dogs and Cats: 55-220 mg/kg slow IV to effect; <b>use caution when exceeding 330 mg/kg/day</b>	Muscle tremors associated with tremorgenic mycotoxin and metaldehyde ingestions, permethrin toxicity in cats.	Tablets can be crushed into saline and given rectally. <b>Monitor for CNS and respiratory depression with doses &gt; 330 mg/kg/d.</b>
<b>Naloxone</b> ( <i>Narcan</i> ®)	Dogs and Cats: 0.002-0.04 mg/kg IV, IM or SQ	Opioid antagonist	Can be repeated as needed, but high doses have caused seizures.
<b>Pralidoxime chloride</b> ( <i>2-PAM, Protopam</i> ®)	Dogs and Cats: 20 mg/kg IM. Discontinue if no effect after 3 doses.	To control nicotinic signs associated with OP toxicity.	Not recommended for carbamate toxicity.
<b>Propranolol</b>	Dogs: 0.02 -0.06 mg/kg slow IV, 0.2-1.0 mg/kg PO TID Cats: 0.04 mg/kg slow IV, or 2.5-5.0 mg total PO BID-TID	Treatment of tachycardias, tachyarrhythmias, and hypertension.	Useful in toxicoses involving caffeine, theobromine, ephedra, pseudoephedrine, cocaine, amphetamine, cardiac glycosides, and thyroid hormones.