Managing Pet Bird Toxicoses

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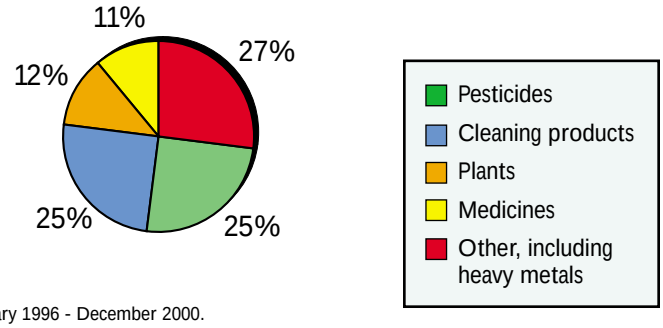
BIRDS ARE CURIOUS BY NATURE, AND SOME HAZARDOUS OBJECTS may be attractive to them. Birds with free household access are more likely to be exposed to toxicants.

Sources of Toxicoses Affecting Pet Birds Reported to the APCC*



Information collected between January 1996 - December 2000.

*The ASPCA Animal Poison Control Center, an operating division of the American Society for the Prevention of Cruelty to Animals (ASPCA), is the only animal-oriented poison control center in North America. It is a unique, emergency hotline providing 24-hour-a-day, 7-day-a-week telephone assistance. The Center's hotline veterinarians can quickly answer questions about toxic chemicals, dangerous plants, products or substances found in everyday surroundings that can prove poisonous or fatal to animals. <www.apcc.aspca.org>

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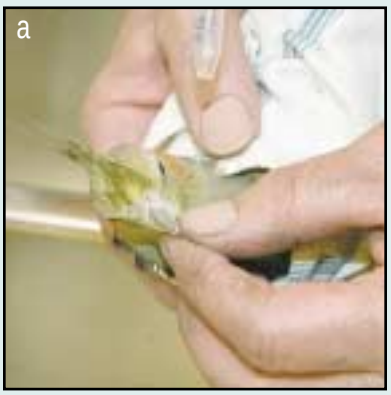
Table 1. Examples of Noxious Inhalants

- × Some nonstick surfaces (irons and ironing board covers, pots and pans, woks, drip pans)
- × Gasoline fumes
- × Smoke (any source)
- × Automobile exhaust/ carbon monoxide
- × Self-cleaning ovens
- × Insecticide sprays and foggers
- × Chemical sprays (e.g., disinfectants, deodorizers, furniture polish)
- × Glues, paints, nail polish
- × Ammonia or bleach
- × Mothballs
- × Burning foods and cooking oils
- × Fumigants (sulfuryl fluoride, aluminum phosphide)
- × Aerosols

Table 2. Common Cardiotoxic Plants

- × Lily of the Valley *Convallaria majalis*
- × Oleander *Nerium oleander*
- × *Rhododendron* species
- × Yew *Taxus* species
- × Foxglove *Digitalis purpurea*



STEPS IN MANAGING PET BIRD TOXICOSES

START

ASSESS THE SITUATION

- × Is the bird seizuring?
- × Is the bird breathing?
- × Is the bird in shock?
- × Is there evidence of hemorrhage?

STABILIZE THE BIRD

- × Administer oxygen if necessary
- × Control seizures
- × Correct any cardiovascular abnormality

If stable

Patient Information
- ✔ age
- ✔ sex
- ✔ health problems?
- ✔ recent abdominal surgeries?
- ✔ currently on medication?

Exposure History
- ✔ when was the exposure?
- ✔ how much was ingested?
- ✔ when did clinical signs occur?

PREVENT ABSORPTION

Ocular Exposure

- ✔ Gently flush eyes with tepid tap water or saline for 20-30 minutes (fig a).
- ✔ Use eyedropper to flush in small birds.
- ✔ Perform fluorescein staining and follow-up exams in cases of exposures to corrosive agents or if redness, pain or ocular discharge occurs.

Dermal Exposure

- ✔ Stabilize bird first!
- ✔ Do not remove toxicants from feathers if bird is seriously ill.
- ✔ With light dermal exposures, wash gently with solution of mild liquid dishwashing detergent (e.g., Dawn®) and warm water, rub gently, then rinse with plain warm water to remove soap. Repeat if needed.
- ✔ With heavy dermal exposures, a thorough bath may be indicated. Pat dry, keep warm and monitor for signs of hypothermia.
- ✔ Because detergent may seep between the feather barbs, multiple rinses may be required (fig b).
- ✔ An E-collar may be necessary to prevent ingestion of toxicant.

Inhalant Exposure

- ✔ Remove bird from source and supply fresh air immediately!
- ✔ Humidify oxygen therapy.
- ✔ Provide diuretics for pulmonary edema.
- ✔ Bronchodilators may be helpful.
- ✔ Give anti-inflammatory drugs* and broad-spectrum antibiotics.
- ✔ Provide thermal regulation and nutritional support.
- ✔ Hydration therapy may be necessary.

*If corticosteroids are indicated, use with extreme caution in birds to avoid adverse side effects.

Oral Exposure

- ✔ Crop lavage, with or without activated charcoal
- ✔ Administer bulking cathartics

■ Emesis

- ✔ Do not induce emesis in a bird. Emesis is considered unsafe in birds due to the potential for aspiration and the ineffectiveness of emetic medications in birds.

■ Crop Lavage

- ✔ Consider crop lavage for early decontamination (fig c).
- ✔ Sedate frightened or fractious birds.
- ✔ Use isoflurane gas and endotracheal tube to prevent aspiration. Contraindications to crop lavage are ingestion of corrosive substances or petroleum distillates.
- ✔ For lavage, gently flush the crop with warm saline and aspirate repeatedly (3-4 times).

■ Activated Charcoal

- ✔ As an effective adsorbent for toxicants, give activated charcoal with a gavage tube.
- ✔ Dosage of activated charcoal is 1-3 g/kg (or 1-3 mg/g body weight)
- ✔ Activated charcoal is not very effective in adsorbing petroleum distillates, corrosive agents and most heavy metals.

■ Cathartics

- ✔ Increases elimination of activated charcoal-bound toxicants.
- ✔ Use cautiously in birds.
- ✔ Do not use in dehydrated birds.

■ Bulking Cathartics

- ✔ Bulking agents can be useful in removing small solid objects, such as lead paint chips, from the bird's GI tract.
- ✔ One-half teaspoon psyllium (Metamucil®) mixed with 60 ml baby food gruel is administered with a dosing syringe or eyedropper. Repeat to ensure complete removal of the objects 1-2 times daily.
- ✔ A less effective bulking agent is dilute peanut butter.

CONTROL CLINICAL SIGNS

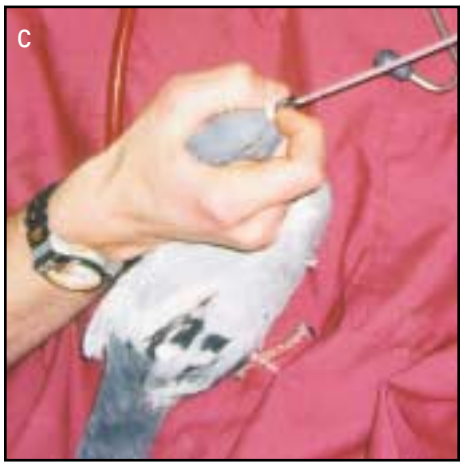
- × administer specific "antidote" if applicable (fig d)
- × correct thermal regulation, hydration
- × diuresis may be beneficial for exposures to nephrotoxic agents or to enhance elimination of the poison

■ Adverse effects of diuresis

- ✔ pulmonary edema
- ✔ cerebral edema
- ✔ metabolic acidosis or alkalosis
- ✔ water intoxication

ANCILLARY MEASURES

- × monitor the systems most likely to be affected
- × diagnostic tests
- × supportive care offered until full recovery (fig e)



HEAVY METAL TOXICOSES

TOXIN	SOURCES	CLINICAL SIGNS
Zinc  Greg Harrison	▪ Galvanized wire cages, toys, chains and water or food bowls (galvanized coatings may contain up to 99.9% zinc) ▪ Zinc hardware (washers, nuts, wire) ▪ U.S. pennies minted after 1983	▪ Lethargy ▪ Shallow respiration ▪ Anorexia ▪ Decreased body weight ▪ Weakness ▪ Polyuria, polydipsia ▪ Diarrhea ▪ Hemolytic anemia ▪ Kidney dysfunction ▪ Cyanosis ▪ Possible liver and pancreatic abnormalities ▪ Regurgitation ▪ Feather picking ▪ Pale mucous membranes ▪ Shivering ▪ Melena ▪ Death
Lead  Greg Harrison 	▪ Lead paint chips ▪ Some artist paints ▪ Lead weights ▪ Lead hardware ▪ Lead-containing Venetian blinds ▪ Lead-coated household products ▪ Some wine/champagne bottle foils ▪ Plumbing material ▪ Solder in stained glass/Tiffany style lamps ▪ Lead shot ▪ Tile, linoleum ▪ Improperly glazed bowls ▪ Some antiques ▪ Curtain weights ▪ Fishing sinkers ▪ Tire weights	▪ Depression ▪ Weakness ▪ Anorexia ▪ Regurgitation ▪ Abnormal droppings ▪ Polyuria ▪ Polydipsia ▪ Greenish-black diarrhea ▪ Ataxia ▪ Head tilt ▪ Seizures ▪ Blindness ▪ Circling ▪ Hematuria (Amazon parrots) ▪ Death **Effects on the Body** ▪ Absorbed lead is retained by soft tissues and eventually by bone and is slowly excreted through the kidneys. ▪ Lead affects the CNS, renal, hematopoietic, neurologic and gastrointestinal systems. ▪ Lead can cause cerebral edema and neuronal damage, demyelination and decreased peripheral nerve conduction peripherally. ▪ Lead can cause anemia through increasing RBC fragility. ▪ Bone marrow suppression is also a potential effect.

In some clinicians' experience, ingestion of heavy metals and other toxins appears to occur most often in a seed-eating bird, suggesting the bird may be seeking nutrients missing from its diet.

COMMON HOUSEHOLD HAZARDS*

TOXIN	SOURCES	CLINICAL SIGNS
Nicotine — alkaloid derived from dry stems and leaves of *Nicotiana* sp.	▪ Tobacco products	▪ Occur quickly after ingestion, usually within 15-45 minutes. ▪ Excitation, tachypnea, salivation and emesis. ▪ With severe cases, muscular weakness, twitching, depression, tachycardia, dyspnea, collapse, coma or cardiac arrest. ▪ Death occurs secondary to respiratory paralysis.
Products containing **cationic detergents**	▪ Liquid potpourri, fabric softeners, germicides and sanitizers	▪ Dermal exposure: erythema, edema, intense pain and ulceration. ▪ Ocular exposure: mild irritation to severe corneal injury. ▪ Oral exposure: tissue necrosis and inflammation of the mouth, tongue, pharynx, and esophagus.
Polytetrafluoroethylene (PTFE)-coated utensils	▪ Overheated (above 280°C) cooking utensils with nonstick surfaces	▪ Rales, dyspnea, ataxia, depression, restless behavior and acute death.
Avocado (*Persea Americana*)	▪ Leaves, fruit, bark and seeds of some species (toxic principle unknown)	▪ Small birds: respiratory distress, generalized congestion, hydropericardium, anasarca and death. Onset occurs after 12 hours of ingestion, with death occurring within 1-2 days of the time of exposure. ▪ Large birds: nonspecific signs = reduced activity, fluffing of feathers and labored respiration.
Plants containing **calcium oxalate crystals**	▪ Dieffenbachia (dumb cane), philodendron, pothos, peace lily, schefflera	▪ Dysphagia, regurgitation, inappetence. If ingested, crystals can cause oral irritation, intense burning and irritation of oral cavity.

*Birds are also susceptible to the potentially toxic effects of alcoholic drinks, pesticides and human medicines.

DIAGNOSING	TREATMENT	CHELATORS
▪ History, radiographs ▪ Collect blood in all-glass or all-plastic syringes and royal blue-stoppered containers (avoid contact with rubber). ▪ Plasma zinc concentrations >200 μ/dL are suggestive of a toxicosis (>2.5-3.0 ppm).*† ▪ If post mortem, collect pancreatic tissue for zinc analysis. Levels >1000 μ/g are suggestive of a zinc toxicosis.	▪ Most cases are sub-clinical and the birds are not in crisis. ▪ Remove source of zinc from the GI tract — try bulk cathartics first with a pysllium mixture tube- or hand-fed twice a day. ▪ Monitor success of removal process with radiographs. ▪ Chelation therapy may be needed. ▪ Keep bird hydrated to help excrete metal ions. ▪ Intravenous or intraosseous fluids may be needed. ▪ Tube or hand-feeding may be required.	▪ D-penicillamine at 55 mg/kg PO q12h x 5 days and repeat after 5 days if needed. Easy to mix and be tube-fed by owner to reduce treatment cost (125 mg capsule in 15 ml lactulose: 1 drop/100 g PO). Keep bird hydrated. ▪ CaEDTA at 35 mg/kg IM q12h X 5 days, then 5 days off, then repeat if needed. ▪ 2, 3 dimercaptosuccinic acid (DMSA) 30 mg/kg PO q24h x 5 days.
▪ For lead analysis, whole blood, heparinized or EDTA should be submitted. ▪ Lead particles may show up radiographically; however, in many cases, the lead involved is not grossly visible on radiographs. ▪ Blood lead levels of 11 μ/dL are indicative of lead toxicity.*	▪ Remove lead from the tissues with chelating therapy. ▪ Although parenteral chelation (usually CaEDTA) can enhance the absorption of lead, chelation should begin even before the source of lead is removed, or the patient may die. ▪ One way to help decrease the absorption of lead by the GI tract until the lead-containing object(s) can be removed (usually from the GI tract), is to administer a mild laxative or a small amount of $MgSO_4$ (Epson salts) in water. ▪ Remove lead from the gastrointestinal tract via bulking cathartics, surgery or endoscopy. ▪ Offer supportive care such as diazepam (0.5-1.0 mg/kg IM) for seizures and dexamethasone (1-2 mg/kg IM) for cerebral edema. ▪ If the blood lead concentrations are still high after the first course, wait several days before repeat treatment.	▪ CaEDTA at 30 mg/kg IM q12h x 5 days, then 5 days off and repeat if needed. ▪ Alternatively, CaEDTA can be diluted with NaCl (4 mg/ml) and given SC at the same dose and frequency. ▪ Because CaEDTA is excreted by the kidneys, it may be contradinciated in bird with renal compromise. ▪ D-penicillamine at 55 mg/kg PO q12h x 1-2 weeks on, off 1 week and repeat if needed. ▪ Dimercaprol at 2.5 mg/kg IM q4h x 2 days, then q12h x 10 days or until recovery.

* Diagnosis should be made with blood levels in association with clinical signs.
† Both cockatoos and eclectus parrots tend to have a higher physiologic zinc concentration and may have normal zinc levels up to 3.0 ppm (300 μ/dL) and 2.5 ppm (250 μ/dL), respectively. Zinc levels in all other psittacines have physiologic zinc concentrations of less than 2.0 ppm (200 μ/dL) in serum or plasma.[11]

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Some Labs that Evaluate Lead and Zinc Levels:

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