

SAVING PETS' LIVES, 24 HOURS A DAY, 7 DAYS A WEEK
PET POISON HELPLINE



**Avoiding Heartbreak:
 Valentine Dangers Poisonous to Pets**

February 14, 2017




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 Pet Poison Helpline
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www.petpoisonhelpline.com | 3600 American Blvd. W., #725 Bloomington, MN 55431 | Pet Poison Helpline ©2016

What is Pet Poison Helpline?

- **24/7 animal poison control center**
- **Veterinary & human expertise**
 - 20 DVMs, 50 CVTs
 - DABVT, DABT
 - DACVECC
 - DACVIM
 - 7 PharmDs
- **Case fee of \$49 includes**
 - Unlimited consultation
 - Fax or email of case report
- **Educational center**
 - Free webinars (archived)
 - Tox tools
 - Wheel of Vomit
 - Pot of Poisons (toxic plants)
 - Textbook
 - iPhone app
 - Newsletters for vet professionals
 - Free resources for clinics
 - Videos
 - Electronic material
 - Clings

Email us for info!



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Carol McConnell, DVM, MBA
 Chief Veterinary Officer
 February, 2017




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Jennifer & Kimberly with Hank



Insured with Whole Pet with Wellness since 2015

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- Prescribed nutritional supplements and therapeutic diets
- Elective procedures (e.g. gastropexy)

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1. Pre-existing conditions
2. Non-veterinary fees (e.g. tax & waste)
3. Boarding and grooming

Andrew & Elizabeth with Olive



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6

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with wellness

Our goal is to keep pets healthy and happy!

**Be sure that the pet insurance you recommend covers the whole pet and that includes preventive care and your examinations!*



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Speaker Introduction



Charlotte Flint, DVM

*Senior Consulting Veterinarian,
Clinical Toxicology*

Pet Poison Helpline
Minneapolis, Minnesota





Valentine Toxins



- Valentine's Day flowers
- Valentine's Day medications
 - OTC headache/hangover medications
 - Erectile dysfunction drugs
 - Hormonal birth control
- Valentine's Day treats
 - Chocolate
 - What else is in that chocolate?
 - Alcohol




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Common Flowers in Bouquets



- Roses
- Lilies
- Calla lilies
- Peruvian lilies
- Tulips
- Daisies
- Sunflowers
- Chrysanthemums
- Baby's breath
- Carnations



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What are these flowers??

- Florist
- Master gardener
- University horticulture or botany department
- Extension service
- Garden center



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Lilies – which are which?



- *Lilium* species
 - Easter lilies, tiger lilies, stargazer lilies
- *Hemerocallis* species
 - Day lilies
- Calla lilies
- Peruvian lilies (*Alstromeria*)
- Lily of the valley
- Peace lilies




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Lilium and Hemerocallis species

- Renal toxin in cats
- All parts of the plant are toxic
- *All exposures* should be considered serious, including pollen and vase water exposures





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Clinical Signs and Course of Toxicity

- **0-12 hours post ingestion**
 - Salivation, vomiting, anorexia, depression
- **12-24 hours post ingestion**
 - Polyuria, dehydration
 - Azotemia with creatinine often disproportionately higher than BUN

- **24-72 hours post ingestion**
 - Renal failure
 - Continued anorexia, vomiting, depression, weakness, anuria, death if untreated







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Treatment of Lily Poisoning

- Emesis if recent
- Bathe if pollen exposure
- Activated charcoal x 1 dose if recent
- Baseline lab work and recheck q 24 hours for at least 48 hours or until normalized
- IV crystalloids x 48 hours minimum
- GI support with antiemetics, GI protectants as needed





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Calla Lilies - *Zantedeschia sp*

- Insoluble calcium oxalate crystals
- Can cause self-limiting drooling, oral irritation, vomiting, vocalizing, pawing at the mouth
- Treatment is symptomatic:
 - Rinse mouth, dilute milk or yogurt
 - Antiemetics, fluids, GI protectants prn



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Peruvian Lilies /*Alstromeria*

- Mild and self-limiting GI upset
- Treatment is symptomatic and supportive
 - Anti-emetics, fluids if needed



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Educational campaign

- www.noliliesforkitties.com
- Download free graphics/lily info
- Free video
- List of safer flower alternatives

NO LILIES FOR KITTIES!



Cats and lilies don't mix!
Lilium species ("true lilies") such as Easter, Tiger, Asiatic, Oriental, etc., and daylilies (Hemerocallis) are highly toxic to cats (not dogs or people). Ingesting petals, leaves, pollen, or even water in the vase can result in kidney failure and death. If your cat eats any part of a lily, call Pet Poison Helpline, your local emergency clinic or your veterinarian immediately. Early treatment is imperative!

SEE BELOW FOR SAFER FLOWER CHOICES FOR CATS



Other lily varieties shown here such as peace (Spathiphyllum), Peruvian (Alstromeria) and calla (Zantedeschia) are much less dangerous and cause only minor symptoms when eaten.

SAFER cat flower choices include: Rose, Sunflower, Lupin, iris, carnations, marigold, baby's breath, hydracinth and daffodils.

*These flowers may cause vomiting and diarrhea but are not considered life-threatening.

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Roses (*Rosa species*)

- GI irritant with possibility for mechanical trauma
- Symptomatic and supportive treatment, if needed
 - Anti-emetics
 - Fluids
 - Check for trauma from thorns






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Lots of GI Irritant Flowers!

- Baby's breath
- Daisies
- Chrysanthemums
- Tulips
- Carnations
- Irises
- Orchids
- Dahlias
- Freesia
- Sunflowers


- Signs
 - Vomiting, diarrhea, anorexia
- Symptomatic and supportive treatment
 - None if small ingestion and signs are mild
 - Decontaminate if a large ingestion
 - Antiemetics
 - Fluids

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Chocolate





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Chocolate Questions

- What kind of chocolate?
 - Unsweetened > semi-sweet > dark > milk > white
- What brand and product?
- What is the weight or amount?
- What other ingredients?
 - Xylitol, nuts, raisins, coffee, alcohol, more chocolate, marijuana
 - Recipes for baked goods?
- Foreign body potential?






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Chocolate Signs

- Mild signs >20 mg/kg theobromine
 - Vomiting, diarrhea, excitability, increased thirst
- Moderate signs >40-50 mg/kg theobromine
 - Tachycardia
- Severe signs >60 mg/kg theobromine
 - Tremors
 - Seizures






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Chocolate Treatment



- Induce emesis up to 6 hours after ingestion
- Activated charcoal – possibly multiple doses
- Antiemetics
- Fluids
- Frequent walks
- Monitoring HR, BP, CNS status
- Sedation (acepromazine 0.02-0.04 mg/kg, butorphanol 0.2-0.4mg/kg IV)



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Chocolate Treatment



- Beta blockers or anti-arrhythmic if persistent tachycardia HR > 180
- Methocarbamol 55-220mg/kg IV to effect for tremors
- Benzodiazepine or other anticonvulsants for seizures
- Monitor for pancreatitis



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Coffee and Caffeine



- Rapid onset of signs usually within 1-2 hours
- Signs
 - GI: vomiting, diarrhea
 - CNS: agitation, tremors, seizures
 - Cardiac stimulation
 - Hypokalemia
 - Hyperthermia




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Caffeine Treatment

- Emesis?
- AC maybe multiple doses
- IV fluids
- Frequent walks or urinary catheter
- Sedation
- CNS and cardiac monitoring
- Beta blockers
- Anticonvulsants
- Potassium supplementation




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Marijuana

- Toxic dose of THC: Minimum lethal oral dose 3 g/kg, signs occur at much lower doses
- Clinical signs
 - Ataxia, hyperesthesia, urinary incontinence, sedation or agitation, hypothermia, vomiting
 - Severe cases- coma, respiratory depression, bradycardia, hypotension
- Treatment
 - Symptomatic and supportive – decontamination, fluids, anti-emetics, monitoring of vitals
 - Possibly IV lipid therapy for severe cases




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Xylitol



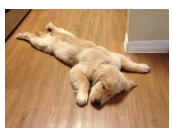

- Sources
 - Sugar free, low calorie, and/or low carb foods
 - Gums, mints
 - Dental products - toothpaste, mouthwash and dental floss
 - Personal lubricants (Astroglide), lotions, cosmetics
- Other sugar alcohols
 - Sorbitol, mannitol, erythritol, maltitol, isomalt
 - GI signs only



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Xylitol Signs



- Hypoglycemia > 0.1 g/kg
 - Rapid and dose dependent rise in serum insulin causes hypoglycemia
- Liver toxicity >0.5 g/kg
 - MOA unknown
- Rapid onset of signs
 - Vomiting
 - Hypoglycemia: lethargy, ataxia, recumbency, tremors, seizures
 - Hepatic necrosis: elevated ALT and tбили, vomiting, lethargy, anorexia, icterus, coagulopathy

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Xylitol Treatment


- Check BG before inducing emesis
- No activated charcoal
- Antiemetics
- Small frequent meals
- Monitor BG q 2-6 hours depending on patient status and dose
- Monitor electrolytes (hypokalemia)
- Supplement dextrose +/- KCl
 - Supplement in fluids even with normal BG if a liver toxic dose

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Xylitol Treatment



- Monitor liver enzymes q 24 hours for 48-72 hours or until normalized
 - Start liver protectants– SAM-e
 - Consider N-acetylcysteine if liver enzymes are elevating or if a very high dose ingested
- Treatment for coagulopathy if indicated
 - Vitamin K1
 - Transfusion



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Alcohol


- Beer, wine, hard alcohol drinks
- Bread dough, pizza dough
- Chocolate fillings, alcohol-soaked desserts
- Rapid onset of signs within 30-90 minutes
 - Depression, weakness, ataxia
 - Hypoglycemia
 - Hypothermia
 - Hypotension, tachycardia
 - GI signs
 - Metabolic acidosis

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Alcohol Treatment


- Decontamination
 - Emesis unlikely to be helpful with liquid alcohols but could be helpful if ingested as dough or with chocolate or other food
 - Activated charcoal does not bind alcohol
- IV crystalloids with dextrose supplementation as needed
- Anti-emetics
- Monitor BG, monitor vitals
- Nursing care – thermoregulation, turn, lube eyes




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Valentine Medications

- OTC headache/hangover medications
- Erectile dysfunction drugs
- Hormonal birth control







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OTC Headache Medications

- OTC NSAIDs
 - Ibuprofen
 - Naproxen
 - Aspirin
- Acetaminophen
- Combos
 - Acetaminophen, aspirin, and caffeine
- Cats are more sensitive to these drugs due to their limited glucuronyl-conjugating capacity







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OTC NSAID Clinical Signs


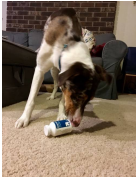
- GI irritation and ulceration
 - Vomiting +/- blood
 - Melena
 - Anemia
- Renal toxicity
- CNS signs
 - Sedation, seizures with high doses
- Aspirin OD can also cause tachypnea, hyperthermia, coagulopathy



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OTC NSAIDs Treatment


- Emesis if recent
- Multidose AC – q 8 h up to 24 hours
- Baseline lab work and recheck q 24 h x 2-3 days
- Antiemetics
- GI protectants for 7-10 days
- IVF for 2-3 days if a renal dose
- Liver protectants
- Anticonvulsants, possibly naloxone prn



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Overdose of Acetaminophen


- Dogs
 - Liver toxicity, methemoglobinemia (high doses), KCS, rare renal toxicity
 - Depression, anorexia, vomiting, abdominal pain, with progression to liver failure
- Cats
 - Methemoglobinemia then hepatic toxicity
 - Anorexia, salivation, vomiting, facial and paw edema with lacrimation and pruritus, depression, Heinz body anemia, rare renal toxicity



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Treatment of Acetaminophen OD



- Emesis if recent
- Activated charcoal
- Monitoring of lab work
- Antidote: N-acetylcystine (diluted) 140 – 280 mg/kg orally or IV once, followed by 70 mg/kg q 6 hours X 7-8 treatments or up to 17 doses if signs
- IV fluids
- Hepatoprotectants – SAM-e, silymarin
- Antiemetics
- Antioxidants to prevent RBC damage – Vit C
- Transfusion
- Oxygen
- GI protectants not needed!



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Erectile Dysfunction Drugs



- Phosphodiesterase type 5 (PDE5) inhibitors
 - Sildenafil (Viagra)
 - Tadalafil (Cialis)
 - Vardenafil (Levitra, Staxyn)
 - Avanafil (Stendra)
- Used to treat erectile dysfunction and pulmonary hypertension
 - Relax smooth muscle in the pulmonary vascular bed in the lungs and the corpus cavernosum of the penis

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Erectile Drugs Signs



- Vasodilation
- Hypotension
- Tachycardia (reflex tachycardia)
- Weakness
- Vomiting
- Headaches (human)
- Priapism

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Erectile Drugs Treatment



- Rapidly absorbed
 - Consider emesis and AC if recent ingestion
- Monitor HR and BP closely
- Bloodwork, especially if prolonged hypotension develops
- IVF for BP support
 - Vasopressors if hypotension does not respond to IVF
- Antiemetics

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Hormonal Birth Control



- Oral contraceptives
 - Ethinyl estradiol
 - Estradiol valerate
- Patch
 - Ortho Evra
 - Xulane
- Ring
 - Nuvaring
- Progesterones
 - Norethindrone
 - Levonorgestrel
 - Etonogestrel
 - Norgestimate





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Hormonal Birth Control


- May have different doses of hormone based on the week – ask brand name, pill colors, and number of each pill color!
- Placebo pills
 - Might contain iron and if so, typically have FE in the brand name


 **Hormonal Birth Control**


- Usually not very toxic as hormone doses are low
- Estrogen >1 mg/kg can cause bone marrow suppression (anemia, thrombocytopenia, leukopenia)
- Progesterone can cause GI signs with ataxia and sedation at higher doses
- Consider foreign body potential with ingestion of patch, ring, or packaging




 **Hormonal Birth Control Example**

- Lo Loestrin Fe
 - 24 active blue pills with 1 mg norethidrone and 10 mcg ethinyl estradiol
 - 2 active white tablets with 10 mcg ethinyl estradiol
 - 2 brown inactive tablets with 75 mg ferrous fumarate (25 mg elemental iron)
- A 10 kg dog eats all 28 of the Lo Loestrin Fe pills
- Total estrogen
 - 0.26 mg or 0.026 mg/kg
- Total progesterone
 - 24 mg or 2.4 mg/kg
- Total iron
 - 50 mg or 5 mg/kg elemental iron



 **Hormonal Birth Control Treatment**

- Consider emesis if recent and/or if foreign body concern
- Activated charcoal if >1 mg/kg estrogen
- Baseline CBC with recheck in 7 and 14 days or until normal
- Nuvaring is not radiopaque
- GI support – antiemetics, fluids prn
- Transfusion if anemic
- Antibiotics if leukopenic
- Neupogen or Epogen to stimulate WBC and RBC production from bone marrow, respectively



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Questions?



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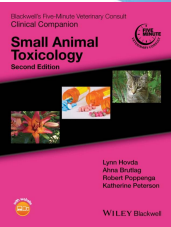
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Avoiding Heartbreak: Valentine Dangers Poisonous to Pets



APRIL 11, 2017 - Renee Schmid, DVM
Decontamination of the Poisoned Patient: What, Why, When and How

JUNE 13, 2017 - Katherine Peterson, DVM, DACVECC
Outdoor Toxins: Don't Let These Poisons Ruin Your Summertime Fun

SEPTEMBER 19, 2017 - Ahna Brutlag, DVM, MS, DABT, DABVT
Pot and Pets: Updates on Marijuana Intoxications in Dogs and Cats

NOVEMBER 14, 2017 - Colleen Almgren, DVM, PhD, DABT, DABVT
Clear Eyes, Dry Nose, No Problem? Wrong!: Intoxications Due to Eye Drops and Nasal Sprays



Thank you for attending!

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1. **When will I get my CE certificate?** We'll email it to you within 24 hrs.
2. **I attended the webinar but wasn't the person who logged in. Can I still get interactive CE credit?** Yes. Send your name and email address to info@petpoisonhelpline.com by **1 pm central time on February 15, 2018** (strict deadline).
3. **Can I watch the recorded webinar online for CE credit?** Yes. You can receive non-interactive CE credit. Go to the "For Vets" page on our website, www.petpoisonhelpline.com for more info.

Comments? Questions? Email us! info@petpoisonhelpline.com
