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

PET POISON HELPLINE

Nationwide®

The Fungus Among Us:
Mushroom Poisoning in Cats and Dog

June 4th, 2019

Katie Peterson, DVM, DACVECC

Emergency & Critical Care Specialist

Pet Poison Helpline

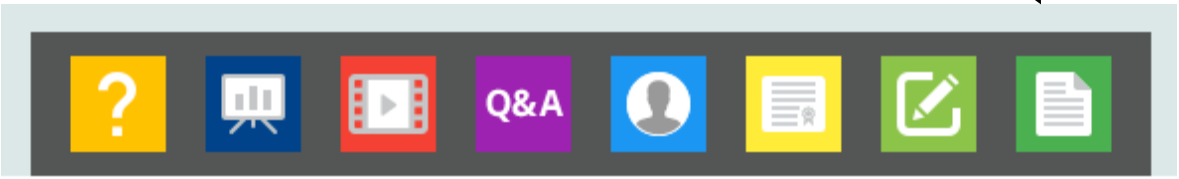
kpeterson@petpoisonhelpline.com



 Pet Poison Helpline ©2019

Widget Information

The green “resource” widget contains downloadable presentation slides, instructions on how to download your CE certificate, a link to take our survey, and links to further information about Pet Poison Helpline.



The yellow “certification” widget is where you will be able to download your CE certificate after you have attended the live presentation for 45 minutes.

What is Pet Poison Helpline?

- 24/7 animal poison control center
- Veterinary & human expertise
  - 20+ DVMs, 75+ CVTs
    - DABVT, DABT
    - DACVECC
    - DACVIM
  - 10 PharmDs
  - 2 MDs
- Case fee of $59 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

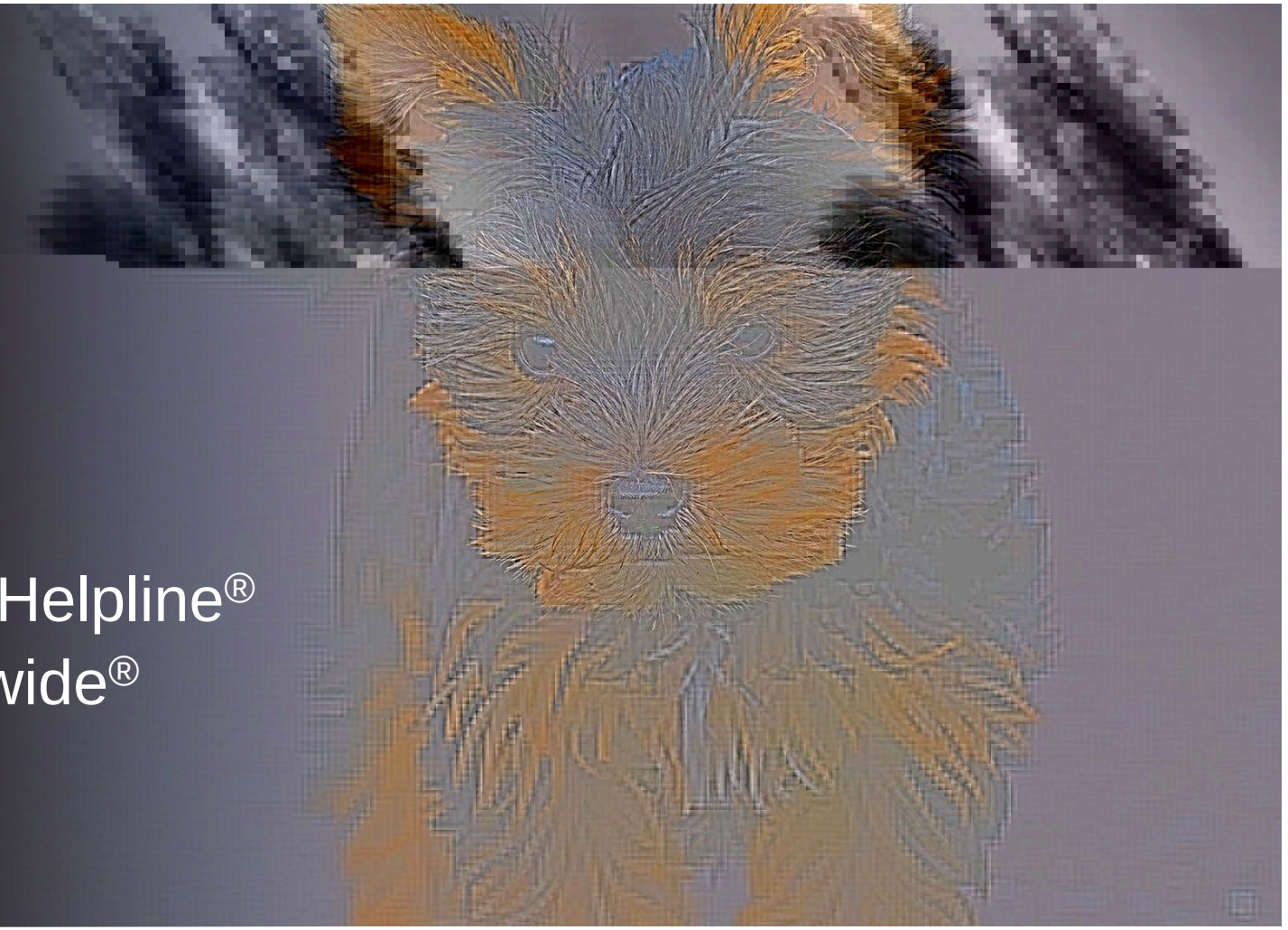
Email us for more information!

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

PET POISON HELPLINE

Nationwide®

Nationwide®
is on your side



Pet Poison Helpline® and Nationwide®



Nationwide® & Pet Poison Helpline® working together

Shared mission in highlighting the importance of preparing for accidents and poisonings in small animals

Addressing the cost of veterinary care:

Nationwide® covers the $59 Pet Poison Helpline® fee when an insured pet is brought in to your hospital for care

Enabling best medicine:

Pet owners with Nationwide® spend twice as much on their pets than those without pet insurance

VPI® Consumer Awareness & Usage Study, 2013

Complete confidence

More than **35 years of experience** protecting pets

Pet insurance that offers **more coverage than any other pet plan**

Pet insurance plans for **every pet and every budget**

Coverage includes:

- Accidents and injuries
- Common illnesses
- Serious illnesses
- Chronic conditions
- Hereditary conditions
- Diagnostics and imaging
- Procedures and surgeries
- Holistic and alternative medicines
- Wellness visits

Some policy exclusions may apply. Wellness, routine and preventive care covered with wellness policies.



Additional member perks

- 24/7 vet*helpline* for **any pet question**
- Convenient **mobile claim submissions**
- Fast **electronic reimbursements**
- **Discounts** and special offers on pet products

Pet insurance plan options for coverage

	whole pet with wellness	whole pet	major medical	pet wellness
Accidents, such as poisonings and snake bites	✓	✓	✓	
Injuries, such as ACL, bite wounds, and broken bones	✓	✓	✓	
Illnesses, such as ear infections, vomiting, diabetes and cancer	✓	✓	✓	
Exams, including treatment and prescribed medications	✓	✓	✓	
Hospitalization, including x-rays, blood work, and surgeries	✓	✓	✓	
Hereditary and congenital conditions	✓	✓	**Limited**	
Wellness exams, including vaccinations, flea control and more	✓			✓
Reimbursement type	**90%**	**90%**	**Benefit schedule**	**Benefit schedule**

All plans include a one-time annual deductible

Annual deductible must be met before reimbursement

90% reimburses all eligible services on invoice

Benefit schedule reimburses based on a published list

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

PET POISON HELPLINE

Speaker Introduction



Katie Peterson, DVM, DACVECC

Emergency & Critical Care Specialist

Pet Poison Helpline

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Fun with Fungus

- Where do mushrooms grow: everywhere!
  - Forests, sandy soils, grass lands, lawns, etc…
  - Throughout the US
- When do they grow: summer, spring and fall
- Who eats mushrooms: mostly dogs but others can be affected
- Which mushrooms are toxic: assume all are toxic unless identified!
- So what do I do when a dog eats one…

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Outline

- Gastrointestinal irritants
- Hallucinogenic
- Cyclopeptide containing
- Hydrazine toxins
- Isoxazoles
- Muscarinic
- What to do with unknowns



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Gastrointestinal irritants

- *Agaricus, Boletus, Chlorophyllum, Entoloma, Lactarius, Omphalotus, Rhodophyllus, Scleroderma* and *Tricholoma*
- Depends on species
- Toxin- typically unknown
- MOA- typically unknown



Scleroderma- fungusfactfriday.com

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

GI irritants clinical signs

- Vomiting
- Diarrhea
- Salivation
- Anorexia
- Abdominal pain



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

GI irritants clinical signs

- Onset- rapid, typically within 30 min to 2 hrs
- Severity- may be acutely severe but resolve quickly
- Duration- generally self limiting, but can last up to 24-48 hours
- Diagnostics- not typically needed unless severe

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

GI irritants treatment

- Emesis unlikely needed since already vomiting
- Activated charcoal not needed
- Symptomatic care
  - Antiemetic
  - Fluids- SQ or IV
  - Anti-diarrheal medication
  - Antacid



Chlorophyllum molybdites "the vomiter"

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hallucinogenic mushrooms

- *Psilocybe, Panaeolus, Conocybe and Gymnopilus*
  - NW and SE US- fields and pastures
  - Little brown mushroom, thin stem
  - Used recreationally as “shrooms” or “magic mushrooms”
- Toxin- Psilocybin
- Mechanism of action
  - Metabolized to psilocin
  - Lipophilic
  - Acts on serotonin receptors



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hallucinogenic clinical signs

- CNS signs
  - Ataxia
  - Weakness
  - Vocalization
  - Nystagmus
  - Aggression, agitation
  - Visual hallucinations- fly biting
  - Seizures
  - Coma
- Peripheral signs
  - Tachycardia
  - Tachypnea
  - Hyper or hypothermia
  - Tremors
  - Mydriasis



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hallucinogenic clinical signs

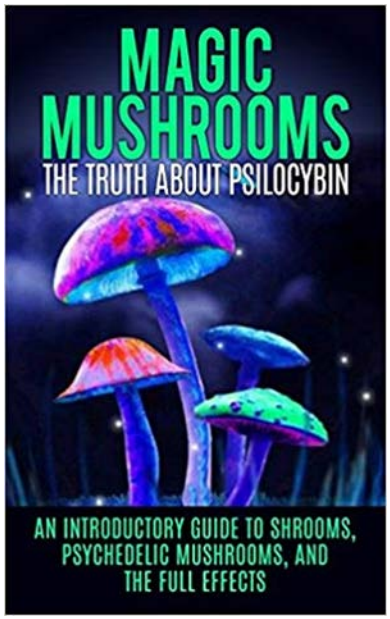
- Affects central and peripheral serotonin receptors
- Onset- rapid, typically within 30 min to 2 hrs
- Prognosis- generally good but guarded if severe signs
- Duration- 4-6 hours, some persist 24-48 hours
- Diagnostics-May see liver or kidney changes if signs are severe
  - Can be detected in the urine

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hallucinogenic treatment

- Emesis if neurologically stable
- Gastric lavage of not neurologically stable
- Activated charcoal with sorbitol
- IV fluids
- Symptomatic care
  - Anticonvulsant
  - Methocarbamol
  - Sedation
  - Cyproheptadine (?)



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Cyclopeptide containing

- *Amanita (A. phalloides, ocreata), Galerina* and *Lepiota*
  - Death cap, death angel, destroying angel
  - Throughout US- CA (SF) to BC, ME to MD
- Appearance *Galerina*- little brown
- Appearance *A. phalloides*
  - Smooth, yellowish-green to olive-brown cap
  - White gills
  - White stem
  - Membranous skirt on stem
  - Cup-like structure around the base of the stem



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Cyclopeptide containing

- Toxin
  - Amanitins: Ingestion, heat stable and not degraded by stomach acid
  - Phalloidins: toxic via injection only
- Rapidly absorbed
- Undergo enterohepatic recirculation
- Active reabsorption from renal filtrate
- No known metabolism
- Elimination: 80-90% urine, 7% biliary

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Cyclopeptide toxins MOA

- Cellular death- cells with high metabolic rate
  - Hepatocytes, GI crypt cells, proximal convoluted tubule of kidney
  - Inhibit nRNA polymerase II and interferes with RNA/DNA transcription
  - Inhibit ribosomal protein synthesis
  - Apoptosis of hepatocytes
  - Hypoglycemia- breakdown of liver glycogen, insulin release



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Amanitins, clinical signs

- Phase 1 (6-24 hours): GI phase – Vomiting, fever, abdominal pain, bloody diarrhea, hyperglycemia
- Phase 2: Apparent recovery, elevated liver enzymes within 12-24 hours
- Phase 3: Hepatic (48-72 hours)- Severely increased liver enzymes, hypoglycemia, coagulopathy, encephalopathy, coma, and death
- Phase 4: Kidney injury- proximal and distal tubular necrosis
- Death 3-7 days after ingestion

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Amanitins, clinical signs

- Onset: **6-24 hours** after ingestion
- Severity: Highly toxic and prognosis poor even with care
  - Oral LD_{50} = 0.5 mg/kg
  - 1.5-4 mg amanitins per gram of mushroom
- Diagnostics:
  - Chemistry + electrolytes, PCV/TP
    - CBC, coag if severe liver enzyme elevations
  - Mushroom identification
  - Spores or mushroom in GI contents
  - Urine or serum and fresh liver sample

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Amanitins, treatment

- Emesis
- Activated charcoal: multi-dose x 24 hrs
- IV fluids- hydration, perfusion and renal excretion
  - Dextrose supplementation
- Liver support
  - Denamarin, silymarin, milk thistle
  - N-acetylcysteine
  - Coagulopathy treatment – plasma transfusion, Vitamin K1
- GI support
  - Antiemetic, PPI, sucralfate

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Amanitins, treatment

- Cholestyramine
- High dose penicillin (experimental)
- Silibinin
- Charcoal hemoperfusion
- Plasmapheresis
- Bile aspiration/drainage (experimental)

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Amanita veterinary literature

- A puppy death and *Amanita phalloides*
  - Cole FM
  - Australian Vet Journal 70 (7) July 1993
  - Brief communication



- 9 week cocker spaniel
- Access to *A. phalloides* in the yard
- Found with mushroom in the mouth but recovered most of it
- Displayed lethargy, vomiting, collapse and died within 24-36 hours

Nationwide®

Amanita Mushroom Poisoning: Efficacy of Aggressive Treatment of Two Dogs

- Tegzes J, Puschner B
- Vet Human toxicol 44 (2), 2002: 96-99

- P1: 7 mos MI CKCS, ingested mushrooms from yard
- Lethargic at home and 2 days later dark urine noted
- Severely elevated LE (ALT 9800, tbili 7.5), coagulopathy
  - Treated: IVF, antibiotics, plasma, vit K1, GI support
  - Day 11- ALT 546
- Discharged day 16
- *A. phalloides* in yard



Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Amanita Mushroom Poisoning: Efficacy of Aggressive Treatment of Two Dogs



- P2: 9 mo FS pom, ingested mushroom on walk
- Vomiting, anorexic, to DVM 36 hrs post ingestion
- Severely elevated LE (ALT > 10,000, tbili 7.9), coagulopathy
  - Treated: IV fluids, antibiotics, vit K1, vit B12, plasma
  - Petechia, abd effusion, melena, hematuria, MODS
  - Intubated and ventilated, started hemoperfusion
- Cardiac arrest – Necropsy evidence of massive hepatic necrosis and renal tubular damage
- *A. ocreata* identified from area ingestion occurred

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hydrazine toxin

- Genera*: Gyromitra* and *Helvella sp*
  - **False morels,** Beefsteak
  - Located throughout the US
- Toxin
  - Gyromitrin- Water soluble and heat labile
- Mechanism of action
  - Metabolized in stomach to monomethylhydrazine
  - GI irritation
  - Reduced GABA synthesis
    - Inhibits glutamic acid decarboxylase - involved in GABA synthesis.
    - Antagonized pyridoxine (Vitamin B6) – cofactor for GABA synthesis
  - Other metabolites

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hydrazine clinical signs

- GI irritation: vomiting, abdominal pain, diarrhea
- CNS changes: lethargy, depression, seizures
- Fatty degeneration of liver and liver necrosis, hemolysis, and kidney failure





Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hydrazine clinical signs

- Onset- 2-6 hours after ingestion
- Duration- may be up to 3-5 days
- Severity- most mild and self limiting, more severe neuro signs +/- liver necrosis
  - Death has been reported in a dog
- Diagnostics: Chemistry if severe or persistent

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Hydrazine treatment

- Emesis
- Activated charcoal with sorbitol
- IV fluids
- Anticonvulsants
- Pyridoxine: 25-150 mg/kg IV over 15-30 min
- Liver support – if elevated liver enzymes

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Isoxazoles mushrooms

- Genera- *Amanita pantherina* and *muscaria*
  - *A. gemmata*, *smithiana*, *strobiliformis* and *Tricholoma muscarium*
  - White surface warts are characteristic
  - Throughout the US- P.NW, Midwest, NE
  - Fly agaric – used for rituals/recreational
- Toxins and MOA
  - Ibotenic acid – Mimics glutamic acid; NMDA receptors
  - Muscimol – Potent GABA receptor agonist
  - *A muscaria* – muscarine toxin



Amanita Muscarina – Wikipedia.org

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Isoxazoles clinical signs

- Rapidly absorbed
- Crosses BBB
- Periods of excitation and depression
- Clinical signs:
  - Sedation or agitation
  - Muscle tremors, paddling/seizures, opisthotonos
  - Vestibular signs
  - Muscle paresis, miosis, respiratory depression

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Isoxazoles clinical signs

- Onset- within 15 min to 2 hours
- Duration- recovery within 24-72 hours
- Severity- may be severe and need aggressive support but prognosis generally good
  - Death has been reported in a dog
- Diagnostics- Blood work if signs are severe
  - Can be detected in the urine or serum

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Isoxazoles treatment

- Emesis or gastric lavage
- Activated charcoal with sorbitol
- IV fluids
- Methocarbamol
- Anticonvulsants
- Oxygen/ventilation



Nationwide®

Isoxazoles veterinary literature

- *Amanita muscaria* toxicosis in two dogs
- JVECC 16 (3) 2006. 208-214
- Rossmeisel et al
- Case series



Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Case 1: 2 yr MI English setter

- Normal in the evening, found next morning in kennel
- Cluster seizures and diarrhea, hypersalivating, stuperous, bradycardia, miosis
  - Treatment: diazepam, phenobarbital, propofol, IV fluids, methocarbamol
- Clinically normal on day 3
- Vomited pieces and samples from yard - *A. muscaria*
  - Urine and serum ibotenic acid concentrations elevated
  - Muscimol present in the serum and urine

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Case 2: 4yr MN mix

- Lethargy, v/d, ptyalism for 12 hours
- Miosis, dehydrated, seizures
- Treatment: diazepam, phenobarbital
- Clinically normal 30 hours after presentation
- Visually confirmed mushroom in yard
  - Elevated serum ibotenic acid and muscimol concentrations
  - Muscimol was also present urine

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Muscarinic

- Inocybe, Clitocybe
  - *Entoloma*, *Boletus, Mycena, Rubinoboletus, A. muscaria*
  - Throughout US- forests, lawns, parks…
  - Little brown mushrooms
  - *Omphalotus* mistaken for chanterelles



- Toxin- Muscarine
- Mechanism of action:
  - Competes with acetylcholine (Ach) at muscarine receptors
  - Is not broken down by acetylcholinesterase enzyme
  - Excessive stimulation at **peripheral** ACh receptors

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Muscarinic clinical signs

- **S**alivation
- **L**acrimation
- **U**rination
- **D**efecation
- **G**I upset
- **E**mesis



- Bradycardia, bronchorrhea, bronchospasm
- Miosis

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Muscarinic clinical signs

- Does not cross BBB
- Onset- rapid, typically within 30 min to 2 hrs
- Severity- mild to moderate signs
  - Death reported in a dog
  - one mushroom may cause toxicity depending on % of muscarine
- Duration- generally rapid recovery with atropine, 24-48 hours with supportive care
- Diagnostics- detection in urine or GI contents

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Muscarinic treatment



- Emesis
- Activated charcoal
- IV fluids
- Atropine
  - Treatment dose at 0.2 to 2 mg/kg BW. Give ¼ IV and the remainder SQ or IM
  - Redose based on secretions and HR

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Fatal poisoning of a dog by the fungus *Clitocybe rivulosa*

- Irwin AG, Leech AR
- Vet Rec July 2014, 122-123.
- Brief communication

- 9 yr cocker spaniel
- Clinical signs: salivation, v/d, collapse, and cardiac arrest within 45 min
- Fungus identified in the vomit and from yard

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Acute Inocybe mushroom toxicosis in dogs: 5 cases (2010–2014)

- JVECC 27(2) 2017, pp 212–217
- Opdal Seljetun K, von Krogh A
- Retrospective case series (Norway)

- 4 dogs: 3-8mos, wt 3.5-15kg, other 6yr, 42kg
- Signs developed within an hour after ingestion
  - Signs- lethargy, v/d, salivation, hypothermia, tachypnea, variable HR
- Signs improved rapidly with supportive care +/- atropine administration
- Clinically normal within 2-5 days after ingestion

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Mushroom toxicosis in dogs in GP causing gastroenteritis, ptyalism and elevated lipase

- JSAP 54, May 2013, 275-279
- Hall J, Barton L
- Retrospective case series (England)

- Clinical signs- v/d, salivation, miosis, altered mentation, ataxic, paresis, tachycardia, hypothermia, elevated lipase/cPL
- 4/5 survived with supportive care, 1 – euth
  - Signs improved within 24-72 hours
- Despite severe signs- good outcome with care
- No definitive identification of mushrooms

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Respiratory arrest following ingestion of wild mushrooms in 3 dogs (2006–2011)

  - JVECC 23(6) 2013, pp 605–609
  - Brandin AC, Meola SD, Mazzaferro EM
  - Case series – 3 dogs exposed to mushrooms
- All three had neurologic signs- miosis, ataxia, tremors, coma followed by respiratory arrest
- Gastric lavage performed in 2 dogs and signs improved rapidly post-lavage
- One euthanized, two discharged 23-26 hours after presentation
- 2 dogs given diazepam prior to respiratory arrest
- No mushrooms identified that cause neuro signs

Nationwide®

PET POISON HELPLINE®
800.213.6680
www.petpoisonhelpline.com

Nationwide®

Unknown mushroom ingestion





Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Mushroom identification

- North American Mycological Association (www.namyco.org)
- Local mycologist
- University or local diagnostic lab
- Apps…may not be reliable
- Books
- Facebook groups
- Reddit

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Mushroom identification

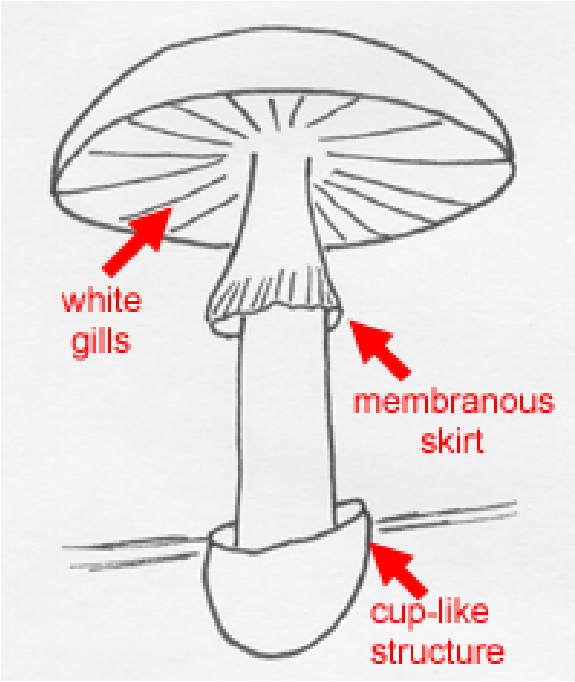
- Take good photos of the mushroom
  - Use a ruler for size
  - Try to get accurate colors
- Take pictures of spores -press the gills onto a slide and take a photo
- Save the mushrooms – take multiple samples
  - Wrap in moistened paper towel or wax paper
  - Place in paper bag
- Know the location and substrate from which the mushroom was growing

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Mushroom identification

- Do not assume non-toxic
- Avoid mushrooms with red on the cap or stem
- Avoid mushrooms with:
  - White gills
  - A skirt or ring on the stem
  - A bulbous or sack like base called a volva



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Treatment for asymptomatic unknown

- Emesis
- Activated charcoal (MDAC?)
- Baseline chemistry
- SQ or IV fluids
- Monitor at home or in clinic
- If signs develop:
  - Identify mushroom
  - Recheck blood work
  - Provide supportive care as previously discussed



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Diagnostics symptomatic unknown

- Collect samples for analysis
  - Serum
  - Urine
  - Mushrooms in emesis or gastric lavage
  - Mushrooms in environment
- Chemistry monitoring q 24 hours for 48-72 hours
- CBC/Coag panel if LE significantly elevated

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com



Questions?

For further information on outdoor toxins:

Pets vs Toxic Plants: How to Tilt the Balance to Favor Your Patient (April 2, 2019)

- Susan Holland, DVM
- https://www.petpoisonhelpline.com/webinar/pets-vs-toxic-plants-how-to-tilt-the-balance/
- Archived webinar available on demand for (1) hour RACE approved CE

Gardening Perils Beyond Plants: Fertilizers, Herbicides and Lawn Insecticides (June 5, 2018)

- **Susan Holland, DVM**
- https://www.petpoisonhelpline.com/webinar/june-2018-fertilizers-herbicides-lawn-insecticides/
- Archived webinar available on demand for (1) hour RACE approved CE

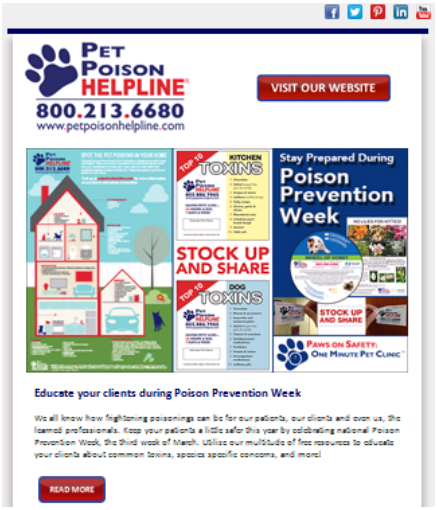
Nationwide®

PET POISON HELPLINE
800.213.6680
www.petpoisonhelpline.com

Sign up for…















info@petpoisonhelpline.com

Nationwide®

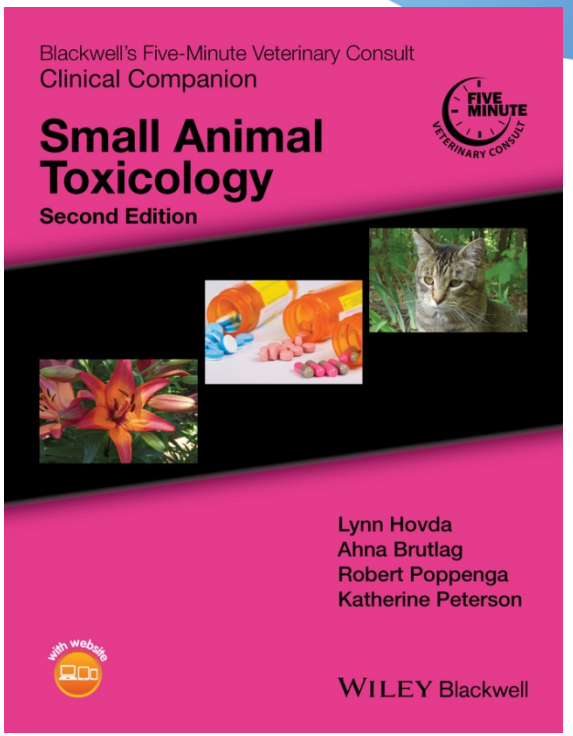
Blackwell's Five-Minute Veterinary Consult Clinical Companion:

Small Animal Toxicology

2nd Edition

Drs. Lynn Hovda, Ahna Brutlag, Robert Poppenga, Katherine Peterson

- Provides concise, bulleted information focused on the most important facts needed when treating a poisoned cat or dog
- Carefully organized for ease of use in an emergency, with important toxicants arranged alphabetically within categories
- Details clinically relevant information on the most common toxicants encountered by small animals
- Presents a wealth of color photographs to aid in plant identification
- Includes 14 new topics to this edition covering cyclosporine A, sleep aids, tacrolimus, bath salts, synthetic marijuana, poisonous lizards, imidacloprid, spring bulbs, and sodium monofluoroacetate



Paperback | May 2016 | 960 pages | 978-1-119-03654-8 | $109.99 · CAN $120.99

www.wiley.com/go/vet

WILEY

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Nationwide®

PPH is Hiring!

WE'RE HIRING VET TECHS!

- Work from home
- Competitive pay & benefits
- No prior tox experience required!



For all the details, please visit our careers page at:
https://www.petpoisonhelpline.com/careers/

Questions? Contact us at:
careers@safetycall.com

Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Upcoming Webinars

September 17th - Pot & Pets: Updates on Cannabis Exposure in Dogs & Cats

November 19th - Overview of Rodenticide Classes and Therapy Needs



Nationwide®

Pet Poison Helpline
800.213.6680
www.petpoisonhelpline.com

Nationwide

Thank you for attending!

CE credit FAQs

1. **When will I get my CE certificate?** Now! You can download it directly from the On24 platform. Please refer to the green "resource" widget at the bottom of your screen for detailed instructions.
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 1pm central time on June 5th, 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