Readiness for timely response to dog poisoning events

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OSU: Toxic algae in Elk Creek killed dog

By KVAL.com staff

Story Published: Sep 10, 2009 at 12:41 PM PST

Summary

Tests confirmed blue green algae killed at least one of the two dogs that died along Elk Creek last month, according to Oregon State University. The two dogs from Eugene died suddenly after visiting Elk Creek near Elkton, Ore., in Douglas County.

Porter Cable (at left) and Kuta Ku (above), victims of an unknown toxin near Elkton.

We know anatoxin-a killed the dogs but don’t know the source.
Suspected dog cyanopoisoning below Dexter Reservoir, 9 July 2013

Dog Axel was tied on a leash with access to the river. Northside spillway was active with unusual rafts of foamy material in the river. Bloom was active in Dexter, but no known toxins.

Two hours after exposure: vomiting, diarrhea, seizures, collapse and death; abnormal liver noted in biopsy.

Unsuccessful analysis for toxin/cyanobacteria in stomach contents AnaC (anatoxin biosynthetic gene, Oscillatoria type) detected from river sample

Cause of death unexplained ....... mushroom intoxication?
Canine Cyanotoxin Poisonings in the United States (1920s–2012): Review of Suspected and Confirmed Cases from Three Data Sources

Lorraine C. Backer¹*, Jan H. Landsberg², Melissa Miller³,⁴, Kevin Keel⁴ and Tegwin K. Taylor³

Dog illnesses or deaths, attributable to cyanopoeisoning in US in last 90 years

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<tr>
<td># dogs</td>
<td>368 (4/yr)</td>
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<tr>
<td># dogs, anatoxin exposure</td>
<td>58</td>
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<tr>
<td># dogs, microcystin exposure</td>
<td>51</td>
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<td># (%) with toxin confirmed</td>
<td>22 (6%)</td>
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Wide belief that reported cases are the tip of the iceberg

**Why?** Cost of vet treatment, postmortem, toxin analyses
Connection to cyano blooms may not always be obvious

Note: Toxic mushrooms can produce similar liver damage as microcystin
River-associated deaths: a big unknown

Dogs can be considered as sentinels for presence of cyanotoxins
Fatal attraction to taste-and-odor compounds?

Recently reported cyanotoxin-suspected dog fatalities in Oregon and Northern California have been associated with rivers

We have no idea what the cyanotoxin source is !!!

Benthic cyanos? Toxin transported in river from lake bloom?

Identification of a benthic microcystin-producing filamentous cyanobacterium (Oscillatoriales) associated with a dog poisoning in New Zealand.
Wood SA¹, Heath MW, Holland PT, Munday R, McGregor GB, Ryan KG.

First report in a river in France of the benthic cyanobacterium
*Phormidium favosum* producing anatoxin-a associated with dog neurotoxicosis
Muriel Gugger¹*, Séverine Lenoir¹b, Céline Berger¹, Aurélie Ledreux¹,
Jean-Claude Druart¹, Jean-François Humbert¹, Catherine Guette¹, Cécile Bernard¹

Rapid deaths after drinking from shoreline of La Loue River, E. France

Dog died after ingesting benthic cyano mat (*Phormidium*) from Waitaki River, NZ
Rapid response to infrequent poisonings
An opportunity to learn about toxin sources

**What we need to solve a case**

Vomit or diarrhea samples for toxin and genetic analysis
(Part on ice, part frozen, collected by vet)

Rapid mobilization to site of exposure for collection of cyanobacterial samples
(use of on-site microscopy to help identify cyanobacteria and guide sampling)

In dog death cases suspected to be caused by cyanopoisoning:
Please contact [theo.dreher@oregonstate.edu](mailto:theo.dreher@oregonstate.edu)

Spread the word in your local area!