

# Arkansas Department of Health

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Governor Asa Hutchinson

Nathaniel Smith, MD, MPH, Director and State Health Officer

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Dear Veterinarian:

**Subject: Harmful algal blooms and toxin poisoning in dogs**

Harmful algal blooms (HAB) from blue-green algae (cyanobacteria) may be intermittently present in parts of the Buffalo River National Park, specifically the lower river region. These algae can produce toxins, such as microcystins and anatoxins, that affect people, pets, and livestock that swim in and drink from algae-contaminated water. Buffalo River National Park manages multiple high-use recreational swim/float areas where people frequently recreate with their dogs. Though we have received only a few reports of human illnesses possibly associated with HABs, we want to inform you of the current situation and provide additional resources should a potential case present at your clinic.

Though this notice is specific to HAB activity within the lower Buffalo River region, it is important to note that HABs are an issue for many lakes, ponds, and possibly rivers nationwide, and their incidence is on the rise. Please consider water exposure and travel history as elements of a patient’s medical history.

**Clinical Signs and Diagnosis**

Signs of cyanobacterial toxin poisoning depend on the type of toxin (hepatotoxin, neurotoxin, or dermatoxin), toxin concentration, amount consumed, size of the animal, and exposure route. The majority of exposures result in no or self-limiting clinical signs, but ingestion of large amounts of toxin can result in serious illness and presentation for emergency care. Common signs of hepatotoxin poisoning (e.g. microcystins) include vomiting, diarrhea, anorexia, jaundice, abdominal tenderness, and dark urine. Death can occur within days after exposure due to liver failure. Neurotoxins (e.g. anatoxin-a) cause excessive drooling, disorientation, seizures, and respiratory failure. Death follows within minutes to hours after exposure from respiratory paralysis. Additionally, cyanobacteria may produce dermatoxins, which result in rash, hives, or an allergic reaction in the exposed animal.

Diagnosis is based primarily on history of recent exposure to cyanobacteria, clinical signs of poisoning, and necropsy findings. Diagnostic methods include analysis of stomach and fecal content and liver histopathology.

**Treatment**

Untreated, cyanobacterial toxin poisonings may be fatal in animals. Prompt veterinary care is critical for patients showing hepatic or neurologic symptoms and should include supportive care. There are no antidotes to these toxins, but experimentally, oral cholestyramine has shown promise for treatment in dogs. Inducing vomiting within the first two hours of ingestion may minimize absorption of ingested toxins. Activated charcoal slurry may be of benefit to bind toxins in the gut if cholestyramine is not available. Pet Poison Hotlines may be consulted for additional treatment advice.

**To report an illness**: contact Arkansas Department of Health at adh.zoonotic@arkansas.gov or 501-280-4136.

**To report suspect nuisance or harmful algal blooms:** contact Arkansas Department of Environmental Quality at <https://www.adeq.state.ar.us/complaints/forms/nuisance_algae_complaint.aspx> or [https://www.adeq.state.ar.us/complaints/forms/harmful\_algae\_complaint.aspx or 501-682-0923](https://www.adeq.state.ar.us/complaints/forms/harmful_algae_complaint.aspx%20or%20501-682-0923).

**For additional information:**

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<http://www.merckvetmanual.com/mvm/toxicology/algal_poisoning/overview_of_algal_poisoning.html?qt=cyanobacteria&alt=sh>

<http://www.mdpi.com/2072-6651/5/6/1051/htm>

<http://www.health.state.mn.us/divs/idepc/diseases/hab/vet/index.html>

<http://www.dec.ny.gov/docs/water_pdf/habspets.pdf>

<https://www.nps.gov/buff/learn/news/buffalo-river-water-quality.htm>