



NEW YORK CITY DEPARTMENT OF  
HEALTH AND MENTAL HYGIENE  
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*Commissioner*

## 2017 Veterinary Alert # 3

### Harmful Algal Blooms a Potential Source of Toxins to Dogs

- Harmful algal blooms (HAB) are caused by bacteria called cyanobacteria.
- Cyanobacteria can produce toxins that are harmful to the liver or the central nervous system.
- Warmer weather and a changing climate may lead to an increase in HAB occurrences.
- The New York State Department of Environmental Conservation routinely samples bodies of water in New York. Recent results can be viewed on their website, including:
  - A HAB identified in Bowne Park in Queens in late April linked to turtle die-off
  - Additional HABs reported from Central Park and Prospect Park
- Veterinarians should warn owners to keep dogs away from water with HABs.

June 23, 2017

Dear Colleagues,

Water sampling following the death of several turtles in Bowne Park Queens in late April confirmed the presence of a widespread harmful algal bloom (HAB) based on blue-green chlorophyll levels of 450 µg/L and the identification of microcystins. Testing was coordinated by the New York State Department of Environmental Conservation's (DEC) HAB program, which operates one of the most robust monitoring systems in the country. Smaller, localized HABs have also been recently reported in The Lake in Central Park and Prospect Park Lake. Information can be found on the DEC website by visiting <http://www.dec.ny.gov/chemical/83310.html>. Veterinarians should be aware of the signs of cyanobacterial toxicosis in dogs.

#### BACKGROUND:

Most algae and even algal blooms are a natural occurrence and are not harmful to people or animals. Green algae are necessary for a healthy ecosystem. However, under certain conditions, blue-green algae (which are really a type of bacteria called cyanobacteria) can produce toxins such as microcystins and anatoxins. HAB is the term used to define a large proliferation of blue-green algae (or cyanobacteria) capable of producing toxins. HABs can occur in both freshwater and marine water. Factors associated with the occurrence of HABs include warmer temperatures, stagnation, the use of fertilizer and nutrients (e.g., nitrogen and phosphorus), and sewage which can contaminate a body of water either as runoff or leaching (failing septic tanks). Warmer weather and a changing climate may lead to an increase in HAB occurrences.

#### TOXICITY AND CLINICAL ILLNESS:

Cyanobacteria can produce hepatotoxins and neurotoxins, as well as irritants that can cause a dermatologic allergic reaction. The clinical manifestation depends on the route of exposure (consumption and/or contact). Dogs are especially susceptible because they are more likely to drink and swim in the water. They may also ingest cyanobacterial toxins when grooming themselves after being in the water. A tentative diagnosis is based primarily on history (recent contact with cyanobacteria) and signs of toxicosis. Common signs of HAB toxicosis include:

#### LIVER TOXINS

- Repeated vomiting
- Diarrhea or tarry stool
- Loss of appetite, anorexia
- Jaundice
- Abdominal swelling and tenderness
- Cyanosis of skin
- Dark urine or reduced/ no urine output

#### NERVE TOXINS

- Stumbling, seizures, convulsions, paralysis
- Excessive salivation/drooling
- Disorientation, inactivity or depression
- Elevated heart rate, difficulty breathing
- Diarrhea
- Lacrimation

#### SKIN TOXINS

- Skin rashes, hives

## PREVENTION:

If a HAB has been identified or is suspected in a body of water, owners can reduce the risk of cyanobacterial toxicosis in dogs by doing the following:

- Keep dogs on a leash near shoreline to keep them from wading, swimming or drinking the water.
  - If a dog goes in the water, remove it immediately and do not allow the dog to lick its fur or paws.
  - Rinse/wash it thoroughly with soap and fresh water using rubber gloves. Otherwise a towel or rag can be used to remove algal debris.
  - The dog owner should wash his or her hands with fresh water.
  - The dog owner should look closely for any symptoms in their pet.

## TREATMENT:

If you need immediate assistance for a possible HAB-associated case, you may call the Cornell University 24-hour hotline at (607)253-3900. According to the Merck Veterinary Manual, while no therapies have been investigated in detail, activated charcoal slurry is likely to be of benefit in addition to palliative care tailored to the individual patient. Because there is a strong dose dependent curve, dogs that survive the initial exposure are more likely to survive illness from neurotoxins. This is less clear with the hepatotoxins as secondary effects (e.g., fibrosis) can have more long term effects. Cholestyramine was used to treat microcystin toxicosis with questionable success in a paper by K. Rankin et. al.

## REPORTING A HAB TO NYS DEC:

Water containing HABs may look foamy, like scum floating on the surface of the water, or have the appearance of pea soup, spilled paint or colored water. Most often they are green to blue-green colored, though are occasionally red or brown (or white, as a bloom is ending). As the bloom dies off, you may smell an odor like rotting plants. To report a suspected HAB, visit the NYS DEC website at <http://www.dec.ny.gov/chemical/77118.html> to find the online Suspicious Algae Bloom Report Form. You may also send an email to [HABsInfo@dec.ny.gov](mailto:HABsInfo@dec.ny.gov).

## REPORTING HAB POISONING IN A DOG OR OTHER ANIMAL:

To report suspected HAB poisoning in a dog or other animal, please call the New York City Department of Health at (347) 396-2600 and ask to speak with someone with the Zoonotic, Influenza and Vectorborne Disease Unit (ZIVDU), or contact the New York State Department of Health by emailing [harmfulalgae@health.ny.gov](mailto:harmfulalgae@health.ny.gov).

As always, we appreciate your continued collaboration with our efforts to monitor public health issues in New York City.

Sincerely,

The Zoonotic, Influenza and Vectorborne Disease Unit

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## REFERENCES

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