



Utah Poison Control Center Update Water Quality Board December 2019

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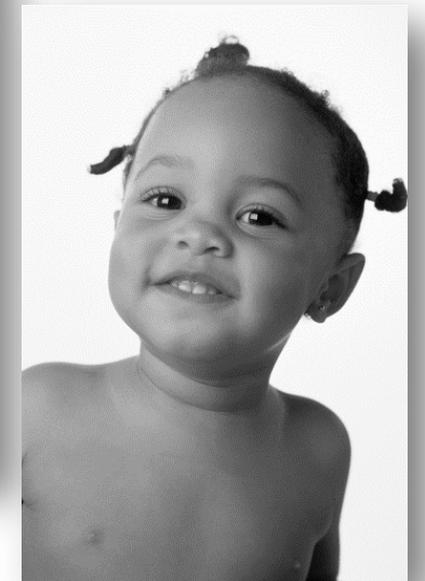
OUTLINE

- Poison exposures in Utah
- Environmental exposures
 - Information
 - Other
 - HAB
- HAB related cases in detail



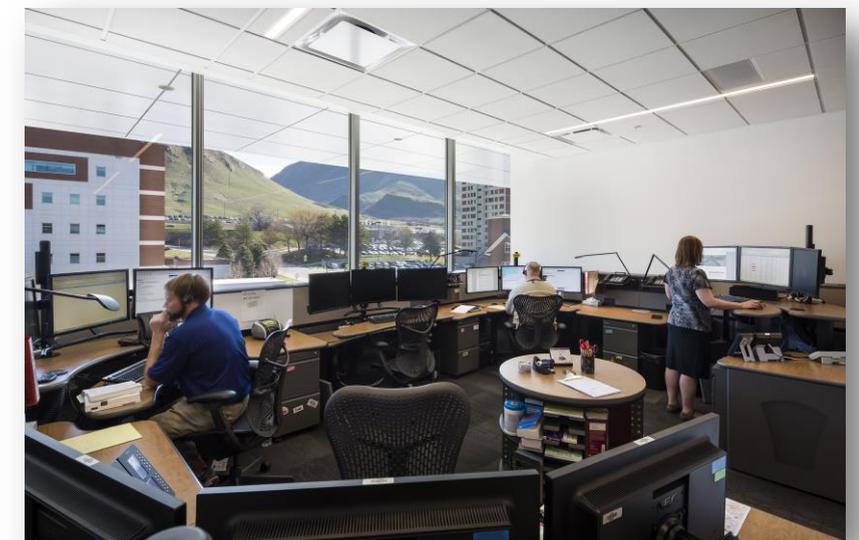
OUR MISSION

To prevent and minimize adverse health effects from a poison exposure through education service and research



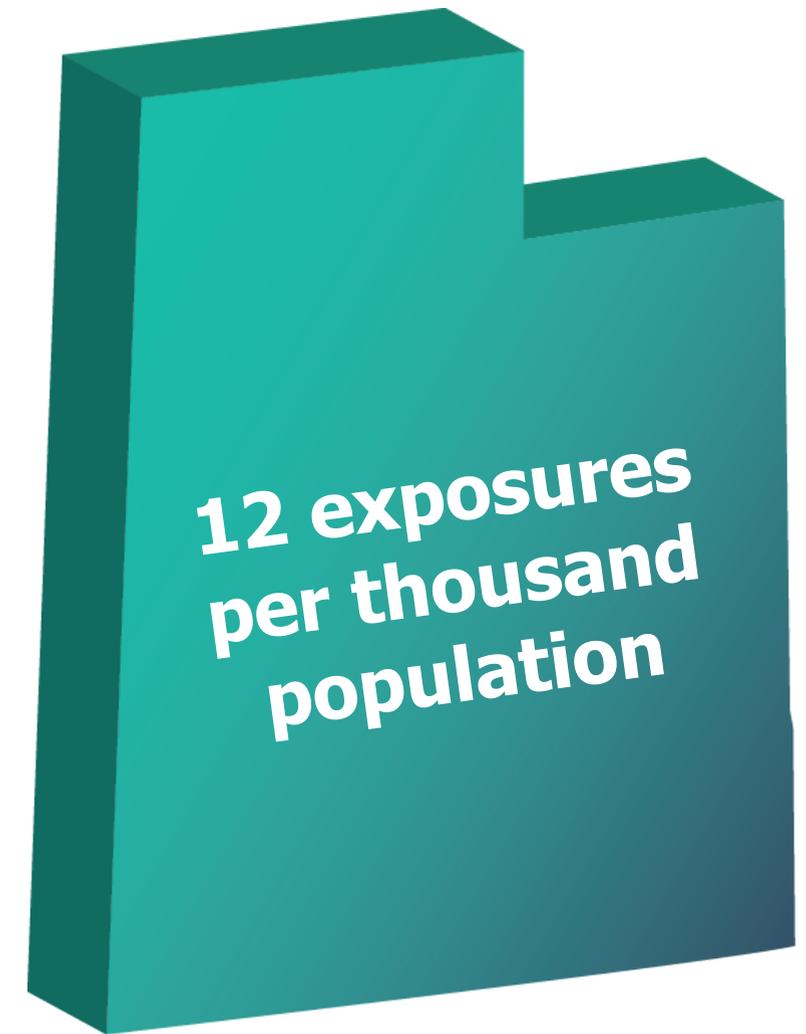
THE SERVICE

- 24/7 staffed with specialists in poison information
 - RPh and RN with additional training in toxicology
- Service to public, health professionals, public health
- Triage and provide first aid instructions
- Cases documented in electronic database with near real time surveillance
- Statewide service administratively housed in College of Pharmacy



POISONINGS IN UTAH

- > 40,000 cases/year
 - ~ 93% exposures (2% animals)
 - ~7% information
- All 29 counties
- ~ 58% involve children < 6 years
- 75% managed on-site
- < 1% major/fatal outcome
- Highest reporting per population



ENVIRONMENTAL EXPOSURES

- Passive, non-occupational
- Contamination of air, water or soil
- ~ 5% of all exposures
- Most common substance categories
 - Fumes, gases, vapors
 - Algal blooms
 - Contaminated water
 - Pesticides

ENVIRONMENTAL INFORMATION INQUIRIES

- < 10% of all information inquiries
- Top 5 environmental inquiry categories
 - Water purity/contamination
 - Pesticides
 - General toxicity of chemicals in environment
 - Safe disposal of chemicals
 - Carbon monoxide

CONTAMINATED WATER

- Previously ~ 50 cases/year
- 2019 – 1st 11 months = 475
 - Sandy City Fluoride
- Common sources
 - Storage/irrigation/secondary water
 - Streams/rivers/reservoir
 - Toilet

ALGAL BLOOM CASES

Algal Bloom Cases	2016	2017	2018	2019
Human	534	133	224	288
Animal	34	8	23	34
Information	109	32	24	20
Total	677	173	271	342

UTAH WATER BODIES

Water Body	2018	2019
Utah Lake/Jordan River	127	67
Pineview Reservoir	77	34
Scofield Reservoir	37	1
Yuba Lake		124
Blackridge Reservoir		42
Mantua Reservoir		18
Payson		5

OTHER WATER BODIES 2019

Water Body	# Cases
Stansbury Lake	4
Otter Creek, Mantua Reservoir, Deer Creek Reservoir, Piute Reservoir	2
Quail Lake, Provo River, Bear Lake, Strawberry Reservoir, Rockport Reservoir	1

2019 Harmful Algal Bloom (Cyanobacteria) Update

Data through 11/04/19 23:59:59

The Utah Poison Control Center (UPCC) is currently responding to calls related to harmful algal blooms (cyanobacteria) in Utah. Below is the status of cases handled by UPCC specialists in poison information (pharmacists and nurses) and poison information providers (pharmacy students):

	June	July	August	Sept	Oct	Nov 1-4	To Date
Harmful Algal bloom cases*	6	57	206	55	15	3	342
Human**	5	53	186	40	4	0	288
Animal***	0	1	10	10	10	3	34
Information	1	3	10	5	1	0	20
Regular PCC cases	3563	4070	4167	3814	3895	484	19993
Human	3236	3650	3716	3382	3506	426	17916
Animal	96	119	117	126	113	20	591
Information	231	301	334	306	276	38	1486
Total Case Volume	3569	4127	4373	3869	3910	487	20335

* Caller location: Utah: Box Elder, Cache, Davis, Duchesne, Juab, Morgan, Piute, Salt Lake, Sanpete, Sevier, Summit, Tooele, Utah, Washington, Weber States: Kansas, Idaho

** Adverse effects noted in approximately 29%. Most common are GI (abdominal pain, nausea, diarrhea, vomiting); dizziness, skin irritation

*** Reported animal species: dog, cat

Note-As of 11/04/19 to present, the case counts by harmful algal bloom location: Utah Lake (67), Yuba (124), Blackridge Reservoir (42), Mantua (18), Pineview Res (34), Other Utah Site (51), Payson (5), Scofield (1)

Current Status

- ~ Trained Pharmacists, nurses, and pharmacy students are available 24/7 to consult on possible exposures
- ~ UPCC website includes information and links to UDEQ website
- ~ UPCC has responded to requests from media including: (none to this point)

EXPOSURE RELATED ACTIVITY UTAH LAKE

- Boating
- Swimming/diving
- Irrigation (2016)
- Fishing (2016-2017)
- Playing at beach (2016)



Pixabay

UPCC ROLE IN HAB RESPONSE

- Planning
- Communication
 - Fact sheet
 - Signage
- Response
 - Triage, assess, first-aid
 - Messaging
- Reporting



HARMFUL ALGAL BLOOMS (HABs)

Frequently Asked Questions

WHAT ARE CYANOBACTERIA?

Cyanobacteria, also known as blue-green algae, are tiny, plant-like organisms that live in lakes, streams, and reservoirs and use sunlight to grow.

WHAT ARE ALGAL BLOOMS?

Algal blooms are rapid, large overgrowths of cyanobacteria. They often form a visible scum on the surface of the water. During blooms, cyanobacteria may produce toxins that can pose a health risk to people, pets, and other animals.

HOW CAN I TELL IF THERE'S A HARMFUL ALGAL BLOOM?

Water experiencing an algal bloom may look like pea soup, streaks of green or blue paint, or have a scum layer or mats/foam floating on the surface. The water may also appear in shades of green, blue-green, yellow, brown, or red.

WHAT ARE CYANOTOXINS?

Certain species of cyanobacteria can produce cyanotoxins that can cause skin irritation and other harmful health effects. These toxins can be present at any time during a bloom. Testing the water for the presence of toxins is the only reliable method for confirming their presence during a harmful algal bloom.

WHAT KIND OF HARMFUL EFFECTS CAN I EXPECT FROM CYANOTOXINS?

The most common responses to exposure are gastrointestinal illnesses and skin irritation, although some toxins can cause liver, neurological, or respiratory problems.

ARE CHILDREN AT GREATER RISK THAN ADULTS?

Yes, children can experience more severe symptoms due to their smaller body size.

WHAT CAN I DO TO PROTECT MYSELF?

The best way to protect yourself is to stay out of the water and avoid any contact with water or scums.

WHAT CAN I DO TO PROTECT MY PETS?

Dogs are especially at risk, since they may swim in and swallow water contaminated with cyanobacteria, and their body size is smaller. If a pet swallows a large amount of water and begins acting strangely, is vomiting, or is having seizures, take the pet to a veterinarian as soon as possible.



UPCC REPORTS

- Large response from public with concerns
 - Triage, assessment, recommendations, follow-up
 - Tracked location of exposure and recreation activity
- Adverse effects reported in ~ 29%
 - Signal database
 - Not causal - no biologic confirmation
 - Reported through OHHABS
- Importance of data
 - Track concerns
 - Understand public health implications



ONE HEALTH HARMFUL ALGAL BLOOM SYSTEM (OHABS)

- Established by CDC in 2014
- Voluntary reporting system for state public health
- Goal
 - Support understanding HAB
 - Prevent HAB-associated illness
- Recognizes connection: human/animal/environment
- Suspect, probable or confirmed human/animal cases
- UDOH trained UPCC to input human/animal cases

OHHABS DATA

- Exposure/illness timing
- Exposure activity and duration
- Signs/symptoms
- Medical care
- Health history
- Laboratory testing

OHHABS REPORTS

Year	Water Body	Human	Animal
2016	Utah Lake	199	13
	Scotfield Reservoir	3	1
	Big East Lake	15	0
2017	Utah Lake	48	4
2018	Utah Lake	24	0
2019	Utah Lake	14	0
	Blackridge Reservoir	7	0
	Yuba Lake	13	0
	Total	323	18

CDC OHHABS SURVEY

- Seeking additional exposure related information
 - Appearance of water
 - Symptoms and time to onset
- Reason for PCC call/ healthcare treatment
- Health messaging
 - Hear or read warnings
 - Communication messages
 - Prevention methods

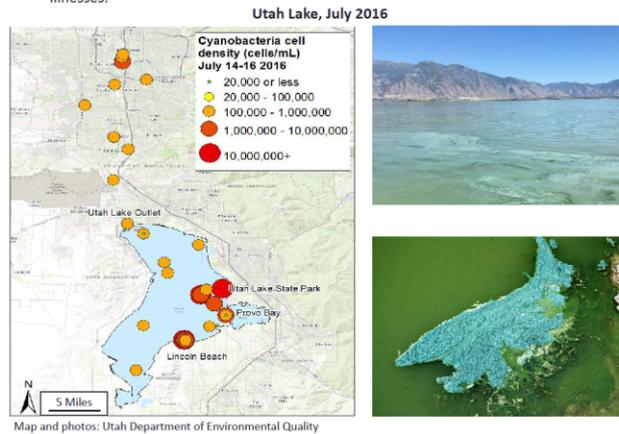
BACKGROUND

Harmful Algal Blooms (HABs)

- HABs are caused by the rapid growth of cyanobacteria (a.k.a. blue-green algae).
- Cyanobacteria produce cyanotoxins which can cause a variety of health effects in humans and animals.
- Humans and animals are exposed to the toxins by ingestion, inhalation, or direct skin contact.
- Cyanotoxins usually target the liver, the nervous system, or the skin. Symptoms range from mild to severe and include: dermatitis, and gastrointestinal, respiratory, and neurologic symptoms. Liver inflammation, kidney damage, and respiratory paralysis have been documented.

Harmful Algal Bloom – Utah Lake, July 2016

- Utah Lake is 24 miles long and 12 miles across (96,000 acres). It is the third largest natural fresh water lake west of the Mississippi River. The average depth is 9 feet (max. 14 feet).
- It is estimated that over 285,000 people visit the lake each year, most during the summer months (May-September)
- Popular activities at the lake include: swimming, fishing, boating, water skiing, and camping. The lake is also used for irrigation and watering livestock.
- In July 2016, a large HAB event occurred. Maximum cell counts were > 30 million from surface samples and >1 million from integrated samples. Microcystin levels were low overall (< 10 µg/L). However, a concentrated surface scum sample was 698 µg/L.
- The media reported the HAB on July 14, 2016 and the Utah Poison Control Center (UPCC) immediately responded to a surge of phone calls from concerned citizens who were exposed to the bloom.
- In an effort to determine the health impact of the HAB on human and animal health, the Utah Department of Health (UDOH) partnered with the UPCC to document reported illnesses.



METHODS

- UDOH granted UPCC access to input cases of suspected HAB-associated human and animal illnesses directly into the One Health Harmful Algal Bloom System (OHHABS).
- UPCC reports which met CDC criteria as suspect, probable or confirmed cases were entered into OHHABS.



RESULTS

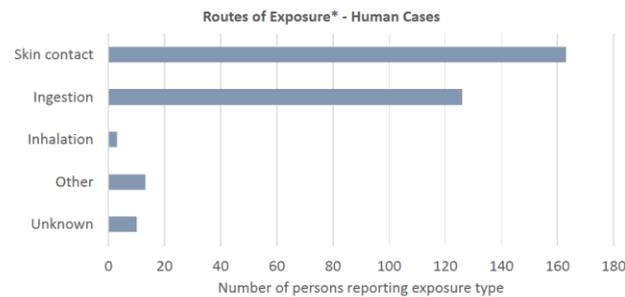
- Between July 15 and August 31, 2016, the UPCC fielded 664 calls related to the HAB, including calls requesting information about potential exposures.
- A total of 199 human and 13 animal potentially HAB-associated illnesses were identified and entered into OHHABS.
- The median age of human cases was 20 years (range: 1-80 years).

Human Cases

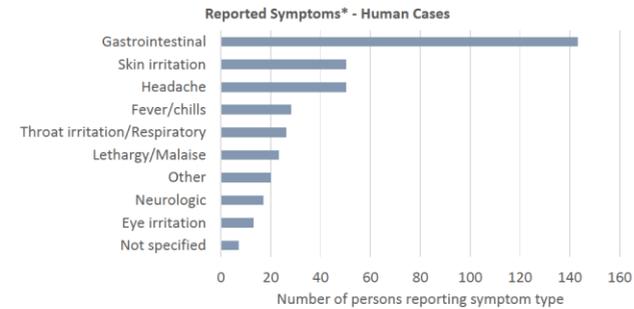
Demographics	Number	Percent
Female	88	44%
Age < 19 years	81	41%
Health Outcomes	Number	Percent
Health care provider visit	32	16%
ER visit	8	4%

Animal Cases

Type of Animal	Number	Percent
Dog	11	85%
Cat	1	8%
Herd of Horses	1	8%



RESULTS



Utah Lake, Jordan River Outlet, Utah Lake, July 2016



LIMITATIONS

- Symptoms were self-reported and subjective.
- It is possible that symptoms for some callers were due to causes other than exposure to the HAB.
- In some cases, location of exposure could not be ascertained. Therefore it is possible that some reported cases were not exposed to the HAB.

CONCLUSIONS

- The UPCC documented 199 cases of reported human illness and 13 cases of animal illness associated with a HAB event in the summer of 2016.
- Without the assistance of the UPCC, it would not have been possible to identify and document the large number of illnesses in humans and animals that were reported following the HAB.
- Understanding the impact of the HAB on the community will help inform and provide guidance for future HAB response and resource allocation.

SUMMARY

- UPCC able to surge and respond to need
- Many concerned citizens and many potential exposure sites
- Most common complaints were GI, headache, dizziness and skin/eye irritation
- Most exposures could be managed at home
 - Average PCC call ~ 3-5 minutes
 - Avoided unnecessary health care costs





UTAH POISON CONTROL CENTER

