OHIO STATE MEDICAL ASSOCIATION HOUSE OF DELEGATES

Resolution No. 35 – 2024

Introduced by: Medical Student Section

Subject: Increasing Awareness of Harmful Algal Bloom Toxicity

Referred to: Resolutions Committee No. 2

WHEREAS, harmful algal blooms (HABs) have been plaguing both marine and freshwaters globally, and are especially concentrated in Lake Erie[1]; and

WHEREAS, the alarming emergence of HABs have thus far harmed humans, animals, and environments through the release and accumulation of toxins in water[1]; and

WHEREAS, toxins produced by cyanobacterial HABs can enter the human body through ingestion of contaminated water, direct skin contact during swimming, and aerosol inhalation[2]; and

WHEREAS, exposure to cyanotoxins can cause acute health effects, such as nausea, vomiting, headache, fever, and rashes, which may be exacerbated in patients with pre-existing or chronically diseased states[3]; and

WHEREAS, microcystin and cylindrospermopsin are primary cyanotoxins responsible for gastrointestinal illness and severe liver and kidney damage[4]; and

WHEREAS, the Ohio Environmental Protection Agency (EPA) issues frequent public drinking water advisories to alert individuals when the consumption of tap water may pose health risks from elevated levels of microcystin, cylindrospermopsin, anatoxin-a, or saxitoxin[5]; and

WHEREAS, the Centers for Disease Control and Prevention (CDC) initiated the One Health Harmful Algal Bloom System (OHHABS), which found that 18 states, including Ohio, reported a total of 421 HAB events, 389 instances of human illness, and 413 cases of animal illness; between 2016 and 2018[6]; and

WHEREAS, according to a 2020 report from the CDC, 13 states, including Ohio, reported 227 HABs that resulted in 95 human illnesses, including gastrointestinal, respiratory, and dermal, and 1,170 animal illnesses[7]; and

WHEREAS, three pediatric patient cases of HAB poisoning were identified in the Western Lake Erie Basin between 2014-2016[8]; and

WHEREAS, HAB has its own International Classification of Diseases (ICD) Code, "ICD-10-CM Code for Contact with and (suspected) exposure to harmful algae and algae toxins Z77.121"[9]; and

WHEREAS, the Ohio Department of Health "Screen for Green" program supplies providers with an algorithm and factsheet on how to recognize HAB exposure in potential patients[10]; and

WHEREAS, the anticipated costs of digestive and respiratory illnesses attributable to HABs are estimated to range from $86 to $14,600 per illness, which includes treatment expenses, income reduction, loss of productivity, and the costs associated with quality of life[11]; and

WHEREAS, cyanobacteria have also been found to disrupt ecosystems by polluting drinking water sources, depleting oxygen for aquatic organisms, and contaminating seafood with algal toxins[11]; and

WHEREAS, in August 2014, Ohio declared a state of emergency in response to algal toxin contamination affecting the City of Toledo's water supply[12]; and

WHEREAS, during the emergency state, a "do not drink" advisory was issued in Toledo, Ohio, due to elevated levels of cyanobacteria in treated drinking water sources[13]; and

WHEREAS, HAB events in Lake Erie can pose serious economic ramifications, such as in August 2014, where a single bloom led to a $65 million loss in the United States[13]; and

WHEREAS, over the course of September, 2015, one HAB outbreak spanning 600 miles along the Ohio River incurred a daily cost of $7,700 for water treatment plants in Cincinnati to ensure the safety of drinking water[14]; and

WHEREAS, Lake Erie HAB breakouts are becoming more frequent and potent, as evidenced by the severity index, which measures the biomass of a bloom over its spatial extent and assesses values above 7 as "particularly severe"[15,16]; and

WHEREAS, the severity index values recorded for the cyanobacterial blooms in Western Lake Erie suggest relatively severe figures, registering at 8 in 2017, 7.3 in 2019, and 6.8 in 2022[15,16]; and

WHEREAS, HAB events continue to pose threats to Ohio's water supply, as seen in recent breakouts, which polluted water sources, gave rise to extensive dead zones, adversely affected fish, deterred swimmers and boaters, and led to a decline in the values of lakefront properties[17]; and

WHEREAS, for each incremental rise of 1 µg/L in Lake Erie HAB levels, lakeside property values are found to drop by 1.7%, which is equivalent to a reduction of $2,205[18]; and

WHEREAS, changes in the climate may lead to more optimal conditions for HAB events due to higher water temperatures and increased stormwater runoff of nutrients[19]; and

WHEREAS, nutrients such as phosphorus and nitrogen, sourced from agricultural fertilizers, sewage, and runoff from industrial facilities, contribute to the rapid growth of HABs[20]; and

WHEREAS, the 2023 Western Lake Erie HAB Seasonal Assessment reports that the total bioavailable phosphorus load accumulated in the Maumee River was 230 metric tons as of July 31st[21]; and

WHEREAS, in 2015, Ohio, Michigan, and the Canadian province of Ontario entered into the Western Basin of Lake Erie Collaborative Agreement, pledging to decrease nutrient levels entering the lake by 40% by 2025[22]; and

WHEREAS, according to the Ohio State Medical Association, in 2021, Governor DeWine enacted a two-year budget bill, which directed $170 million for the H2Ohio initiative, a water quality plan aimed at addressing water contaminants, mitigating algal blooms, and enhancing Ohio's wastewater infrastructure[23]; and

WHEREAS, the United States EPA approved a plan in September 2023 to limit phosphorus runoff into the Maumee River, which drains into the Western Basin of Lake Erie, in order to reduce harmful algal blooms[24]; and

WHEREAS, the National Integrated Drought Information System Reauthorization Act of 2018 authorizes the renewal of the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA) to further understand, predict, and analyze HABs[25,26]; and

WHEREAS, the 2022 Report to Congress from the National Oceanic and Atmospheric Administration mandates biennial updates on HABHRCA progress in the Great Lakes region[27]; and

WHEREAS, HAB breakouts result in an estimated annual economic loss of approximately $82 million due to declines in fishing and tourism activities in the affected region[28]; and

WHEREAS, the estimated average yearly economic repercussions of HABs in the United States ranges between $10-100 million and costs from a single significant HAB event can incur costs amounting tens of millions of dollars[29]; and therefore

BE IT RESOLVED, that our OSMA supports ongoing research into the human health effects of harmful algal contaminated water; and be it further

RESOLVED, that our OSMA supports initiatives to promote awareness of the harmful effects of algal blooms and be it further

RESOLVED, that our OSMA supports legislation to reduce nutrient runoff from factory farms and other commercial practices negatively impacting Lake Erie and other waterways.

Fiscal Note: $ (Sponsor)
$ 50,000 (Staff)

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OSMA Policy:

Policy 12 – 2023 – Supporting Environmental Sustainability in Hospitals and Physician Offices
The OSMA (1) supports initiatives to promote environmental sustainability by healthcare facilities and entities across Ohio, and (2) supports physicians seeking to adopt programs for environmental sustainability in their practices.

Policy 7 – 2023 – Establishing Support for the Regulation of Endocrine Disrupting Chemicals in Food, Agricultural, and Household Products
OSMA supports the investigation and regulation of the use of endocrine-disrupting chemicals in food, agricultural, and household products.

Policy 24 – 2010 – Updating of the Safe Drinking Water Act
(reaffirmed at the 2019 OSMA House of Delegates)
The OSMA shall petition the appropriate state agencies to identify those local water utilities at risk and to take appropriate steps to assure safe drinking water.

Policy 03 – 2018 – Pursuit of a Strategic Partnership with the Ohio Public Health Association
1. The OSMA create a formal partnership, establishing an open line of communication, with the Ohio Public Health Association for medical students and physicians. 2. The OSMA support policies and initiatives that may, based on reasonable evidence, produce population health improvements, as well as incentivize healthcare providers, hospitals, clinics, and other healthcare facilities to engage in health promotion

Policy 27 – 2022 – Recognition of Climate Change as a Threat to Ohio's Health
1. The OSMA encourages the development of policy to combat climate change and its health effects in Ohio and to mitigate the undesirable environmental conditions that damage Ohioans' health. 2. The OSMA encourages education of the broader Ohio medical community to the serious adverse health effects of climate change and local conditions of climate variation.