Public Health Impacts of Nitrate in Drinking Water: Presentation for National Water Quality Monitoring Council

Iowa Environmental Council
Ann Y. Robinson
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Iowa Environmental Council

Our Mission: A safe, healthy environment and sustainable future for Iowa

- Non-partisan alliance of over 70 diverse organizations and businesses & 100s of individual members.
- Founded in 1995.
- 501(c)(3) Non-profit.
- An amplified voice for Iowa’s environmental interests.
- Member of regional and national coalitions for water, land and clean energy issues.
Our Approach

- Balanced
- Results-oriented
- Nonpartisan
- Science- and information-based
- Collaborate and communicate

We advocate for a cleaner, healthier Iowa at the legislature, with rule-making agencies, and when necessary, in the courts.
Questions: “When was the last time you heard of a blue baby?”

- US EPA drinking water standard of 10 mg per liter (mg/L) established in 1962 to prevent methemoglobinemia, or blue-baby syndrome.
- Life-threatening condition decreases blood’s ability to carry oxygen through the body. Newborns up to three months old especially vulnerable.
- Syndrome rare since establishment of the EPA health standard.
- Acknowledged threat, but acute toxicity linked to levels more like 22 mg/L or higher.
Are There Other Health Concerns Related to Nitrate in Drinking Water?

- Started to research and ask questions of health experts. Multiple issues identified -- and many questions:
  - Complex issue. Many influences. In some cases, synergistic effects may exacerbate outcomes, such as with pesticides, bacteria. People have different responses.
  - Nitrogen cycle complex. Nitrate converted within body to nitrite. Further reduced in body to N-Nitroso compounds, widely considered to cause cancer and other health problems.
- Conclusion: Nitrates are linked to many health concerns.
Health Concerns Related to Nitrate in Drinking Water

- Found extensive research linking nitrate to many health concerns, in human and animal studies -- Many possible concerns represented by limited studies – sometimes findings conflict.

- IEC focused on **most widely supported research results**, multiple studies, often over many years:
  - Birth defects,
  - Bladder cancer,
  - Thyroid cancer.
In Iowa, not just problem with DMWW or Central Iowa.

- 16 MCL violations at 10 public water supplies for Nitrate in 2015 - affected ~72,000 citizens.
- Drop in N violations since 2006 when 64 violations at 19 PWS.
- However, 39 municipal systems in IA considered highly susceptible - finished water N levels above 5 mg/l and rising.
- Decreasing violations over last decade due to treatment or source water replacement - not because nitrate decreasing.
Other Problems with Nutrient Pollution

- Maintaining drinking water standard one of our most obvious problems:
- **Also** nutrient pollution from Iowa and Midwest fueling Gulf Hypoxia - Dead Zone in the Gulf of Mexico.
- **Also** N and P pollution, leading to toxic blue-green algae blooms, causing beach advisories: EPA now recommends reducing microcystin health advisory level to 4 micrograms/l.
- **Also** Nitrate harmful to sensitive aquatic organisms at 5 mg/l or higher.
We Can Do Better

Starting to make progress, but need to do more:

- In Iowa – and in many other states – need sustainable funding to address nutrient pollution issues more systematically.
- Strengthen implementation of state nutrient reduction strategies.
- Expand integrated watershed approach that includes monitoring to guide adaptive management.
- Basic standards of care expected from all landowners.
- Activate power of consumers - Support farmers practicing good stewardship.
Cleaner Water Brings Multiple Benefits

Not just about improving health -- also brings multiple benefits:

- Strengthen local economies.
- Reduce potential for flooding.
- Make our communities more attractive places to live, raise families, recreate, retire.
Find out more
Nitrate in Drinking Water: A Public Health Concern for All Iowans

- Thanks to reviewers, including: Iowa Public Health Association, Dr. Peter Weyer/Center for Health Effects of Environmental Contamination, State Hygienic Lab/University of Iowa, County Health Departments, Dr. Dennis Keeney, and Others
Thank you

Robinson@iaenvironment.org
515-244-1194, ext. 211
www.iaenvironment.org
Facebook.com/IAEnvironmentalCouncil
@iowa_Env