

CORRECTION

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# Correction: Epidemiologic and clinical features of cyanobacteria harmful algal bloom exposures reported to the National Poison Data System, United States, 2010–2022: a descriptive analysis

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**Correction:** Environ Health 23, 80 (2024).  
<https://doi.org/10.1186/s12940-024-01121-y>.

Following publication of the original article [1], the author reported that the reference list from reference 12 up to 35 does not coincide with the reference citations thus needs to be renumbered.

The online version of the original article can be found at <https://doi.org/10.1186/s12940-024-01121-y>.

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**Old Reference list**

12. Lavery AM, Backer LC, Roberts VA, et al. 2017–2019. MMWR Morb Mortal Wkly Rep. 2021;70(1):191–4. <https://doi.org/10.15585/mmwr.mm70191a4>. Evaluation of Syndromic Surveillance Data for Studying Harmful Algal Bloom–Associated Illnesses — United States.
13. OHHS Case and event definitions Table March 14, 2017 Available at: <https://stacks.cdc.gov/view/cdc/15226>. Accessed November 21, 2024.
14. Gumm DD, Mowry JB, Beuhrer MC, et al. 2021 Annual Report of the National Poison Data System © (NPDS) from America's Poison Centers: 39th Annual Report. Clinical Toxicology 2022;60(12):1381–1643. <https://doi.org/10.1080/15563650.2022.2132768>.
15. Carpenter JE, Chang AS, Bernstein AC, et al. Identifying Incidents of Public Health Significance Using the National Poison Data System, 2013–2018. Am J Public Health. 2020;110(10):1528–31. <https://doi.org/10.1016/j.ajph.2020.0305842>.
16. Greene SC, Folt J, Wyatt K, et al. Epidemiology of fatal snakebites in the United States 1989–2018. Am J Emerg Med. 2021;45:309–16. <https://doi.org/10.1016/j.ajem.2020.08.083>.
17. Beuhrer MC, Spiller HA, Alwasyah D, et al. Adverse effects associated with bupropion therapeutic errors in adults reported to four United States poison centers. Clin Toxicol. 2022;60(5):623–7. <https://doi.org/10.1080/15563650.2021.2002353>.
18. Beuhrer MC, Spiller HA, Alwasyah D, et al. Adverse effects associated with bupropion therapeutic errors in adults reported to four United States poison centers. Clin Toxicol. 2022;60(5):623–7. <https://doi.org/10.1080/15563650.2021.2002353>.
19. Lavery AM, Kleszak SM, Law R, et al. Harmful algal bloom exposures selfreported to Poison Centers in the United States—May–October 2019. Public Health Rep. 2023;138(6):865–9. <https://doi.org/10.1177/0033549221146654>.
20. French BW, Kaul R, George J, et al. A Case Series of potential Pediatric Cyanotoxin exposures Associated with Harmful Algal blooms in Northwest Ohio. Infect Dis Rep. 2023;15(6):726–34. <https://doi.org/10.3390/dri15060065>.
21. Lin CJ, Wade TJ, Sams EA, et al. A prospective study of Marine Phytoplankton and reported illness among recreational beachgoers in Puerto Rico. 2009. Environ Health Perspect. 2016;124(4):477–83. <https://doi.org/10.1289/ehp.1409558>.
22. Lavery AM, Kleszak SM, Law R, et al. Harmful algal Bloom exposures Selfreported to Poison Centers in the United States—May–October 2019. Public Health Rep. 2023;138(6):865–9. <https://doi.org/10.1177/0033549221146654>.
23. French BW, Kaul R, George J, et al. A Case Series of potential Pediatric Cyanotoxin exposures Associated with Harmful Algal blooms in Northwest Ohio. Infect Dis Rep. 2023;15(6):726–34. <https://doi.org/10.3390/dri15060065>.
24. Lin CJ, Wade TJ, Sams EA, et al. A prospective study of Marine Phytoplankton and reported illness among recreational beachgoers in Puerto Rico. 2009. Environ Health Perspect. 2016;124(4):477–83. <https://doi.org/10.1289/ehp.1409558>.
25. United States Census Bureau. Geographic, Levels, Census.gov. <https://www.census.gov/programs-surveys/economic-census/guidance-geographies/levels.html>. Accessed January 22, 2024.
26. United States Census Bureau. ACS Demographic and Housing Estimates. <https://www.data.census.gov/table/ACSDP1Y2022>.
- DP05. Accessed May 9, 2024.
27. ODohogne AJ. Effects of algal blooms continue to spread throughout Wasatch Front. Deseret News. <https://www.deseret.com/2016/7/19/2059247/effects-of-algal-blooms-continue-to-spread-throughout-wasatch-front>. Published July 19, 2016. Accessed November 3, 2023.
28. Bloch RA, Faulkner G, Hilborn ED, et al. Geographic Variability, Seasonality, and increase in ASPCA Animal Poison Control Center Harmful Blue-Green Algae Calls—United States and Canada, 2010–2022. Toxins. 2023;15(8):505. <https://doi.org/10.3390/toxins15080505>.
29. DeFlorio-Balkier S, Arnold BF, Sams EA, et al. Child environmental exposures to water and sand at the beach: findings from studies of over 68,000 subjects at 12 beaches. J Expo Sci Environ Epidemiol. 2018;28(2):93–100. <https://doi.org/10.1089/es.2017.23>.
30. Hilborn ED, Roberts VA, Backer L, et al. Algal bloom-associated disease outbreaks among users of freshwater lakes—United States, 2009–2010. MMWR Morb Mortal Wkly Rep. 2014;63(11):11–5. PMID: 24402467; PMCID: PMC5779332.
31. Wu J, Hilborn ED, Roberts VA, Backer L, et al. Acute health effects associated with satellite-determined cyanobacterial blooms in a drinking water source in Massachusetts. Environ Health. 2021;20(1):83. <https://doi.org/10.1186/s12940-021-00755-6>.
32. Stewart L, Webb PM, Schaefer PJ, et al. Epidemiology of recreational exposure to freshwater cyanobacteria—an international prospective cohort study. BMC Public Health. 2006;6:93. <https://doi.org/10.1186/1471-2458-6-93>.
33. Weirich CA, Miller TR, Freshwater harmful algal blooms: toxins and children's health. Curr Probl Pediat Adolesc Health Care. 2014;44(1):2–24. <https://doi.org/10.1016/j.cpped.2013.10.007>.
34. Li H, Barber M, Lu J, et al. Microbial community successions and their dynamic functions during harmful cyanobacterial blooms in a freshwater lake. Water Res. 2020;185:16292. <https://doi.org/10.1016/j.watres.2020.116292>.
35. Lee J, Lee S, Hu C, et al. Beyond cyanotoxins: increased legionella, antibiotic resistance genes in western Lake Erie water and disinfection byproducts in their finished water. Front Microbiol. 2023;14:1233327. <https://doi.org/10.3389/fmicb.2023.1233327>.

The original article has been updated.

Published online: 16 December 2024

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**References**

1. Bloch RA, Beuhler MC, Hilborn ED, et al. Epidemiologic and clinical features of cyanobacteria harmful algal bloom exposures reported to the National Poison Data System, United States, 2010–2022: a descriptive analysis. Environ Health. 2024;23:80. <https://doi.org/10.1186/s12940-024-01121-y>.