Living near CSOs is a public health risk.

Emerging science from researchers at the BU School of Public Health shows that just living near CSOs can cause adverse health impacts severe enough to send you to the Emergency Room. A recent a scoping review of eight epidemiological studies, about the impacts of CSOs on community health, points to aerosolized particulates. Just breathing air near CSOs is thought to be enough to make you sick.

THE MASSACHUSETTS EVIDENCE

1. In Massachusetts municipalities bordering a CSO-impacted river, the largest CSO events were followed by a measurable rise in emergency department visits for acute gastrointestinal illness within four days.[1]
2. Following 99th percentile CSO events, the cumulative risk ratio for acute gastrointestinal illness was 1.62, with a 95% confidence interval of 1.04 to 2.51. That is a 62% higher risk of an emergency department visit for gastrointestinal illness.[1]
3. Across all extreme upstream CSO discharge events, the cumulative risk ratio was 1.22, with a 95% confidence interval of 1.05 to 1.42.[1]
4. The increase in illness after the largest CSO events held regardless of whether a municipality drew its drinking water from the CSO-impacted river. Drinking water treatment does not explain the harm.[1]
5. A 2025 peer-reviewed review of the literature found eight epidemiological studies of CSOs and gastrointestinal illness across Europe and North America, spanning study years 2002 to 2019, and reported that the included studies showed evidence of a positive association between CSOs and GI illness.[2]
6. The same review found that ten times more sewage was present in a receiving waterbody when a CSO event occurred at the same time as a heavy rain event than when heavy rain occurred without a CSO.[2]
7. The review also found that annual extreme precipitation days in the Northeast increased by approximately 60% from 1958 to 2021, and are expected to increase further. More extreme rain means more CSO discharges.[2]

SWORN TESTIMONY OF DR. BETH M. HALEY

> There are three commonly accepted possible exposure pathways to pathogens from CSO discharges. The most well-supported of these is incidental ingestion while recreating. Some studies have also found a link to AGI from drinking water drawn from CSO waters, and there is emerging research on the potential for aerosolized contaminated water to cause illness when inhaled.
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> Because only the most extreme cases go to the emergency room, it is difficult to measure the extent of AGI from CSO discharges. It is likely that many cases go unreported, although they are still likely to disrupt people's lives.
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> Fecal contamination from CSOs presents unique public health risks that stormwater runoff does not. Fecal pathogens are a known, direct, and acute risk to human health. Sewage discharge also contains higher levels of PFAS, anti-microbial bacteria, and pharmaceuticals than stormwater runoff alone. These risks are present even at low discharge volumes.
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> If CSOs are not reduced and eliminated, they will continue to pose acute public health risks, particularly as increased precipitation from climate change causes these events to occur more frequently and at larger volumes.

Affidavit of Beth M. Haley, PhD, Environmental Health, Boston University, executed July 9, 2026, paragraphs 6, 7, 9, and 10.[3]

FOOTNOTES

1. Haley BM, Sun Y, Jagai JS, Leibler JH, Fulweiler RW, Ashmore J, Wellenius GA, Heiger-Bernays W. Association between Combined Sewer Overflow Events and Gastrointestinal Illness in Massachusetts Municipalities with and without River-Sourced Drinking Water, 2014-2019. Environmental Health Perspectives, published May 24, 2024. https://pubmed.ncbi.nlm.nih.gov/38775485/
2. Russell MC, Haley BM, Slawsky ED, Jardel H, Cowan KN, Dillon DT, McConaghy CA, Hoffman JC, Rappazzo KM. A Review of Combined Sewer Overflows and Gastrointestinal Illness in a Changing Climate. Current Epidemiology Reports (2025) 12:15, published September 11, 2025. https://doi.org/10.1007/s40471-025-00367-5
3. Affidavit of Beth M. Haley, Exhibit B, Document 1981-2, filed July 17, 2026, United States v. Metropolitan District Commission, No. 85-00489-RGS, and Conservation Law Foundation of New England, Inc. v. Metropolitan District Commission, No. 83-01614-RGS, U.S. District Court, District of Massachusetts.