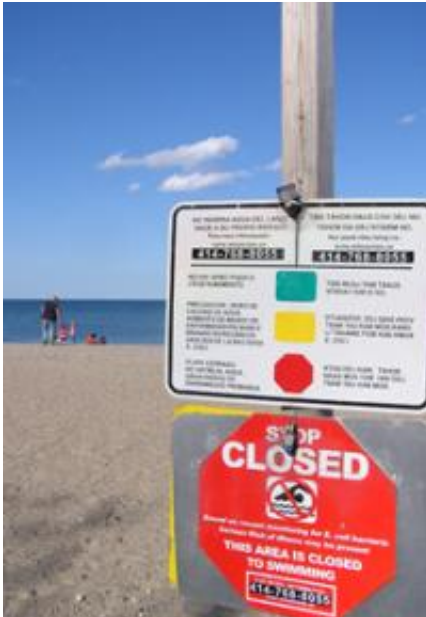


Study links rain, stomach ailments

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Just as beach closings are linked to heavy rainfalls, a recent study finds gastrointestinal maladies correlate with heavy rains. Photo by Jennifer Yauck

(PhysOrg.com) -- A recently released study conducted in Milwaukee reveals a link between rainfall and gastrointestinal disease in children, indicated by an increase in hospital emergency department visits a few days after rainfall.

The increase suggests that microbial [water contamination](#) may be a hidden health issue in areas served by high-quality water systems, says Marc Gorelick, M.D., Jon E. Vice Chair in Emergency Medicine at Children's Hospital of Wisconsin. Microbial contamination of water

after periods of heavy rain has been well-described, he says, but its link to acute [gastrointestinal illness](#) in children has not.

Gorelick led the study, which was published this month in [Environmental Health Perspectives](#), and funded by the Children's Environmental Health Sciences Core Center (CEHSC) at the University of Wisconsin-Milwaukee (UWM). Collaborators include Sandra McLellan, associate scientist at UWM's Great Lakes WATER Institute, and Patrick Drayna, M.D., pediatric emergency medicine fellow at Monroe Carell Jr. Children's Hospital at Vanderbilt University.

The study looked at visits to Children's Hospital Emergency Department/Trauma Center in Milwaukee for gastroenteritis or diarrhea from 2002 through 2007. This data was then compared with local [rainfall](#) data.

The data showed an 11 percent increase in the number of visits four days after rainfall. Higher amounts of rain were associated with greater increases.

The increase occurred in the absence of any health outbreaks reported to public health officials, and may be greatly underestimated, says Gorelick.

“Our results show a direct correlation between rainfall and an increase in this illness,” says Gorelick, who also is associate director of the Children's Research Institute, a professor of pediatrics and population health, and chief of Pediatric Emergency Medicine at the Medical College of Wisconsin.

Further study is needed to determine the source of the contamination, says UWM's McLellan, but she adds that it probably is not insufficient treatment of drinking water.

“In cities where there is aging infrastructure and leaking pipes, untreated sewage could be leaking into stormwater systems, and children can be exposed to this contaminated water through playing in water in the stormwater culverts in their neighborhoods, for example,” says McLellan. “There is certainly strong evidence that exposure is happening at some point and more detailed studies are needed to figure this out.”

Gorelick adds that the findings have implications for the future. “This knowledge will be important when considering how climate change, such as increased rainfall, will impact health care systems and the health of our children,” he says.

Provided by University of Wisconsin-Milwaukee

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