

Municipal wastewater holds the key to tracking opioid intervention initiatives

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In 2016, opioids were the primary cause of more than 42,000 deaths in the U.S. Controlled substances (opioids and other drugs, such as marijuana) pose a threat to both human and environmental health. With the crisis showing no signs of slowing down, officials across the country are scrambling to implement effective intervention programs in their communities, but the impact of these initiatives can be difficult to track as much of the data relies on self-reporting where current stigmatizations prevent individuals from giving accurate reports. Several presentations at the 2018 Society for Risk Analysis (SRA) Annual Meeting will explore novel approaches to monitoring real-time drug use in towns and cities nationwide.

Opioid use has reached [epidemic levels](#) across the U.S., with more than 130 people dying each day from overdoses and billions spent in healthcare costs. One of the challenges to curbing the epidemic is a lack of real-time information on drug supply and demand—current data sources rely on self-reported surveys with a two-year lag before data are available. Municipal [wastewater](#) testing is an innovative approach that can supplement existing data by providing more rapid, cost-effective and unbiased measures of drug use in a particular area.

"Cities can use wastewater tests to locate "hot spots" of drug use. The method can provide an [early warning](#) that drugs are entering a community," states Aparna Keshaviah, Sc.M., Mathematica Policy Research. "Repeated testing over time can show shifts in drug use that reveal how well control policies are working."

Keshaviah's study, "Identifying the next drug epidemic by testing [municipal wastewater](#)," explores how this testing methodology can be used by state and local officials to predict, rather than react to, changes in drug use. Another study, conducted by Sheree Pagsuyoin, University of Massachusetts, titled "Detection of illicit drugs in sewage and analysis of community drug use through wastewater data," looks at the application of wastewater-based epidemiology (WBE) to estimate community drug use in three areas in the northeast U.S.

Wastewater samples were analyzed for the presence of MDMA (ecstasy), cocaine, fentanyl, and methamphetamine. The results were compared with survey-based data and allow for the characterization and assessment of the [drug](#) problem in a particular area. The process can be applied to a wide range of wastewater treatment plants and allows for more real-time detection of consumption patterns which can aid in the development of more robust intervention programs.

These studies will be presented during the Understanding the Ecological and Health Risks Associated with Trace Organics in the Environment symposium on Wednesday, Dec. 5 from 3:30-5:10 p.m. at the 2018 SRA Annual Meeting at the New Orleans Marriott in New Orleans, Louisiana.

Provided by Society for Risk Analysis

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