NEWS   HEALTH & MEDICINE

Wastewater could provide up to a week of warning for a COVID-19 spike

Finding coronavirus RNA in sewage may signal that people in a community are infected

Genetic material from the coronavirus can be detected in patients' stool and wastewater from water treatment plants, like this one just south of Houston. A new study adds to evidence that sewage may serve as an early warning signal for COVID-19 hot spots.

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By Erin Garcia de Jesus

MAY 28, 2020 AT 6:00 AM

Monitoring sewage for the coronavirus's genetic material could give public health experts up to a week of warning before COVID-19 cases peak in an area, a new study finds.

Scientists have found the coronavirus's RNA in stool from some COVID-19 patients. Though it remains unclear whether the virus can be transmitted through feces, researchers have also detected coronavirus RNA in raw wastewater. Because most people don't get tested for the virus

until they begin to get sick, and some may never develop symptoms (*SN: 4/15/20*), researchers are considering using sewage to look for early signs that the virus has hit a community.

In Connecticut, the amount of the virus's genetic material in sewage peaked a week before the number of cases in one region did, researchers report in a preliminary study posted May 22 at medRxiv.org. Hospitalizations related to COVID-19 hit their highest point three days after RNA levels did.

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From March 19 to May 1, researchers collected sludge — which contains solids that can settle out of water — from a wastewater treatment facility in New Haven. The team tested the sludge for coronavirus RNA, and then compared the amount of RNA in those daily samples with the number of new COVID-19 cases and hospital admissions in the region.

The study "shows that we can monitor wastewater in cities to get an early warning of when coronavirus outbreaks will occur," says Aaron Packman, a civil and environmental engineer at Northwestern University in Evanston, Ill., who was not involved with the work.

Public health experts already use wastewater to track pathogens like poliovirus, norovirus and antibiotic-resistant bacteria. Such surveillance for the coronavirus could help pinpoint areas where cases will soon be on the rise.

And as states begin to loosen social distancing guidelines designed to curb the spread of the coronavirus, samples from wastewater treatment plants, along with widespread diagnostic testing and contact tracing, could help experts flag when to implement local control measures to slow the virus' spread (*SN: 4/29/20*).

"It's far better to get an early warning than waiting until you have large numbers of sick people," Packman says.

CITATIONS

J. Peccia et al. SARS-CoV-2 RNA concentrations in primary municipal sewage sludge as a leading indicator of COVID-19 outbreak dynamics. medRxiv.org. May 22, 2020. doi: 10.1101/2020.05.19.20105999