



National Wastewater Surveillance System (NWSS)

Targeted Wastewater Surveillance at Facilities and Institutions

Use this guidance to implement wastewater-based disease surveillance. Wastewater-based disease surveillance is a rapidly developing science, and CDC will continue to update guidance and information as it becomes available.

Overview of targeted wastewater surveillance

Targeted wastewater surveillance at facilities and institutions has been proposed as a complementary method for screening of COVID-19. To date, targeted wastewater surveillance efforts have primarily focused on institutions of higher education and correctional facilities. Targeted surveillance entails sampling at locations in the wastewater network, such as manholes outside buildings, that receive wastewater inputs from only the targeted population.

Potential benefits of targeted wastewater surveillance

- Early warning of new cases in a targeted area.
- Focused monitoring of populations at higher risk for COVID-19.
- A cost- and time-efficient screening approach—one sample comprises a pool of many individuals—that can complement individual testing.

Potential challenges of targeted wastewater surveillance

- The minimum number of infected individuals that can be reliably detected through wastewater testing is not known.
- SARS-CoV-2 wastewater concentrations can be more variable when wastewater travel time is short and fecal load is low (e.g., sampling where waste leaves a building), potentially making it more difficult to understand COVID-19 trends in a targeted area.
- Environmental laboratory capacity may be limited due to competing demand for treatment-plant-level wastewater testing for community surveillance.
- Sampling a building wastewater stream may require modifications for waste stream access.
- Non-human industrial or facility waste outputs may interfere with detection of SARS-CoV-2 in wastewater.

Integration with case surveillance

Targeted wastewater surveillance should complement, but not replace, case surveillance approaches in accordance with state, tribal, local, and territorial (STLT) laws and regulations. Include STLT health departments when developing targeted wastewater surveillance strategies. Prior to implementing targeted surveillance, review CDC guidance on community-level wastewater surveillance, which includes considerations for [developing a sampling strategy](#), [sample testing](#), [data analytics](#), and [public health interpretation](#). If you are including building-level sampling in your targeted

surveillance plans, CDC recommends collecting accompanying samples at the community level to interpret building-level viral signals. Do not use the lack of SARS-CoV-2 detection in wastewater alone to justify relaxing community mitigation measures.

Institutions of higher education and schools with on-campus housing

Institutions of higher education and schools with on-campus housing may be served by their own wastewater treatment plant. These plants typically receive waste from residential, non-residential, and laboratory facilities, and in some cases, from on-campus hospitals.

Determine the implications of detecting SARS-CoV-2 in campus wastewater and resulting public health actions prior to beginning sampling. In particular, institutions of higher education should consider how detection of SARS-CoV-2 in wastewater will affect campus mitigation strategies and case surveillance.

Correctional facilities

Residential occupants in correctional facilities contribute regularly to the waste stream. As a result, wastewater surveillance data may provide a representative indicator of the presence of COVID-19 case patients within the residential population of a facility.

Wastewater surveillance data can complement and be paired with routine clinical surveillance for SARS-CoV-2 of people who are incarcerated and staff at correctional facilities. When considering implementing wastewater surveillance, correctional facilities should refer to [Guidance on Management of COVID-19 in Homeless Service Sites and in Correctional and Detention Facilities](#) to develop COVID-19 surveillance and mitigation strategies for their facility.

Learn about [CDC-supported pilot programs](#) for COVID-19 monitoring in wastewater at correctional facilities.

More Information

- Water Environment Federation: [Summary Report – Pilot Program for Onsite Testing of SARS-CoV-2 in Correctional Facility Wastewater](#) [PDF – 69 pages]

Last Reviewed: March 9, 2023

Was this page helpful?

Yes

Partly

No