Coronavirus Disease 2019 (COVID–19)

Targeted Wastewater Surveillance at Facilities, Institutions, and Workplaces

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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, institutions, and high-density critical infrastructure workplaces has been proposed as a complementary method for screening of COVID-19 in these populations. In these populations, public health efforts are focused primarily on institutions of higher education, correctional facilities, and food processing facilities. Targeted surveillance entails isolating specific populations down to the building level by sampling wastewater upstream from the wastewater treatment plant within the wastewater network.

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/or time-efficient screening approach— one sample comprises a pool of many individuals – that can complement individual testing.

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.

Consider challenges when developing a targeted wastewater surveillance strategy

- To date, there are little data to evaluate this targeted upstream approach for informing public health action or institutional operations.
- 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.
- Much of the existing laboratory testing capacity for wastewater testing is dedicated to community surveillance at wastewater treatment plants, and so limited laboratory capacity may be available for targeted wastewater 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.

Targeted wastewater surveillance will differ based on setting

- Institutions of higher education and schools with on-campus housing
- Correctional facilities
- High-density critical infrastructure workplaces

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. Use the following guidance for targeted surveillance on campuses, including sampling at residential buildings.

Integration with case surveillance

When considering implementing wastewater surveillance on campus, institutions of higher education should work with campus health services and refer to the Considerations for Institutions of Higher Education and Investigation and Contact Tracing Considerations in Institutes of Higher Education (IHEs) for Health Departments and IHE Administrators to develop campus COVID-19 surveillance and mitigation strategies. Determine the implications of detecting SARS-CoV-2 in campus wastewater and

resulting public health actions prior to beginning sampling. In particular, IHEs 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.

Integration with case surveillance

Wastewater surveillance data can complement and be paired with routine clinical surveillance for SARS-CoV-2 of persons who are incarcerated and staff at correctional facilities. When considering implementing wastewater surveillance, correctional facilities should refer to Interim Guidance on Management of Coronavirus Disease 2019 (COVID-19) in Correctional and Detention Facilities to develop COVID-19 surveillance and mitigation strategies for their facility.

High–density critical infrastructure workplaces

High-density critical infrastructure workplaces, such as food processing facilities, may be difficult to monitor using wastewater surveillance because employees are at the facility only during their work-shift and may contribute little to the waste stream relative to industrial waste (e.g., food production wastewater). Such industrial waste products may also complicate SARS-CoV-2 detection. Testing wastewater from the communities where the workers primarily live may be better than sampling from workplaces.

Integration with case surveillance

When considering implementing wastewater surveillance, high-density critical infrastructure workplaces should refer to guidance on COVID-19 Critical Infrastructure Sector Response Planning and Testing Strategy for Coronavirus (COVID-19) in High-Density Critical Infrastructure Workplaces after a COVID-19 Case Is Identified to develop COVID-19 surveillance and mitigation strategies for their facility.

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