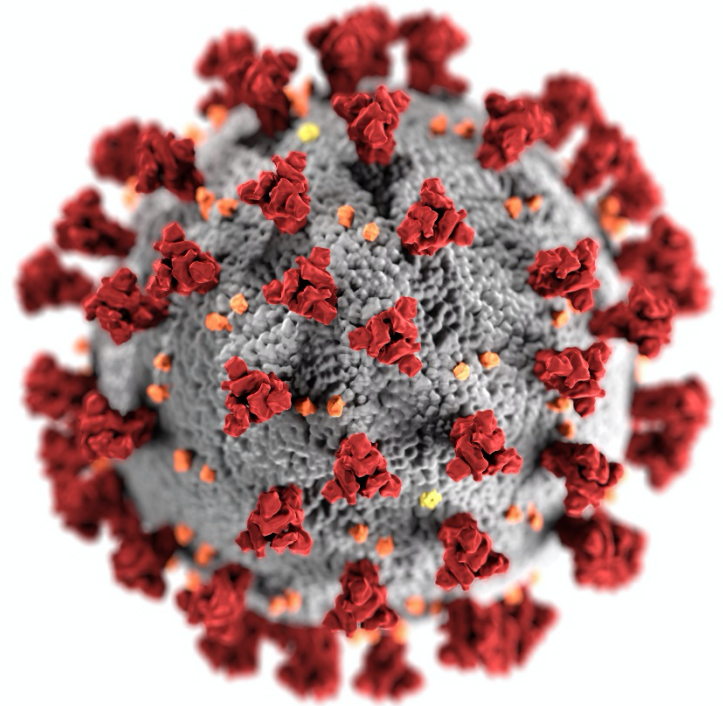


National Wastewater Surveillance System

Implementation Update

Amy E. Kirby, PhD MPH
NWSS@cdc.gov

February 3, 2021
Water and Sanitation Innovations for the Arctic



cdc.gov/coronavirus

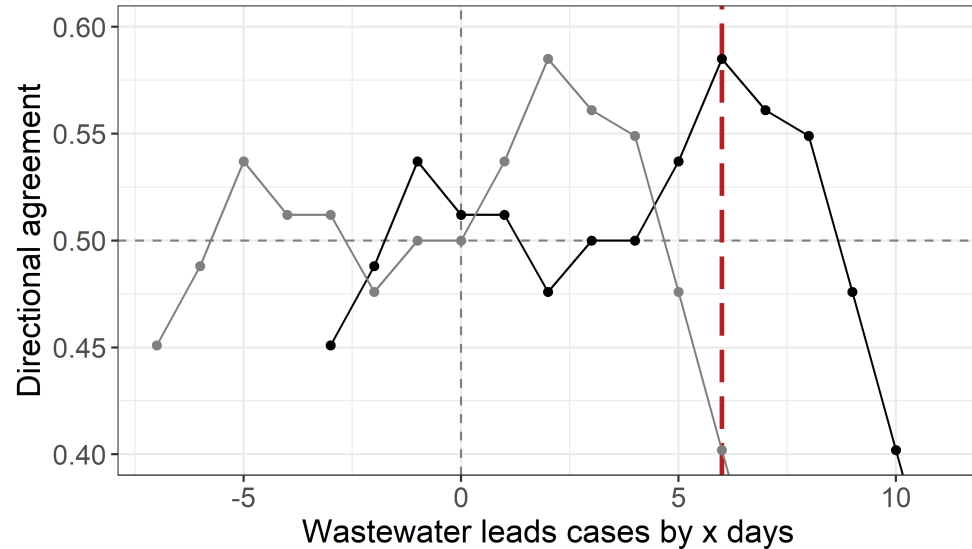
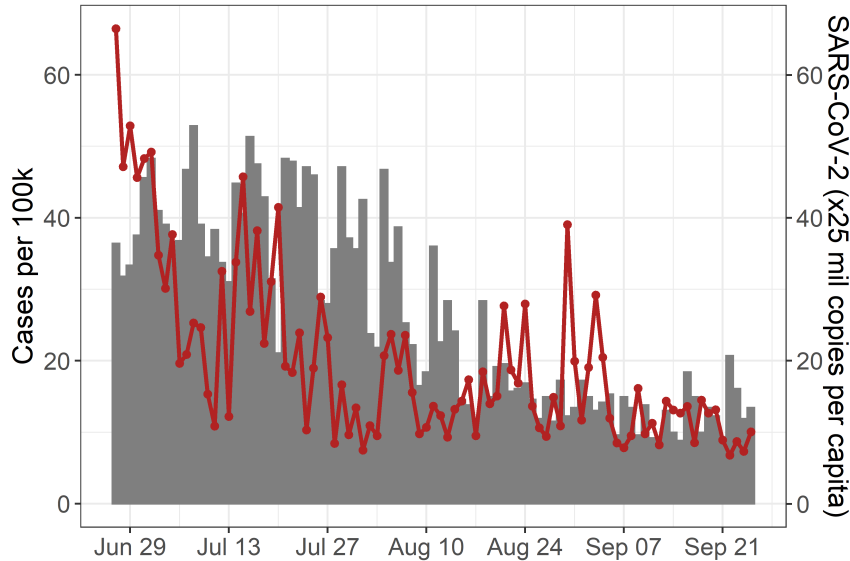
Wastewater Surveillance | Public Health Toolbox

- Wastewater serves as an efficient pooled sample of community (or sub-community) infection prevalence
- Captures sub-clinical infections
- Independent of healthcare-seeking behavior and testing access
- Data available within days of viral shedding onset versus up to 2-week lag for other surveillance data



SARS-CoV-2 Wastewater Surveillance Evaluation

Reported wastewater data associated with reported cases ~6 days in the future.

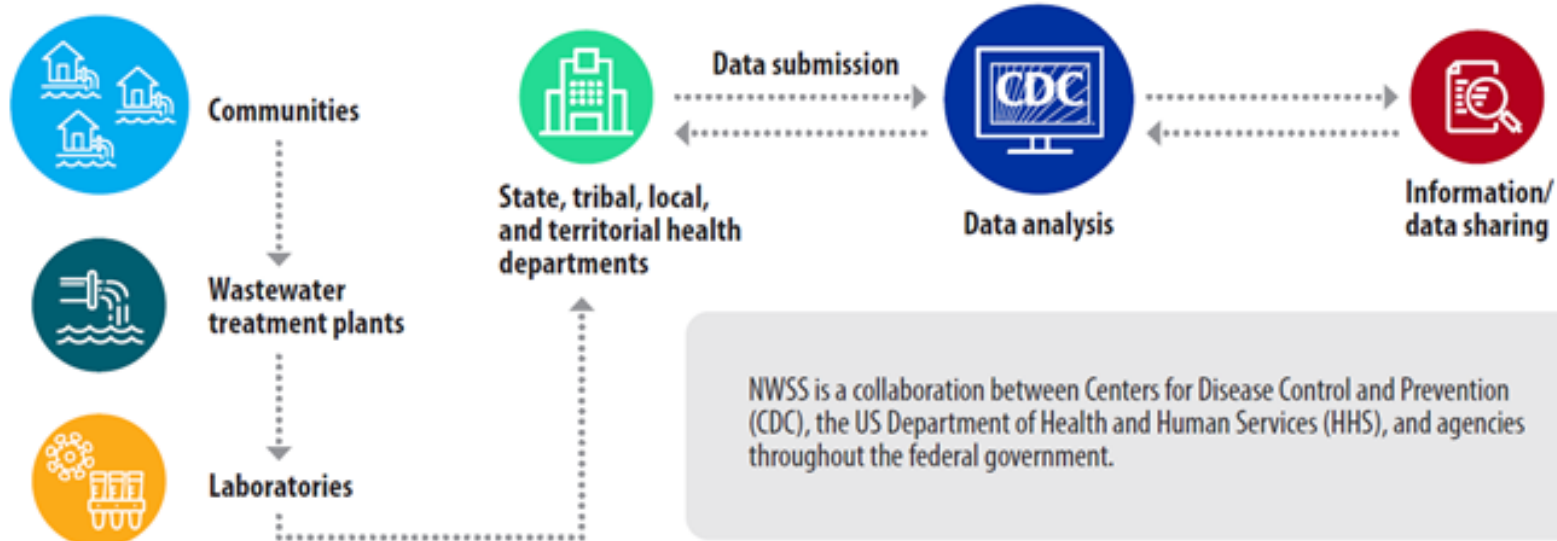


Timeseries

Leading Indicator
Analyses



NATIONAL WASTEWATER SURVEILLANCE SYSTEM (NWSS)



NWSS is a collaboration between Centers for Disease Control and Prevention (CDC), the US Department of Health and Human Services (HHS), and agencies throughout the federal government.

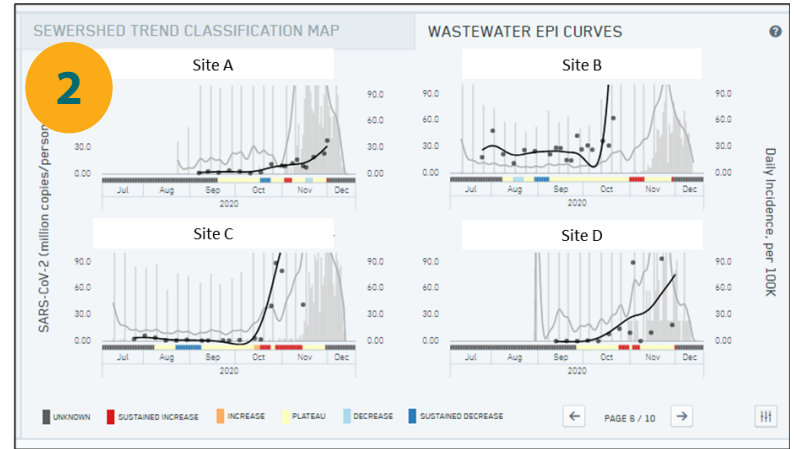
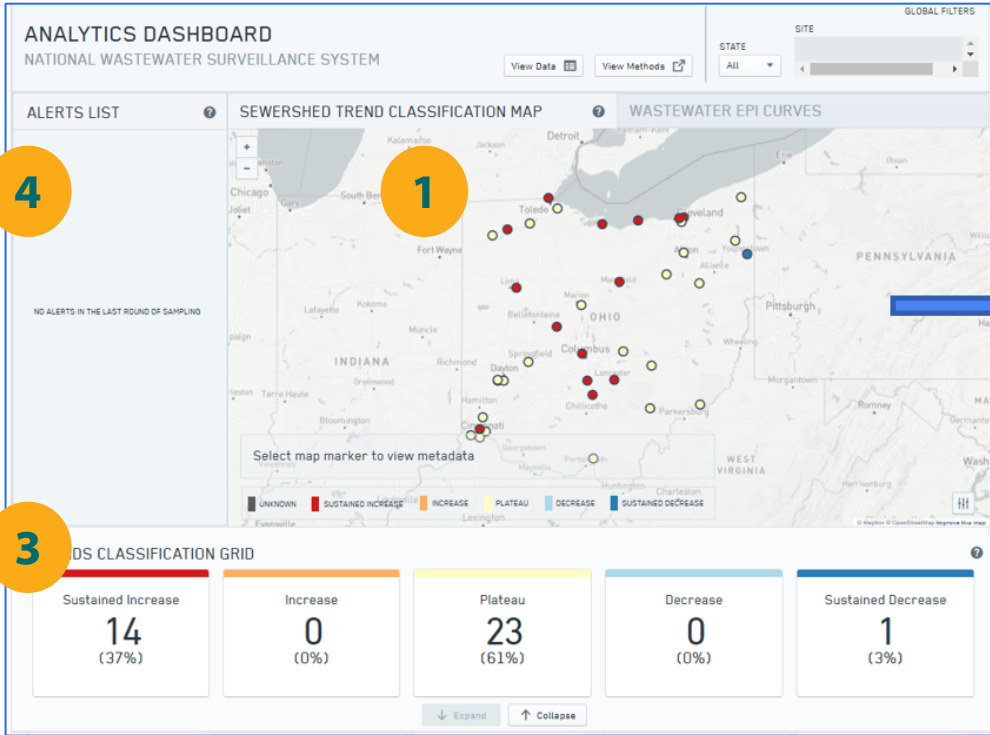


U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

cdc.gov/coronavirus

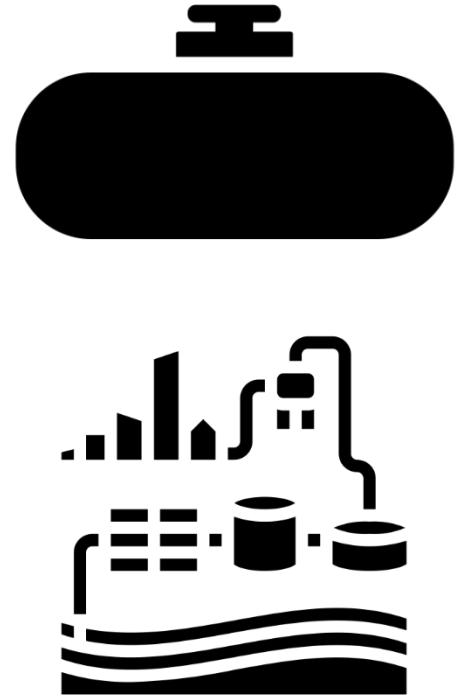
CS319450-A

NWSS DCIPHER Results Dashboard



COVID-19 Sewage Assessment | Limitations

- Decentralized wastewater treatment facilities will not be captured
- ~25% of US residences are not connected to sewer
- Low incidence may be below the limit of detection
- Cannot be used to “clear” a community or facility
- May be impacted by pre-treatment of sewage for odor or worker safety



NWSS Communities of Practice

Health Departments

Host: CDC

- Sampling strategy
- Data coordination
- Data submission
- Data interpretation
- Public health action

Laboratories

Host: APHL

- Testing methods
- Data comparability
- QA/QC
- Biosafety
- Industry sharing
- Defining PHL role

Utilities

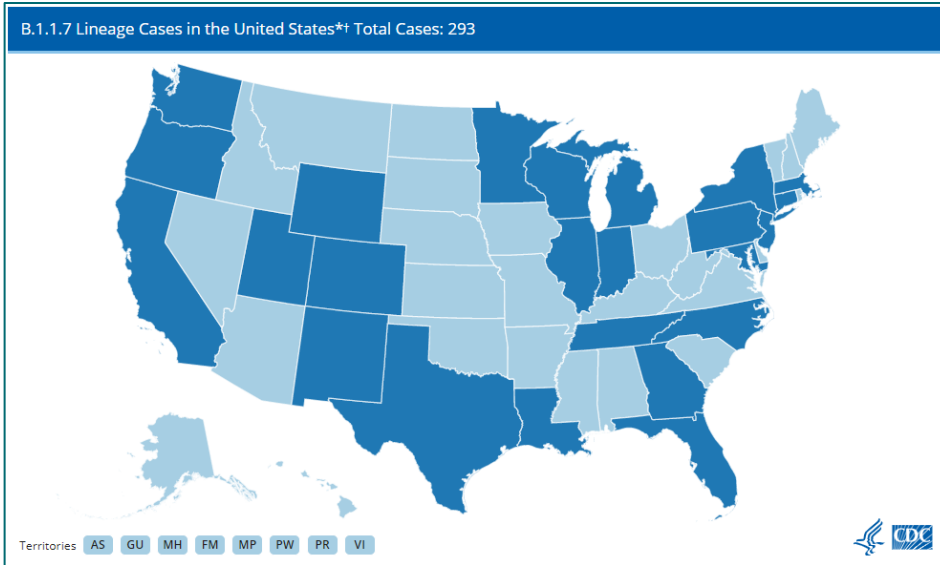
Host: Water Environment Federation

- Sampling methods
- Operational factors
- Worker safety
- Data sharing

Beth Conway
econway@wef.org



SARS-CoV-2 Variant Tracking in Wastewater

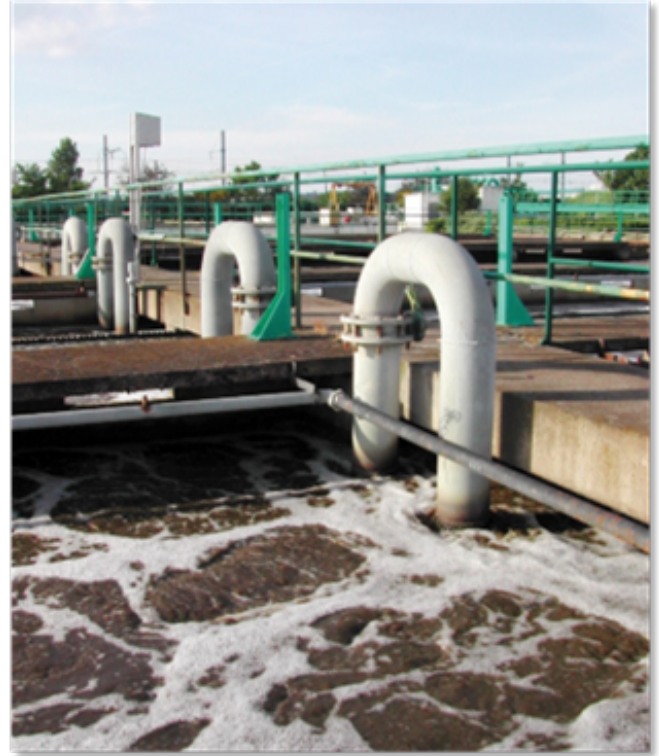


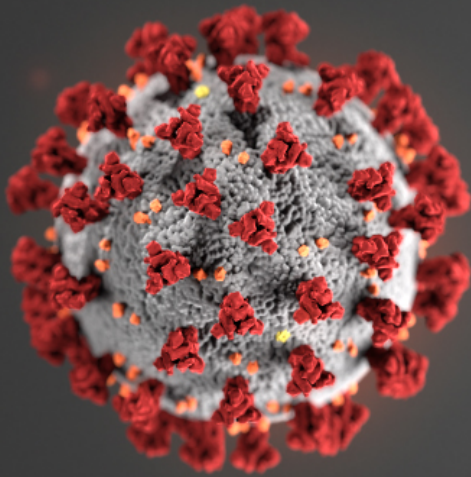
- Wastewater sequencing may be useful for variant detection and tracking
- CDC is pursuing multiple avenues to generate wastewater sequence data for analysis
- Working with NCBI to establish database for wastewater SARS-CoV-2 sequence data

First U.S. case of P.1 variant reported Jan. 25

NWSS | A New Tool for Disease Surveillance

- Built to be flexible to incorporate additional health targets and nimble enough to respond to changing public health needs
- Can incorporate genetic data to track pathogen origin and evolution
- Potential additional targets
 - Antibiotic resistance genes
 - Enteric bacteria and viruses
 - Influenza
 - Hospital-associated pathogens





For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

NWSS Email: NWSS@cdc.gov

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/wastewater-surveillance.html>

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

