Wastewater Surveillance Challenges and Opportunities for Utilities

Go with the Flow: Public Health Wastewater Monitoring in Michigan
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Our mission
We are a collaborative for promoting review, synthesis, and sharing of lessons learned among utilities to accelerate implementation of wastewater-based surveillance (WBS) and participation in the National Wastewater Surveillance System (NWSS) to support public health decision making.

Our meetings
Topics
- Year  | Month  | Topic                                      
- 2022  | February | Wastewater Based Surveillance               
- 2022  | March    | HD & Utility Coordination                   
- 2022  | April    | Wastewater Worker Safety                    
- 2022  | May      | Utility Needs                              
- 2022  | June     | COVID Data Tracker NWSS c                   
- 2022  | July     | Sample Collection                          
- 2022  | August   | Lab Methods                                

Meeting feedback
Responses to meeting survey on “How helpful did you find this meeting?”
- Not helpful at all  | Slightly helpful  | Somewhat helpful  | Very helpful  | Extremely helpful

What’s on our minds
Ethical
Based on our February 2023 meeting poll, our top three wastewater surveillance ethical concerns are: (1) lack of transparency in how data are collected and used, (2) ineffective or inappropriate use of wastewater data, and (3) inequitable selection of sampling locations.

How to engage
- Post or answer a question on the discussion board
- Make an anonymous suggestion to improve the CoP
- Browse the available CoP resource documents
- Listen to our podcast

Dashboard navigation
- Summary
- Sampling
- Safety
- Public Health
- Lab Methods
- Future of WBS
- Data
- Ethics
“Typical” WWTP participating in wastewater surveillance

- Is located in any state but probably in 1 of 11 states
- Takes samples at the treatment plant influent rather than upstream
- Serves a larger population than the median population served by all treatment plants
**NWSS data**

1,246
Sites with current data on COVID Data Tracker

1,222 (98%)
Sites at wastewater treatment plants vs. upstream (% of total)

34,100 (vs. 1,990)
Median population served by NWSS sites (vs. all US WWTPs)

NWSS data based on 1/8/23 download for SARS-CoV-2 from bit.ly/wwmetrics; doesn't include all NWSS sites or sites not submitting data to CDC

Population data for all US WWTPs based on 2021 WEF data based on NPDES data from EPA's ECHO database and other sources
Data from 11 state programs*

Number of WWTPs (total = 4,440)
- California: 592

Population (million; total = 119)
- Michigan: 69.0

Median Population Served per WWTP
- 24,500
- 2,200

*California, Colorado, Michigan, Missouri, Nebraska, New York, North Carolina, Ohio, Oregon, Utah, Wisconsin

Information for individual state programs taken from public-facing dashboards
Michigan data are only for the SWEEP Sentinel Dashboard
Count of and population data for all WWTPs in each state based on 2021 WEF data from EPA’s ECHO database and other sources
Challenges

Utilities not participating

Utilities participating
Challenges for utilities not participating

• Not knowing where to start or who to contact

“...I spoke with our local environmental health department, but they did not have any knowledge of the program.”

Laboratory Director at Maryland utility
Challenges for utilities not participating

• Not knowing where to start or who to contact
• Not having enough time/staff/resources

"I have quarterly sampling that needs to be done and out that day and I'm the only licensed operator that's able to collect samples. I appreciate the invite."

Chief Operator at Virginia utility
Challenges for utilities not participating

- Not knowing where to start or who to contact
- Not having enough time/staff/resources
- Not being able to convince leadership of the value in participating

“There is a belief that COVID is over and so it doesn’t make sense to use our resources for this.”

Superintendent at South Dakota utility
Challenges for utilities already participating

• Understanding how all the programs fit together

“Do you know anything about _____?”
Challenges for utilities already participating

• Understanding how all the programs fit together

• Consistently interpreting data for, and communicating data to, the public

“If we’ve had some hang up … and the [dashboard] is not updated … we will hear about it.”

Kyle Curtis from nwbe.org podcast episode #2
Challenges for utilities already participating

- Understanding how all the programs fit together
- Consistently interpreting data for, and communicating data to, the public
- Addressing questions about long-term funding and the value beyond COVID

“There’s a huge desire to ... be involved. It’s always about resources.”

Norma Ruecker from nwbe.org podcast episode #10
Challenges for utilities already participating

- Understanding how all the programs fit together
- Consistently interpreting data for, and communicating data to, the public
- Addressing questions about long-term funding and the value beyond COVID
- Managing concerns about archived samples being tested without the utility’s knowledge
Opportunities

Is protecting public health and/or the environment part of your utility's mission statement?

- Yes, both public health...
- Yes, but environment only
- Yes, but public health only
- Neither
- Not sure
- Not applicable

Poll results from May 2022 Utilities CoP meeting

Support utility mission
Opportunities

“Engage with public

“It brings great awareness to the importance of our wastewater collection and treatment systems.”

Operations Administrative Manager of Oklahoma utility

“I love looking at the wastewater data,’ said no one prior to the Covid pandemic... but here we are.”

Dr. Vincent Chiang, Chief Medical Officer at Boston Children’s Hospital
Opportunities

Expand collaborations

Who are you partnering with for your wastewater surveillance activities?

- Local health...
- State health...
- Academics
- Other utilities
- Other

Percent of Responses (n = 82)

Responses on Utilities CoP enrollment form (as of 1/8/23)
Opportunities

Inform potable reuse

Gerrity, Papp & Pecson
ACS EST Water January 2022
- Chicago (and online)
- One day (Sunday, 10/1)
- Free
- In person + virtual
- Wastewater surveillance
- 100% relevant to HDs
- wef.org/WDSS

- Chicago
- Three days (exhibition & technical sessions)
- As low as ~$150
- In person only
- Everything (waste)water
- HD “package” (Monday, 10/2)
- weftec.org
Join the Utilities CoP

“Join” at nwbe.org

Get in touch

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