# California CoE Wastewater Surveillance Workshop Summary

June 5, 2024 | Stanford University | Redwood City, California

Purpose

A collaboration between the Water Environment Federation (WEF), California Department of Public Health (CDPH), and Stanford University, the workshop emphasized small-group and panel discussions to maximize participant interaction & convened professionals from the public health, wastewater, and academic sectors across 10 states (AK, AZ, CA, GA, HI, MO, NV, OR, VA, and WA) and Washington, D.C., focusing on:

- **Improving Sustainability**: Identifying strategies to ensure ongoing utility participation in surveillance programs
- **Enhancing Stakeholder Buy-in**: Developing effective communication approaches to foster engagement
- **Cross-Sector Collaboration**: Strengthening partnerships between public health and wastewater professionals

Legend: Public Health | Utilities | Academia | Other

Donut chart: 71 Attendees — 36, 14, 16, 5
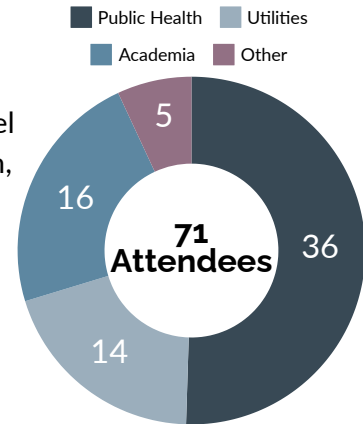
Key Takeaways from Breakout Sessions

Dashboard Recommendations

Content and Context:
Regularly updated data with:
- clear definitions,
- standardized metrics,
- easy-to-understand trend categories
- historical data, and
- related resources (data dictionaries & usage instructions)

Usability:
- Simple language and visuals
- Organized layout for:
  - intuitive navigation
  - easy access of feedback & contact information
- Design content for:
  - multiple audience with layered explanations for user needs
  - Accessibility for everyone - ADA compliant and multiple languages

Clear Visualizations:
- Tools to filter data by:
  - target
  - location
  - date range
- Spatial elements:
  - maps
  - graphs   *ability to toggle geographic areas*
- Aesthetics:
  - color-coded palettes
  - clean graphics
  - trend indicators
  - balance between graphics & content

Utility Support

Strategies to Support Utilities:
1. **Regular Communication**:
   - facilitate two-way communication
   - meet regularly (hybrid & in-person)
   - transparent data sharing, and
   - routine reporting
2. **Partnering for Inclusion**:
   - Involve utilities in:
     - sampling,
     - testing, and
     - dashboard decisions
   - Foster relationships through:
     - recognition,
     - small gestures, and
     - utility champions.
   - Assist in communicating the benefits of surveillance
3. **Manage Logistics**:
   - Streamline:
     - onboarding,
     - shipping, and
     - sampling with clear instructions
   - Align processes with permit requirements
4. **Provide Supplies & Equipment**:
   - autosamplers,
   - refrigerators, and
   - sampling supplies (pre-labeled)
5. **Invest in Growth**:
   - Offer training, continuing education credits, stipends, and free testing
   - Address burnout with emotional and operational support.

Communication Tools

Characteristics of Successful Communication Tools:
- targeted & tailored to various audiences
- digestible & easy to understand
- actionable
- consistent & timely updates
- foster two-way communication through feedback opportunities
- Inclusive of all audiences

Types of Communication:
1. **Meetings**: Stakeholder meetings, office hours, site visits, and communities of practice.
2. **Repositories/Toolkits**: Archives, toolkits, templates, success stories, and talking points.
3. **E-Communications**: Newsletters, email updates, social media, and website news sections.
4. **Reports**: Monthly reports for leadership and weekly updates for utilities.

# Houston CoE Wastewater Surveillance Workshop Summary

May 21, 2024 | Rice University | Houston, Texas

Purpose

- Public Health
- Utilities
- Academia
- Other

87 Attendees

47, 13, 14, 13

A collaboration between the Water Environment Federation (WEF), Houston Health Department, and Rice University, the workshop emphasized small-group and panel discussions to maximize participant interaction & convened professionals from the public health, wastewater, and academic sectors across 14 states (AR, FL, GA, IL, KY, LA, NC, NM, NY, OH, OK, SC, TN, and TX), focusing on:

- **Optimizing Resources:** Identifying ways to better allocate time, funding, and staffing to maximize the impact of wastewater monitoring efforts
- **Enhancing Data Actionability:** Exploring ways to translate wastewater data into actionable insights for public health interventions
- **Cross-Sector Collaboration**: Strengthening partnerships between public health and wastewater professionals
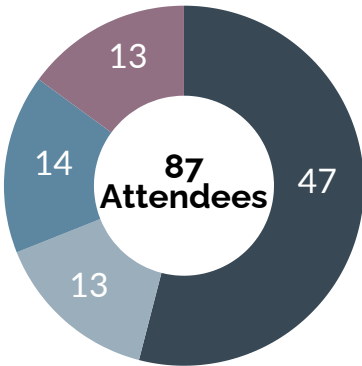
Key Takeaways from Breakout Sessions & Panel Discussions

Need for an Actionability Resource

A repository of case studies demonstrating how wastewater data has driven public health actions is needed. Examples shared include:

1. New York: Engaging communities following polio detections
2. Arkansas: Collaborating with schools and daycares

Expanding Practitioner Roles

Collaborating with each sector beyond traditional roles was seen as critical to the success of wastewater monitoring.

- Utilities, for example, can play a more active role beyond sample collection, such as in data interpretation or public engagement efforts.

Encouraging broader involvement ensures all stakeholders contribute to meaningful outcomes.

Financial Literacy and Budget Transparency

- Transparent budgeting and financial literacy across sectors were recognized as essential to sustaining monitoring efforts.
- Involving all key players in budgeting helps clarify cost allocations. A shared understanding of expenses across disciplines ensures efficient resource use and promotes accountability.

Utility Peer Communication

Peer-to-peer communication between utilities was identified as an effective way to foster engagement and share best practices.

- Example: Efforts in Florida demonstrate how utility networks can improve participation and collaboration across jurisdictions.

Colorado CoE Wastewater Surveillance Workshop Summary

June 26, 2024 | University of Denver | Denver, Colorado

Purpose

- Public Health
- Utilities
- Academia
- Other

83 Attendees

8
11
16
48
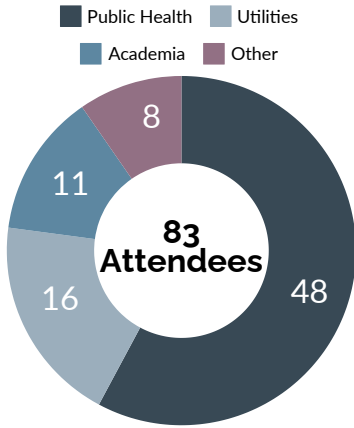
A collaboration between the Water Environment Federation (WEF), Colorado Department of Health & Environment (CDPHE), and the University of Denver, the workshop emphasized small-group and panel discussions to maximize participant interaction & convened professionals from the public health, wastewater, and academic sectors across 13 states (CO, GA, IA, KS, MD, MO, NE, NJ, NY, NC, ND, UT, and WY) and Puerto Rico, focusing on:

- **Collaboration and Solutions for Sustainability:** Understanding how stakeholders work together to sustain wastewater surveillance and developing solutions for overcoming long-term challenges
- **Best Practices for Public Engagement:** Identifying effective methods for communicating information and engaging the public to build trust and support
- **Cross-Sector Collaboration**: Strengthening partnerships between public health and wastewater professionals

Key Takeaways from Breakout Sessions & Presentations

Program Sustainability

Sustainability goes beyond funding, involving program evaluation, workforce retention, infrastructure, partnerships, and strategic planning. Effective solutions include:

- Standardizing methods for data collection and analysis.
- Gaining political buy-in and fostering positive public perception.
- Promoting utility participation and enhancing communication of data and public health actions.

Sustainability Case Studies

- North Carolina: Optimized site selection using health equity metrics and oversampling key populations.
- Colorado: Reduced the number of utilities participating in surveillance to focus on higher-value data targets.
- Puerto Rico: Prioritized transparency and collaborative partnerships to reinstate and sustain their wastewater surveillance program.

Long-Term Solutions

Groups identified key strategies to overcome long-term challenges:

- Optimize funding and promote resource sharing.
- Maintain stakeholder relationships through consistent communication.
- Create training programs to support workforce development and enhance pathogen surveillance.
- Ensure community representation in program design and public health actions.

Alternative Sampling Strategies

Passive samplers were identified as a cost-effective alternative to composite sampling, offering continuous monitoring with comparable results.

Emergency Surveillance System

Colorado invited utilities outside the sentinel model to join an emergency system for rapid public health response, demonstrating the importance of maintaining flexibility in program design.

Wisconsin CoE Wastewater Surveillance Workshop Summary

July 24 & 25, 2024 | Fluno Center | Madison, Wisconsin

Purpose

A collaboration between the Water Environment Federation (WEF), Wisconsin Department of Health Services, Wisconsin State Laboratory of Hygiene, and the University of Wisconsin-Milwaukee, the full 2-day workshop emphasized small-group and panel discussions to maximize participant interaction & convened professionals from the public health, wastewater, and academic sectors across 17 states (CA, CT, DE, GA, IL, IN, MA, MD, MI, MN, NY, OH, PA, RI, VT, VA, WI) focusing on:

- **Actionable Wastewater Data:** Exploring effective ways to use wastewater data and take informed public health actions
- **Frameworks for Communication and Engagement:** Developing strategies to improve communication and partner engagement in wastewater surveillance programs
- **Ethics and Equity in Surveillance:** Identifying and addressing ethical and equity considerations in sampling and data sharing to ensure transparency and fairness
- **Cross-Sector Collaboration**: Strengthening partnerships between public health and wastewater professionals

Public Health | Utilities | Academia | Other

68 Attendees
38 / 14 / 8 / 8
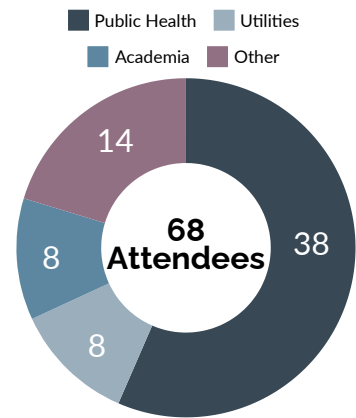
Key Takeaways

Ethics and Equity in Wastewater Sampling

Fair and Representative Sampling: Sampling should reflect true disease levels and include vulnerable populations without stigmatizing communities. Data should be anonymized and privacy protected.
Transparency: Resources should be allocated fairly, with all stakeholders informed about sampling locations, targets, and data use providing clear visibility on where and why data is collected, and policies on sample archiving.
Responsible Data Governance: Sampling and data sharing should follow ethical standards and avoid alienating communities. Tribal data sovereignty must be respected.

Data Quality and Actionability

Verification for Accuracy: Positive detections for high-consequence pathogens should be confirmed with repeat samples and cross-referenced with health data to ensure accuracy. QA practices, like participation in inter-lab comparisons, are essential.
Clear Data Context: Publicly explain any data limitations, especially at sub-sewersheds scales. Baseline data is needed to accurately track outbreaks.
Balance Public Health and Research: Clearly distinguish data collection used for research from that used for public health action, aligning with stakeholder goals.

Community and Utility Engagement

Accessible Communication: Use plain language, multilingual resources, and various formats (dashboards, town halls, in-person, simple data summaries) to reach diverse audiences.
Open Channels: Keep regular communication across labs, utilities, and public health teams through dashboards, reports, and meetings. *In-person outreach builds trust and clarity.*
Share Public Health Actions: Regularly *communicate actions taken* based on wastewater data and evaluate the impact of interventions for ongoing improvement.

Building Sustainable Partnerships

Define Roles with Agreements: Whenever feasible, create written agreements with key partners to outline roles and responsibilities, supporting long-term collaboration.
Show Stakeholder Appreciation: Recognize contributions of wastewater treatment facilities and other partners to support engagement.
Address Data Sharing Concerns: Promote transparency and build public trust by addressing potential conflicts related to data ownership and usage among all stakeholders, including utilities, site communities, public health agencies, private labs, and the CDC.