1. How can programs be efficiently managed with limited resources?

- Utilize employer resources:
    - Use equipment rentals rather than purchasing
- Avoid costly mistakes through:
    - Direct communication
    - Gathering information through key stakeholders
    - Setting clear expectations
- Site selection:
    - Triage site selection
    - Identify key/strategic sites
    - Thoughtful sentinel surveillance site selection based on ultimate goals
- Cost-effective approaches
    - Look for cheaper analytical methods
    - Data management planning
- Efficiency improvements
    - Identify pain points (cost, human resources, time)
    - Identify sources of inefficiency
- Strategic planning:
    - Plan for 1-3-5 years
    - Plan for execution
- Logistics and contracts:
    - Negotiate contracts with logistics vendors
    - Explore sample collection by drone
    - Consider on-site screening

2. How can support be extended to jurisdictions that lack NWSS funding?

- Engage with the private sector:
    - Involve the business community to provide sponsorships
- Lobbying efforts:
    - Constantly lobby CDC/NWSS/ELC for fulfilling mandates

3. How can we enhance coordination among health departments, labs, and utilities for more effective communication?

- Project management software:
    - Use tools like Asana and Microsoft Office 365
    - Create designated teams, establish timelines, assign liaisons for effective communication
- Direct communication and relationship building:
    - Foster direct lines of communication, preferring calls over emails

- o Ensure proactive scheduling and involve specific stakeholders in conversationsSchedule quarterly stakeholder meetings for comprehensive updates
  - o Promote in-person interactions, including meetings, site visits, facility tours, and visits to wastewater treatment facilities
  - o Use common terminology
  - o Establish work groups
    - ▪ Form local Communities of Practice.
    - ▪ Appoint point people from each expert area.
  - o Establish various touchpoints for communication:
    - ▪ Leadership meetings for troubleshooting
    - ▪ Regular lab, epidemiology, and wastewater utility meetings
    - ▪ Weekly updates via email
    - ▪ Quarterly calls per WWTF
    - ▪ Weekly meetings with Public Health Laboratories (PHL)
- Addressing understaffed utilities:
  - o Facilitate easier sample submission to address challenges faced by understaffed utility teams
  - o Acknowledge the larger undertaking of extra duties for understaffed teams
- Supportive Leadership and Protocols:
  - o Foster supportive leadership to promote improvement and collaboration
  - o Encourage open feedback through surveys or check-ins to meet evolving needs
  - o Promote cross-training, cross-education, and contributions to research or conferences
  - o Establish and maintain protocols and procedures, ensuring regular updates
  - o Ensure a clear understanding of each other's roles and program responsibilities
  - o Understand and support utility goals related to public image and workload
- Report/Result Sharing:
  - o Share results regularly, providing explanations of their significance
  - o Share the final data output with all relevant stakeholders

4. How can we more seamlessly integrate wastewater surveillance data with clinical data?

- Data interpretation:
  - o Define lead/lag time
  - o Distinguish city level vs. facility-level data (e.g., SNF AMR = infection vs. colonization and what's an outbreak?)
  - o Explore new modeling techniques
- Standardization and comparison:
  - o Standardize reporting metrics
  - o Compare across facilities using standardized scales

- o Utilities using Biobot and WastewaterSCAN instead of state DPH

5. How can we secure funding for local health departments?
- Diversification of funding:
  - o Identify end-users (hospital systems, chambers of commerce, private schools) to diversify funding opportunities
  - o Explore creative funding avenues (partnerships, settlements, etc.)
  - o Encourage funding/cost sharing between jurisdictions
- Alignment of interests:
  - o Align interests across federal/state/local, NGO/advocacy, academic/research, and industry sectors
  - o Explore collaborations with companies aligned with program interests

6. What approaches can be adopted to ensure wastewater data generate actionable insights?
- Goal Determination:
  - o Define goals for generating data (public health)
- Stakeholder involvement:
  - o Involve data end-users in deciding what pathogens to test
- Planning and integration:
  - o Plan intentionally
  - o Determine how data is additive
  - o Integrate data into existing surveillance
  - o Establish baselines for retrospective studies
  - o Include academic partners
  - o Define and decide what action is to be taken (testing and isolation, policy changes, individual action, sentinel, targeted/local)

7. What are effective ways to convey the value of wastewater surveillance?
- Advocacy and communication:
  - o Use partners and create advocates
  - o Obtain political/legislative support
  - o Present information through dashboards, summary reports and analysis studies
- Education and transparency:
  - o Educate different audiences
  - o Ensure open communication and transparency

8. What are your thoughts on the NWSS commercial testing contract, and what improvements can be suggested?
- Data presentation and privacy:

- o Evaluate data presentation dashboards
- o Address data privacy concerns
- Contract improvements:
  - o Promote fairness in RFP
  - o Address process problems and target flexibility
  - o Encourage competition between state labs and CDC contractors

9. What considerations should be considered when managing new targets in terms of lab analysis?
- Considerations:
  - o Ensure the ability to multiplex
  - o Address quantity of samples and population sizes
  - o Emphasize specificity of markers for targets
  - o Ensure availability of controls
- Collaboration and communication:
  - o Collaborate with public health labs
  - o Communicate quality conformance standards

10. What criteria should guide the selection of new wastewater surveillance targets?
- CDC process improvement:
  - o Rethink CDC's process for selecting new targets.
  - o Develop transparent protocols considering costs, actionable data, implementation issues, and relation to existing permitting requirements
- Operational considerations:
  - o Evaluate testing cost and implantation changes
  - o Address red tape and feasibility concerns
  - o Assess the relationship to permitting and public health data utilization
- Actionability cost:
  - o Consider actionability scale, cost, and capacity
  - o Account for the potential impact of emerging pathogens
- Stakeholder input:
  - o Consider public health impact and align with community interests
  - o Engage an advisory board of infections disease doctors
  - o Address concerns about increasing resistance, new variants, and a lack of community data
- Target selection factors:
  - o Evaluate the prevalence of illness, high morbidity, and exponential case increases
  - o Consider governmental agency use, CDC bioterrorism list, and EPA CCL list
  - o Account for variations between rural and urban settings

11. What ethical concerns, such as equity and privacy, need to be addressed, and what solutions can be applied?

- Upstream Sampling and Data Sharing:
    - Define granularity and sharing considerations for upstream sampling
    - Address challenges in publishing subsewershed data for small populations
    - Explore data request processes from researchers
- Equity and Community Engagement:
    - Address existing health disparities and inequities with WWS
    - Balance public health needs with potential stigmatization/negative consequences
    - Explore ethical considerations for special populations like correctional facilities
- Consent and Community Input:
    - Explore community assent when consent is challenging
    - Address potential privacy concerns, especially with illicit drug sampling
    - Determine the appropriate population size for publicly sharing results
- Data Privacy and Legal Protections:
    - Establish policies similar to HIPAA for data protection
    - Define FOIA implications and legal protections
    - Consider privacy concerns with genomic data
- Communication and Transparency:
    - Communicate sensitive data responsibly
    - Establish data storage and availability practices
    - Educate the public and stakeholders on data usage

12. What factors should be considered when managing new targets in terms of communicating risks associated with them?

- Stakeholder Considerations:
    - Assess ramifications of detections on disadvantaged groups and subgroups
    - Consider added value and lead time for new targets
- Audience-Focused Communication:
    - Tailor messages for the public, utilities/operators, and public health departments
    - Align communications across various stakeholders
- Responsibility and Enforcement:
    - Clarify who bears risks for public health, operators, reuse, and the environment
    - Consider the role of media in risk communication
    - Address epi actions for sites with high-risk organisms

13. What guidance can be offered to jurisdictions that are in the initial stages of setting up their programs?

- Strategic Planning:

- o Partner with existing programs and identify stakeholders
- o Find the right staff with the right expertise
- o Discuss effective methods, funding, and collaboration
- Learn from Past Programs:
  - o Share experiences on what hasn't worked well in large programs
  - o Collaborate with large utilities and leverage their expertise

14. **What methods can be employed to encourage participation from various stakeholders in program initiation, especially without a mandate?**
   - Simplified Processes:
     - o Make the initiation process easy for stakeholders
     - o Keep stakeholders updated throughout the process
     - o Provide necessary supplies and acknowledge their important work
   - Various Engagement Strategies:
     - o Offer CEU credits for utilities and reimbursement incentives
     - o Conduct meetings, presentations, and one-on-one conversations and personally invite all partners via phone or mail
     - o Make dashboards accessible and easy to understand

15. **What methods can be employed to ensure nationwide comparability of wastewater data?**
   - Standardization Strategies:
     - o Encourage national participation and contribution
     - o Standardize testing methods, metrics, and reporting units
     - o Coordinate with stakeholders for standardized analytics and data sharing
   - Quality Controls and Collaboration:
     - o Implement controls, comparability studies, and proficiency testing
     - o Collaborate on LIMS integration and foster lab/epi, state/local collaboration and sharing of methodologies.

16. **What strategies can be used to maintain stakeholder engagement and ensure program sustainability? What does sustaining the program entail?**
   - Effective Communication:
     - o Establish transparent and bi-directional communication

- o Speak the language of stakeholders
- Diverse Funding Sources:
  - o Diversify resources, providers, and funding
  - o Secure long-term funding
- Education and Outreach:
  - o Educate legislators and communities
  - o Bring skeptics to the table early on

17. What strategies can we employ to establish standardized lab methods?

- Comparability Across Labs:
  - o Address comparability issues across labs
  - o Implement normalization for data comparison
  - o Encourage reference materials, proficiency testing, and standards
- Variability and Detection Methods:
  - o Understand variability in detection methods
  - o Explore the use of statistical tools for comparing quantification methods
  - o Address the need for standards when switching methods
- Collaboration and Communication:
  - o Collaborate with NIST on documentary standards
  - o Promote collaboration between labs and coordination at the national level