Massachusetts State Public Health Laboratory System Improvement Program Assessment Report

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State Public Health Laboratory
Massachusetts Department of Public Health
Bureau of Infectious Disease and Laboratory Sciences
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INTRODUCTION

Public health laboratories are integral members of public health systems, as evidenced not only during responses to routine disease surveillance activities, recurring foodborne outbreaks, and major floods, but also for many of the national and international crises responses, including anthrax terrorist attacks (2001) and global pandemics H1N1 Influenza (2009) and SARS-CoV-2 (2019). Emergency preparedness efforts in the U.S. have provided a basis for developing and refining the concept of 'Public Health Systems' in responding to global and domestic public health threats, including those at the national, state, and local levels. Assuring that those public health systems are consistent, integrated, and including all partners and collaborators in a (health) systems approach is essential for improving public health outcomes.

SUMMARY

The Massachusetts State Public Health Laboratory (SPHL), Bureau of Infectious Disease and Laboratory Sciences conducted its L-SIP reassessment on September 9, 2024, at the Conference Center of Massachusetts Medical Society at Waltham Woods. The purpose of the L-SIP is to have a thorough analysis to identify the system's current strengths, identify improvement opportunities, and obtain feedback from diverse partners.

This report presents the summary of the event, details on the assessments, observations, and results obtained from this collaborative evaluation, and conclusions that alluded to the future directions for improving public health system practices in the Commonwealth of Massachusetts.

Dr. Robert Goldstein, Commissioner of the Massachusetts Department of Public Health, welcomed attendees at the start of the L-SIP assessment day.

Forty-five (45) diverse public health partners attended, representing 18 clinical, environmental, preparedness, academic, and research laboratories, public and private organizations, as well as local, state, and federal agencies:

- Association of Public Health Laboratories (APHL)
- Biobot Analytics
- Boston Medical Center
- Brigham and Women's Hospital
- Department of Homeland Security, Countering Weapons of Mass Destruction Office (WMD)
- Broad Institute of Harvard and MIT
- Federal Bureau of Investigation (FBI)
- Harvard Medical School

- Indiana Department of Health Laboratory
- Massachusetts Department of Agricultural Resources
- Massachusetts Department of Environmental Protection
- Massachusetts Department of Public Health
    - Bureau of Climate and Environmental Health (BCEH)
    - Bureau of Infectious Disease and Laboratory Sciences (BIDLS)
- Massachusetts General Hospital
- Massachusetts National Guard 1st Civil Support Team (CST)
- University of Massachusetts Chan Medical School
- Vermont Agriculture and Environmental Laboratory
- Vermont Department of Health Laboratory

The Massachusetts public health laboratory system assessment was based on the CDC's 10 Essential Public Health Services, as shown below, with the average rating highlighted for each Essential Service. During the introductory session, the L-SIP process was reviewed with the attendees, highlighting Essential Service #2 as an example. The participants were then split into three breakout groups, each led by a facilitator. The facilitators were leaders from Indiana Public Health Laboratory, Vermont Public Health Laboratory, and Vermont Agriculture and Environmental Laboratory.

Throughout the day-long event, attendees examined and discussed the effectiveness and efficiency of different components of the laboratory system and proposed the next steps for improvement. A breakdown of the ratings for each Essential Service component is provided in the Summary Results and Analysis section.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service #1: Assess and monitor population health status, factors that influence health, and community needs and assets.					
Essential Service #2: Investigate, diagnose, and address health problems and health hazards affecting the population.					
Essential Service #3: Communicate effectively to inform and educate people about health, factors that influence it, and how to improve it.					

Essential Service #4: Strengthen, support, and mobilize communities and partnerships to improve health.					
Essential Service #5: Create, champion, and implement policies, plans, and laws that impact health.					
Essential Service #6: Utilize legal and regulatory actions designed to improve and protect the public's health.					
Essential Service #7: Assure an effective system that enables equitable access to the individual services and care needed to be healthy.					
Essential Service #8: Build and support a diverse and skilled public health workforce.					
Essential Service #9: Improve and innovate public health functions through ongoing evaluation, research, and continuous quality improvement.					
Essential Service #10: Build and maintain a strong organization infrastructure for public health.					

The L-SIP assessment used the following scoring definitions as provided by APHL.

None	0% or absolutely none of the performance described is met within the public health laboratory system.
Minimal	Greater than zero, but no more than 25%, of the performance described is met within the public health laboratory system.
Moderate	Greater than 25%, but no more than 50%, of the performance described is met within the public health laboratory system.
Significant	Greater than 50%, but no more than 75%, of the performance described is met within the public health laboratory system.
Optimal	Greater than 75% of the performance described is met within the public health laboratory system.

BACKGROUND

Participants paused at the end of the assessment day with Dr. Nicolas Epie, MA SPHL Laboratory Director, to display the L-SIP certificate of completion.

To aid public health laboratory systems with measuring the effectiveness of their efforts and identifying specific areas for improvement, the Association of Public Health Laboratories (APHL), in collaboration with the U.S. Centers for Disease Control and Prevention (CDC) Laboratory Science, Policy, and Practice Program, created an assessment tool to assist with accomplishing this task. The Laboratory System Improvement Program (L-SIP) assessment tool was first used in 2007 and has been successfully used in 39 states to date. The assessment centers around the 10 Essential Public Health Services and incorporates the 11 Core Functions of State Public Health Laboratories. The focus is on the overall statewide laboratory system, rather than individual public health organizations or partners. The assessment measures against an optimal level of performance (i.e. gold standard) to identify system strengths and gaps and support a process of continuous quality improvement.

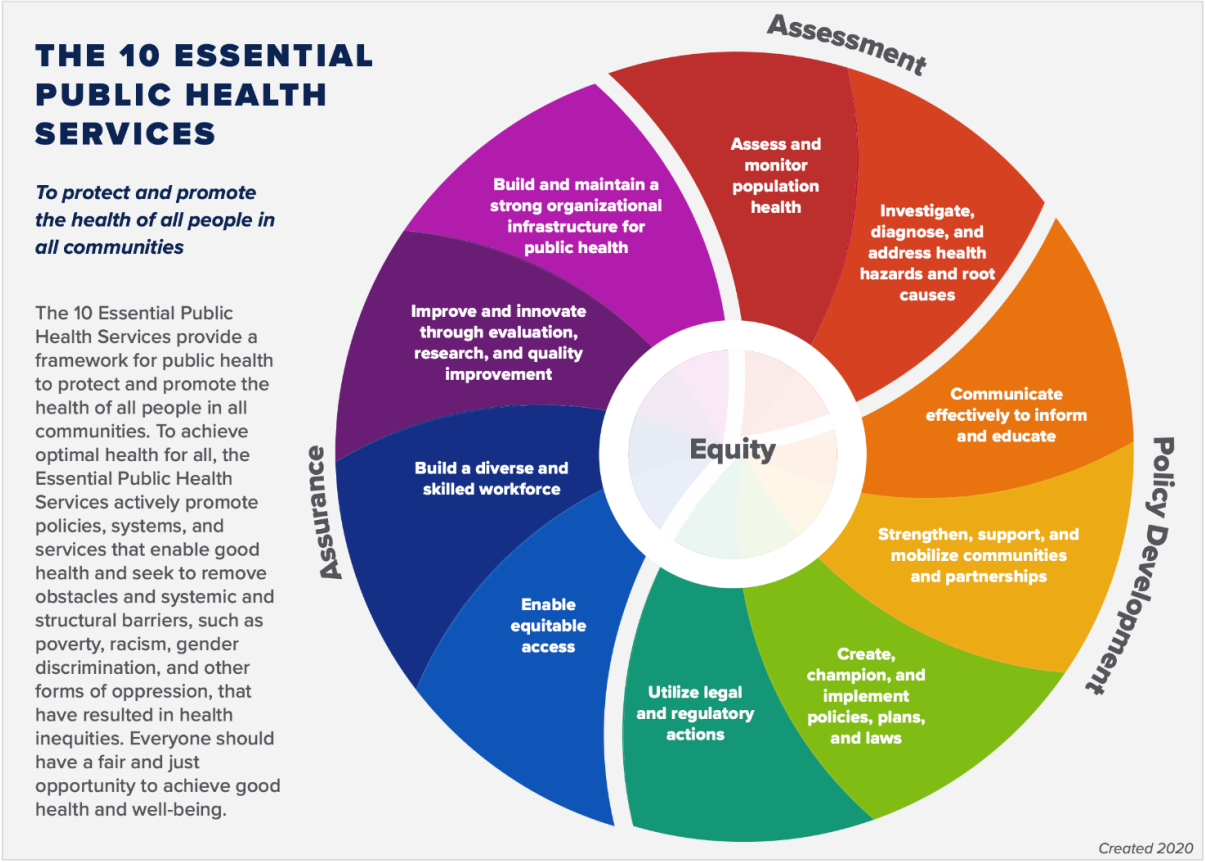
L-SIP assessments and related activities are intended to identify gaps and facilitate improvements to the public health laboratory system through the collaborative work of partners to:

- Assess the system performance
- Plan for system improvements
- Implement improvement strategies
- Evaluate effects of strategies
- Re-assess system performance

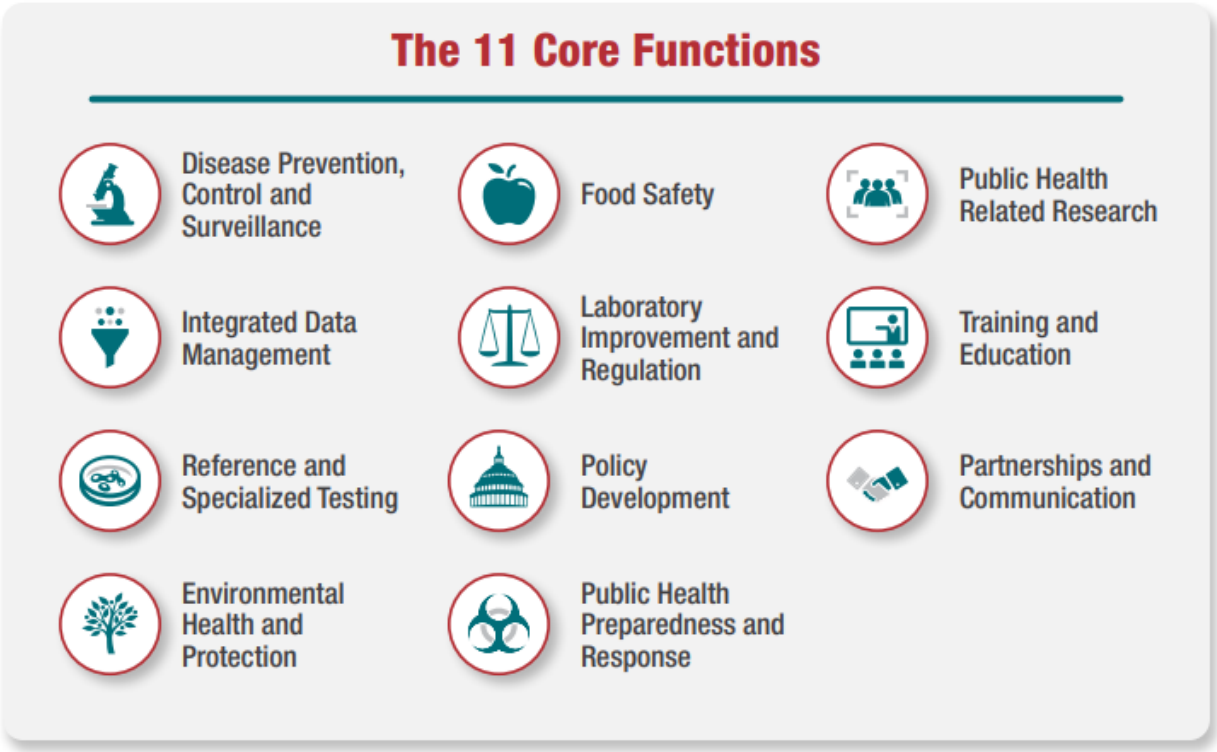
Participants discussed successes, challenges, and opportunities for growth and improvement within the public health laboratory system.

The Massachusetts State Public Health Laboratory's decision to conduct this assessment for its state laboratory system was based on the need to have an updated analysis to identify the system's current strengths and identify improvement opportunities. Massachusetts completed an initial L-SIP pilot assessment in 2008. In 2024, Massachusetts became one of nine states to have completed the L-SIP reassessment, and was recognized in the Spring 2025 issue of Lab Matters, APHL's digital/printed quarterly magazine.

The 10 Essential Public Health Services



11 Core Functions of Public Health Laboratories



Assessment Process

Planning for the L-SIP assessment began in May of 2024. The process included selecting a date and facility for the event, identifying and inviting system partners and stakeholders, communicating to invitees, coordinating and training with the facilitators and theme takers (APHL's term for L-SIP note-takers), and logistical details for the event day.

H. Dawn Fukuda, Assistant Commissioner of the Massachusetts Department of Public Health and Director of the Bureau of Infectious Disease and Laboratory Sciences, was delighted to participate in the assessment.

Each participant received an assessment tool booklet, rating cards, and a folder that contained the agenda, list of participants, printed presentation slides for the day, information about the Massachusetts Department of Public Health (DPH), and printed assessment day evaluation. Dr. Nicolas Epie, the Massachusetts SPHL Director, made opening remarks, and H. Dawn Fukuda, Assistant Commissioner, Director of the Bureau of Infectious Disease and Laboratory Sciences, introduced Dr. Robert Goldstein, Commissioner of the Massachusetts Department of Public Health (DPH), who gave the initial welcome remarks. Dr. Epie then gave a short presentation about the DPH and the public health laboratory system.

The assessment began as the Association of Public Health Laboratories' Manager of Quality Systems and Analytics, Tina Su, explained the assessment process and facilitated the discussion on Essential Service #2: Investigate, Diagnose, and Address Health Problems and Health Hazards Affecting the Population.

When the analysis of Essential Service #2 was completed, attendees were divided into the three assigned breakout groups for the day. Each breakout group, led by a facilitator from another public health laboratory, assessed three different Essential Services, such that at the end of the day all ten essential services had been discussed. After the three breakout group discussion sessions ended everyone was gathered a final time for a recap of the day and a brief reflection on the overall assessment.

Facilitators led break-out groups in discussing the performance of the system's performance as compared to the 10 Essential Public Health Services in the L-SIP assessment.

Summary Results and Analysis

Essential Service # 1: Assess and Monitor Population Health Status, Factors That Influence Health, and Community Needs and Assets.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 1.1.1: The system identifies infectious disease and environmental sentinel events, monitors trends, and participates in state and federal surveillance systems.					
Essential Service 1.1.2: The system monitors congenital, inherited, and metabolic diseases of newborns and participates in state and federal surveillance systems.					
Essential Service 1.1.3: The system has a secure, accountable, and integrated information management system for data storage, analysis, retrieval, reporting, and exchange. Partners collaborate to strengthen electronic surveillance systems.					

Priority Next Steps	Discussion Points
▪ Coordinate the handling of new sequencing data and establish a set way to report and share data with partners. ▪ Create more established networks and relationships with all internal and external partners to better coordinate surveillance and data-sharing efforts. ▪ Continue to work on the information management programs and centralizing the	**1.1.1** ▪ The system is highly variable throughout regarding the sentinel surveillance system. DPH departments that handle this work well together and communicate with the external laboratory systems partners very well. ▪ The system contains robust multi-lab reporting systems and handles standard reportable diseases very well; consistency varies across different infectious diseases. ▪ The biomonitoring program uses federal funding; can aid in expanding non-traditional partnerships and community education. ▪ Coordination and communication between all partners need to be improved to establish

recording and reporting processes.

- Increase flexibility in reporting system and create centralized system for all labs and providers to use.

what DPH handles and what other partners handle for testing.

- MA SPHL is currently making efforts to improve reporting sequencing data to the systems partners.
- Need to share SPHL testing-related information (e.g. Lab Ref. Manual) more broadly, to providers, educating partners, and the public via the website.

1.1.2

- The newborn screening program is well-established and has had long-standing success. The program has been growing and changing, including strengthening activities of the Newborn Screening Advisory Committee.
- There are opportunities to improve public communication and education with clinical partners, as well as newborn screening technology advancement with system partners and commercial vendors.

1.1.3

- Current lab information management system (LIMS) at SPHL has limitations with how data is recorded and reported. Integration could be improved.
- Multiple LIMS used throughout SPHL, which divides and complicates laboratory data management, coordination, and reporting of relevant information.
- Systems are complicated and expensive; funding is limited compared to private sector.
- Efforts are being made right now to centralize SPHL LIMS and review how lab information is recorded and managed for compliance and surveillance purposes with partnering agencies.

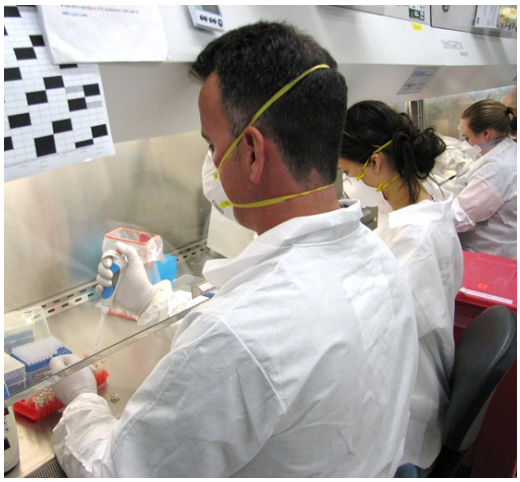
<u>Parking lot issue:</u>

- The New England Newborn Screening Program (NENSP) was formerly co-located at the SPHL, but it is now located at and administered by the UMass Chan Medical School and overseen by DPH. What impact does this relocation have on other public health laboratory programs? Are there other programs that could benefit from a similar move to increase the responsiveness and public health impact of laboratory programs?

Essential Service # 2: Investigate, Diagnose, and Address Health Problems and Health Hazards Affecting the Population.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 2.1.1: The system assures the effective provision of services at the highest level of quality to assist in the detection, diagnosis and investigation of all significant health problems and hazards.					
Essential Service 2.1.2: The system has the necessary capacity and authority in place to rapidly respond to public health events.					

Priority Next Steps	Discussion Points
▪ SPHL to plan regular drills/exercises with law enforcement, hazmat, and emergency preparedness and response agencies to help prepare for potential health problems and response to unknown powder, chemicals, or biological issues. ▪ Phase out faxing and regular mail. Update all reporting and communications to be electronic, more instantaneous, and standardized. ▪ Work with communications team to update DPH website with expanded public health laboratory information, including details about testing services offered, methods, turnaround times, department contacts, etc.	**2.1.1** ▪ Massachusetts is doing very well with collecting samples, testing, processing, and workflow. Integration across all domains could be improved. ▪ There is a high level of scientific expertise in the MA SPHL and with partner laboratories. ▪ Easy to reach out and connect to the system, though already established and regularly used network connections between partners can be further improved. ▪ It would be helpful to have more information about testing on the DPH website to avoid unnecessary phone calls. ▪ Limitations regarding adequate staffing and other resources are felt throughout the system. Those include delays in hiring process, specialized skills when posted internally, salary compensation, and trainings needed. ▪ Things are functioning well regarding diagnosing and investigating all significant health problems and hazards, but further preparation is needed to continue to be prepared for future unknowns.



2.1.2

- Communication can be improved, especially regarding updated communication routes; faxing is still widely used to report and communicate results. More electronic communication is critical. A SPHL portal is needed to provide clients with secure access to the test results in a timely and efficient manner.
- Consider newsletter and/or listserv for information-sharing.
- MA has 24-hour on-call system with first responders to respond/triage biological and chemical threats; uses laboratory response network to get information out to others.
- Prepare for the unknown – have supplies and funds in place. Vendor contracts can be limiting to get supplies needed.
- A Continuation of Operations Plan (COOP) for DPH is updated annually.
- Need for building connections between labs, succession planning, and cross-training.
- Need definitions of partner roles and MOUs to be more responsive to a surge and mobilize.
- Increase information clarity and availability.

Parking Lot Issue:

- The system does very well with testing, diagnosing, and then responding to various biological and chemical hazards as well as diseases and health problems, but how is the MA public health laboratory system as a whole detecting risks and addressing problems related to mental health?

Essential Service # 3: Communicate Effectively to Inform and Educate People About Health, Factors that Influence it, and How to Improve it.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 3.1.1: The system develops and disseminates accurate and consistent information to community partners about relevant					

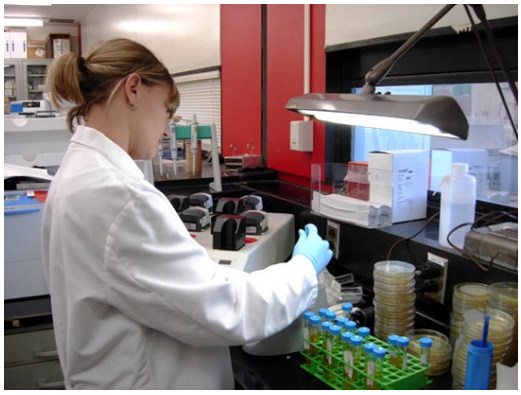
health issues associated with laboratory services.					
Essential Service 3.1.2: The system creates and provides educational opportunities to community partners.					

Priority Next Steps	**Discussion Points**
▪ Use channels already set up to reach out to community more (website, blog, social media, partners, etc.) ▪ Explore additional outreach opportunities for promoting public health careers to high school and college students.  	**3.1.1** ▪ There is a lot of information about diseases on the website and there are various ways to reach DPH, including a chat box feature. Consider QR code for resources. ▪ Communications are conservative and strategic; seen as trustworthy and important when made. Senior leadership is collaborative, which leads to good decision-making on cadence and content. ▪ Incident command and emergency response involves Office of Health Equity and Division of Community Engagement to decide on targeted messaging. Messaging needs a "face" and a compelling story. **3.1.2** ▪ The Office of Health Equity helps get information to trusted partners, who help spread the message. There have been more outreach efforts due to COVID. ▪ Are the right people seeing/accessing and trusting the information? ▪ Not proactively reaching out to the public, but the information is there to access. Need to take advantage of the channels set up to increase education and communication with impacted communities. ▪ Explore revenue generation ideas to potentially expand laboratory services. ▪ The Division of Epidemiology does career fairs at colleges and there is some outreach to high schools.

Essential Service # 4: Strengthen, Support, and Mobilize Communities and Partnerships to Improve Health.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 4.1.1: Partners in the system develop and maintain relationships to formalize and sustain an effective system.					
Essential Service 4.2.1: system members communicate in regular, timely, and effective ways to support collaboration.					
Essential Service 4.3.1: The PH laboratory system works together to share existing resources and identify new resources to address health issues.					

Priority Next Steps	Discussion Points
▪ Update DPH/SPHL website to provide more information about the laboratory and a way to allow for health care providers and system partners to provide feedback. ▪ Hybrid (virtual & in-person) training is needed for clients and clinical providers on testing and related resources. SPHL can coordinate and offer such trainings (e.g. preparedness and response with hazmat and preparedness partners). ▪ The MA public health laboratory system needs a central way to update stakeholders and to hold meetings (similar to L-SIP assessments) to maintain relationships and address any	**4.1.1** ▪ There are topic-specific, focused meetings, but as new partners are entering or services are consolidated, there are no meetings on a broader scale. Getting latest information about currently available testing and related resources, and updates to new stakeholders is important. ▪ A common procurement process that can address supply shortages that affect the whole system can bring everyone together (private and public entities) and affect the bottom line for private testing laboratories. **4.2.1** ▪ Need to connect with larger lab systems in support of public health – commercial, academic, hospital – on a regular basis. ▪ Despite some challenges, when it comes to emergency communications, such as responding to highly pathogenic avian influenza, monkeypox, or eastern equine encephalitis and surveillance testing, we are

services that are needed or common problems that affect the system.  	doing well. Need to improve communications within the MA public health laboratory system to assist hospitals with connecting with the appropriate lab contact regarding laboratory testing or other important public health announcements or notifications. ▪ There are issues with the Mass.gov website; a lot of information is missing or incorrect or need frequent updates on the SPHL testing services page. ▪ DPH, specifically the SPHL, does not have a social media platform or presence to provide information on what the laboratory is doing well or their capabilities. **4.3.1** ▪ Academic institutions ask to collaborate regularly. Current collaborations are through handshake agreements. Would like to make more formal with MOUs or MOAs. ▪ Due to renovations, COVID, and staff shortages, site visits and SPHL-provided BT and CT trainings (for example) have ceased. The SPHL needs time and resources to make visits to sentinel labs and provide training.

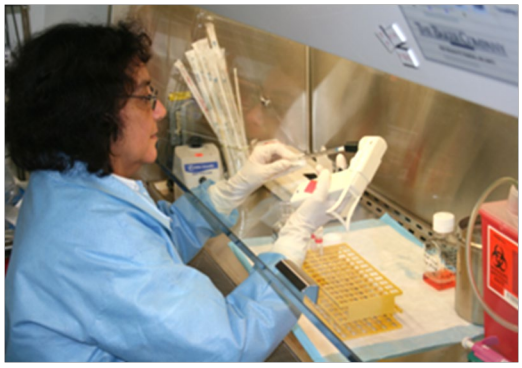
Essential Service # 5: Create, Champion, and Implement Policies, Plans and Laws that Impact Health.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 5.1.1: The system obtains input from diverse partners to develop new policies, plans, and laws and modify existing ones, using scientific evidence to inform and influence policy.					

Priority Next Steps	Discussion Points
▪ To be determined.  	**5.1.1** ▪ Federal partners creating policies and providing funding are not always aware of efforts required, which are often unsustainable. ▪ MA collaboration is one of the better states compared to other three MDAR interacts with. ▪ The One Health Model is a way of looking at infectious disease and breaking down regulatory silos; looking at several different factors related to humans and animals, and the transmission of infections between them. ▪ BioWatch has a strong backup program and stringent testing system and everything in place for continuity of services should there be a failure in Massachusetts. ▪ Would be helpful to have advisory committees to help guide policy and more integrated approaches for where the program is headed. Massachusetts is highly regarded and very vocal with the program and cited to the federal level for policymaking.

Essential Service # 6: Utilize Legal and Regulatory Actions Designed to Improve and Protect the Public's Health.

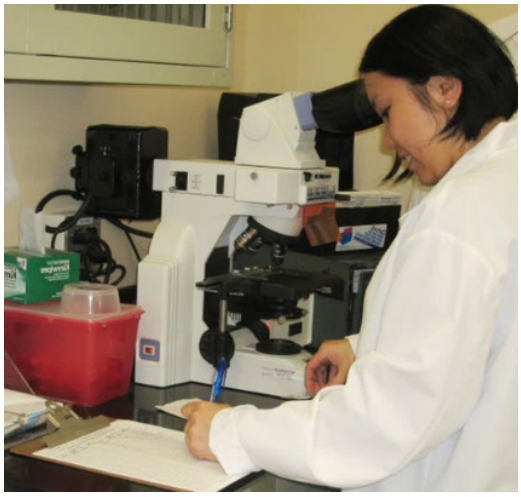
Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 6.1.1: The system is actively engaged in the review and revision of laws and regulations pertaining to laboratory practice.					
Essential Service 6.1.2: The system promotes compliance by all laboratories with regard to applicable laws and regulations.					

Priority Next Steps	Discussion Points
▪ Review Code of Massachusetts Regulations (CMR) and possibly update regarding sending isolates and specific outbreak situations (e.g. daycares, returning to work). ▪ Review where all CMR reportable lists are published and ensure consistency (Mass.gov, ELR, etc.) ▪ Provide sentinel lab training for partners. 	**6.1.1** ▪ Laboratory regulations are federal and are currently being updated. ▪ CMR (state regulations) for submitting isolates lag behind the current methodology/ technology; how best to minimize impact? ▪ Some clinicians are unaware of the reportable list in CMR, there is no training or introduction to the MA CMR reportable list for clinicians. **6.1.2** ▪ Massachusetts has a record of high compliance with regulatory standards. ▪ Many of the regulations the system follows are federal. The DPH has the responsibility to provide notifications of certain regulations (e.g. Department of Transportation). ▪ SPHL is behind in providing training due to renovations and a need for training space for staff instructors. ▪ Hospitals rely heavily on SPHL to provide training and prefer in-person formats to build relationships between hospital and lab staff. ▪ Motivation for compliance? Usually inspections by accrediting bodies. Majority of laboratory trainings are internal for SPHL.

Essential Service # 7: Assure an Effective System that Enables Equitable Access to the Individual Services and Care Needed to be Healthy.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 7.1.1: The system identifies laboratory service needs and collaborates to fill gaps.					
Essential Service 7.1.2: The system provides timely and accessible quality services.					

Priority Next Steps	Discussion Points
▪ Consider statewide courier services for samples. ▪ Schedule initial meeting with system partners to discuss regulatory updates and compliance. ▪ Consider additional media events to educate the public about infectious diseases and prevention.  	**7.1.1** ▪ There are different aspects to consider relating to the needs of environmental and clinical laboratory services. ▪ There are many challenges with courier services, no centralized system for transporting samples. Delays from other mailing options are problematic. ▪ There is integrated testing and linkage to care. Testing services are accessible to the public. ▪ As soon as commercial testing is available, typically providers will opt for this. Either SPHL is doing all applicable testing and can't handle the surge, or commercial takes all in a typical response. ▪ Need more public health surveillance and program-related assessments and outreach; more feedback from customers/clients on how to improve. ▪ Need system-wide education and collaboration. Not all areas are covered by DPH; SPHL should have information readily available to share. **7.1.2** ▪ SPHL provides an annual update to its Manual of Lab Tests and Services (MLTS); need to review more frequently to ensure it remains accurate and up to date. ▪ There are improvement opportunities for more active communications using current channels and social media. More DPH staff are needed to disseminate relevant public health information. ▪ STI Program provides interpretation guidance for clinicians and patients separate from report result language. ▪ Clarify shared resources for services vs. what is DPH's sole responsibility. ▪ Regulation update conversations haven't happened since 2017 due to COVID; used to meet regularly and should start again.

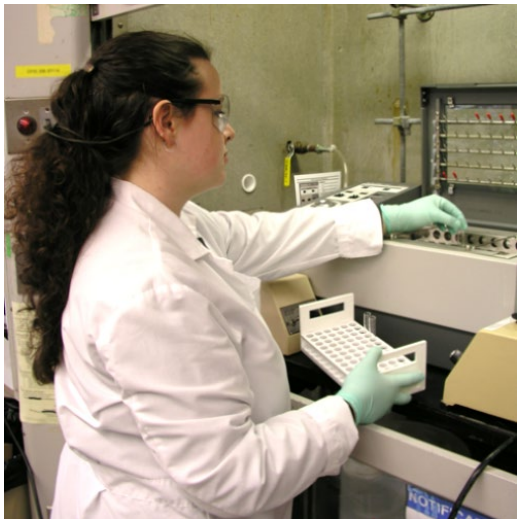


- SPHL's responsibility is to be transparent and accessible to the public and present all information clearly in ways that can be easily understood. Information is tailored to the audience. Need to promote and share more success stories between partners.
- Stakeholders want compound testing (complete test profiles) on samples, but systems are not in place. There have also been requests for HIV RNA testing, which could be costly.
- Need to prioritize areas of high interest/need – STI and others.
- Calls are tracked and the MAVEN system tracks topics requested by the public.
- Massachusetts is a Home Rule state, so rely on points of contact in each municipal health department. Reaching out to rural towns can be a challenge; not all cities/towns have lab services. Biomonitoring efforts could help reach more communities.
- Annually, there is a special event regarding arbovirus for the media to summarize and explain, provide answers about program findings. This is a good model with room to replicate across other areas.
- There is an attempt to group some of the 351 different local health departments in MA through shared service agreements to share efforts and resources.

Essential Service # 8: Build and Support a Diverse and Skilled Public Health Workforce.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 8.1.1: The system maintains an environment to attract and retain diverse and highly qualified staff.					
Essential Service 8.2.1: The system works to assure a competent workforce by encouraging and supporting staff					

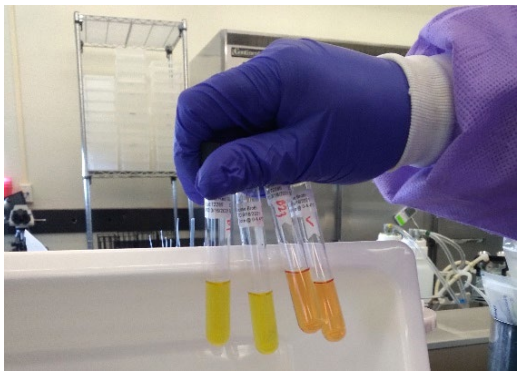
development through training, education, coaching, and mentoring.					
Essential Service 8.2.2: The system identifies and addresses current and future workforce shortage issues.					

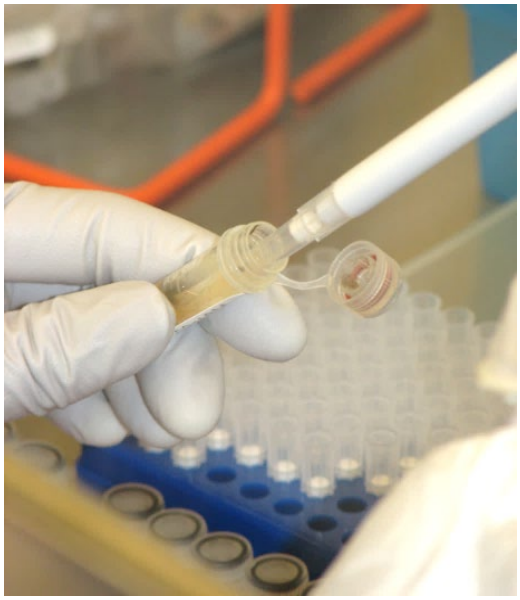
Priority Next Steps	**Discussion Points**
▪ Build a program to expose younger generation (middle school or high school) to laboratory careers. ▪ Develop an internal process and training program for current SPHL staff to cross-train in other laboratory areas.  	**8.1.1** ▪ There is often a large gap between public and private salaries in our area. ▪ COVID pandemic resulted in people both leaving and entering the profession. Some people who left may be interested in per diem or part-time work now. ▪ Staff in public health are generally committed to the work, but finding the right people and retaining staff has been challenging. ▪ There is no longer a student program at SPHL, so less exposure to public health lab work. ▪ Expanded awareness of the education benefit for state employees may help with staff retention. ▪ Difficulty with hiring and retention varies among SPHL labs. **8.2.1** • The Commissioner understands there is a critical need for this. There is uncertainty about the federal priorities. ▪ Resources are limited. Unable to accept private funding for SPHL unless it is competitive. ▪ Not enough staffing at SPHL, training is insufficient. ▪ Need to focus on recruitment, retention, and continuing education for SPHL staff, plus cross-training and coverage for smaller labs. ▪ Could promote SPHL more through career fairs and programs with high school students. **8.2.2** ▪ SPHL is currently monitoring staffing trends and trying to address the issues.

	▪ Once the renovation is complete, a training laboratory will be available and can provide an avenue for SPHL exposure through high school programs or university fellowships.

Essential Service # 9: Improve and Innovate Public Health Functions Through Ongoing Evaluation, Research, and Continuous Quality Improvement.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 9.1.1: The effectiveness, accessibility, and quality of the individual- and population-based laboratory services provided throughout the state is regularly evaluated.					
Essential Service 9.2.1: The system has adequate expertise and capacity to plan research and innovation activities.					
Essential Service 9.2.2: The system promotes research and innovative solutions.					

Priority Next Steps	**Discussion Points**
▪ Invite lab directors from clinical labs in MA to an initial meeting to propose a Clinical Lab Advisory Committee with structured meetings. 	**9.1.1** ▪ A Clinical Lab Advisory Committee is needed but does not yet exist. Would like to create a regular meeting of clinical and environmental lab directors, drawn from laboratories through the system, to discuss topics and continue conversations after L-SIP. ▪ Need regular communications among partners regarding needs, test developments, and redundancies and requests to respond to certain events. ▪ Better two-way communication regarding data from specimens submitted is needed. ▪ Also, continued communication for how long labs should continue testing (e.g., GC/ influenza surveillance) and how best to achieve this. The surveillance process can be



costly to test every patient and DPH and hospitals need a better strategy to save on costs.

- Difficult to send/share specimens. Requirement to fill out a paper form for every sample, provide all the information on the form and get it aliquoted, etc.
- DPH should leverage existing resources at the clinical labs for viral sequencing.
- BioWatch has a robust QA program for the air results and integrity of the test results and capability of the staff. A planning exercise in March 2025 will involve clinical and local labs.
- There is limited capacity for testing at the MA SPHL. Example: The lab can only process 30 samples out of 100. Need to be able to train local boards of health how to sample. SPHL should have the capability to do the work or outsource the work to other labs. Budget cuts make it difficult to meet demands.
- Timeframes are limited for specimen submission, Monday-Thursday. Limited sample quantity means having to split samples across federal labs and state labs.
- SPHL went through ISO15189 training to improve clinical requirements.
- Quality improvement is occurring but is siloed.
- Need faster preliminary and final results for actionability.
- Could use sentinel lab survey to get customer feedback.
- Suggestion of creating customer resource database to determine what type of testing is being conducted, who the clinical partners are and their testing capability, along with who needs specific information, such as what isolate is circulating, etc. Suggest sending two and have some data instead of sending all specimens and getting more data sharing.

9.2.1

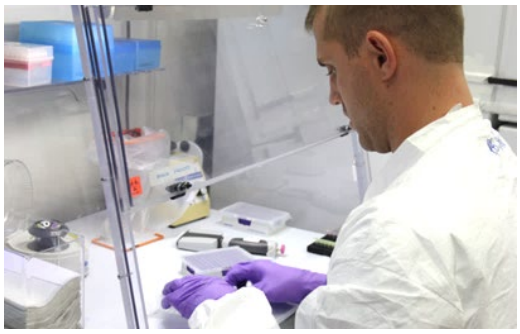
- The lab is focused on response, not research.
- Institutional Review Board is responsible for research method development and

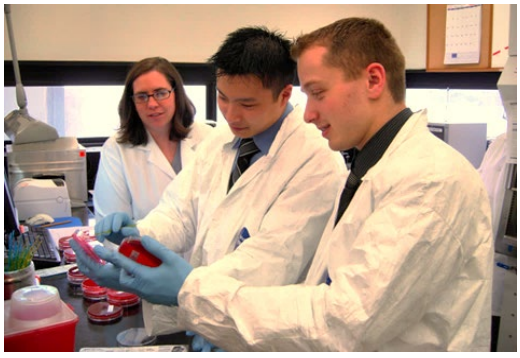
 	optimization. Creation of an assay development team for method development and optimization would be essential for development and validation/verification of new methods and scientific research while ensuring that it meets clinical laboratory standards. This would eliminate using testing personnel to validate and verify methods and allow staff to focus solely on testing. ▪ Able to use New England Pathogen Genomics Center of Excellence (PGCoE) funding for a person in method development and optimization and be able to validate and verify and perform as written. ▪ Need a communication forum for information to be shared with key community partners/ stakeholders. ▪ Develop something continuous and bring the PGCoE staff to help build the system and develop translational/transferable method development so that this can be shared. **9.2.2** ▪ Would like to see electronic method for sharing information in a bidirectional way; would require investment in IT infrastructure. ▪ Need information to be standardized so it can be shared. ▪ MA has a large research industry that is not represented in this L-SIP. How do we bring them into this conversation and get them to understand they are part of the system (e.g. Broad Institute)?

Essential Service # 10: Build and Maintain a Strong Organizational Infrastructure for Public Health.

Assessment Scores	No Activity	Minimal Activity	Moderate Activity	Significant Activity	Optimal Activity
Essential Service 10.1.1: The system is composed of different entities that work together effectively on public health activities and are transparent					

and accountable to the community it serves.					
Essential Service 10.1.2: The system's leadership acts ethically and strategically and communicates proactively to the public through different mechanisms.					
Essential Service 10.1.3: The system has the necessary resources (e.g. financial, technological, physical (facilities), human) to perform and sustain public health activities.					

Priority Next Steps	**Discussion Points**
▪ To be determined.  	**10.1.1** ▪ The system is siloed; need a group forum for better communication amongst partners. ▪ There are two main food inspectors to train and perform sampling. Limited staffing leads to challenges to do training and sampling. ▪ Successful relationships with MDAR; smooth systems for most reportable diseases. Emerging and unusual cases not as well-communicated as general diagnostic information. ▪ There are two levels of communication: Level 1: Official calls and notification for the results; Level 2: "The good guy call," based on who they know (i.e. specific person rather than employee role.) This call should be based on role/position to allow for flow of action to continue (i.e. WMD coordinator and public health lab and triage situations, etc.) and continue with keeping all parties aware. Can't be the go-between for regulatory cases. ▪ Need to align with the other commercial labs' methods for specimen collection (mpox example: if initial testing was dry swab and then later moved to UTM validation – why don't we move towards UTM instead of keeping it as a dry swab?)



10.1.2

- At SPHL a lot of communication is taking place and various Teams meetings for different aspects, such as TB. For Foodborne, may need to have bigger meetings to add more people who are needed for the discussions.
- Some policies were made without including the SPHL. Policy discussions need to include all key stakeholders.

10.1.3

- Need a statewide courier system for specimens coming from/going to SPHL; could use STAT Courier more. Driving 6-7 hours round-trip for dairy samples is not sustainable.
- Utilize partners to mimic needs (i.e. small hospitals may act as “mini PHLs”).
- Access to supplies is limited by contracts.
- Workforce is a challenge - getting staff trained for testing using the new technologies to make testing more automated. Government should invest in more IT flow, using better resources and getting results sooner.
- The SPHL does a good job with what they have and has continued to function well with the constraints of the renovations. The lab has shown remarkable resilience with the current infrastructure; more funding is needed for data modernization in the labs.

Discussion and Next Steps

Throughout the discussions that took place several themes emerged, including: the need for enhanced communications and improved electronic reporting of test results, expanded partnerships, upgraded technologies, and better recruitment, training, and retention of the laboratory workforce.

Dr. Nicolas Epie, Director of the MA State Public Health Laboratory, looks forward to implementing improvements back at the lab.

System improvement activities were identified as priorities relating to several of the Essential Services. The goal is to begin and achieve some of the following proposed activities in the next 12-36 months:

1. **Convene system partners** on a regular basis as a method to improve communication and engage partners in action items.

2. **Form an advisory/steering committee and subcommittees** with representations from system partners to address minimally or moderately scored areas through strategic planning and identifying resource and funding opportunities.

3. **Develop a platform for improving engagement** with system partners and gather feedback to ensure alignment with key stakeholders in areas needing improvement as well as maintain high standard of laboratory response activities. Those may include revamping the SPHL website, shared space for methods inventory, publications, and reports, and utilizing new technologies.

4. **Maintain an inventory of key ongoing and new system partners with critical laboratory capabilities** and credentials for improving responses to emerging threats of public health, including technologies, compliances, and shared resources during crises (e.g. MOU, MOA or others in place; current contact information, list of testing capacity, test menus, sample collection and submission procedures, expected turnaround time, and fees schedules).

5. **Explore opportunities to participate in meaningful applied research** with system partners including laboratory and academic partners (e.g. utilize existing networks and professional relationships, such as PGCoE network, NEEPHLD, others).

6. **Collaborate with key system partners** and assist **in developing** relevant public health and laboratory **policies in priority testing areas**.

7. **Provide virtual and in-person training opportunities** including educational presentations, table-top exercises on aspects of disease outbreak control, technology development, data sharing, and preparedness to continue to stay on the top of cutting-edge testing capabilities, engage in dialogue with system partners, and to improve response.

8. **Explore funding availability** from APHL and other professional organizations or partnering agencies for resources **to explore innovative engagement activities with system partners and** complete **L-SIP reassessment** every 3-5 years (pending funding availability).

Overall, participants were pleased with the process and felt using the assessment tool was an effective way to share ideas, identify performance gaps, and start developing plans for system improvements. SPHL hopes to share lessons learned and valuable feedback from attendees to improve current practices and policy for the public health actions in Massachusetts and beyond.

“A long-awaited L-SIP assessment allowed for a holistic review of the laboratory system’s strengths and improvement opportunities,” said Dr. Sanjib Bhattacharyya, SPHL Associate Laboratory Director. “Critical feedback received from system partners will contribute to improving our services and positively impact the lives of the residents of the Commonwealth.”

Conclusion

This event was an unprecedented opportunity to connect and reconnect with public health laboratory partners in Massachusetts. Using the L-SIP assessment tools, we were able to identify gaps and areas of improvement to strengthen the laboratory system. We hope to share the lessons learned and valuable feedback from the attendees to improve current practices and policies for public health actions in Massachusetts and beyond. The tools and resources that will be developed through the forthcoming improvement phase of the L-SIP process will be shared and applied not only for the benefit of the public health laboratory system, but also for the community as a whole and New England regional partners, contributing to and supporting the nation’s public health response. We look forward to ongoing collaborations with our system stakeholders and community partners as we strive to continually improve this important component of public health in our state.

“This L-SIP reevaluation now gives us a clear understanding of our current strengths and areas where improvements are needed, providing a path forward for us as a state laboratory network of partners,” said Dr. Nicolas Epie, SPHL Laboratory Director.

References

1. Association of Public Health Laboratories. Laboratory System Improvement Program Fact Sheet. https://www.aphl.org/aboutAPHL/publications/Documents/QSA-2022-LSIP_FactSheet.pdf
2. Association of Public Health Laboratories. Lab Matters. Spring 2025, Issue 1. "Massachusetts Successfully Completes Laboratory System Improvement Program Assessment." https://viewer.joomag.com/lab-matters-spring-2025/0481037001741116516?short&
3. U.S. Centers for Disease Control and Prevention. Public Health National Center for Innovations. The 10 Essential Public Health Services. 10 Essential Public Health Services | Public Health Gateway | CDC
4. Association of Public Health Laboratories. The Core Functions of Public Health Laboratories. The 11 Core Functions. https://www.aphl.org/aboutAPHL/publications/Documents/PHL-Core-Functions.pdf
5. Association of Public Health Laboratories. Laboratory System Improvement Program: User Guide. https://www.aphl.org/aboutAPHL/publications/Documents/QSA-LSIP-UserGuide.pdf
6. Association of Public Health Laboratories. Laboratory System Improvement Program: Performance Measurement Tool. https://www.aphl.org/aboutAPHL/publications/Documents/QS-2022-LSIP-Toolkit.pdf

Assessment Information and Feedback

Assessment Day Agenda

Registration/Check in	**8:00 am**
Welcome and Introductions - Welcome Remarks – Nicolas Epie, Ph.D., HCLD, (ABB), MLS(ASCP) - SPHL Director, BIDLS - Introduction of the Commissioner – Dawn Fukuda, ScM, Assistant Commissioner/Director, BIDLS - DPH Commissioner's Welcome Address – Robert Goldstein, MD, PhD., Commissioner	**8:30 am**
Overview of Assessment and Agenda - Tina Su, APHL, Manager, Quality Systems and Analytics	**8:45 am**
Plenary Assessment: Essential Service #2: Investigate and Diagnose Health Problems - Tina Su, APHL, Manager, Quality Systems and Analytics	**9:15 am**
15-minute Break	**10:15 am**
Breakout Group Session #1 - Group A: Essential Service #1: Monitor Health - Group B: Essential Service #9: Improve and Innovate Public Health Functions - Group C: Essential Service #8: Build and Support Workforce	**10:30 am**
Lunch	**11:30 am**
Breakout Group Session #2 - Group A: Essential Service #7: Assure Equitable Access to Health Services - Group B: Essential Service #10: Build and Maintain Infrastructure - Group C: Essential Service #4: Strengthen, Support, and Mobilize Partnerships	**12:30 pm**
15-minute Break	**1:30 pm**
Breakout Group Session #3 - Group A: Essential Service #3: Inform and Educate - Group B: Essential Service #5: Create, Champion, and Implement Policies and Plans - Group C: Essential Service #6: Utilize Legal and Regulatory Actions	**1:45 pm**
Assessment Day Summary, Evaluation, and Next Steps - Tina Su, APHL, Manager, Quality Systems and Analytics	**2:45 pm**
Adjourn	**4:30 pm**

Participation Survey Results

At the end of the assessment day, participants were asked to fill out an evaluation form. Twenty-six forms were returned, and results are below.

Utility of meeting	**Poor**		**Good**		**Superb**	
	1	**2**	**3**	**4**	**5**	**Average**
Stated objectives of meeting were met			2	17	7	4.2
Dialogue was useful			3	13	10	4.3
I support the efforts being made			1	8	17	4.6
Next steps are clear		2	9	12	3	3.6
Meeting was a good use of my time		1	2	11	12	4.3
Meeting arrangements	**Poor**		**Good**		**Superb**	
	1	**2**	**3**	**4**	**5**	
Advance notice of the meeting			4	4	18	4.5
Meeting room accommodations				5	21	4.8
Advance materials for meeting were useful		1	7	8	10	4.0
Advance materials were received with time to review		1	6	6	13	4.2
Flow of meeting	**Poor**		**Good**		**Superb**	
	1	**2**	**3**	**4**	**5**	
Started on time				9	17	4.7
Clear objectives for meeting				17	9	4.3
Agenda followed or appropriately amended				10	16	4.6
Facilitation was effective			1	10	15	4.4
The “right” people were at the meeting		1	4	13	8	4.1
Overall	**Yes**	**No**	**No Answer**			
Would you participate in this process again?	22	1	3			
Was this a helpful tool and process?	22	1	3			

Participant comments:

What worked?

- “It was educational for some folks. It was non-adversarial; input was received, and folks were generally vested as a whole to make improvements.”
- “Stakeholders and partners not shying away from the environment or the topics. Facilitators did a great job encouraging participation.”
- “Really nice to see a lot of variety in respondents - no one person dominated discussion.”
- “Well organized. Good representation of attendees.”
- “Small group discussions were effective. Facilitator was great at summarizing key facts and keeping us on task!”
- “Having diverse participants enriches discussions and shed light on many areas that wouldn't be captured otherwise.”
- “Everything.”

What could be improved?

- “Time crunch for ES w/ 3 bullets within 1 hour but made to work.”
- “More outside voices. All DPH/BIDLS doesn't lead to a good discussion of what needs to be fixed.”
- “I think the rating system can be edited to be more like yes/no, then how often this occurs - all the time, most of the time, some of the time, none of the time, etc. to apply the skills/activities.”
- “Would have wished for more representation from different partners.”
- “Learning about the non-traditional partners (bios of attendees, etc.) and organizational activities.”
- “Next steps - felt like we didn't always cover that?”
- “Requiring higher level directors who could facilitate change. Having a representative from each section/area at each discussion group.”

Appendices

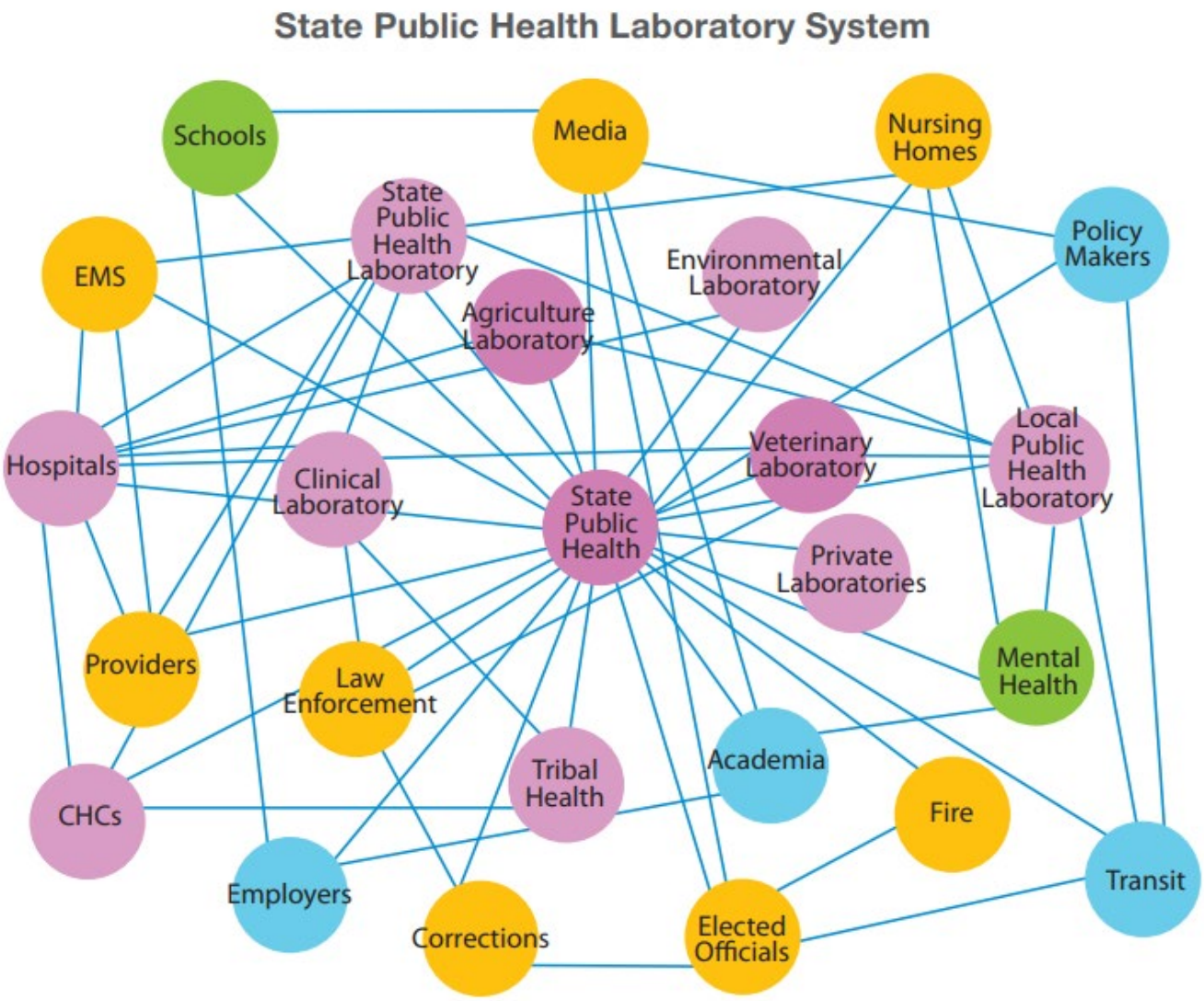
Appendix A.

Crosswalk of Essential Services and Core Functions of Public Health Laboratories

Essential Service	Core Function
1. Monitor health status to identify community health problems	1. Disease prevention, control, and surveillance
2. Diagnose and investigate health problems and health hazards in the community	2. Integrated data management 3. Reference and specialized testing 4. Environmental health and protection 5. Food safety 8. Emergency response
3. Inform, educate, and empower people about health issues	10. Training and education 11. Partnerships and communication
4. Mobilize partnerships to identify and solve health problems	11. Partnerships and communication
5. Develop policies and plans that support individual and community health efforts	7. Policy development
6. Enforce laws and regulations that protect health and safety	6. Laboratory improvement and regulation
7. Link people to needed personal health services and assure provision of health care when unavailable	3. Reference and specialized testing
8. Assure a competent public and personal health care workforce	10. Training and education
9. Evaluate effectiveness, accessibility, and quality of personnel and population-based service	3. Reference and specialized testing 6. Laboratory improvement and regulation
10. Research for new insights and innovative solutions to health problems	9. Public health-related research

From L-SIP User Guide, page 28.
https://www.aphl.org/aboutAPHL/publications/Documents/QSA-LSIP-UserGuide.pdf

Appendix B.



From L-SIP User Guide, page 31.
https://www.aphl.org/aboutAPHL/publications/Documents/QSA-LSIP-UserGuide.pdf

Appendix C.

Definition of a State Public Health Laboratory System

The State Public Health Laboratory System (SPH Laboratory System) consists of all the participants in public health testing, including those who initiate testing and those who ultimately use the test results. The SPH Laboratory System is part of the larger state public health system. The System includes individuals, organizations, and agencies that are involved in assuring that laboratory data support the 10 Essential Public Health Services. The concepts of an SPH Laboratory System are also embodied in the APHL Core Functions of State Public Health Laboratories. These documents are available on the APHL website at www.aphl.org. Within the SPH Laboratory System are primary stakeholders who are directly involved in creating and using laboratory data. Additional stakeholders include those who are concerned with complementary Essential Services, such as Training and Education and Public Health Related Research. A successful National Laboratory System is dependent on the creation of fully integrated and coordinated networks in every state. The goals of the National Laboratory System are to support voluntary, interdependent partnerships of clinical, environmental, agricultural, and veterinary laboratories through public-private collaboration, for assurance of quality laboratory services and public health surveillance.

Definition of a State Public Health Laboratory System

"An alliance of laboratories and other partners within a state that supports the 10 Essential Public Health Services under the aegis of the state public health laboratory. The system members and stakeholders operate in an interconnected and interdependent way to facilitate the exchange of information, optimize laboratory services, and help control and prevent disease and public health threats. "

The SPH Laboratory System should assure that:

1. Public health threats are detected and intervention is timely
2. Stakeholders are appropriately informed of potential threats
3. Reportable conditions are monitored in a comprehensive statewide system
4. Specimens and isolates for public health testing are sufficient to provide comprehensive public health surveillance and response
5. Public health laboratory data are transmitted to appropriate state and federal agencies responsible for disease surveillance and control.

The state public health laboratory (SPHL) has a leadership role in developing and promoting the SPH Laboratory System through active collaboration with stakeholders, including epidemiologists; first responders; environmental professionals in water, food, and air surveillance activities; private clinical and environmental laboratories; and local public health laboratories. The SPHL provides leadership to assure that essential and state-of-the-art laboratory services are provided and that clinical laboratories that perform public health testing on reportable infectious diseases submit results to the public health surveillance system using national testing guidelines. To provide leadership, the SPHL monitors essential components of the SPH Laboratory System, such as

completeness of reporting and accuracy of laboratory testing results. The SPHL also assures that accurate results are reported in a manner that is appropriate and sufficiently timely for effective public health response. An Effective SPH Laboratory System requires proactive leadership by the SPHL to monitor public health testing processes by clinical and environmental in-state laboratories.

To assure that the SPH Laboratory System is effective, the SPHL should, at a minimum:

1. Maintain an integrated information system that includes all stakeholders that rely on accurate laboratory data
2. Employ a full-time Public Health Laboratory System coordinator
3. Create a standing public health laboratory advisory committee
4. Provide an interactive website or other electronic system to maintain regular communication channels for system partners.

From L-SIP User Guide, page 29.
https://www.aphl.org/aboutAPHL/publications/Documents/QSA-LSIP-UserGuide.pdf