City of Milwaukee Health Department

Laboratory System Improvement Program

Assessment Report

May 10, 2018

Prepared by

City of Milwaukee Health Department Laboratory

http://city.milwaukee.gov/LSIP

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Executive Summary

On May 10, 2018, nearly 50 Milwaukee public health laboratory system stakeholders from more than 25 agencies and departments participated in the Laboratory System Improvement Program (L-SIP) assessment. Partners included clinical laboratory scientists and managers, local and state epidemiologists, first responders, environmental professionals, academicians, researchers, policy directors and planners, state and local public health professionals and other stakeholders.

The City of Milwaukee Health Department Laboratory (MHDL) was the first to adapt and implement the Association of Public Health Laboratories' (APHL) L-SIP at the **local** level in 2010. The MHDL is also the first LPHL system to conduct this second or reassessment to evaluate progress made following the first assessment and to determine any new or follow-up steps for system improvement.

The L-SIP assessment is designed to measure the capacity of the system relative to ten Essential Services (ES). Each ES is measured through one or more Indicators, each of which includes a Model Standard. The ES and model standards represent the capacities that must be present in a public health system, whether at the local, state or national level, to assure a fully functioning system. Performance of the LPHL system was measured as follows:

- **Optimal** Activity: The strengths of the LPHL system in Milwaukee were identified as its ability to inform, educate and empower partners, enforce laws that protect public health and ensure safety, and link people to needed health services & assure provision of healthcare when unavailable.

- **Significant** Activity: Monitoring health status, mobilizing community partnerships, and researching for insights and innovative solutions to health problems were identified as aspects of the LPHL system with significant activity.

- **Moderate** Activity: The abilities of the LPHL system to diagnose and investigate health problems, develop policies and plans that support individual & community health efforts, and assure a competent public health workforce were identified as having only moderate activity.

- **Minimal** Activity: The greatest weakness within the LPHL system was identified as evaluating the effectiveness, accessibility, and quality of personal and population-based services.

As a result of current L-SIP assessment, the MHDL will facilitate renewed strategic planning with LPHL system stakeholders to strengthen the laboratory system in the Milwaukee area. This process will address weaknesses and build upon strengths of the current laboratory system, as revealed through the 2018 reassessment, while also expanding upon previous strategic planning and system-wide quality improvement efforts in the areas of research and workforce development following the 2010 assessment. The strategic planning process will include formation of an Advisory Committee and likely subcommittees to brainstorm and steer improvement activities, explore necessary and available funding resources, and seek feedback from system partners. These activities, reflective of priority system issues identified in the L-SIP assessment, will produce a sustainable strategic plan, which will be shared and implemented with system partners.

Introduction

On May 10, 2018, approximately 50 public health laboratory system stakeholders in the Milwaukee system participated in the Laboratory System Improvement Program (L-SIP) second Assessment. L-SIP was developed by the Association of Public Health Laboratories (APHL) and the Centers for Disease Control and Prevention to measure and improve the quality of public health laboratory practice.

Primary stakeholders that make up the LPHL System are those who are directly involved in creating and using laboratory data. Partners include clinical laboratory scientists and managers, epidemiologists, first responders, environmental professionals involved in water, food and air surveillance, academicians, researchers, policy directors and planners, communications specialists, state and local public health professionals, and other stakeholders. The results of the reassessment provide the basis for system improvement efforts aimed at enhancing the quality of public health laboratory performance.

The L-SIP reassessment is a step in enhancing collaboration among LPHL system stakeholders. Other benefits include improved communication, increased knowledge of the laboratory system, more efficient use of resources and the initiation of continuous quality improvement efforts.

Background

Public Health Laboratory System Standards were used to measure the capacity of the LPHL system in the Milwaukee area. These standards reflect the ten Essential Public Health Services and describe an optimal level of performance. The standards also incorporate the Eleven Core Functions and Capabilities of Public Health Laboratories.

To date, L-SIP has been implemented by 36 state and 5 local public health laboratories. In addition, 5 states and 1 local public health laboratory have conducted a second assessment. The City of Milwaukee Health Department Laboratory (MHDL) is the first to adapt and implement L-SIP at the local level, and the first to conduct a second assessment at the local level.

Ten Essential Services of Public Health Laboratory Systems

1. Monitor Health Status to Identify Community Health Problems
2. Diagnose and Investigate Health Problems and Health Hazards in the Community
3. Inform, Educate and Empower People about Health Hazards
4. Mobilize Community Partnerships to Identify and Solve Health Problems
5. Develop Policies and Plans that Support Individual and Community Health Efforts
6. Enforce Laws and Regulations that Protect Health and Ensure Safety
7. Link People to Needed Personal Health Services and Assure the Provision of Healthcare when Otherwise Unavailable
8. Assure a Competent Public Health and Personal Health Care Workforce
9. Evaluate Effectiveness, Accessibility and Quality of Personal and Population-Based Services
10. Research for Insights and Innovative Solutions to Health Problems

Local Modifications. In 2010, the MHDL made the following modifications to implement the L-SIP assessment at the local level:

- Developed a *Definition of a Local Public Health Laboratory System*,[1] adapted from APHL's *Definition of a State Public Health Laboratory System*.[2] The local system was defined within the context of a State Public Health Laboratory System.

- Modified the *Laboratory System Improvement Program Performance Measurement Tool*[3] so that it was relevant for local application: Key ideas related to newborn screening and enforcement functions were deleted and language was tailored to reflect a municipal/regional laboratory system.

- Customized the visual depiction of a State Public Health Laboratory System to represent local operations: Stakeholders that define the LPHL system were highlighted in the revised illustration.[4]

This modified local assessment tool has since been used by 4 other local public health laboratory systems and was successfully used for the MHDL system reassessment in 2018.

Local System Improvements. As a next step after the 2010 assessment, MHDL convened 14 system stakeholders to form the Milwaukee Laboratory Advisory Committee (MLAC),[5] and the group defined the focus of strategic planning and system improvement efforts as follows:

- *Mobilize and leverage the LPHL system to support the MHD's mission to become an academic health department.*
- *Maximize LPHL system resources and optimize partnership capacity in support of teaching/workforce development, research and service.*

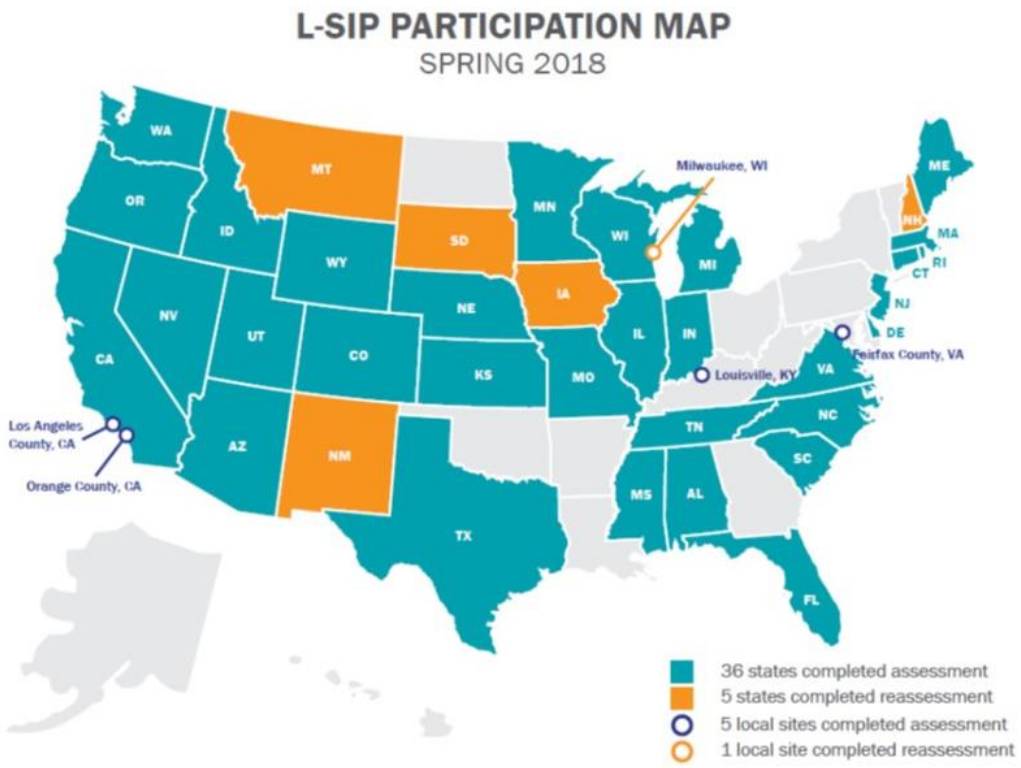
MLAC along with a group of subject matter experts identified specific strategic directions for workforce development (ES #8) and research (ES #10), and two separate subcommittees were then formed to guide planning and improvements in those areas.[6] The efforts of these groups ultimately resulted in several system activities and improvements, including:

Workforce Development[7]

- Creation of a Laboratory Science Career Opportunities informational brochure for students
- Planning and execution of a Laboratory Science Career Forum to educate students on laboratory science career options

Research

- Taking steps to strengthen existing/ongoing research collaborations as well as explore opportunities for new research collaborations
- Prioritizing the development of a current inventory on system researchers and their areas of research and resources



Source: Association of Public Health Laboratories

Reassessment Day

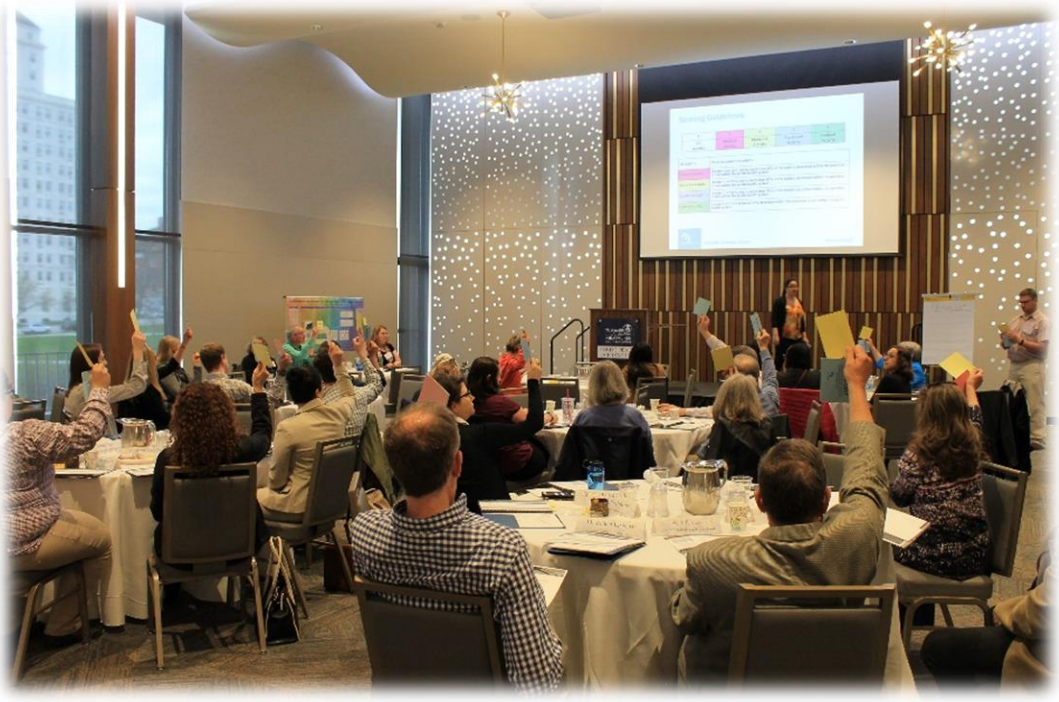
MHDL provided leadership for planning and implementing the second L-SIP assessment, which was held at the Milwaukee County War Memorial. The agenda for Milwaukee's L-SIP Assessment can be found in Appendix A. Forty-nine laboratory system stakeholders representing almost 30 agencies and departments participated in the assessment. Nineteen of the participants (including facilitators and theme takers) represented the MHD and its Laboratory. The high number of participants from the MHD is unique to a local laboratory system as the city laboratory is co-located in the local public health agency and work as a team to support community health. In addition, nine partners participated in both the 2010 and 2018 assessments. A full list of Milwaukee L-SIP participants can be found in Appendix B.

Pictured L to R: MHD Deputy Laboratory Director Dr. Trivikram Dasu, Commissioner of Health Dr. Patricia McManus and Laboratory Director Dr. Sanjib Bhattacharyya

The opening plenary session included welcome and introductory presentations by the City of Milwaukee Commissioner of Health Dr. Patricia McManus and the Public Health Laboratory Director Dr. Sanjib Bhattacharyya. "Learning about the expectations of the L-SIP program and having the opportunity to participate alongside other system partners was not only educational, but also inspiring to know the commitment made by the MHD Lab staff to be the best it can be," Dr. McManus later said of her experience of the L-SIP assessment, which she described as an intensive process of honestly looking at essential PHL services and where they need to improve. "I have been impressed with the initiative of the MHD laboratory and its staff effort to engage stakeholders and have appreciation of the importance of this vital role to the overall well-being of the community." After the large group was oriented to the assessment process by participating in the discussion and scoring of Essential Service #2 (*Diagnose and Investigate Health Problems and Health Hazards in the Community*), the participants spent the balance of the day assigned to one of three work groups, 14-18 stakeholders per group, that reviewed three Essential Services each. Work group assignments were based on subject matter expertise. Through facilitator-guided discussion, the work groups assessed Milwaukee LPHL system capacity by identifying the strengths and weakness of the assigned Essential Services and brainstorming next steps for improvement efforts.

"*A lot of people felt at the beginning that this was some sort of organization that was there to tell them how to do things, or produce some master document of operating procedures. Thankfully, there were some 'aha' moments where the group came together and realized that we were there to use our individual expertise to find ways to improve the overall system through collaboration and continued communication.****"***

~ Dr. Lucas Beversdorf, Milwaukee Water Works



Results

The Ten Essential Public Health Services were assessed using the following rating options:

Optimal Activity	**Greater than 75% of the activity described within the question is met within the local public health laboratory system.**
Significant Activity	**Greater than 50%, but no more than 75% of the activity described within the question is met within the local public health laboratory system.**
Moderate Activity	**Greater than 25%, but no more than 50% of the activity described within the question is met within the local public health laboratory system.**
Minimal Activity	**Greater than zero, but no more than 25% of the activity described within the question is met within the local public health laboratory system.**
No Activity	**0% or absolutely no activity.**

The 2018 L-SIP Assessment identified different strengths and weaknesses than the 2010 assessment, possibly due to changes in laboratory capacity or due to differing opinions of those partners present at each assessment. The comparison scores are compiled as follows:

2010 PERFORMANCE

Essential Public Health Service:

	1	2	3	4	5	6	7	8	9	10
Optimal Activity	**83.4**	**89.0**								
Significant Activity			**67.0**				**67.0**	**61.2**		
Moderate Activity				**33.0**	**30.3**	**44.3**			**50.0**	
Minimal Activity										**16.7**
No Activity										

2018 PERFORMANCE

Essential Public Health Service:

	1	2	3	4	5	6	7	8	9	10
Optimal Activity			**100.0**			**100.0**	**100.0**			
Significant Activity	**51.5**			**67.0**						**61.3**
Moderate Activity		**50.0**			**44.3**			**38.7**		
Minimal Activity									**14.3**	
No Activity										

The remainder of this report will focus on the results of the 2018 assessment. Appendix C contains the complete Scoring Matrix for each Essential Service. Appendix D includes detailed documentation of themes (strengths and weaknesses) and next steps.

Highlights

The LPHL system was rated as having ***optimal*** capacity in:

Essential Service #3:
Inform, Educate, and Empower People about Health Issues

Overall score: **100%**

INDICATORS

3.1 Outreach to Partners	**100.0**
3.2 Empower Partners	**100.0**

Key Idea 3.1.1: The LPH Laboratory System creates and delivers consistent information to community partners about relevant health issues associated with laboratory services.

- Strengths include MHDL presenting at professional society conferences and use of an information officer to write and distribute press releases.
- Next Steps are to provide more surveillance data.

Key Idea 3.1.2: The LPH Laboratory System creates and provides education opportunities to health and non-health community partners.

- Strengths include representation of the MHDL to local legislators, provision of tours and press coverage, and training of students.
- Next Steps are to use social media and websites to provide information to the community in a user-friendly way.

Key Idea 3.2.1: Relationship-building opportunities are employed to empower community partners.

- Strengths include linking partners to the CDC and holding career and wellness fairs.
- Next Steps are to work with various government entities, partner with industry and startup companies, and explore recruitment initiatives.

Essential Service #6:
Enforce Laws and Regulations that Protect Health and Ensure Safety

Overall score: **100%**

INDICATORS

6.1 Laws and Regulations	**100.0**

Key Idea 6.1.1: The LPH Laboratory System is actively involved in the review and revision of laws and regulations pertaining to laboratory practice.

- Strengths include having CLIA and CAP to enforce lab regulations and a voluntary partnership with other laboratories in the state, and an intergovernmental office and Legislative Reference Bureau to translate changes in policy to the laboratory.
- Next Steps are to maximize systems currently in place to influence and inform policy at the local, state and federal levels, to work with the Legislative Reference Bureau to update codes, and to explore avenues to lobby for system goals or concerns.

Key Idea 6.1.2: The LPH Laboratory System encourages and promotes compliance by all laboratories in the system with all laws and regulations pertaining to laboratory practice.

- Strengths include having staff who are aware of regulatory expectations, providing/participating in trainings, and communication between labs on new testing methods to promote best practices.
- Next Steps are to improve collaboration with other laboratories on compliance, including more education on point-of-care (POC) and culture independent diagnostic (CID) tests.

Essential Service #7:
Link People to Needed Personal Health Services and Assure the Provision of Healthcare when Otherwise Unavailable

Overall score: **100%**

INDICATORS

7.1 Provision of Lab Services	**100.0**

Key Idea 7.1.1: The LPH Laboratory System identifies laboratory service needs and collaborates to fill gaps.

- Strengths include the existence of outreach and trained clinical staff, having a courier system in place, an effective weekend and holiday protocol, a clear definition of water testing and STI testing, and fast antibiotic resistance results.
- Next Steps are to explore options for sharing assay validation specimens, laboratory equipment and laboratory personnel, and to conduct peer to peer training, and to compile a master list of all partners.

Key Idea 7.1.2: The LPH Laboratory System provides timely and easily accessed quality services across the jurisdiction.

- Strengths include the provision of clear information on MHDL and state testing capabilities, specimen transport services, timely reporting, and access to interpreter services for non-English speaking populations.
- Next steps include addressing ways to improve downtime procedures, particularly as it relates to the LIS.

The LPHL system was rated as having ***significant*** capacity in:

Essential Service #1:
Monitor Health Status to Identify Community Health Problems

Overall score: **51.5%**

INDICATORS

1.1 Monitoring of Community Health Status	**36.0***
1.2 Surveillance Information Systems	**67.0**

***Note: Expertise in this area was limited for stakeholders in attendance.*

Key Idea 1.1.1: The LPH Laboratory System identifies infectious disease and environmental sentinel events, monitors trends, and participates in state and federal surveillance systems.

- Strengths include participation and coordination with Epi for outbreak response, especially with lead, beginning inter-laboratory connectivity for access to real-time results, participation in MHD SurvNet (Disease Statistics for Milwaukee County), foodborne outbreak monitoring, GC study (SURRG), and MWW-MHD partnership for water monitoring.
- Next Steps are to standardize the sampling technique for lead in water across MHD and MWW, to use data from other public and private laboratories, and to hold regular meetings with partners.

Key Idea 1.1.2: The LPH Laboratory System supports the monitoring of chronic disease trends by participating in state and federal surveillance systems.

- Strengths include lead outreach and education with a call line and text messaging to reach residents without internet access.
- Next Steps are to improve chronic disease prevention strategies and expand outreach, especially for Lyme disease and influenza, to improve screening of high school students for STIs, and to generate heat maps for cluster analysis.

Key Idea 1.2.1: The LPH Laboratory System has a secure, accountable and integrated information management system for data storage, analysis, retrieval, reporting and exchange.

- Strengths include an exemplary speed of sending STI results, and the high cyber security that the MWW/system has in place.
- Next Steps are to implement Health Level Seven International (HL7) to be able to share two-way data and results with system partners and to meet nationally recognized data standards.

Key Idea 1.2.2: The LPH Laboratory System partners collaborate to strengthen electronic surveillance systems.

- Strengths include the chain of command in place between MWW, DNR and EPA to link environmental testing results, interagency coordination to ensure safe drinking water and renewable energy efficiency efforts.
- Next Steps are to determine funding to allow upgrades to hardware and software for clinical data, and to work on compatibility with IT across agencies.

Essential Service #4:
Mobilize Community Partnerships to Identify and Solve Health Problems

Overall score: **67%**

INDICATORS

4.1 Partnership Development	**67.0**
4.2 Communication	**67.0**
4.3 Resources	**67.0**

Key Idea 4.1.1: Partners in the LPH Laboratory System develop and maintain relationships to formalize and sustain an effective system.

- Strengths include formalizing the system through this assessment, semi-formal meetings between the state and MHDL around mutual responsibilities, informal day-to-day communication, grant partnerships, and use of Voice of the Customer (MHD lab goes to customers and checks in on satisfaction, talks about new services, and how the lab can support the customer).
- Next Steps are to conduct more outreach to new community partners, further development of existing partnerships, to assess partnerships to ensure that the relationship is being maximized to develop a procedure to get samples from partners (e.g. transport, processing on weekends, etc.), to define the procedure for processing samples, turnaround times, and fees, to define the laboratory capacity of system partners including for emergency preparedness, to define the mission, vision and values of the system, and to establish a process to convene system partners on a regular basis.

Key Idea 4.2.1: LPH Laboratory System members communicate effectively in regular, timely, and effective ways to support collaboration.

- Strengths include having an ICS format for emergency response and coordinated response with Epi to local health departments.
- Next Steps are to develop a system to notify LHD's prior to press releases, press conferences, and to engage the laboratory system in formal communication that includes laboratory data.

"The one thing that stands out to me is the common thread of timely communication. With any department or facility, good communication is key, but can also be challenging to do. Identifying players in a communication plan is also important."

~ Jeanna Riesner, Clement J. Zablocki VA Medical Center

Key Idea 4.3.1: The LPH Laboratory System has a process in place to receive and share existing resources and to identify new resources to assist in identifying and solving health issues.

- Strengths include the sharing of resources with the state and the VA, and the creation of a laboratory operations position after the previous assessment.
- Next Steps are to develop a strategic plan on how to make the most of grant opportunities, and to communicate on how the MHD lab can be shared with other Local HDs.

Essential Service #10:
Research for Insights and Innovative Solutions to Health Problems

Overall score: **61.3%**

INDICATORS

10.1 Planning & Financing Research Activities	**67.0**
10.2 Implementation, Evaluation & Dissemination	**55.7**

Key Idea 10.1.1: The LPH Laboratory System has adequate capacity to plan and implement meaningful research and innovative activities to support broad public health goals.

- Strengths include the existence of multiple collaboration studies about lead, back yard gardening, service line replacement, and STI; this collaboration includes several system partners using data to drive policy.
- Next Steps are to advocate for education of partners and public of system partners findings, to be more proactive about engaging partners for research opportunities; create transformation relationships, to conduct training as needed, to evaluate research needs and to communicate on results of research projects.

Key idea 10.2.1: The LPH Laboratory System promotes research and innovative solutions.

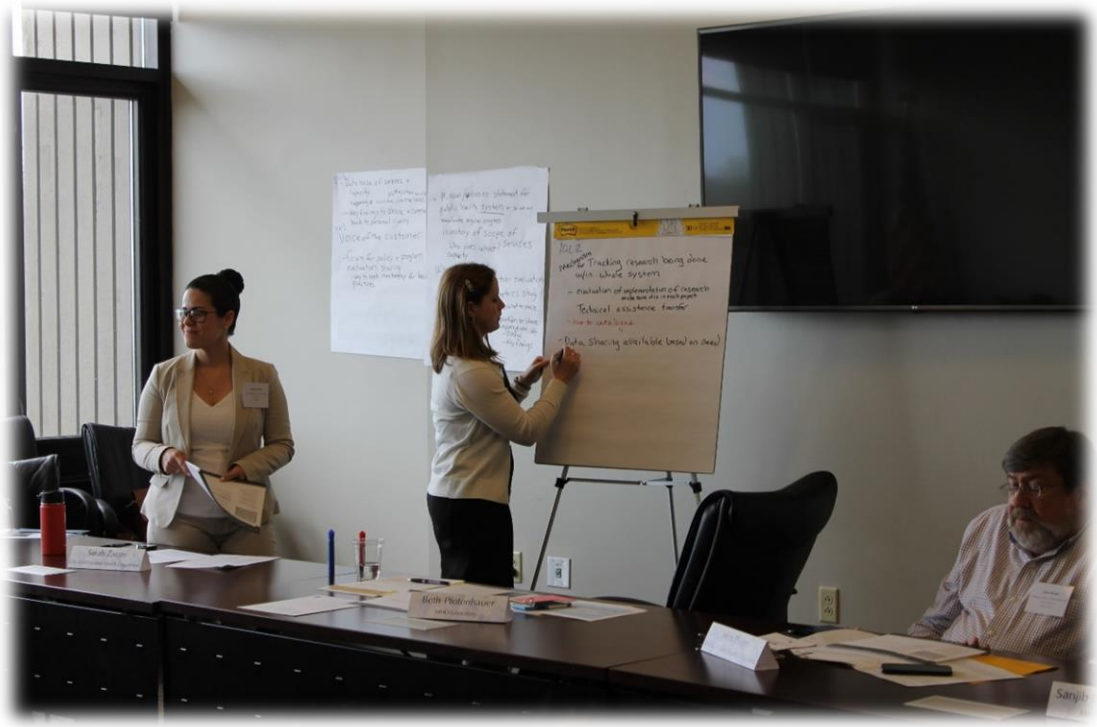
- Strengths include the innovation that is currently happening, contributions to partnerships using new technology and scientific knowledge, and support by CTSI and MCW.
- Next Steps are to engage academic and non-conventional community partners, such as UW, MU and others, to implement a mechanism for tracking research being done within the whole system to hold an annual meeting for system partners to highlight projects, gain partners, and learn best practices, to conduct a small-scale process evaluation to optimize resources and create policy and procedure changes, and to examine additional collaboration opportunities with UW-Madison.

Key Idea 10.2.2: The LPH Laboratory System research is evaluated to foster improvement and innovation in application.

- Strengths include that this is a point of improvement since the last assessment.
- Next Steps are to define the scope of who's in the system, define how the partners communicate, include an evaluation in projects, and identify barriers to research.

Key idea 10.2.3: The LPH Laboratory System disseminates (basic & applied) research outcomes, best practices and recognition of research activities.

- Strengths include agreements with IRB and collaborators to share research data, and the research data results are used to generate policy.
- Next Steps are to better share research project data and outcomes by conducting an annual meeting and share published information through a centralized website.



MHD Pubic Health Planning and Policy Director Sarah Zarate, Senior Virologist Beth Pfotenhauer, and Wisconsin Division of Public Health Consultant Epidemiologist John Pfister.

The LPHL system was rated as having ***moderate*** capacity in:

Essential Service #2:
Diagnose and Investigate Health Problems and Health Hazards in the Community

Overall score: **50.0%**

INDICATORS

2.1 Appropriate and Effective High-Quality Testing	**50.0**

Key Idea 2.1.1: The LPH Laboratory 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.

- Strengths include grants received through application, published peer reviewed articles, partnered with the state on several projects, serving as a reference lab for esoteric testing and in outbreak response, and providing service for underserved and high-risk populations (including schools).

- Next Steps are to improve PHL messaging among partners and expand eLab messaging, to improve public messaging, education and awareness efforts using the website, to define capacity and resource capabilities amongst MHDL and Wisconsin State Laboratory of Hygiene (WSLH), to develop a memorandum of understanding (MOU) with stakeholders, to participate in debriefing following an outbreak investigation and a table top exercise for preparedness, to educate providers within each of the clinical labs of WSLH/MHDL regarding laboratory services and to communicate the results to The City of Milwaukee Health Department.

Key Idea 2.1.2: The LPH Laboratory System has the necessary system capacity, authority, and preparations in place to rapidly respond to emergencies that affect the public's health.

- Strengths include the well-defined capacity of laboratory partners for response to biological, chemical and radiological threats, and the existence of partnerships with clinical laboratories through the LRN, and with law enforcement and USPS.
- Next Steps are to examine the capacity to perform air quality testing, to include the acute care community in mass communications from MHD, and to extend conducting regular emergency drills at the local level to assess surge capacity and response plans.

Essential Service #5:
Develop Policies and Plans that Support Individual and Community Health Efforts

Overall score: **44.3%**

INDICATORS

5.1 Partnerships in Public Health Planning	**67.0**
5.2 Role in Laboratory-Related Policy Making	**33.0**
5.3 Dissemination & Evaluation	**33.0**

Key Idea 5.1.1: The LPH Laboratory System obtains input from diverse partners and constituencies to develop new policies and plans and modify existing ones.

- Strengths include community engagement, receiving guidance from state policies, and participation as a system member in policy development.
- Next Steps are to engage elected officials and academic partners more actively, to develop a system to monitor policies, and to conduct planning to ensure laboratory system participation in policy development.

Key Idea 5.2.1: The LPH Laboratory System and partners contribute their expertise and resources using science and data to inform and influence policy.

- Strengths include that the system is contributing to organizations like APHL and ASCLS-WI, which lobby for issues to ensure the local system is part of a larger national system and that sufficient and appropriate laboratory data is available to inform the policy-making process.
- Next Steps are to have more proactive involvement in policy making by academic and research institutions, to discuss draft policies with system partners, and to engage elected officials as system partners.

Key Idea 5.3.1: The plans and policies that affect the LPH Laboratory System are routinely evaluated, updated and disseminated.

- Strengths include communication between laboratories to address specific testing needed for specific situations such as outbreak notifications sent out for strategic response.
- Next Steps are to disseminate policy-related information to all partners in system and to conduct tabletop exercise to evaluate policy and plans.

Essential Service #8:
Assure a Competent Public Health and Personal Health Care Workforce

Overall score: **38.7%**

INDICATORS

8.1 Defined Scope of Work and Practice	**33.0**
8.2 Recruitment and Retention of Qualified Staff	**33.0**
8.3 Assuring a Competent Workforce	**50.0**

Key Idea 8.1.1: All laboratories within the LPH Laboratory System identify position requirements and qualifications; assess competencies; and evaluate performance for all laboratory workforce categories across the entire scope of testing.

- Strengths include that detailed job descriptions are a regulatory requirement and standard of practice, and regular competency assessments performed (per regulatory requirement).
- Next Steps are to streamline the hiring process used in the City of Milwaukee, to ensure that job descriptions and competencies are reviewed and updated regularly, and to evaluate the existing performance appraisal system.

Key Idea 8.2.1: The LPH Laboratory System accommodates tours from area schools and colleges and maintains an environment to attract and retain highly qualified staff.

- Strengths include MHD participation in career days at local colleges, universities, and high schools, participation in professional organizations and ongoing training and use of interns at MHDL.
- Next Steps are to explore better opportunities to market job postings and attract candidates (i.e. using social media), modernize the recruitment process, to improve retention by better supporting younger, new hires, to create an intern-to-employee pipeline, and develop a competency-based career ladder.

Key Idea 8.3.1: The LPH Laboratory System works to assure a competent workforce by encouraging and supporting staff development through training, education, and mentoring.

- Strengths include using the competency assessment to guide training in each area of the laboratory, academic partnerships are in place to support internships and student rotations, training collaboration exists with the State, and partnerships exist with many major academic partnerships at the director level.
- Next Steps are to conduct more cross-training, including providing rotations of ALL lab areas upon hire, to provide more opportunities to help students understand public health, and to explore opportunities for students to have post-bachelors training fellowships (i.e. year-long training/internship).

Key Idea 8.3.2: The LPH Laboratory System identifies and addresses current and future workforce shortage issues.

- Strengths include using MHDL staff to present at local high school, system partners (i.e. Water Council, FaB Milwaukee) have models that can be used for providing educational opportunities for high school students, and system partnerships exist with Area Health Education Center (AHEC), Milwaukee Area Technical College (MATC) and other technical schools.
- Next Steps are to increase high school interns and introduce the field to young students, with the understanding of staff capacity limitations around internships and job shadowing, and to explore opportunities to outsource with other agencies.

The LPHL system was rated as having ***minimal*** capacity in:

Essential Service #9:
Evaluate Effectiveness, Accessibility, and Availability of Personal and Population-Based Services

Overall score: **14.3%**

INDICATORS

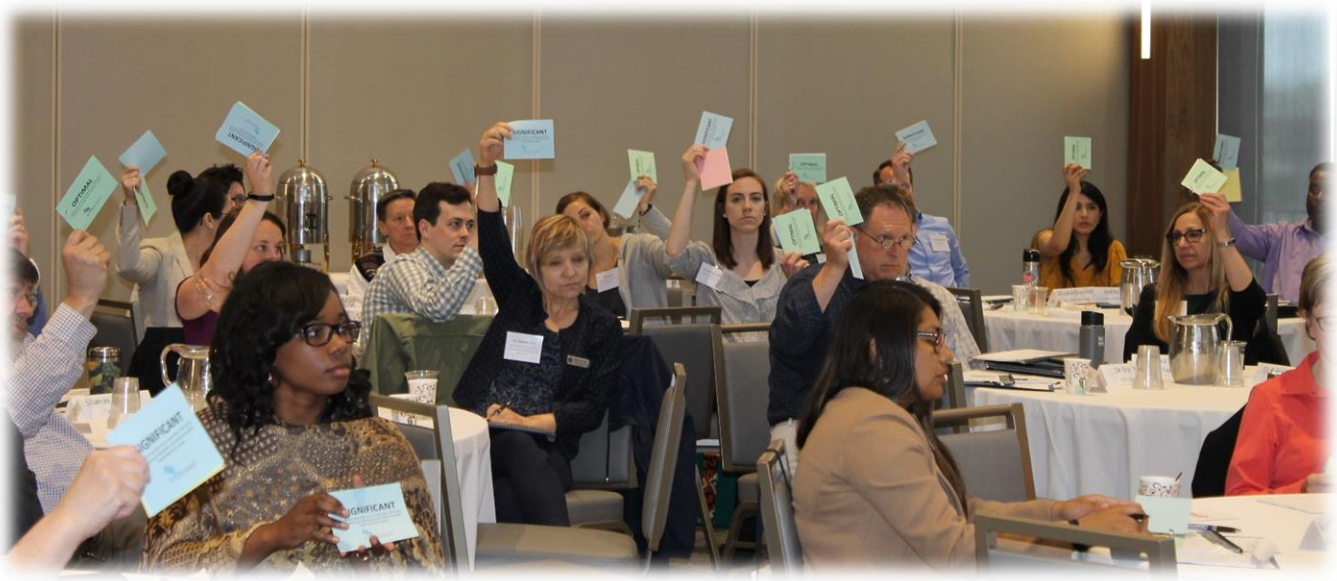
9.1 System Mission & Purpose	**5.0**
9.2 System Effectiveness, Accessibility and Quality	**23.7**

Key idea 9.1.1: The LPH Laboratory System range of services, as defined by its mission and purpose, is evaluated on a regular basis.

- Strengths include the existence of quality laboratory services for external and internal clients, Voice of Customer visits are conducted for formal feedback from clients and the availability of additional opportunities for informal feedback.

- Next Steps are to develop a shared mission/vision statement for the LPHL system:
  - Define Scope of services at the system level (i.e. who does what, capacity, etc.)
  - Describe how individual partners connect to overall vision, define roles of each partner to align partner efforts
  - Develop advisory committee, after action review process/protocol (for outbreaks), platform to share appropriate info, findings, etc.;

  In addition, work on improving data management, updating the website, providing more opportunity for community feedback, developing a system for assessing system performance, conducting more drills and exercises, developing improved monthly reports, and holding periodic community stakeholders meetings, surveys/evaluations, and phone calls to systems partners as forums for networking.



Key Idea 9.2.1: The effectiveness of the personal and population-based laboratory services provided throughout the local jurisdiction is regularly evaluated.

- Strengths include the beach water testing program as an example, and the overlap with the mission of partners and the goals of the system.
- Next Steps are to more frequently assess the laboratory system, to increase knowledge of involvement of the system, to develop a system of evaluating the scope of services in the system, to develop a listserv and newsletter for system members, and to provide more networking opportunities, presentations & information sharing.

Key idea 9.2.2: The availability of personal and population-based laboratory services throughout the local jurisdiction is regularly evaluated.

- Strengths include the existence of collaborative working relationships among system partners, some evaluation of system performance is occurring, i.e., STI and LRN, and the existence of a state level database on laboratory services.

- Next Steps are to engage partners in policy development, to review laboratory service needs, to develop a platform for feedback and follow up, to develop a website listing of services and capacity, to explore shared resources, to establish a collective approach to define a strategy to decide where research and surveillance should be conducted, and to explore opportunities to make decisions on a system level.

Key Idea 9.2.3: The quality of personal and population-based laboratory services provided throughout the local jurisdiction is regularly evaluated.

- Strengths include the use of the Voice of the Customer with system partners and the common goals of the system based on how we perform and needs of customers.
- Next Steps are to develop communication processes at a system level, including a forum for policy development and sharing of program evaluations and best practices.

Participant Evaluation

The L-SIP assessment evaluation was returned by 35 participants. Over 90% of the respondents expressed that they valued the process and would participate again. Ratings of good to superb were given for the assessments' value, meeting arrangements and the flow of the meeting.

Facilitation skills, stakeholder diversity and open dialogue were identified as strengths of the assessment. The absence of specific stakeholders and the need to limit discussion to assess all the Essential Services and Key Ideas in one day were identified as challenges. Complete results of the participant evaluation can be found in Appendix E.

"It was really an excellent, well-run event… There was just a lot of robust discussion from people who actually might be able to make an impact. The next step, of course, is what comes out of this."

~ Dr. Deborah Heim, Wisconsin Division of Public Health

L-SIP Next Steps - System Improvement

Several system improvement activities were identified as priorities, often in several different Essential Services. The activities include:

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 to address minimally scored areas through strategic planning and identifying resource and funding opportunities.
3. Define the mission and vision of the LPHL system as a whole, with an effort to ensure it aligns with that of its stakeholders.
4. Develop a definition of the LPHL system, including a list of partners and their contact information, and a list of testing capacity with details on test menus, sample collection and submission procedures, expected turnaround time, and fees.
5. Engage elected officials with other system partners and assist in developing relevant policies in priority testing areas.
6. Conduct table-top exercises on aspects of outbreak control or preparedness to continue dialogue with system partners and to improve response.

As the first local public health laboratory in the nation to implement both the L-SIP assessment and reassessment, the MHDL has an unprecedented opportunity to identify system improvement processes at the local jurisdiction level. The tools and resources that are ultimately developed through the forthcoming improvement phase of our L-SIP process will be shared and applied not only for the benefit of Milwaukee's LPHL system, but for the community as a whole. We look forward to ongoing collaboration with our system stakeholders and other community partners as we strive to continually improve this important component of public health in the greater Milwaukee area.

Pictured L to R, front row: Dr. Trivikram Dasu, Noah Leigh, Sarah Zarate, Michael Stevenson, Kristin Schieble; back row: Rebeca Pinhancos, Dr. Sanjib Bhattacharyya, Tina Su, Beth Pfotenhauer, Anne Weber, Julie Plevak and Tiffinie Cobb.

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- The diverse group of Milwaukee LPHL system stakeholders for their time, interest and active participation during the L-SIP assessment and their ongoing contributions to public health in the greater Milwaukee area.

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Attachments

Appendix A: Agenda

Appendix B: Participant List

Appendix C: Performance Assessment Scores

Appendix D: Participant Evaluation

Appendix E: Abbreviations Glossary

Appendix A

Laboratory System Improvement Program (L-SIP) Assessment
May 10, 2018
Milwaukee County War Memorial

Agenda

8:00 am Registration

8:30 am Welcome and Introductions

9:00 am Overview of Assessment Day

9:30 am Plenary: Essential Service #2: Diagnose & Investigate Health Problems

10:30 am Break

10:45 am Breakout Groups
- Essential Service #1: Monitor Health (Group A)
- Essential Service #9: Evaluate Effectiveness, Accessibility & Quality (Group B)
- Essential Service #8: Assure Competent Workforce (Group C)

12:00 pm Lunch

1:00 pm Breakout Groups
- Essential Service #7: Link People to Needed Personal Health Services (Group A)
- Essential Service #10: Research (Group B)
- Essential Service #4: Mobilize Partnerships (Group C)

2:00 pm Break

2:15 pm Breakout Groups
- Essential Service #3: Inform, Educate and Empower (Group A)
- Essential Service #5: Develop Policies and Plans (Group B)
- Essential Service #6: Enforce Laws & Regulations (Group C)

3:30 pm Summary, Evaluation and Next Steps

4:30 pm Adjourn

Appendix B
Participant List

City of Milwaukee Health Department Laboratory System Improvement Program (L-SIP) Assessment - May 10, 2018

Name	Agency:	Job Title:
Dr. Eric Beck	ACL Laboratories	Microbiology Technical Director
Sue Leister	Alverno College	Director, Internship Program
Tina Su	Association of Public Health Laboratories	Manager, Quality Systems
Dr. Matthew Anderson	Blood Center of Wisconsin, part of Versiti	Vice President and Medical Director
Anthony Goodman*	City of Milwaukee Department of Neighborhood Services	Environmental Code Supervisor
Bill Borzon	City of Milwaukee Health Department	CID Program Coordinator
Tiffinie Cobb	City of Milwaukee Health Department	Substance Abuse & Injury Prevention Manager
Claire Evers	City of Milwaukee Health Department	Consumer Environmental Health Division
Janalle Goosby	City of Milwaukee Health Department	Management Trainee-Communications
Angie Hagy*	City of Milwaukee Health Department	Director - Disease Control & Environmental Health
Tasha Jenkins	City of Milwaukee Health Department	Family and Community Health Division Director
Jill LeStarge*	City of Milwaukee Health Department	CD/Immunization Program Supervisor
Dr. Patricia McManus	City of Milwaukee Health Department	Commissioner of Health
Clarene Mitchell	City of Milwaukee Health Department	Communications
Michael Stevenson	City of Milwaukee Health Department	Public Health Planner
Sarah Zarate	City of Milwaukee Health Department	Planning and Policy Director
Dr. Sanjib Bhattacharyya*	City of Milwaukee Health Department Laboratory	Laboratory Director
Dr. Trivikram Dasu	City of Milwaukee Health Department Laboratory	Deputy Lab Director
Noah Leigh	City of Milwaukee Health Department Laboratory	Milwaukee Health Department
Beth Pfotenhauer	City of Milwaukee Health Department Laboratory	Senior Virologist
Rebeca Pinhancos	City of Milwaukee Health Department Laboratory	Chemist
Julie Plevak	City of Milwaukee Health Department Laboratory	Program Assistant
Kristin Schieble	City of Milwaukee Health Department Laboratory	Laboratory Operations Manager

Name	Agency:	Job Title:
Dr. Bruce Dunn	Clement J. Zablocki VA Medical Center	Medical Director/Chief of Pathology
Jeanna Riesner	Clement J. Zablocki VA Medical Center	Microbiology Supervisor
Dr. Dean Arneson	Concordia Unversity	Dean, School of Pharmacy
Katie Lepak	Cudahy Health Department	Health Officer
Erick Shambarger	Environmental Collaboration Office (ECO)-City of Milwaukee	Director of Environmental Sustainabity
Mark Dring	Federal Bureau of Investigation	Special Agent, WMD Coordinator
Anne Weber	LabLogic	APHL Consultant
Dr. Erik Munson*	Marquette University	Assistant Professor
Dr. Robin Brown	Marquette University Medical Clinic	Associate Director, Health & Wellness
Dr. Dara Frank*	Medical College of Wisconsin	Professor, Microbiology and Immunology
Sharon Mertens*	Milwaukee Metropolitan Sewerage District	Director, Water Quality Protection
Dr. Lucas Beversdorf	Milwaukee Water Works	Water Quality Manager
Jennifer Gonda	Milwaukee Water Works	Superintendent
Sarah Ehlinger Affotey	Milwaukee Global Health Consortium	Program Manager
Dr. Steve Hargarten	Milwaukee Global Health Consortium	President
Debra Austin	Planned Parenthood of Wisconsin	Nursing Informatics
Alejandra Hernandez	Sixteenth Street Community Health Centers	Environmental Projects Coordinator
Emma Ratajczak	U.S. Department of Homeland Security, BioWatch	Jurisdictional Coordinator
Maliha Ahmad	University of Wisconsin-Milwaukee	Graduate Student
Cindy Brown	UW-Milwaukee Biomedical Sciences Program	Director, Medical Laboratory Science Program
Dr. Elise Papke	UW-Milwaukee Zilber School of Public Health	Director, Accreditation Assessment/Community Engagement
Dr. Steve Gradus*	UW-Milwaukee Zilber School of Public Health & Biomedical Sciences	Adjunct Faculty
Steve Geis	Wisconsin Department of Natural Resources	Section Chief, Certification Services
Kristina Georgakas*	Wisconsin Diagnostic Laboratories	Technical Operations Director
Dr. Deborah Heim	Wisconsin Division of Public Health, Office of Policy and Practice Alignment	Public Health Nurse Consultant
Lori Amsterdam	Wisconsin Division of Public Health, STD Control Section	Epidemiology Coordinator

Name	Agency:	Job Title:
John Pfister	Wisconsin Division of Public Health, STD Control Section	Consultant Epidemiologist
Dr. Peter Shult	Wisconsin State Laboratory of Hygiene	Director, Communicable Disease Division

*also participated in 2010 L-SIP assessment

Appendix C
City of Milwaukee Health Department Laboratory
Laboratory System Improvement Program (L-SIP) Assessment
Essential Services Scoring Matrix – May 10, 2018

Essential Service #1: Monitor Health Status	
1.1 Monitoring Community Health Status	36.0
1.2 Surveillance Information Systems	67.0
Overall Score	51.5

Essential Service #2: Diagnose & Investigate	
2.1 Appropriate & Effective testing	50.0
Overall Score	50.0

Essential Service #3: Inform, Educate & Empower	
3.1 Outreach to Partners	100.0
3.2 Empower Partners	100.0
Overall Score	100.0

Essential Service #4: Mobilize Partnerships	
4.1 Partnership Development	67.0
4.2 Communication	67.0
4.3 Resources	67.0
Overall Score	67.0

Essential Service #5: Develop Policies & Plans	
5.1 Partnerships in Public Health Planning	67.0
5.2 Role in Laboratory Policy Making	33.0
5.3 Dissemination & Evaluation	33.0
Overall Score	44.3

Essential Service #6: Enforce Laws & Regulations	
6.1 Laws & Regulations	100.0
Overall Score	100.0

Essential Service #7: Link People to Services	
7.1 Provision of Lab Services	100.0
Overall Score	100.0

Essential Service #8: Competent Workforce	
8.1 Defined Scope of Work & Practice	33.0
8.2 Recruitment & Retention of Staff	33.0
8.3 Assuring a Competent Workforce	50.0
Overall Score	38.7

Essential Service #9: Evaluation of Effectiveness	
9.1 System Mission & Purpose	5.0
9.2 System Effectiveness & Accessibility	23.7
Overall Score	14.3

Essential Service #10: Research	
10.1 Planning & Financing Research	67.0
10.2 Implementation & Evaluation	55.7
Overall Score	61.3

Appendix D
City of Milwaukee Health Department Laboratory
Laboratory System Improvement Program (L-SIP) Assessment
Evaluation- May 10, 2018

35 of **49** total L-SIP participants returned their evaluation forms. This is a summary of their responses.

Utility of Meeting:	RESPONSES	SUPERB 5	4	GOOD 3	2	POOR 1	NO RESPONSE
Stated objectives of meeting were met	#	**11**	**21**	**3**			
	%	*31.4*	*60.0*	*8.6*			
Dialogue was useful	#	**16**	**16**	**3**			
	%	*45.7*	*45.7*	*8.6*			
I support the efforts being made	#	**24**	**11**				
	%	*68.6*	*31.4*				
Next steps are clear	#	**5**	**7**	**16**			**7**
	%	*14.3*	*20.0*	*45.7*			*20.0*
Meeting was a good use of my time	#	**13**	**18**	**4**			
	%	*37.1*	*51.4*	*11.4*			
Meeting Arrangements:							
Advance notice of the meeting	#	**23**	**11**	**1**			
	%	*65.7*	*31.4*	*2.9*			
Meeting room accommodations	#	**30**	**5**				
	%	*85.7*	*14.3*				
Advance materials for meeting were useful	#	**19**	**13**	**2**			**1**
	%	*54.3*	*37.1*	*5.7*			*2.9*
Advance materials were received with time to review	#	**23**	**10**	**1**			**1**
	%	*65.7*	*28.6*	*2.9*			*2.9*
Flow of Meeting:							
Started on time	#	**27**	**6**				**2**
	%	*77.1*	*17.1*				*5.7*
Clear objectives for meeting	#	**16**	**16**	**1**	**1**		**1**
	%	*45.7*	*45.7*	*2.9*	*2.9*		*2.9*
Agenda followed or appropriately amended	#	**30**	**5**				
	%	*85.7*	*14.3*				
Facilitation was effective	#	**22**	**12**				**1**
	%	*65.7*	*34.3*				*2.9*
The "right" people were at the meeting	#	**9**	**21**	**4**			**1**
	%	*25.7*	*60.0*	*11.4*			*2.9*

	RESPONSES	YES	NO	MAYBE/OTHER	NO RESPONSE
Would you participate in this process again?	#	**32**			**3**
	%	*91.4*			*8.6*
Do you see this as a helpful tool and process?	#	**33**			**2**
	%	*94.3*			*5.7*

Comments

Below is a summary of comments solicited from LSIP participants for each of two questions on the evaluation.

What worked?

Getting people talking, networking

Collaborative environment for mutual interest among participants

I liked the process. Facilitator was good

The small groups were effective and had a good mix of people/agencies.

The platform was fantastic; the dialogue was extremely useful; the opportunity to network was ideal

Expertise in the room was well rounded and excellent.

Coordination, useful

Good discussion

Small groups- easier to open up and share experiences.

Small break outs were made of diverse individuals with varied perspectives.

Dialog was very informative.

Diverse group, good dialogue.

Great dialogue between groups; a lot of ideas were fostered.

Meet ran very smoothly! Great discussion/ideas/proposals.

Process, lots of excellent sharing.

Everything was planned and coordinated well.

Selection of people for breakout groups seemed appropriate, well run meeting.

Networking; discussion flowed during the breakouts.

Good discussion and involvement of major stakeholders.

Great Discussion, not only from MHDL, but thinking about WSLH role. Thanks for the invite!

Nice cross-sector group of talent.

It was a professionally done meeting!

Process very similar to 2010, so no big surprises.

Networking, positive attitude by attendees and critical feedback of improvement areas. Great planning!

What could be improved?

Timeframe. Maybe two half days as it may be hard for some to commit an entire day

<8 hour event

It might be worth having some physician leaders from within the community.

I'm not sure (yet) how to evaluate whether objective were met. Annual meeting.

More background on objective before the meeting started- I wasn't sure what to expect

The scores were largely dependent on who was in the room providing comment. If individuals didn't share we couldn't consider their work.

Wide range of topics made it difficult to reply.

Provide a clear definition of "system" and also include scope.

More diverse stakeholders needed.

May need more prompts to start conversation

Maybe more larger group discussion of some of key ideas.

Partners at the meeting.

"System" isn't an organization- discussions regarding org specific policies, responsibilities seemed a bit contrived.

Little more explanation of work at the session.

Give updates on what was done to improve since last assessment.

I think it would be shortened or broken into two half-days. Possibly mixing up the break out groups would help.

A bit more direction at the beginning.

Not enough data/expertise relative to chronic diseases (diabetes, heart disease); not enough IT expertise onsite.

Select additional categories of systems partners in some work groups, allow adequate training time (extra) time for some facilitators; could have improved contributions to breakout sessions.

Clear explanation on what "system" is. Clear explanation of whether responses should be at the individual organization or at system level.

Appendix E
Glossary of Abbreviations

AHEC	Area Health Education Center
APHL	Association of Public Health Laboratories
ASCLS	American Society for Clinical Laboratory Science
CAP	College of American Pathology
CDC	Centers for Disease Control and Prevention
CLIA	Clinical Laboratory Improvement Amendments
CTSI	Clinical & Translational Science Institute
DNR	Department of Natural Resources
EPA	U.S. Environmental Protection Agency
Epi	Epidemiology
ES	Essential Service
FaB	Food and Beverage
HD	Health Department
HL7	Health Level Seven International
ICS	Incident Command Structure
IRB	Institutional Review Board
IT	Information Technology
LHD	Local Health Department
LIS	Laboratory Information System
LPHL	Local Public Health Laboratory
LRN	Laboratory Response Network
L-SIP	Laboratory System Improvement Program
MATC	Milwaukee Area Technical College
MCW	Medical College of Wisconsin
MHDL	Milwaukee Health Department Laboratory
MMSD	Milwaukee Metropolitan Sewerage District
MOU	Memorandum of Understanding
MU	Marquette University
MWW	Milwaukee Water Works
PH	Public Health
STI	Sexually Transmitted Infection
SURRG	Strengthening U.S. Response to Resistant Gonorrhea
USPS	United States Postal Service
UW	University of Wisconsin
VA	Veterans Affairs
WALHDAB	Wisconsin Association of Local Health Departments and Boards
WSLH	Wisconsin State Laboratory of Hygiene