



City of Milwaukee
Laboratory System Improvement Program
Assessment Report
November 18, 2010

Prepared by
City of Milwaukee Health Department Laboratory

<http://city.milwaukee.gov/LSIP>

Executive Summary

On November 18, 2010, 73 Milwaukee public health laboratory system stakeholders from over 40 agencies and departments participated in the Laboratory System Improvement Program (LSIP) Assessment. Partners included clinical laboratory scientists, local and state epidemiologists, first responders, environmental professionals, academicians, researchers, 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) LSIP at the **local** level. To implement the LSIP assessment for a **Local** Public Health Laboratory system (LPHL system), the MHDL developed a *Definition of a Local Public Health Laboratory System*, modified the *Laboratory System Improvement Program Performance Measurement Tool* so that it was relevant for local application, and customized the visual depiction of a State Public Health Laboratory System to represent a local system.

The LSIP Assessment is designed to measure the capacity of the system relative to ten Essential Services (E.S.). Each E.S. is measured through one or more Indicators, each of which includes a Model Standard. The E.S. 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 monitor health status through participation in surveillance systems and diagnose and investigate diseases.
- **Significant** Activity: Education, assuring services to underserved populations and workforce development were identified as aspects of the LPHL system with significant activity.
- **Moderate** Activity: The abilities of the LPHL system to mobilize partnerships, develop policies, enforce laws and regulations and evaluate its capacity were identified as having only moderate activity.
- **Minimal** Activity: The greatest weakness within the LPHL system was identified as activities related to research.

MHDL has secured an APHL “Innovations in Quality Public Health Laboratory Practice” grant for 2011 to implement the follow up steps of the LSIP Assessment. The MHDL will facilitate strategic planning with LPHL system stakeholders to strengthen the laboratory system in the Milwaukee area. This process will address weaknesses and will build upon current laboratory system strengths. The strategic planning process will include webinars and formation of a Steering committee and Subcommittee to brainstorm improvement activities. These activities, reflective of priority system issues identified in the LSIP assessment, will produce a strategic plan with an accompanying implementation plan.

Introduction

On November 18, 2010, 73 public health laboratory system stakeholders in the Milwaukee system participated in the Laboratory System Improvement Program (LSIP) Assessment. LSIP was developed by the Association of Public Health Laboratories (APHL) and the Centers for Disease Control to improve the quality of public health laboratory practice.

Primary stakeholders that make up the Local Public Health Laboratory (LPHL) System are those who are directly involved in creating and using laboratory data. Partners include clinical laboratory scientists; epidemiologists; first responders; environmental professionals involved in water, food and air surveillance; academicians, researchers, state and local public health professionals, a veterinarian, medical examiner, crime and agriculture scientists and other stakeholders. The results of the assessment provide the basis for system improvement efforts aimed at enhancing the quality of public health laboratory performance.

The LSIP assessment represents the first 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, LSIP has been implemented by 25 states. The City of Milwaukee Health Department Laboratory (MHDL) is the first to adapt and implement LSIP at the local level.

Local Modifications. To implement the LSIP assessment at the local level, the MHDL:

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

- Developed a *Definition of a Local Public Health Laboratory System*.

This was adapted from APHL's *Definition of a State Public Health Laboratory System*. The local system was defined within the context of a State Public Health Laboratory System.

- Modified the *Laboratory System Improvement Program Performance Measurement Tool* 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 Local Public Health Laboratory System (LPHL) were highlighted in the revised illustration.

Assessment Day

MHDL provided leadership for planning and implementing the LSIP Assessment, which was held at the downtown campus of the Milwaukee Area Technical College (MATC). The agenda for Milwaukee's LSIP Assessment can be found in Appendix A. Seventy-three laboratory system stakeholders representing over 40 agencies and departments participated in the assessment. Twenty-two of the participants - including facilitators, theme takers and scorers - represented the City of Milwaukee Health Department (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. A full list of Milwaukee LSIP participants can be found in Appendix B.

The opening plenary session included presentations by the City of Milwaukee Commissioner of Health Bevan K. Baker, FACHE, representing Mayor Tom Barrett, Wisconsin State Laboratory of Hygiene (WSLH) Director Charles Brokopp, DrPH, and the Director of the MHDL, Steve Gradus, PhD, D(ABMM). After the large group was oriented to the assessment process by participating in the scoring and discussion of Essential Service #7 (*Availability of Laboratory Services*), the participants spent the balance of the day assigned to one of three work groups, 20-25 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 Local Public Health Laboratory (LPHL) system capacity by identifying the strengths and weakness of the assigned Essential Services and brainstorming next steps for improvement efforts.

Results

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

No Activity	0% or absolutely no activity.
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.
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.
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.
Optimal Activity	Greater than 75% of the activity described within the question is met within the local public health laboratory system.

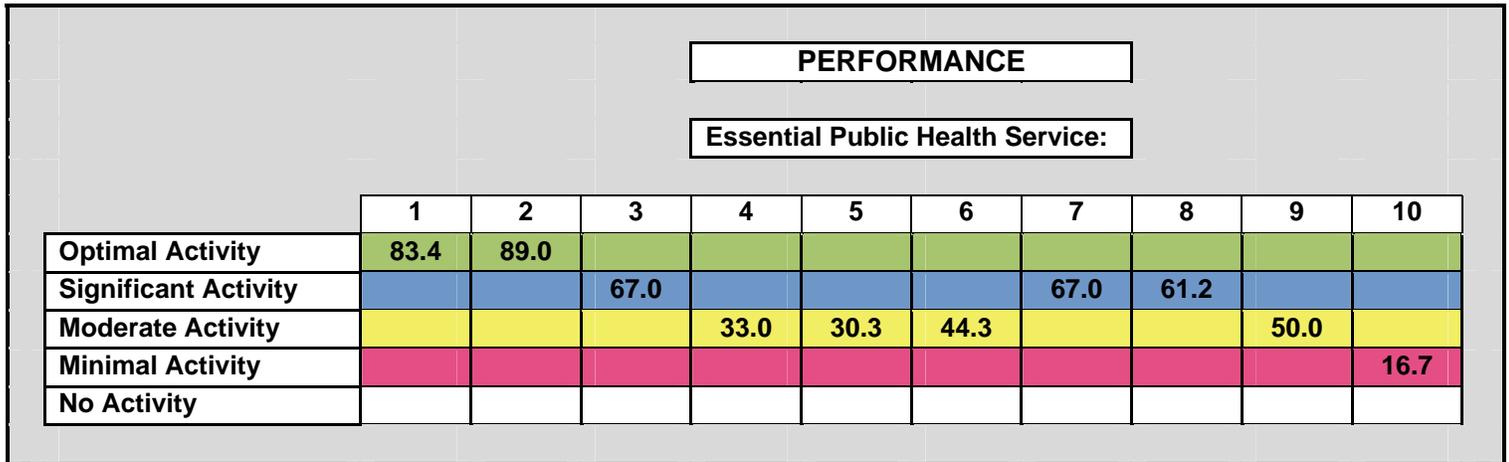
Summary

The LSIP Assessment identified:

- **Optimal Activity:** The strengths of the laboratory system in Milwaukee were identified as its ability to monitor health status through participation in surveillance systems and diagnose and investigate diseases.
- **Significant Activity:** Education, assuring services to underserved populations and workforce development were identified as aspects of the LPHL system with significant activity.
- **Moderate Activity:** The ability of the LPHL system to mobilize partnerships, develop policies, enforce laws and regulations and evaluate its capacity was identified as having only moderate activity.
- **Minimal Activity:** The greatest weakness within the LPHL system was identified as activities related to research.

Appendix C contains the complete Scoring Matrix for each Essential Service. Appendix D includes detailed documentation of themes (strengths and weaknesses) and next steps.

The following graph provides a snapshot of the scores for each Essential Service (ES).



Highlights

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

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

Overall, the LPHL system received an aggregate score of **83.4%** (optimal) for this ES.

INDICATORS

1.1 Surveillance Information Systems	100.0
1.2 Monitoring Health Status	66.8

1.1 Surveillance Information Systems

The LPHL system received a rating of **100%** (optimal) based on its ability to identify sentinel health events and trends, participation in state and national surveillance systems and collaboration with system partners. Compliance with legally required testing, a strong network of clinical laboratories and the ability to produce data were highlighted as strengths.

Next Steps

- Conduct a comprehensive gap analysis of various surveillance systems.
- Translate data into public health practice to improve the health status of underserved populations.

1.2 Monitoring of Community Health Status

The LPHL system received a rating of **66.8%** (significant) based on its ability to support the evaluation of community environmental health, detect infectious diseases, generate reliable chronic disease information and its information management system. Well developed water testing programs and collaboration, infectious disease testing and reporting structures, and a responsive information management system were highlighted as strengths.

Next Steps

- Increase the involvement of environmental health partners such as the Department of Natural Resources, Environmental Protection Agency, and City of Milwaukee Department of City Development to assure environmental testing for air quality, brownfields, toxic spills, etc.
- Identify resources to link and integrate data and information systems within the public sector and between the public and private sector.
- Make environmental testing data more available to the public.

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

Overall, the LPHL system received an aggregate score of **89%** (optimal) for this ES.

INDICATORS

2.1 State of the Art Testing	100.0
2.2 Collaboration & Networks	100.0
2.3 Continuity of Operations	67.0

2.1 State-of-the-Art Testing

The LPHL system received a rating of **100%** (optimal) on assuring appropriate and high quality laboratory testing to support the diagnosis and investigation of health problems and hazards. The MHDL surge capacity and expertise within the system were highlighted as strengths.

Next Steps

- Assure adequate funding to maintain state-of-the-art laboratory facilities and workforce capacity.
- Ensure efficient use of system resources.

- Assure quality control of laboratory testing among CLIA waived laboratories.

2.2 Collaboration & Networks

The LPHL system received a rating of **100%** (optimal) based on its networks and collaboration in response to emergency situations and in epidemiological investigations. The MHDL classification as a Laboratory Response Network (LRN) and overall emergency response capacity within the community were highlighted as strengths.

Next Step

- Need to develop an “all” hazard response (in addition to biological and chemical response capacity) for crisis and non-crisis situations.

2.3 Continuity of Operations

The LPHL system received a rating of **67%** (significant) on its surge capacity. The MHDL and the WSLH partnership in crisis situations was identified as a strength.

Next Steps

- Develop emergency plans and conduct drills to assure surge capacity and coordination among local public health and clinical laboratories.
- Develop a backup plan for information sharing between laboratories in crisis situations.

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

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

Overall, the LPHL system received a score of **67%** (significant) for this ES.

INDICATORS

3.1 Outreach & Communication	67.0
3.2 Public Information	67.0
3.3 Education	67.0

3.1 Outreach & Communication

The LPHL system received a rating of **67%** (significant) for its system of outreach and communication that provides information about public health issues and associated laboratory services. The MHD Laboratory's monthly *e*LAB report and communication among stakeholders were identified as strengths.

Next Steps

- Enumerate partners and aspects of the local public health laboratory system.
- Assess the communication mechanisms within the LPHL system and develop methods to fill the gaps.
- Enhance communication by building upon the *e*LAB network.

3.2 Public Information

The LPHL system received a rating of **67%** (significant) for its ability to provide information to the community. Information transmitted is clear, accurate and relevant. Clinical partners in particular are well served.

Next Steps

- Identify and promote local public health laboratory system asset
- Assess the effectiveness of information dissemination and identify stakeholders (in addition to clinical laboratories) that need information.
- Educate the media and assure consistent communication.

3.3 Education

The LPHL system received a rating of **67%** (significant) for its ability to empower community partners through education.

Next Step

- Translate and provide information to non-clinical partners in an understandable manner.

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

Overall, the LPHL system received an aggregate score of **67%** (significant) for this ES.

INDICATOR

7.1 Availability of Lab Services	67.0
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7.1 Availability of Lab Services

The LPHL system received a rating of **67%** (significant) for its ability to link people to needed health services. Collaboration between the public and private sector and resource availability were identified as strengths.

Next Steps

- Conduct an assessment to identify gaps in the private health care and related laboratory services and areas where the LPHL system needs to be strengthened.
- Create linkages with community-based organizations (CBOs) that serve hard-to-reach populations.

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

Overall, the LPHL system received an aggregate score of **61.2%** (significant) for this ES.

INDICATORS

8.1 Workforce Competencies	83.5
8.2 Staff Development	67.0
8.3 Assuring Workforce	33.0

8.1 Workforce Competencies

The LPHL system received a rating of **83.5%** (significant) for its ability to define and regularly assess laboratory workforce competencies. Compliance with accreditation requirements was identified as a strength.

Next Step

- Focus on the competencies of laboratory administrators and managers.

8.2 Staff Development

The LPHL system received a rating of **67%** (significant) for its ability to identify and respond to laboratory staff development needs. The availability of training opportunities for students through internship programs was identified as a strength.

Next Steps

- Assure adequate time and resources for staff development and training.
- Facilitate a greater role among academic partners in LPHL system staff development and training.

8.3 Assuring Workforce

The LPHL received a rating of **33%** (moderate) based on its ability to attract and retain exceptional staff. The strength of the current job market for laboratory hiring purposes was noted as a strength.

Next Steps

- Assure diversity within the laboratory workforce.
- Invest in staff development and training and support for managers.

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

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

Overall, the LPHL system received an aggregate score of **33%** (moderate) for this ES.

INDICATORS

4.1 Constituency Development	33.0
4.2 Communication	33.0
4.3 Resources	33.0

4.1 Constituency Development

The LPHL system received a rating of **33%** (moderate) for its capacity to develop and maintain partnerships and relationships. One-on-one interactions among partners were identified as positive.

Next Steps

- Better define the partners that make up the LPHL system and their roles and responsibilities.
- Strengthen collaboration with the private sector and CBOs.

4.2 Communication

The LPHL system received a rating of **33%** (moderate) for its communication plan. The *e*LAB network was identified as an important communication mechanism. Communication during emergency situations was identified as a strength.

Next Step

- Conduct an assessment of the communication structure within the LPHL system.

4.3 Resources

The LPHL system received a rating of **33%** (moderate) for having the resources that are needed to identify and address health issues. Resource availability for issue-specific health concerns was identified as a strength.

Next Steps

- Identify model laboratory communication systems.
- Identify ways to share and advocate for needed resources.

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

Overall, the LPHL system received an aggregate score of **30.3%** (moderate) for this ES.

INDICATORS

5.1 Role in Policy Making	50.0
5.2 Partnership in Planning	36.0
5.3 Dissemination & Evaluation	5.0

5.1 *Role in Policy Making*

The LPHL system received a rating of **50%** (moderate) for its ability to inform and influence policy development. Collaboration between public health, the community and the laboratory in support of policy development was identified as a strength.

Next Steps

- State of Wisconsin Department of Health Services and the WSLH need to enhance their coordination and support for local public health and the clinical laboratory systems.
- MHD Laboratory needs to improve communication to clinical laboratories and allow them to translate information for the providers within their networks.

5.2 *Partnership in Planning*

The LPHL system received a rating of **36%** (moderate) for its ability to work with stakeholders to develop policies and plans. Collaboration during emergencies was noted as a strength.

Next Steps

- Increase involvement of more diverse local laboratories and community organizations.
- Involve laboratories in broad public health initiatives such as Healthy Wisconsin 2020.

5.3 *Dissemination & Evaluation*

The LPHL system received a rating of **5%** (minimal) for its capacity to disseminate information to system stakeholders.

Next Step

- Develop better methods to communicate meaningful information to target stakeholder groups.

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

Overall, the LPHL system received an aggregate score of **44.3%** (moderate) for this ES.

INDICATORS

6.1 Revision of Laws & Regulations	5.0
6.2 Encourage Compliance	83.5

6.1 *Revision of Laws & Regulations*

The LPHL system received a rating of **5%** (minimal) for its role in reviewing and revising laws pertaining to laboratory practice. The ability to respond with comments to pending legislation and the involvement of the laboratory system on food issues were identified as strengths.

Next Step

- Define and develop a forum for LPHL system involvement in the review of legislation.

6.2 *Encourage Compliance*

The LPHL system received a rating of **83.5%** (optimal) for its ability to assure compliance with laws and regulations. Agency compliance - Agriculture and the DNR - was identified as a strength.

Next Step

- Smaller laboratories with waivers need to be assessed for compliance and supported to assure quality services.

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

Overall, the LPHL system received an aggregate score of **50%** (moderate) for this ES.

INDICATORS

9.1 System Mission & Purpose	67.0
9.2 System Effectiveness	50.0
9.3 System Collaboration	33.0

9.1 *System Mission and Purpose*

The LPHL system received a rating of **67%** (significant) for its ability to communicate its mission and to evaluate the services provided and technologies used. It was noted that new and improved testing technologies lend themselves to improved communication and responsiveness but that each system stakeholder has its own mission.

Next Steps

- Develop a better definition of the LPHL system including its stakeholders and geographic boundaries.
- Review and evaluate technological capacities across the system to assure efficient resource allocation.

9.2 System Effectiveness, Quality and Consumer Satisfaction

The LPHL system received a rating of **50%** (moderate) for its ability to evaluate the quality of laboratory service provided. The use of surveys and site visits at the clinical laboratory level and measurement of end user satisfaction were identified as occurring within parts of the LPHL system.

Next Steps

- Next Steps were not articulated for this indicator.

9.3 LPH Laboratory System Collaboration

The LPHL system received a rating of **33%** (moderate) for the level of collaboration among system partners. It was noted that collaboration is occurring but that it was not being measured.

Next Steps

- Identify an accountable entity to be responsible for LPHL system collaborations.
- Determine a way to measure collaboration and share results across the system.

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

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

Overall, the LPHL system received a score of **16.7%** (minimal) for this ES.

INDICATORS

10.1 Planning & Financing	19.0
app10.2 Implementation & Dissemination	14.3

10.1 Planning & Financing

The LPHL system received a rating of **19%** (minimal) for its capacity to conduct meaningful research and innovative activities. The relationships between the MHDL and academic institutions were identified as a strength.

Next Steps

- Form a regional research committee to facilitate collaboration and resource sharing.
- Strengthen partnerships with academia related to grant writing and funding for research.
- Increase political awareness and advocacy for research support.

10.2 Implementation & Dissemination

The LPHL system received a rating of **14.3%** (minimal) for its capacity to conduct research and disseminate findings. The research capacity among academic institutions was identified as a strength.

Next Step

- Establish a research-oriented clearinghouse to assure communication about new technologies, research opportunities, current activities and findings.

Participant Evaluation

Forty-two LSIP participants completed the session evaluation. The majority (90%) of 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 in order to assess all of 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.

Facilitator Evaluation

Milwaukee LSIP planners, facilitators, theme takers and vote counters gathered to evaluate the assessment process after it was completed.

Strengths: High points of the assessment were identified as:

- Diversity of stakeholders that participated.
- Increased knowledge of where partners fit within the laboratory system.
- Willingness of participants to contribute and the open dialogue that occurred.
- Opportunity to “be a part of something that is bigger” than normal day-to-day work.
- Interacting with people face-to-face.
- Relief that the process worked!
- The energy in the breakout rooms
- The plenary session was effective in setting the stage for the activities of the work groups.

Weaknesses: Challenges of the assessment were identified as:

- Difficulty in synthesizing and sharing the results at the end of the day.
- Feeling rushed to assess all of the Essential Services and Key Ideas. Did this result in missing some detail?
- Initial confusion about the voting process. It is important to remind participants that they need to vote based on their perspective before and after the dialogue of the work group.
- Needed to allot more time for introductions in the break out groups.
- Participants did not receive advanced material with enough time to prepare.

Participation: Stakeholders missing from the LSIP assessment included:

- Department of Natural Resources
- Environmental Protection Agency
- Community-based agencies
- Elected officials
- Media

LSIP Next Steps - System Improvement

The City of Milwaukee Health Department Laboratory has secured an APHL “Innovations in Quality Public Health Laboratory Practice” grant to implement the next step of the LSIP process. The MHDL will facilitate strategic planning with LPHL system stakeholders to strengthen the laboratory system in the Milwaukee area. The strategic planning process will include webinars, formation of a Steering Committee and subcommittees that will develop a strategic plan and activities to address the priority system issues identified during the LSIP assessment.

As the first local public health laboratory in the nation to implement the LSIP assessment, the MHDL has an unprecedented opportunity to identify unique process and content issues as LSIP is conducted simultaneously at the local and state level.

Acknowledgements

The MHD Laboratory would like to recognize:

- City of Milwaukee Commissioner of Health Bevan K. Baker, FACHE and Health Operations Administrator Raquel Filmanowicz for their support of the MHD Laboratory and its implementation of the LSIP.
- Karen Breckenridge and Bertina Su at APHL, for their technical assistance and APHL funding that made Milwaukee's LSIP possible.
- The LSIP Steering Committee including Tom and Casey Milne of Milne & Associates for their encouragement and words of advice.
- Paula Snippes at the Minnesota Department of Health Laboratory for allowing MHDL to observe and participate in their LSIP assessment and for providing invaluable advice during planning process.
- Dr. Stanley Inhorn for his years of leadership and tireless commitment to public health laboratory efforts in Wisconsin and nationwide.
- Chuck Brokopp, DrPH, WSLH Director, for his support of Milwaukee's efforts to implement LSIP at the local level.
- MHD staff for their passion for public health.
- MHD Laboratory staff for their day-to-day commitment to excellence in laboratory operations
- The diverse group of Milwaukee LSIP stakeholders for their time, interest and active participation during the assessment and their ongoing contributions to public health in the greater Milwaukee area.

Amy Murphy, MPH, served as a consultant to the MHDL and facilitated the planning and implementation of the LSIP Assessment in Milwaukee and development of this final report.

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Attachments

Appendix A: Agenda

Appendix B: Participant List

Appendix C: Performance Assessment Scores

Appendix D: Themes

Appendix E: Participant Evaluation