

# Awareness and Opportunities in Public Health Laboratory System Careers:

## Value of a Laboratory System Improvement Program (L-SIP) in Bridging Workforce Development Gaps among Stakeholders

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### ABSTRACT

**Objective:** This APHL grant-funded study was aimed to engage the L-SIP community in the Greater Milwaukee Area in activities to raise the awareness of laboratory careers and to develop strategies for workforce development in our local public health laboratory (LPHL) system.

**Study Design:** We hosted one-day career fair for local college and high school students to gather information about their current awareness level of careers in the LPHL system. Students from high school, local colleges and universities were invited to attend a series of 15 minute presentations by 15 local professionals and educators in a wide variety of laboratory fields. Surveys were taken before and after the career fair to determine the immediate impact of the event. Also an L-SIP Workforce Development (WFD) committee met further to analyze the career forum data and to identify key gaps in laboratory career awareness and training that may hinder student's transition from college graduation to a career in the laboratory science for the PHL system.

**Results:** Students attending the career fair reported a low initial awareness of viable career options in the Milwaukee LPHL system. However, after a "round robin" of short talks held by local laboratory professionals (e.g. medical examiner, crime lab, clinical and environmental microbiologists), students showed a significant increase in their knowledge and awareness of public health laboratory science careers. Students' surveys measured positive feedback regarding the career opportunities that were presented. The WFD committee meeting further addressed the need for transition from college to career through informational presentations, brainstorming sessions, and affinity diagrams that identified access to internships as a key gap in laboratory training and career option awareness. The career fair and WFD committee meeting outcomes resulted in MHDL efforts in standardizing internship programs for the local emerging laboratory workforce.

**Conclusions:** A career fair can be used to identify and address gaps in awareness about laboratory career options in the LPHL system. Additionally, L-SIP can be used to understand and address gaps in laboratory training in a PHL system.

### INTRODUCTION

#### Laboratory Science Career Forum

On April 25, 2013, at the University of Wisconsin-Milwaukee Zilber School of Public Health, 38 students, along with staff representatives, from seven local colleges and universities and one high school attended the forum, designed to educate students interactively, with different & varied laboratory science career professionals.

Commissioner of Health Bevan K. Baker, FACHE, delivered the keynote.

Nine of Milwaukee's Local Public Health Laboratory (LPHL) System stakeholders presented their career paths and unique laboratory science experiences to three separate groups of students. An in-depth panel discussion and Q&A session with stakeholders from industry, public health and academia was held.

Pre & post surveys were completed by students.



#### Workforce Development Team Meeting

On May 29, 2013, at the Milwaukee School of Engineering, the Workforce Development Team (WFDT) Meeting was facilitated.

Twenty local subject matter experts from Milwaukee area health care, government and academic organizations – representing both the supply and demand sides of the LPHL System workforce – convened to identify specific gaps in workforce recruitment and retention in the LPHL System in Milwaukee.

The task force considered local, state and national workforce data, including survey responses submitted ahead of time by participants, addressing factors such as internships, employee certifications, continuing education opportunities and partnerships.

Participants identified workforce gaps in a large-group discussion, and in small groups brainstormed ideas for improving workforce recruitment and retention.

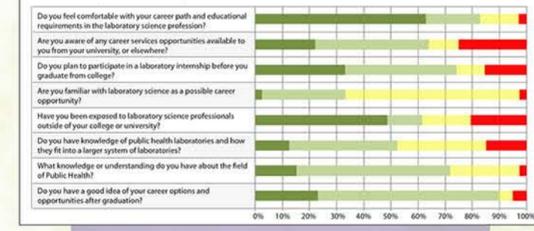
School	Program/Course of Study	# of students
Alverno College	Biology	4
Brookfield Central High School	N/A	4
Cardinal Stritch University	Biology	2
Concordia University	N/A	1
Milwaukee Area Technical College (MATC)	Biotechnology Clinical Laboratory Technology	6
Milwaukee School of Engineering (MSOE)	BioMolecular Engineering Nursing	5
University of Wisconsin-Milwaukee (UWM)	Biomedical Sciences Biochemistry Cytotechnology Master of Public Health Medical Laboratory Sciences Public Health Microbiology	4 1 1 1 1
Wisconsin Lutheran College	Life Science & Biology	5
<b>TOTAL</b>		<b>38</b>

Title	Organization
Professor, Biochemistry/Molecular Biology	Milwaukee School of Engineering (MSOE)
Director, BioMolecular Engineering Program	Physics and Chemistry Department
Deputy Laboratory Director	City of Milwaukee Health Department Laboratory (MHDL)
Shaw Associate Scientist	University of Wisconsin-Milwaukee (UWM) School of Freshwater Sciences, Great Lakes WATER Institute
Assistant Professor, Pharmaceutical Sciences	Concordia University Wisconsin
Laboratory Director	City of Milwaukee Health Department Laboratory (MHDL)
Senior Manager, Clinical Affairs	Hologic/Gen-Probe Prodesse
DNA Analyst	Wisconsin State Crime Laboratory-Milwaukee
Microbiologist	Milwaukee Metropolitan Sewerage District (MMSD)
Lead Medical Technologist	Aurora Consolidated Laboratories (JCL)
Director of Microbiology	Wheaton Franciscan Laboratories
Assistant Medical Examiner	Milwaukee County Medical Examiner's Office
Chief Bureau of Laboratory Services	Wisconsin Department of Agriculture, Trade & Consumer Protection (DATCP)

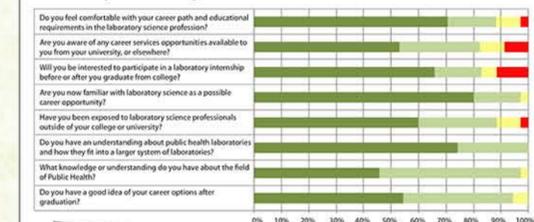


Time	Registration	Sign-in	Breakfast (provided)
8:00am	Registration	Sign-in	Breakfast (provided)
8:30am	Welcome	Welcome & Keynote Address	Keynote Address
8:30am - 10:00am	Breakout Session	Breakout Session	Breakout Session
Breakout Room 1	Topic 1: LPHL System Workforce Development	Topic 1: LPHL System Workforce Development	Topic 1: LPHL System Workforce Development
Breakout Room 2	Topic 2: LPHL System Workforce Development	Topic 2: LPHL System Workforce Development	Topic 2: LPHL System Workforce Development
Breakout Room 3	Topic 3: LPHL System Workforce Development	Topic 3: LPHL System Workforce Development	Topic 3: LPHL System Workforce Development
10:00am - 12:00pm	Lunch	Lunch (provided)	Lunch (provided)
12:00pm - 1:00pm	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"
1:00pm - 2:00pm	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"
2:00pm - 3:00pm	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"
3:00pm - 4:00pm	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"
4:00pm - 5:00pm	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"
5:00pm - 6:00pm	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"	Panel Discussion: "Career Opportunities in Laboratory Science"

#### Career Day Pre-Survey



#### Career Day Post-Survey



### STUDENT COMMENTS

**Zpuzuj hu (to posno) zPH hyl k qv k h e A**

- A lot, it was great. Networking was fantastic as well.
- Network connections; resume tips.
- I learned about the variety of jobs available in STEM fields. Like Karen H., I thought the only jobs out there were in academic research.
- The many different career options available.
- How diverse it was/many opportunities; lots of career choices, about in lab science!
- Greater appreciation of range of careers.
- Many options shown.
- Emerging trend of molecular biology; tips for getting interviews, internships; contact info for speakers.
- Resume building.
- Many different career paths, I am now considering a career in public health.
- Networking potential and interview skills.

**Acknowledgments:**

Community Co-chairs – Dr. Gul Afshan (Milwaukee School of Engineering), Dr. David Petering (University of Wisconsin-Milwaukee), Dr. Randall Lambrecht (Aurora Health Care), and Dr. Dara Frank (Medical College of Wisconsin) joined MHDL leadership in working with research and workforce development stakeholder committees to advance and strengthen system partnerships and define L-SIP goals and objectives. The co-chairs were joined by project consultant Amy Murphy and Nancy McMenamy, Director of the Wisconsin Department of Health Services Workforce Development, during planning meetings for this grant. These brainstorming sessions helped establish the framework for two main grant events – a Laboratory Science Career Forum and Workforce Development Team Meeting. Special thanks to Julie Becker for her invaluable support in implementing these activities. Thanks to Nancy Hills for creating this poster.

**Grant**

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May 2014 MHD Graphics



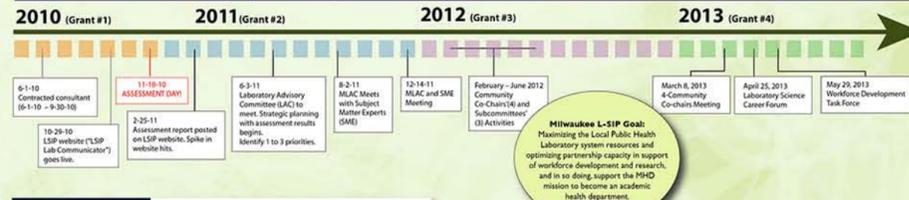
At-A-Glance Workforce Development Team Meeting Participants

- 11 Academic Institutions
- 4 Employers
- 2 State Agencies
- 1 Health Care Organization
- 1 Consultant

Organization	Title
Milwaukee School of Engineering (MSOE)	Program Director and Professor, BioMolecular Engineering Program
Milwaukee Health Department Laboratory (MHDL)	Deputy Laboratory Director
Concordia University-Wisconsin	Professor, School of Pharmacy
Wisconsin Center for Public Health Education and Training	Program Coordinator
Wheaton Franciscan Healthcare	Manager, Laboratory Education
Milwaukee Health Department Laboratory (MHDL)	Laboratory Director
Cardinal Stritch University	Professor, Genetics and Microbiology
Marquette University, College of Health Sciences	Associate Professor and Department Chair, Clinical Laboratory Science
University of Wisconsin-Milwaukee Zilber School of Public Health	Assistant Professor
Alverno College	Director, Internship Program
Wisconsin Department of Health Services - Division of Public Health, Office of Policy and Practice Alignment	Director of Workforce Development
Milwaukee Metropolitan Sewerage District (MMSD)	Laboratory Manager
Cardinal Stritch University	Chair, Natural Sciences Department, Associate Professor, Biology
Amy Murphy Consulting	Consultant
Milwaukee Area Technical College (MATC) BioTech Program	Instructor and Instructional Chair, Life Sciences
Milwaukee Health Department Laboratory (MHDL)	Laboratory Operations Manager
University of Wisconsin-Milwaukee	Director, Children's Environmental Health Sciences Core Center
Wisconsin Lutheran College	Assistant Professor, Biology
Milwaukee Area Technical College (MATC) Clinical Laboratory Technology Program	Clinical Coordinator and Instructor, Clinical Laboratory Technician Program



### Milwaukee's Laboratory System Improvement Program (L-SIP) Timeline



**Careers in Laboratory Science**

Why pursue a career in laboratory science? Laboratory science professionals are critical to ensuring the health and safety of our communities. They work in a variety of settings, including hospitals, research laboratories, and government agencies. They use their expertise to diagnose and treat patients, and to develop new products and technologies.

**Laboratory Science Career Pathways:** How can you choose the right career for you? Consider your interests, skills, and the demands of the job. The diagram shows three pathways: Laboratory Technician, Laboratory Assistant, and Laboratory Manager.

**Background:** Public health professionals come from diverse backgrounds and work in a variety of settings. They are essential to the health and safety of our communities.

**Environmental Laboratory Careers:** Environmental Laboratory Technicians monitor and assess environmental quality. They collect samples and perform laboratory analyses to determine the presence and concentration of pollutants.

**Clinical Laboratory Careers:** Clinical Laboratory Technicians (CLTs) perform complex laboratory tests to diagnose and monitor patients. They work in hospitals, laboratories, and reference laboratories.

**Water Quality Technicians:** Water Quality Technicians perform a variety of water quality testing and analysis. They collect samples and perform laboratory analyses to determine the quality of water resources.

**Microbiologist:** Microbiologists study the structure and function of microorganisms. They work in research laboratories, hospitals, and government agencies.

**Resources:** For more information about laboratory careers, visit the following websites:

- APHL Career Center
- APHL Career Center
- APHL Career Center

### SUMMARY

- Career Forum**
- Student knowledge of the role of public health laboratories increased by 61%
  - Familiarity of lab science possible career opportunities increased by 77%
  - Students reporting little to no familiarity with those careers decreased by 64%
  - Nearly all participants would participate in a similar event again, or would recommend participation to someone they know
  - Very positive feedback through evaluation comments, as well as email communications from participants was received, in addition to some constructive criticism
- Workforce Development Team Meeting**
- Seven main improvement areas for workforce development were identified:
- Expanding internship opportunities
  - Diversifying the PHL workforce
  - Securing funding for workforce development
  - Creating pathways that highlight a variety of careers in public health
  - Standardizing the collection of workforce data in a shared resource system
  - Developing strategies to inform undergraduate and graduate students/teachers
  - Developing a marketing campaign for the general public
- Lessons Learned**
- Internship opportunities need to be expanded and improved upon throughout the Local Public Health Laboratory System
  - There is clearly a desire across the system to collaborate and partner in order to set and implement improvement goals in workforce development
- To Follow**
- Student survey on impact of Career Forum on career choices

