

## Local Public Health Laboratory System Partners include:

- University of Wisconsin – Milwaukee
- Milwaukee Water Works
- Milwaukee Metropolitan Sewerage District
- Milwaukee County Zoo
- Milwaukee County Medical Examiner
- Marquette University
- Milwaukee School of Engineering
- Aurora Health Care
- Wheaton Franciscan Health Care
- Medical College of Wisconsin
- Wisconsin State Laboratory of Hygiene

Additional partners also include other local public health agencies, academic institutions and research partners, first responders, clinical laboratories and medical clinics, as well as national organizations such as the Centers for Disease Control and Prevention and World Health Organization.

### City of Milwaukee Health Department Public Health Laboratory

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## City of Milwaukee Health Department Public Health Laboratory

# Careers in Laboratory Science

## Why pursue a career in laboratory science?

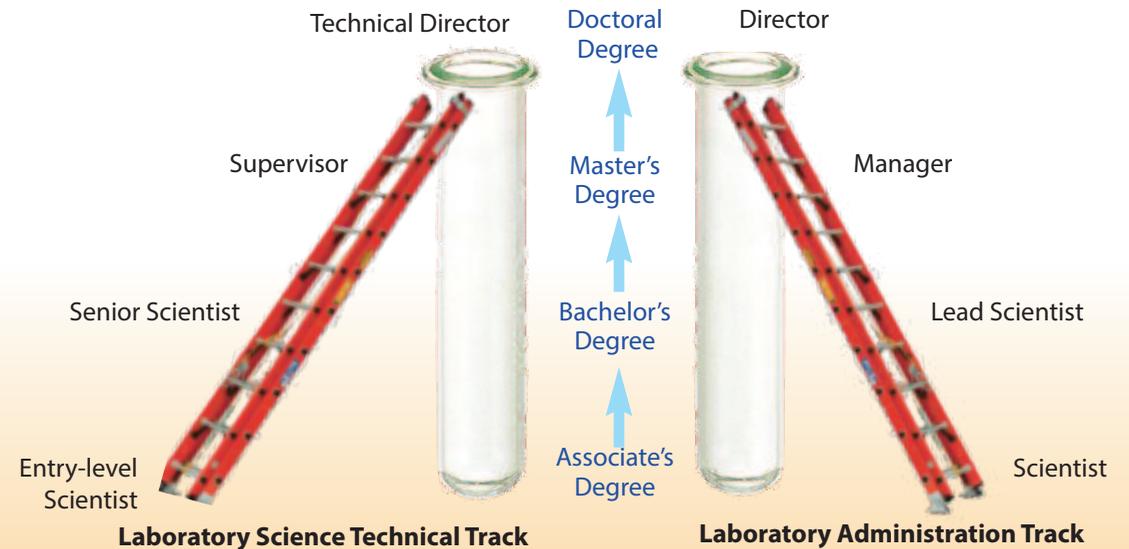
Laboratory science professionals are critical to ensuring healthcare safety, whether it's the blood supply, environmental health or other public health concerns. With a variety of job opportunities available in the field – for educational backgrounds ranging from a high school diploma to a PhD, along with the potential for advancement within the profession or training for other healthcare professions, now is the perfect time to pursue a laboratory science career.

- Are you analytical?
- Do you enjoy problem solving?
- Do you enjoy hands-on laboratory work?
- Does the idea of being a “healthcare detective,” who plays a key role in the diagnosis, treatment, prevention and monitoring of diseases, appeal to you?

If you answered “yes” to any or all of these, then there is a place for you in the public health laboratory system.

## Laboratory Science Career Pathways:

*How can you change the world from the bottom of a test tube?*



City of Milwaukee Health Department (MHD)

## Laboratory Mission Statement

To assist the department in guarding the public health by providing quality laboratory services for monitoring acute and chronic diseases and the environment through assessment, surveillance, epidemiology, and dissemination of information.



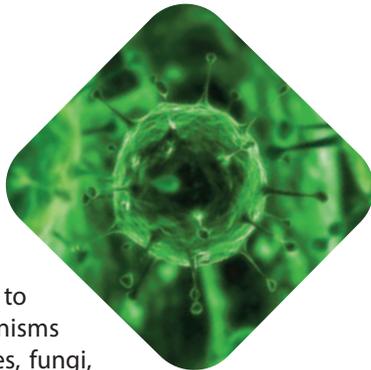
## Background

Public health professionals come from diverse educational backgrounds, and can specialize in an array of fields. As a public health professional, you are a leader who can meet the challenges of protecting the public's health by serving local, national, and international communities.

## Public Health Laboratory Careers

### Microbiologist

Microbiology attempts to understand microorganisms such as bacteria, viruses, fungi, and parasites. Microbiologists use microbiology to detect and prevent illness by culturing, identifying, and characterizing microorganisms that cause disease (pathogens).



### Molecular Biologist

Molecular biology attempts to understand the interactions of cellular systems. Molecular biologists use molecular biology to manipulate, isolate, and characterize the molecular components of cells and organisms to determine the specific diagnosis and prognosis of a patient.

### Chemist

Chemistry attempts to understand the structure of molecules and the relationship of this structure to chemical reactivity and physical properties. Chemists typically conduct qualitative and quantitative chemical analyses or experiments in laboratories for quality or process control or to develop new products or knowledge.

## Environmental Laboratory Careers

### Environmental Chemist

Environmental Chemistry studies the sources, reactions, transport and effects of chemical species in air, soil, food and water, and their impact on the environment or public health. Environmental chemists apply their knowledge of environmental science and chemistry concepts, particularly analytical chemistry techniques, to assist in their study of chemical species in the environment.

### Environmental Laboratory Technician

Environmental Laboratory Technicians may, under the direction of an environmental scientist, collect samples and perform laboratory analysis of gases, soil, water and other materials to monitor the environment and investigate sources of pollution.



### Water Quality Technician

Water Quality Technicians perform a variety of water quality monitoring and control activities needed to protect water resources for both environmental and recreational purposes. Duties may include sampling and performing microbiological or chemical tests of lakes, streams and waste water treatment systems and their surrounding environments.

## Clinical Laboratory Careers

### Medical Technologist (MT)

MTs perform complex chemical, biological, hematological, immunologic, microscopic and bacteriological analyses, including microscopically examining blood/body fluids, making cultures of body fluid and tissue samples, and evaluating test results, for example. A bachelor's degree is required for this position.

### Medical Laboratory Technician (MLT)

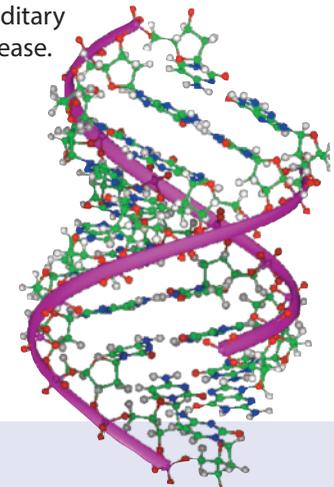
MLTs perform less complex tests and laboratory procedures than MTs, such as preparing specimens and operating automated analyzer, and performing manual tests according to detailed instructions. They typically work under the supervision of a MT or lab manager. An associate's degree is required for this position.

### Immunologist

Immunology is a branch of biomedical science that attempts to understand all aspects of the immune system in all organisms. Immunologists use clinical chemistry to perform immunodiagnoses on patient blood and tissue samples.

### Cytogeneticist

Cytogenetics studies the structure and function of chromosomes. This position involves the use of cytogenetics to identify, and sometimes prevent, genetic disorders as they play a large role in hereditary and acquired disease.



## Resources

For more helpful information about laboratory science careers, check out the following websites:

- **American Society for Clinical Pathology**  
<https://www.ascp.org/content/functional-nav/laboratory-science-students>
- **Association of Public Health Laboratories (APHL)**  
[www.aphl.org](http://www.aphl.org)
- **Centers for Disease Control and Prevention (CDC)**  
[www.cdc.gov](http://www.cdc.gov)
- **That's Sick**  
<http://www.thatssick.org>