Medical Laboratory Technologists/Scientists "MLS" & Medical Laboratory Technicians "MLT"

Medical laboratory technologists (commonly known as medical laboratory scientists) and medical laboratory technicians collect samples and perform tests to analyze body fluids, tissue, and other substances.

DUTIES

Medical laboratory technologists and technicians typically do the following:

- Analyze body fluids, such as blood, urine, and tissue samples, and record normal or abnormal findings
- Study blood samples for use in transfusions by identifying the number of cells, the cell morphology or the blood group, blood type, and compatibility with other blood types
- Operate sophisticated laboratory equipment, such as microscopes and cell counters
- Use automated equipment and computerized instruments capable of performing a number of tests at the same time
- Log data from medical tests and enter results into a patient's medical record
- Discuss results and findings of laboratory tests and procedures with physicians
- Supervise or train medical laboratory technicians

Both technicians and technologists perform tests and procedures that physicians and surgeons or other healthcare personnel order. However, technologists perform more complex tests and laboratory procedures than technicians do. For example, **technologists** may prepare specimens and perform detailed manual tests, whereas **technicians** perform routine tests that may be more automated. Medical laboratory technicians usually work under the general supervision of medical laboratory technologists or laboratory managers.

Technologists in small laboratories perform many types of tests; in large laboratories, they sometimes specialize. The following are examples of types of specialized medical laboratory technologists:

- **Blood bank technologists,** or **immunohematology technologists**, collect blood, classify it by type, and prepare blood and its components for transfusions.

- **Clinical chemistry technologists** prepare specimens and analyze the chemical and hormonal contents of body fluids.

- **Cytotechnologists** prepare slides of body cells and examine these cells with a microscope for abnormalities that may signal the beginning of a cancerous growth.

- **Immunology technologists** examine elements of the human immune system and its response to foreign bodies.

- **Microbiology technologists** examine and identify bacteria and other microorganisms.

- **Molecular biology technologists** perform complex protein and nucleic acid tests on cell samples

Like technologists, medical laboratory technicians may work in several areas of the laboratory or specialize in one particular area. For example, **histotechnicians** cut and stain tissue specimens for pathologists, who are doctors who study the cause and development of diseases at a microscopic level.

Technologists and technicians often specialize after they have worked in a particular area for a long time or have received advanced education or training in that area.

IMPORTANT QUALITIES

- **Ability to use technology.** Medical laboratory technologists and technicians must understand how to operate complex machinery.

- **Detail oriented.** Medical laboratory technologists and technicians must follow exact instructions in order to perform tests or procedures correctly.

- **Dexterity.** Medical laboratory technologists and technicians need to be skilled with their hands. They work closely with needles and precise laboratory instruments and must handle these tools effectively.

- **Physical stamina.** Medical laboratory technologists and technicians may work on their feet for long periods while collecting samples. They may need to lift or turn disabled patients to collect samples for testing.

EDUCATION

An entry-level job for ***technologists*** usually requires a **bachelor's degree** in medical technology or life sciences. A bachelor's degree program in medical laboratory technology, also known as a medical laboratory scientist degree, includes courses in chemistry, biology, microbiology, math, and statistics. Coursework emphasizes laboratory skills, including safety procedures and lab management.
The courses may be offered through a university or hospital-based program that students attend during their senior year of college. College graduates who major in other sciences and meet a program's prerequisites, such as having completed required courses in biology and chemistry or maintaining a certain GPA, also may apply to a medical laboratory science program.

Medical laboratory technicians often complete an **associate's degree** program in clinical laboratory science. A limited number of 1-year certificate programs are available from hospitals, and admission requirements vary. The Armed Forces and vocational or technical schools also may offer certificate programs for medical laboratory technicians. Technician coursework addresses the theoretical and practical aspects of each of the major laboratory disciplines.

Programs are accredited through the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) www.naacls.org

Accredited Schools in Virginia – Medical Laboratory Technician (MLT)

- Central Virginia Community College in corporation with Centra Health Systems, Inc – Lynchburg, VA
- J. Sargeant Reynolds Community College – Richmond, VA
  - *Danville Community College in partnership with J. Sargeant Reynolds Community College*
- Northern Virginia Community College – Springfield, VA
- Tidewater Community College – Virginia Beach, VA
- Wytheville Community College – Wytheville, VA
  - *Mountain Empire Community College in partnership with Wytheville Community College*

Accredited Schools in Virginia – Medical Laboratory Technologist/Scientist (MLS)

- Inova Fairfax Hospital – Falls Church, VA
- Augusta Health – Fishersville, VA
- Sentara Rockingham Memorial Hospital School of Medical Laboratory Science – Harrisonburg, VA
- Norfolk State University – Norfolk, VA
- Old Dominion University – Norfolk, VA
- Virginia Commonwealth University – Richmond, VA
- Jefferson College of Health Sciences – Roanoke, VA

Licenses, Certifications, and Registrations

Some states require laboratory personnel to be licensed. Requirements vary by state and specialty. For specific requirements, contact state departments of health, state boards of occupational licensing, or visit The American Society for Clinical Laboratory Science.

Certification of medical laboratory technologists and technicians is required for licensure in some states. Although certification is not required to enter the occupation in all cases, employers typically prefer to hire certified technologists and technicians.

Medical laboratory technologists and technicians can obtain a general certification as a medical laboratory technologist or technician, respectively, or a certification in a specialty, such as cytotechnology or medical biology. Most credentialing institutions require that technologists complete an accredited education program in order to qualify to sit for an exam. For more credentialing information, visit the National Accrediting Agency for Clinical Laboratory Sciences.

Advancement

After additional education, work experience, or certification, technologists and technicians may specialize in one of many areas of laboratory science, such as immunology, histotechnology, or clinical chemistry. Some medical laboratory technicians advance to technologist positions after gaining experience and additional education.

WORK ENVIRONMENT

Medical laboratory technologists held about 164,800 jobs in 2014. The industries that employed the most medical laboratory technologists in 2014 were as follows:

Hospitals; state, local, and private	58%
Medical and diagnostic laboratories	17
Offices of physicians	8
Colleges, universities, and professional schools; state, local, and private	5

Medical laboratory technicians held about 163,400 jobs in 2014. The industries that employed the most medical laboratory technicians in 2014 were as follows:

Hospitals; state, local, and private	44%
Medical and diagnostic laboratories	19
Offices of physicians	12
Colleges, universities, and professional schools; state, local, and private	5

Medical laboratory personnel are trained to work with infectious specimens or with materials that are caustic or produce fumes. When they follow proper methods to control infection and sterilize equipment, the risk decreases. They wear protective masks, gloves, and goggles for their safety. Technologists and technicians can be on their feet for long periods, and they may need to lift or turn disabled patients to collect samples.

Work Schedules

Most medical laboratory technologists and technicians work full time. Technologists and technicians who work in facilities that operate around the clock, such as hospitals and some independent laboratories, may work evening, weekend, or overnight hours

JOB OUTLOOK

Employment of medical laboratory technologists is projected to grow 14 percent from 2014 to 2024, much faster the average for all occupations. Employment of medical laboratory technicians is projected to grow 18 percent from 2014 to 2024, much faster than the average for all occupations.

An increase in the aging population is expected to lead to a greater need to diagnose medical conditions, such as cancer or type 2 diabetes, through laboratory procedures. Prenatal testing for various types of genetic conditions also is increasingly common. Medical laboratory technologists and technicians will be in demand to use and maintain the equipment needed for diagnosis and treatment.

The number of individuals who have access to health insurance is expected to continue to increase because of federal health insurance reform. As a result, demand for the services of laboratory personnel may grow as more patients who were previously uninsured, or found treatment to be cost-prohibitive, seek laboratory tests.

Job prospects will be best for medical and clinical laboratory technologists and technicians who complete an accredited education program and earn professional certification

AVERAGE SALARY

The median annual wage for medical and clinical laboratory technologists was $59,430 in May 2014. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than $40,640, and the highest 10 percent earned more than $82,180.
The median annual wage for medical and clinical laboratory technicians was $38,370 in May 2014. The lowest 10 percent earned less than $25,500, and the highest 10 percent earned more than $59,750.

In May 2014, the median annual wages for **medical laboratory technologists** in the top industries in which they worked were as follows:

Hospitals; state, local, and private	$59,530
Medical and diagnostic laboratories	$59,310
Offices of physicians	$55,590
Colleges, universities, and professional schools; state, local, and private	$53,610

In May 2014, the median annual wages for **medical laboratory technicians** in the top industries in which they worked were as follows:

Hospitals; state, local, and private	$39,050
Offices of physicians	$38,570
Colleges, universities, and professional schools; state, local, and private	$38,000
Medical and diagnostic laboratories	$37,360

Most medical laboratory technologists and technicians work full time. Technologists and technicians who work in facilities that are always open, such as hospitals and some independent laboratories, may work evening, weekend, or overnight hours.

Contacts for More Information

For more information about medical laboratory technologists and technicians, visit
The American Society for Clinical Laboratory Science
American Society of Cytopathology

For a list of accredited and approved educational programs for medical laboratory personnel, visit
National Accrediting Agency for Clinical Laboratory Sciences

For information on certification, visit
American Association of Bioanalysts
American Medical Technologists
American Society for Clinical Pathology

O*NET
Cytogenetic Technologists Cytotechnologists
Histotechnologists and Histologic Technicians
Medical and Clinical Laboratory Technicians
Medical and Clinical Laboratory Technologists

REFERENCE

- Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2016-17 Edition*, Medical and Clinical Laboratory Technologists and Technicians, on the Internet at http://www.bls.gov/ooh/healthcare/medical-and-clinical-laboratory-technologists-and-technicians.htm (visited *March 02, 2016*).
- Explore Health Careers.org http://explorehealthcareers.org/en/Career/28/Clinical_Laboratory_ScientistTechnician#Tab=Overview