

Clinical Laboratory Services

*Cytotechnologist, Histologic Technician/Histotechnologist,
Medical Laboratory Technician, Medical Technologist,
Phlebotomist, Specialist in Blood Banking Technologist*



Cytotechnologist, Histotechnician/Histotechnologist

Cytotechnologist

JOB DESCRIPTION

Cytotechnology is the study of cells, the basic units of living tissue. Cytotechnologists are specially trained laboratory technologists who study the structure of cells in the human body. Prepared slides of cell samples are examined under microscope and the cytotechnologist must be able to recognize abnormalities in the color, size, shape, make-up, and patterns of the cells. Cytotechnologists may identify a disease at a treatable stage and thus directly aid in extending a patient's life. Cytotechnologists usually work independently to evaluate and report on normal cells, or work with a pathologist to study cancerous or other abnormal cells.

WORK ENVIRONMENT

Cytotechnologists may practice in various settings, usually working closely with pathologists. Hospitals and private laboratories provide excellent opportunities, as do public health facilities, clinics, medical schools, federal institutions, research, and industry facilities. Full-time and part-time positions are available, and hours may be standard or flexible in both hospital and private laboratories.

ANNUAL WAGES

Starting Salary\$41,454
 Overall Average\$49,920

Salary ranges for 2002. American Medical Association.

ACADEMIC REQUIREMENTS

Training programs in cytotechnology exist at the baccalaureate, post-baccalaureate certificate, and

master's levels. Usually, individuals are accepted into an accredited hospital or university-based program after their junior year of college or enroll after graduation from college. Training lasts for one year for a bachelor's degree and two years for a master's degree. Completion of the one-year program confers eligibility to take the national certification exam offered by the American Society of Clinical Pathologists.

PROFESSIONAL ORGANIZATIONS

American Society for Cytotechnology
 American Society of Cytopathology

For professional organization address and phone information see Appendix B.

EDUCATIONAL INSTITUTIONS

For a listing of educational programs in New York State for Clinical Laboratory Services see page 8.

Histotechnician/ Histotechnologist

JOB DESCRIPTION

Histotechnicians and histotechnologists are clinical laboratory workers who prepare very thin slices of human, animal or plant tissue for microscopic examination by pathologists (medical/veterinary doctors specializing in tissue disease). Histotechnicians perform such tasks as sectioning and staining tissues, embedding tissues in paraffin or plastic, preparing frozen sections of tissues directly from the operating room, and operating intricate equipment including microscopes and microtomes (an instrument for cutting tissue sections). Histotechnologists perform all of the tasks of a technician and more complex procedures as well. They may do analyses of sample histochemistry, explore immunological links to disease, prepare samples for electron microscopy, or supervise and teach others. Both careers are vital to the early detection of disease and illness.

WORK ENVIRONMENT

Histotechnicians and histotechnologists primarily work in hospitals and independent laboratories as well as in clinics, public health facilities, forensic medicine facilities, veterinary pathology, marine biology and in industrial research. Government agencies, pharmaceutical companies, and universities may also hire histology personnel. The majority of technicians and technologists work full-time; a 40-hour workweek may include shifts at night, on weekends, and during holidays.

ANNUAL WAGES

	National	New York State
Histologic Technician	\$29,619	\$35,152
Histotechnologist	\$43,638	\$46,155

National and New York State median annual earnings for Medical and Clinical Laboratory Technicians and Technologists for 2003. U.S. Department of Labor, Bureau of Labor Statistics.

ACADEMIC REQUIREMENTS

A certified histotechnologist must have a bachelor's degree combined with successful completion of a program accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) or combined with one year full-time acceptable experience in a histopathology laboratory. A certified histotechnician must have an associate's degree combined with one year full-time acceptable experience in a histopathology laboratory or successful completion of a program accredited by NAACLS (generally a 12-month program). Exams given by the American Society for Clinical Pathology provide certification.

PROFESSIONAL ORGANIZATIONS

National Society for Histotechnology

For professional organization address and phone information see Appendix B.

EDUCATIONAL INSTITUTIONS

For a listing of educational programs in New York State for Clinical Laboratory Services see page 8.

Medical Laboratory Technician, Medical Technologist

Medical Laboratory Technician

JOB DESCRIPTION

Medical laboratory technicians are clinical laboratory personnel who perform a variety of tests under the supervision of a medical technologist. They aid in the detection, diagnosis, and treatment of disease and accomplish this through specific tasks, including inoculating culture media, performing microscopic evaluations, and operating high-tech equipment. Medical laboratory technicians perform routine tests in the areas of blood banking, chemistry, hematology, immunology, microbiology, and urinalysis.

WORK ENVIRONMENT

Medical laboratory technicians work in hospitals, physicians' offices, clinics, research facilities, federal agencies, health maintenance organizations (HMOs) and pharmaceutical companies. Because medical

laboratory technicians have general knowledge of a wide range of science fields, they are used in a variety of settings. A 40-hour workweek is common, and the hours may be distributed over evening shifts or weekends.

ANNUAL WAGES

National	\$29,619
New York State	\$35,152

National and New York State median annual earnings for 2003. U.S. Department of Labor, Bureau of Labor Statistics.

ACADEMIC REQUIREMENTS

Medical or clinical laboratory technicians must have an associate's degree from an accredited community college, including clinical education. In addition, they must pass an exam given by one of three agencies; the Board of Registry of Medical Technologist of the American Society of Clinical Pathologists, the National Certification Agency for Medical Laboratory Personnel, or by the American Medical Technologists.

PROFESSIONAL ORGANIZATIONS

American Society for Clinical Laboratory Science
American Society of Clinical Pathology

For professional organization address and phone information see Appendix B.

EDUCATIONAL INSTITUTIONS

For a listing of educational programs in New York State for Clinical Laboratory Services see page 8.

Medical Technologist

JOB DESCRIPTION

Medical technologists work in medical laboratories and perform analyses on blood, tissue samples, and body fluids. They use complex electronic equipment, computers, chemicals and precision instruments to detect and diagnose diseases. Medical technologists, working with precision and caution, are responsible for identifying irregularities or abnormalities in body specimens. They report laboratory findings to the pathologist (a physician who specializes in the cause and nature of diseases), other physicians, or scientists who specialize in clinical chemistry, microbiology, and other biological sciences.

AREAS OF SPECIALIZATION

Bacteriology – study of bacteria as it relates to the field of medicine.

Blood Bank/Serology – study of blood serums and related diseases or organisms.

Chemistry – study of atomic and molecular systems.

Hematology – study of blood and blood producing organs of the body.

Immunology – study of the human immune system and its reaction to foreign bodies.

Microbiology – study of bacteria and other microorganisms.

WORK ENVIRONMENT

The majority of medical technologists are employed by hospitals, although opportunities also exist in independent laboratories, physicians' offices, clinics, research laboratories, or federal agencies. Working conditions and hours depend upon the work setting, although most medical technologists are full-time employees. Some technologists may work shifts during weekends, evenings, or holidays, and some may be on call to attend to emergency situations.

ANNUAL WAGES

National	\$43,638
New York State	\$46,155

National and New York State median annual earnings for Medical and Clinical Laboratory Technologists for 2003. U.S. Department of Labor, Bureau of Labor Statistics.

ACADEMIC REQUIREMENTS

An individual can become a medical technologist with an associate's degree plus three years of experience within the field. A master's degree is also available in medical technology for medical technologists interested in teaching or administrative positions. The American Association of Bioanalysts also certifies medical technologists in one or more of the seven following fields: Andrology, Chemistry, Embryology, Hematology, Immunology, Immunohematology, and Microbiology.

PROFESSIONAL ORGANIZATIONS

American Medical Technologists
American Society for Clinical Laboratory Science

American Society of Clinical Pathology
American Society of Hematology
National Accrediting Agency for Clinical Laboratory Sciences
National Credentialing Agency for Medical Laboratory Personnel, Inc.

For professional organization address and phone information see Appendix B.

EDUCATIONAL INSTITUTIONS

For a listing of educational programs in New York State for Clinical Laboratory Services see page 8.

Phlebotomist, Specialist in Blood Banking Technologist

Phlebotomist

JOB DESCRIPTION

Phlebotomists are trained to draw blood from patients or blood donors for medical tests and blood donations. They assemble equipment such as needles, disposable containers for needles, tourniquets, and other items needed for drawing blood.

WORK ENVIRONMENT

Phlebotomists may be employed in hospital laboratories, blood banks, blood donation centers, doctors' offices, clinics, and nursing homes. In hospitals, phlebotomists may be needed around the clock, while other settings may be more conducive to typical business hours. Full-time as well as part-time employment is possible.

ANNUAL WAGES

National\$21,944

2002 Wage and Vacancy Study. The American Society for Clinical Pathology Board of Registry.

ACADEMIC REQUIREMENTS

A high school diploma or equivalent is required. Interested individuals should also be enrolled in an approved phlebotomy program, a formal structured training program, or have one year of experience in a laboratory setting. There are one-year programs that award diplomas as well as two-year programs at community colleges that offer associate degrees. American Medical Technologists conducts the certification examination and awards the Registered Phlebotomy Technician title.

PROFESSIONAL ORGANIZATIONS

American Society for Clinical Laboratory Science
 American Society of Clinical Pathology

For professional organization address and phone information see Appendix B.

EDUCATIONAL INSTITUTIONS

For a listing of educational programs in New York State for Clinical Laboratory Services see page 8.

Specialist in Blood Banking Technologist

JOB DESCRIPTION

Technologists certified as specialists in blood banking (SBBs) are medical technologists with advanced education and training in all aspects of blood banking and transfusion medicine. SBBs are formally trained in quality systems, federal regulations, genetics, immunology, blood group systems, donor recruitment, blood collection, blood component preparation, infectious disease testing, blood transfusions and adverse effects of blood transfusions, special laboratory techniques, education and training plans, laboratory management, and computer systems.

WORK ENVIRONMENT

Specialists in blood banking are qualified to work as regulatory/quality assurance experts, technical/quality consultants, laboratory inspectors, laboratory supervisors/managers, education coordinators, and researchers in transfusion medicine. Hospitals and blood centers employ the majority of SBBs. Other

opportunities exist in reference and biotechnology laboratories, blood bank manufacturing companies, and government agencies. The number of hours worked and shifts available depend upon the place of employment. SBBs employed by hospitals and blood centers may be required to take call. Full- and part-time positions are available.

ANNUAL WAGES

National\$52,354

New York State\$47,840

Blood Center Salary Survey Report 2003. American Association of Blood Banks.

ACADEMIC REQUIREMENTS

The traditional route for becoming a specialist in blood banking is obtaining a bachelor's degree from a regionally accredited college or university in biological science, chemistry, and mathematics, and successful completion of a Commission on Accreditation of Allied Health Education Programs accredited Specialist in Blood Bank Technology program. The majority of Specialist in Blood Bank Technology programs are 12 months; however, some programs are two years and include a master's degree upon successful completion of the second year. Upon

completion of the program, individuals are eligible to take the specialist certification exam given by the American Society of Clinical Pathologists Board of Registry.

PROFESSIONAL ORGANIZATIONS

American Association of Blood Banks
 American Medical Technologists
 Clinical Laboratory Management
 International Society of Cellular Therapy

For professional organization address and phone information see Appendix B.

EDUCATIONAL INSTITUTIONS

For a listing of educational programs in New York State for Clinical Laboratory Services see page 8.

New York State Educational Institutions

NEW YORK STATE EDUCATIONAL INSTITUTIONS WITH PROGRAMS IN CLINICAL LABORATORY SERVICES

(For New York State educational institution address and phone information, see Appendix A.)

Broome Community College
 Clinton Community College
 City University of New York Bronx Community College
 City University of New York College of Staten Island
 City University of New York Hostos Community College
 City University of New York New York City Technical College
 City University of New York Queensborough Community College
 Dutchess Community College
 Erie Community College – North Campus
 Hudson Valley Community College
 Nassau Community College
 Orange County Community College
 St. Francis College
 Samaritan Medical Center Medical Laboratory Technology Program

State University of New York at Stony Brook
 State University of New York College at Brockport
 State University of New York College of Agriculture and Technology at Cobleskill
 State University of New York College of Agriculture and Technology at Morrisville
 State University of New York College of Technology at Alfred
 State University of New York College of Technology at Canton
 State University of New York College of Technology at Farmingdale
 State University of New York Health Science Center at Syracuse
 State University of New York Westchester Community College

Source: U.S. Department of Education – Integrated Postsecondary Education Data System (www.nces.ed.gov/ipeds/) and the New York State Area Health Education Center System Data Resource Center, September 2003.