

Health

Cardiovascular Technologists and Technicians



Requires a
Bachelor's
Degree
or Higher

Cardiovascular technologists and technicians assist physicians in diagnosing and treating cardiac (heart) and peripheral vascular (blood vessel) ailments. Cardiovascular technologists specializing in invasive procedures assist physicians with cardiac catheterization procedures in which a small tube, or catheter, is threaded through a patient's artery. Technologists who specialize in echocardiography or vascular technology often run noninvasive tests using ultrasound instrumentation, such as Doppler ultrasound. Tests are called "noninvasive" if they do not require the insertion of probes or other instruments into the patient's body.

Factors Driving the Job Growth

Employment of cardiovascular technologists and technicians is expected to grow much faster than the average for all occupations through 2016. Growth will occur as the population ages, because older people have a higher incidence of heart problems and use more diagnostic testing. Some job openings will arise from replacement needs as individuals transfer to other jobs or leave the labor force.

Growth Rate: 22.5%

Current Jobs: 970

Job Change: 210

**Replacement Job
Openings:** 130

Where Jobs are Currently Found

Hospitals (88%)

Wages and Salaries

Mean Annual Earnings: \$59,040

Education and Training Requirements

Although a few cardiovascular technologists and technicians are trained on the job, most receive training in 2 to 4 year programs. The majority complete a 2-year community college program, but 4-year programs are increasingly available.

Career Paths

Cardiovascular technologists and technicians operate sophisticated equipment that helps physicians and other health practitioners to diagnose and treat patients. The skills necessary for this type of work are similar to other occupations, such as diagnostic medical sonographers, nuclear medicine technologists, radiation therapists, radiologic technologists and technicians, and respiratory therapists.



Requires
Short-Term
On-The-Job
Training

Dental Assistants

Dental assistants perform a variety of laboratory and administrative duties in dentists' offices. They record patients' personal information, prepare them for treatment, arrange and sterilize dental instruments, make dental impressions, process dental x-rays, and remove sutures.

Factors Driving the Job Growth

With higher incomes, desire for retention of natural teeth, and increases in dental insurance coverage, demand for dental services should continue to grow. Combined with the need to replace dental assistants who shift jobs or leave the labor force, there should be numerous job opportunities in this occupation.

Where Jobs are Currently Found

Offices of Dentists (93%)

Educational Services (2%)

Offices of Doctors (2%)

Wages and Salaries

Mean Hourly Wage: \$18.53

Education and Training Requirements

Many dental assistants acquire their skills through on-the-job training, while others are trained in community colleges, trade or technical schools. High school courses in biology, chemistry, health, typing, and other office practices provide a useful background for employment. Certification is not usually required for employment; however, it may give some job applicants an advantage over the competition. Most dental assisting programs take one year or less to complete and lead to a certificate.

Career Paths

Dental assistants can advance by continuing their education and taking on additional responsibilities. With experience some may become office managers. Others with more clinical experience may go back to school to become dental hygienists. Other workers who support health practitioners include medical assistants, chiropractic assistants, and ophthalmic medical assistants.

Growth Rate: 20.4%

Current Jobs: 6,430

Job Change: 1,310

**Replacement Job
Openings:** 1,120



Requires
Specialized
Training or an
Associate's Degree

Dental Hygienists

Dental hygienists provide direct patient care under the direction of a dentist. They examine, clean and polish teeth, give fluoride treatments, take x-ray films, and instruct patients on preventing gum disease and developing good eating habits. They may develop and organize community dental health programs.



Growth Rate: 20.8%

Current Jobs: 5,530

Job Change: 1,150

**Replacement Job
Openings:** 1,160

Factors Driving the Job Growth

Demand for dental care is expected to rise rapidly as more people live longer, and more firms offer dental insurance. The trend toward group practices should also increase the demand for dental hygienists, as group practices employ more support personnel than solo practices.

Where Jobs are Currently Found

Offices of Dentists (95%)

Wages and Salaries

Mean Hourly Wage: \$35.77*

* Many dental hygienists work part-time.

Education and Training Requirements

Dental hygienists must be licensed. To obtain a license, a candidate must graduate from an accredited dental hygiene school and pass both a written and clinical examination. High school courses in biology, health, chemistry, speech, psychology, and mathematics are helpful for admission.

Career Paths

Other workers who assist health practitioners include dental assistants, office nurses, medical assistants, and physician assistants.



Requires
Specialized
Training or an
Associate's Degree

Diagnostic Medical Sonographers

Sonography, or ultrasonography, is the use of sound waves to generate an image for the assessment and diagnosis of various medical conditions. Diagnostic medical sonographers, also known as ultrasonographers, use special equipment to direct sound waves into the patient's body. Sonographers operate the equipment which collects reflected echoes and forms an image that may be videotaped, transmitted, or photographed for interpretation and diagnosis by a physician. They also take measurements, calculate values, and analyze the results in preliminary reports to physicians. The specialties in this occupation include obstetric and gynecologic sonography (the female reproductive system), abdominal sonography (the liver, kidneys, gallbladder, spleen, and pancreas), neurosonography (the brain), or breast sonography.

Growth Rate: 12.5%

Current Jobs: 1,140

Job Change: 140

**Replacement Job
Openings:** 160

Factors Driving the Job Growth

Overall employment of diagnostic medical sonographers is expected to grow faster than the average for all occupations through 2016 as the population ages, increasing the demand for diagnostic imaging and therapeutic technology. In addition to job openings from growth, some job openings will arise from the need to replace sonographers who transfer to other occupations or leave the labor force.

Where Jobs are Currently Found

Hospitals (55%)

Medical & Diagnostic Laboratories (26%)

Offices of Physicians (13%)

Wages and Salaries

Mean Annual Wages: \$73,690

Education and Training Requirements

There are several avenues for entry into this field. Sonographers may train in hospitals, vocational-technical institutions, colleges and universities, and the Armed Forces. Colleges and universities offer both 2- and 4-year programs, although 2-year programs are most prevalent. Although no state requires licensure in diagnostic medical sonography, organizations such as the American Registry for Diagnostic Medical Sonography (ARDMS) offer certification through testing and many employers prefer this credential.

Career Paths

Diagnostic medical sonographers operate sophisticated equipment to help physicians and other health practitioners diagnose and treat patients. The skills necessary for this type of work are similar to other occupations, such as cardiovascular technologists and technicians, clinical laboratory technologists and technicians, nuclear medicine technologists, radiologic technologists and technicians, and respiratory therapists.



Requires a
Bachelor's
Degree
or Higher

Dietitians and Nutritionists

Dietitians and nutritionists plan meal programs to promote healthy eating habits and prevent illnesses. They may also supervise the preparation and serving of meals in hotels, hospitals, and prisons; evaluate patient diets; develop and implement nutrition programs; and evaluate and report results. They may also instruct individuals and their families on good eating habits, analyze foods, and conduct studies on diet and health. Some specialize in the care of obese, critically ill, or diabetic patients.

Factors Driving the Job Growth

Jobs for dietitians and nutritionists should grow about as fast as the average for all occupations through 2016, as the number of nutritional programs expands to keep pace with enrollments in nursing homes, schools, and community health centers. Public interest in nutrition and health education, as well as an aging population, will also help to spur job growth.

Growth Rate: 8.0%

Current Jobs: 2,060

Job Change: 160

**Replacement Job
Openings:** 520

Where Jobs are Currently Found

Hospitals (34%)
Ambulatory Health Care Services (18%)
Nursing & Residential Care Facilities (14%)
Self-Employed (7%)
Offices of Physicians (6%)

Wages and Salaries

Mean Hourly Earnings: \$26.63

Education and Training Requirements

A bachelor's degree in dietetics, food and nutrition, or food service management is required for entry-level jobs. Certification as a registered dietitian is available through the American Dietetic Association.

Career Paths

Experienced dietitians may advance to assistant, associate, or director of a dietetic department. Some may become consultants. Workers with duties similar to administrative dietitians include food service managers and nurse and health educators.

Emergency Medical Technicians and Paramedics



Requires
Specialized
Training or an
Associate's Degree

Emergency medical technicians (EMTs) and paramedics respond to calls for emergency medical assistance and provide immediate care. Depending on their level of certification, they may administer medications and intravenous fluids, assist in childbirth, restore breathing, control bleeding, and treat shock and heart attack victims.

Factors Driving the Job Growth

As the population ages, the number of people who are more likely to need emergency services will grow and increase jobs for EMTs. Opportunities will continue to be plentiful in hospitals and private ambulance companies. Competition for jobs will remain keen in police, fire, and rescue squad departments where salaries and benefits tend to be better.

Growth Rate: 15.8%

Current Jobs: 4,950

Job Change: 780

**Replacement Job
Openings:** 570

Where Jobs are Currently Found

Ambulatory Health Care Services (61%)

Local Government (26%)

Wages and Salaries

Mean Hourly Earnings: \$17.95

Education and Training Requirements

EMTs must be certified. There are three levels of certification; from lowest to highest these are EMT-Basic, EMT-Intermediate, and EMT-Paramedic. Applicants for EMT training must be at least 18 years old, possess a valid driver's license, and be able to carry and lift at least 100 pounds. Formal training is available in hospitals, community colleges, as well as colleges and universities. EMT-Basic training involves 110 to 120 hours of classroom work plus ten hours of internship in a hospital emergency room. Continuing education is necessary to maintain certification.

Career Paths

With sufficient experience, EMT/Paramedics may advance to become supervisors or operations managers. Some may pursue additional education in order to become RNs or physicians.



Requires
Specialized
Training or an
Associate's Degree

Licensed Practical Nurses

Licensed practical nurses (LPNs) provide much of the bedside care patients require, under the direction of a registered nurse or physician. They take temperatures and blood pressure, record vital signs, and assist patients with bathing, dressing, and personal hygiene.

Factors Driving the Job Growth

Caring for the needs of an aging population should generate slightly faster than average job growth for LPNs in nursing homes, doctors' offices, and home health agencies. Competition for jobs in hospitals will remain keen, as the number of hospital jobs for LPNs declines.

Where Jobs are Currently Found

Nursing & Residential Care Facilities (45%)

Ambulatory Health Care Services (18%)

Hospitals (17%)

Professional & Business Services (8%)

Offices of Physicians (8%)

Employment Services (7%)

Government (7%)

Home Health Care Services (6%)

Wages and Salaries

Mean Hourly Earnings: \$23.89

Education and Training Requirements

LPNs must be licensed. Applicants must complete an approved program in practical nursing and pass a national written examination. Training programs generally last one year and include both classroom study and clinical practice.

Career Paths

Licensed practical nurses advance with more education. With additional years of training or schooling, some can become staff nurses. Other workers who care for and assist people include emergency medical technicians, human service workers, and teacher assistants.

Growth Rate: 11.7%

Current Jobs: 17,450

Job Change: 2,050

**Replacement Job
Openings:** 4,760



Requires a
Bachelor's
Degree
or Higher

Medical and Health Services Managers

Medical and health services managers, also referred to as health care executives or health care administrators, plan, direct, coordinate, and supervise the delivery of health care. These workers are either specialists in charge of a specific clinical department or generalists who manage an entire facility or system.



Growth Rate: 13.5%

Current Jobs: 8,210

Job Change: 1,110

**Replacement Job
Openings:** 1,530

Factors Driving the Job Growth

Employment of medical and health services managers should increase faster than the average for all occupations as the health care industry continues to expand and diversify, requiring managers to oversee more complex operations. Job opportunities should be good, especially for applicants with work experience in health care and strong business and management skills. Hospitals will continue to employ the most medical and health services managers, but will increase at a slower rate. The growth rate in practitioners' offices and home health care agencies will be faster.

Where Jobs are Currently Found

Hospitals (42%)

Ambulatory Health Care Services (19%)

Nursing & Residential Care Facilities (10%)

Self-Employed (7%)

Educational Services (5%)

Government (3%)

Wages and Salaries

Mean Annual Earnings: \$104,520

Education and Training Requirements

A master's degree in one of a number of fields is the standard credential for most generalist positions as a medical or health care manager. A bachelor's degree is sometimes sufficient for entry-level positions in smaller facilities or departments.

On-the-job experience may sometimes substitute for formal education in physician' offices or other facilities.

Career Paths

Medical and health services managers have training in both health and management and may transition to management positions in other fields. Specific occupations that require knowledge in both fields are insurance underwriters and community service managers. Some may become consultants or teach health management courses at the post-secondary level.



Requires
Specialized
Training or an
Associate's Degree

Medical Assistants

Medical assistants perform many routine clinical and administrative tasks in doctors' offices. They sterilize and arrange medical instruments, take and record vital signs, update and file patient records, and make arrangements for hospital admission and laboratory services. They may handle billing and instruct patients about medication and special diets. In large practices, medical assistants may specialize in one area.

Factors Driving the Job Growth

As the population ages and requires more health care, jobs for medical assistants should increase rapidly. In addition, as medical group practices become larger and more complex, more medical assistants will be needed to process paperwork and keep offices running smoothly.

Where Jobs are Currently Found

Offices of Physicians (54%)
Hospitals (21%)
Offices of Other Health Care Practitioners (6%)

Wages and Salaries

Mean Hourly Wage: \$16.53

Education and Training Requirements

Most employers prefer to hire graduates of formal training programs offered at vocational schools and community and junior colleges. These programs usually last one to two years. High school courses in math, health, biology, typing, and bookkeeping are helpful for admission. The ability to put patients at ease and explain doctors' instructions clearly and concisely is also sought.

Career Paths

With experience, medical assistants can become office managers or medical records clerks. With additional schooling, some may become nurses, therapists, or technologists.

Growth Rate: 23.9%

Current Jobs: 9,630

Job Change: 2,300

**Replacement Job
Openings:** 1,200

Medical Lab Technologists and Technicians



Requires
Short-Term
On-The-Job
Training

Medical lab technologists and technicians perform a wide range of tests to detect and diagnose diseases. They prepare specimens, examine and analyze blood, tissues, and other bodily substances, interpret results, and relay them to physicians. Their responsibilities depend largely on their education and experience. They may specialize in a particular type of test in large labs. This occupational group includes biochemistry technologists, blood bank technicians, clinical chemistry technologists, microbiology technologists, and cytotechnologists.

Factors Driving the Job Growth

An aging population requiring more medical care will likely spur demand for additional testing, and increase jobs for medical lab technologists and technicians. The development of new more powerful diagnostic equipment should also increase the volume of laboratory tests and foster the development of new ones. However, as these tests become easier to perform, productivity will rise and keep jobs from expanding faster.

Where Jobs are Currently Found

Hospitals (70%)
 Ambulatory Health Care Services (13%)
 Colleges, Universities, & Professional Schools (6%)
 Medical & Diagnostic Laboratories (6%)
 Professional, Scientific & Technical Services (6%)
 Offices of Physicians (4%)
 Outpatient Care Centers (2%)

Wages and Salaries

Mean Hourly Earnings: \$18.98 Medical Lab Technicians
 \$26.93 Medical Lab Technologists

Education and Training Requirements

Hospitals and independent labs normally require a bachelor's degree in medical technology or life sciences for most entry-level positions as a medical technologist. An associate degree is required for laboratory technicians. Training programs for technicians vary widely and persons interested in this career should select a program carefully.

Career Paths

Technologists with experience can advance to supervisory or management positions. Graduate education usually accelerates advancement. With additional education and experience, technicians can become technologists.

Growth Rate: 10.1%

Current Jobs: 14,310

Job Change: 1,440

**Replacement Job
Openings:** 2,160



Requires
Specialized
Training or an
Associate's Degree

Medical Records Technicians

Medical records technicians evaluate health records for completeness and accuracy and they ensure that all forms are present and properly signed. They code symptoms, diseases, operations, and procedures for reimbursement by Medicare or other health insurance programs. They may tabulate and analyze data and write reports. In large hospitals they may specialize in Medicare coding, tumor registry, or other aspects of medical record keeping.

Factors Driving the Job Growth

Concern over rising health costs will continue to increase the need for detailed medical records in hospitals, nursing homes, and doctors' offices, increasing the demand for medical records technicians. Rapid growth in the number of new medical tests, treatments, and procedures should also spur job growth.

Growth Rate: 13.5%

Current Jobs: 5,640

Job Change: 760

**Replacement Job
Openings:** 1,530

Where Jobs are Currently Found

Hospitals (47%)
Offices of Physicians (23%)
Nursing & Residential Care Facilities (9%)
Home Health Care Services (5%)

Wages and Salaries

Mean Hourly Earnings: \$17.64

Education and Training Requirements

Employers usually hire graduates of two-year associate's degree programs who are also certified as accredited records technicians. Formal degree programs in medical records are offered at community and junior colleges.

Career Paths

Experienced medical records technicians advance by specializing in coding or managing a department. In large medical records departments, experienced technicians may become section supervisors. With a bachelor's degree in medical record administration, some may become directors.



Requires
Specialized
Training or an
Associate's Degree

Medical Secretaries

Medical secretaries perform a wide variety of office duties to ensure that information is disseminated. They take dictation, compile and record medical charts and reports, and prepare correspondence. They may assist physicians or medical staff with reports, speeches, articles, and conference proceedings.

Factors Driving the Job Growth

Jobs for medical secretaries are expected to rise about as fast as the average for all occupations. Although the demand for medical services is growing, increased automation and efforts to control costs will restrain the growth of this particular occupation. There will, however, be numerous job openings resulting from the need to replace medical secretaries who leave the work force or change careers.

Growth Rate: 9.1%

Current Jobs: 18,600

Job Change: 1,700

**Replacement Job
Openings:** 2,960

Where Jobs are Currently Found

Offices of Physicians (40%)

Hospitals (32%)

Offices of Dentists (12%)

Offices of Other Health Care Practitioners (4%)

Wages and Salaries

Mean Hourly Wage: \$17.03

Education and Training Requirements

Most employers prefer formal training. One or two year programs in medical secretarial training are offered by business schools, vocational-technical institutes, and community and junior colleges.

Career Paths

With experience, medical secretaries can advance to supervisory and management positions or they can seek employment in larger organizations, where salaries and benefits are higher.

Nursing, Psychiatric, and Home Health Aides



Requires
Short-Term
On-The-Job
Training

Nursing and psychiatric aides help care for physically or mentally ill, injured, disabled, or infirm individuals in a variety of health-care and mental health settings. These aides perform a variety of tasks under the supervision of nursing or other medical staff. Some of the duties include making beds, delivering meals, taking various measurements (temperature, pulse, blood pressure, etc.), and helping patients in and out of bed. Home health aides have duties that are similar, but they work in patients' homes or residential care facilities.

Factors Driving the Job Growth

Overall employment of nursing, psychiatric, and home health aides is expected to grow faster than the average for all occupations through 2016, although the individual growth rates will vary. Home health aides is expected to be the fastest growing of the group as a result of a growing demand for home services from an aging population and efforts to contain costs by moving patients out of health facilities as rapidly as possible. Growth will not be as fast for nursing aides, but is still expected to grow more rapidly than the average for all occupations. There will be far more job openings for this occupation, which is the largest of the group, due to a combination of fast employment growth and high replacement needs. Employment of psychiatric aides, the smallest of the group, is expected to decline slightly.

Growth Rate: 16.7%

Current Jobs: 67,620

Job Change: 11,310

Replacement Job Openings: 6,050

Where Jobs are Currently Found

Nursing & Residential Care Facilities (45%)

Hospitals (19%)

Home Health Care Services (8%)

Community Care Facilities for the Elderly (6%)

Residential Mental Retardation, Mental Health, & Substance Abuse Facilities (5%)

Self-Employed (2%)

Wages and Salaries

Mean Hourly Wages \$13.78 Nursing Aides

 \$12.41 Home Health Aides

 \$15.14 Psychiatric Aides

Education and Training Requirements

In many cases, a high school diploma or equivalent is required for a job as a nursing or psychiatric aide, however, is not generally required for a home health aide. Some hospitals may require previous experience for nursing or home health aides. Some facilities require aides to complete a minimum of 75 hours of training and pass a competency evaluation. Aides who do so are known as certified nursing aides (CNAs) and are placed on a State registry of nursing aides. Most psychiatric aides learn their skills on the job from experienced workers.

Career Paths

Opportunities for advancement in these occupations are limited. Aides generally need additional formal training or education in order to enter other health occupations. The most common health care occupations for former aides are licensed practical nurse, registered nurse, and medical assistant.

Occupational and Physical Therapy Assistants and Aides



Requires
Specialized
Training or an
Associate's Degree

Occupational and physical therapy assistants and aides carry out rehabilitation programs under the direction of a therapist. Occupational therapy assistants teach patients self-care and related work skills. Physical therapy assistants apply massage, heat, light, and ultrasound treatments to improve and restore muscle function. They help patients perform therapeutic exercises and teach them how to use artificial limbs, braces, etc. They may also instruct, motivate, and assist patients. Aides help assistants transport patients to treatment areas, prepare treatments and work materials, maintain and care for equipment, and perform many other clerical assignments.

Factors Driving the Job Growth

With more people living longer, the number of people needing treatments for disabilities will increase. This change should rapidly increase demand for occupational and physical therapy assistants and aides. Changing business practices should also spur demand for more occupational therapy assistants and aides. To reduce health care costs, more companies are expected to hire occupational assistants and aides for tasks currently performed by more highly paid occupational therapists.

Where Jobs are Currently Found

Hospitals (35%)
Offices of Other Health Care Practitioners (28%)
Nursing Care Facilities (17%)
Home Health Care Services (5%)
Elementary & Secondary Schools (5%)

Wages and Salaries

Mean Hourly Wages:	\$22.50	Occupational Therapist Assistants
	\$18.65	Occupational Therapist Aides
	\$22.86	Physical Therapist Assistants
	\$14.29	Physical Therapist Aides

Education and Training Requirements

Occupational and physical therapy assistants must be licensed and pass an examination. To be eligible for licensure, candidates must have completed a two-year degree program in physical or occupational therapy at a junior or community college. Aides must be high school graduates or the equivalent; on-the-job training is provided.

Career Paths

With further education, occupational and physical therapy assistants and aides can become therapists. Other workers who assist people with disabilities include medical and dental assistants, home health aides, and nursing aides.

Growth Rate: 20.8%

Current Jobs: 4,430

Job Change: 920

**Replacement Job
Openings:** 600



Requires a
Bachelor's
Degree
or Higher

Occupational Therapists

Occupational therapists help people who have physical, emotional, or mental disabilities to become self-sufficient. They develop and design activities to increase strength and dexterity, hand-eye coordination, and short-term memory. They chart and evaluate patients' progress. They may work exclusively with individuals of a particular age group or disability.



Growth Rate: 17.7%

Current Jobs: 4,330

Job Change: 770

Replacement Job

Openings: 640

Factors Driving the Job Growth

Jobs for occupational therapists should increase rapidly, as the population ages and lives longer and the number of rehabilitation programs and other long-term care services expands. More occupational therapists will also be needed to treat special needs children in schools. Hospitals will continue to employ the largest number of occupational therapists, but most new jobs should arise in home health agencies and outpatient care clinics.

Where Jobs are Currently Found

Hospitals (28%)
Ambulatory Health Care Services (21%)
Elementary & Secondary Schools (18%)
Nursing Care Facilities (10%)
Self-Employed (7%)
Home Health Care Services (6%)

Wages and Salaries

Mean Hourly Earnings: \$32.19

Education and Training Requirements

Occupational therapists must be licensed. Applicants for licensure must have a bachelor's degree in occupational therapy and pass a national certifying exam.

Career Paths

Other workers who help people perform daily living skills include orthotists, prosthetists, art therapists, physical therapists, speech pathologists, and audiologists.



Requires
Short-Term
On-The-Job
Training

Pharmacy Technicians

Pharmacy technicians help licensed pharmacists provide medication and other health care products to patients. Pharmacy technicians who work in retail or mail-order pharmacies receive written or electronic prescriptions which they must verify as complete and accurate. They also retrieve, count, pour, weigh, measure, and sometimes mix the medication. They may also establish and maintain patient profiles, prepare insurance claim forms, and stock inventory. In hospitals and assisted-living facilities, technicians have added responsibilities, including reading patients' charts and preparing and delivering medicines to patients.

Factors Driving the Job Growth

Employment of pharmacy technicians is expected to grow much faster than the average for all occupations through 2016 because as the population and ages, demand for pharmaceuticals will increase. Good opportunities are expected for full-time as well as part-time work as a result of the expansion of retail pharmacies and the need to replace workers who transfer to other occupations or leave the labor force.

Where Jobs are Currently Found

Health & Personal Care Stores (70%)

Hospitals (18%)

Wages and Salaries

Mean Hourly Wages: \$14.75

Education and Training Requirements

In order to work as a pharmacy technician in Massachusetts, candidates must complete a program approved by the National Pharmacy Technician Certification Board (PTCB), or work 500-1000 hours as a pharmacist trainee and pass an exam.

Career Paths

Pharmacy technicians may work in a retail setting or move to a hospital setting or managed care company, where opportunities for advancement or transfer to other occupations are greater. Related occupations, which would require additional education or training, include licensed practical nurses, medical transcriptionists, medical records and health information technicians, and surgical technologists.

Growth Rate: 28.9%

Current Jobs: 5,740

Job Change: 1,660

**Replacement Job
Openings:** 1,750



Requires a
Bachelor's
Degree
or Higher

Physical Therapists

Physical therapists help people who are injured or suffering from a disease improve their mobility. They test and measure physical abilities and develop treatment plans. They may conduct periodic re-evaluations and modify treatments if necessary. They may use massage, water, or electronic therapies. Some specialize in pediatrics, geriatrics, orthopedics, sports physical therapy, neurology, or cardiopulmonary physical therapy.



Growth Rate: 22.5%

Current Jobs: 6,580

Job Change: : 1,480

**Replacement Job
Openings:** 790

Factors Driving the Job Growth

Employment of physical therapists should increase rapidly as new medical technologies are developed, permitting more disabling conditions to be treated. Future medical advancements will also permit a higher percentage of trauma victims to survive, creating additional demand for physical therapists. Caps on Medicare payments may restrict job growth in the short run, but over the long term the job outlook should remain bright, given the aging of the population and the various debilitating conditions associated with old age.

Where Jobs are Currently Found

Hospitals (35%)
Offices of Other Health Care Practitioners (24%)
Home Health Care Services (12%)
Nursing & Residential Care Facilities (7%)
Self-Employed (7%)
Elementary & Secondary Schools (5%)

Wages and Salaries

Mean Hourly Earnings: \$34.21

Education and Training Requirements

Physical therapists must be licensed. Applicants must have graduated from an accredited four-year physical therapy program to be eligible to take the licensure exam. Competition is keen for entry into physical therapy programs. High school courses in anatomy, biology, chemistry, social science, mathematics, and physics are useful for admission. Volunteer work in a physical therapy department is also useful.

Career Paths

Other workers who rehabilitate people with physical disabilities include occupational therapists, speech pathologists and audiologists, orthotists, prosthetists, respiratory therapists, chiropractors, acupuncturists, and athletic trainers.



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Degree
or Higher

Physician Assistants

Physician assistants provide health services under the direction of a licensed physician. They may examine patients, take medical histories, order and interpret laboratory tests and x rays, and treat minor injuries. Physician assistants specializing in surgery may provide pre-and post-operative care.

Factors Driving the Job Growth

Jobs for physician assistants should increase rapidly as more health care services are provided to meet the needs of a growing and aging population. The current emphasis on containing medical costs, resulting in increasing utilization of physician assistants, should also spur job growth.

Where Jobs are Currently Found

Offices of Physicians (46%)

Hospitals (38%)

Wages and Salaries

Mean Annual Earnings: \$85,540

Education and Training Requirements

Physician assistants must pass the Physician Assistants (PA) National Certifying Examination and graduate from an accredited PA educational program. Admission requirements vary, but most programs require prospective students to have a bachelor's degree with college courses in biology, chemistry, and physiology. To become certified in Massachusetts, physician assistants must hold a bachelor's degree in addition to completing the above requirements. In order to remain certified, physician assistants must complete 100 hours of continuing medical education every two years.

Career Paths

Physician assistants move up the career ladder by attaining greater clinical knowledge and experience and expanding the scope of their duties. However, by the very nature of the profession, individual physician assistants are always supervised by physicians. Other health care professionals who provide direct patient care that requires a similar skill and training include nurse practitioners, physical therapists, occupational therapists, nurse midwives, clinical nurse specialists, and speech language pathologists and audiologists.

Growth Rate: 16.9%

Current Jobs: 2,130

Job Change: 360

**Replacement Job
Openings:** 300



Requires a
Bachelor's
Degree
or Higher

Physicians and Surgeons

Physicians and surgeons perform medical exams, diagnose illnesses, and treat people suffering from injury or disease. They also advise patients on how to prevent sickness and stay healthy. Most specialize in one area of medicine. Some do research or teach in medical school.

Factors Driving the Job Growth

Growth will be slower than average for most types of physicians as nurses and physicians assistants take over some of the responsibilities of physicians.

Where Jobs are Currently Found

Offices of Physicians (54%)
Hospitals (19%)
Self-Employed (14%)
Outpatient Care Centers (6%)

Wages and Salaries

Mean Annual Earnings:	\$196,760*	Anesthesiologists
	\$185,200	Family and General Practitioners
	\$182,710	Internists, General
	\$187,790	Obstetricians and Gynecologists
	\$145,830	Pediatricians, General
	\$166,770	Psychiatrists
	\$213,850	Surgeons

*Employment projection not published

Education and Training Requirements

Physicians and surgeons must be licensed. Applicants for licensure must graduate from an accredited undergraduate institution, successfully complete medical school, and complete one or more years of graduate medical education (residency) before taking the national exam. Physicians seeking certification in other specialties may have longer residencies.

Career Paths

Other professionals who treat and diagnose disorders and injuries include audiologists, chiropractors, dentists, optometrists, podiatrists, speech pathologists, and veterinarians.

Growth Rate: 4.7%

Current Jobs: 9,430

Job Change: 440

Replacement Job

Openings: 1,690

Radiologic Technologists and Technicians



Requires
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Training or an
Associate's Degree



Growth Rate: 11.9%

Current Jobs: 5,980

Job Change: 710

**Replacement Job
Openings:** 810

Radiologic technologists and technicians take X-rays, CAT-scans, and use other electronic imaging techniques that are used in the diagnosis and treatment of medical problems. They may administer radiation treatments. Specialties include radiographers, sonographers or ultra-sound technologists, and radiation therapy technologists.

Factors Driving the Job Growth

As the population grows and ages, demand for more diagnostic imaging tests will grow, increasing jobs for radiologic technologists and technicians. Nevertheless, competition for jobs will remain intense as hospitals merge and consolidate to cut operating costs. The impact of new generations of imaging devices should also foster job growth, but the extent to which they will be adopted is unclear and largely dependent on costs and reimbursement considerations. Technologists who can perform both radiologic and nuclear medicine procedures will have the best opportunities.

Where Jobs are Currently Found

Hospitals (66%)
Offices of Physicians (15%)
Medical & Diagnostic Laboratories (6%)

Wages and Salaries

Mean Hourly Earnings: \$32.33

Education and Training Requirements

Radiologic technologists and X-ray technicians must be licensed. Minimum licensure requirements include graduation from an approved two-year program, and passing national and state exams. Formal training is available at hospitals and junior and community colleges. High school courses in math, physics, chemistry, and biology are helpful for admission.

Career Paths

Experienced radiographers advance by performing more complex tests. With experience, technologists can advance to positions as supervisors or chief technologists. Courses in business or a master's degree in health administration may be necessary for a position as a director or instructor. Radiologic technologists and technicians have many career paths open to them. Their training may enable some to take jobs with equipment manufacturers as sales representatives or instructors.



Requires a
Bachelor's
Degree
or Higher

Registered Nurses

Registered nurses observe and record patient symptoms, reactions, and progress. They assist physicians during treatments and examinations, administer medications, and may supervise licensed practical nurses and aides. Registered nurses may specialize in surgery, maternity, pediatrics, emergency, intensive care, or treatment of cancer patients, or may rotate among departments.

Factors Driving the Job Growth

Technological advances in patient care will permit a greater number of medical problems to be treated. These advances will likely increase the intensity of nursing care and the number of registered nurses needed to treat patients. Jobs should also grow as the population ages and the need for health care in general expands. Employment in hospitals, where more than two-thirds of registered nurses work, should grow more slowly than in other health care organizations. Nevertheless, large numbers of jobs should arise to replace registered nurses who retire or change jobs.

Growth Rate: 20.6%

Current Jobs: 78,370

Job Change: 16,110

**Replacement Job
Openings:** 12,940

Where Jobs are Currently Found

- Hospitals (59%)
- Nursing & Residential Care Facilities (8%)
- Home Health Care Services (8%)
- Offices of Physicians (6%)
- Elementary & Secondary Schools (3%)
- Outpatient Care Centers (3%)

Wages and Salaries

Mean Annual Earnings: \$70,910

Education and Training Requirements

Registered nurses must graduate from an accredited nursing program and obtain a license to practice. Nursing programs vary in length, and promotional opportunities depend on the program. Two-year Associate's Degrees in nursing programs (A.D.N.) are offered at community colleges. Diploma programs in hospitals generally take two to three years. Bachelor of Science in Nursing (B.S.N.) programs offered by colleges and universities generally take four or five years to complete. All three programs qualify the licensed graduate as a staff nurse. However, advancement opportunities are better for B.S.N. graduates than for other graduates. The B.S.N. is also a prerequisite for admission into graduate nursing programs.

Career Paths

With experience and good performance, registered nurses with a B.S.N. can advance to supervisory or administrative positions in hospitals, home health care, and community nursing. In general, however, management level nursing positions require a graduate degree in nursing or health service administration.



Requires a
Bachelor's
Degree
or Higher

Respiratory Therapists

Respiratory therapists evaluate, treat, and care for patients who have breathing disorders. They test and measure lung capacity, analyze oxygen levels, and set up and operate equipment. They may also instruct patients in breathing exercises and use of respiratory aides.

Factors Driving the Job Growth

Demand for respiratory therapists should increase rapidly as the numbers of people with cardiopulmonary problems continue to rise. Increases in the number of heart attack victims and infants born prematurely should also spur demand for respiratory care practitioners. Hospitals will still employ the majority of respiratory therapists, but growing numbers can expect to work outside of hospitals under contract to home health agencies and nursing homes.

Where Jobs are Currently Found

Hospitals (85%)

Wages and Salaries

Mean Hourly Earnings: \$29.23

Education and Training Requirements

Respiratory therapists must be licensed. Applicants for licensure must have a bachelor or associate degree and pass a national certifying exam. Two-year degree programs available at vocational-technical institutions and junior or community colleges prepare students for jobs as respiratory therapy technicians.

Career Paths

Respiratory therapists advance by handling more critical care patients. With experience some may advance to supervisory positions.

Growth Rate: 20.7%

Current Jobs: 2,190

Job Change: 450

**Replacement Job
Openings:** 320



Requires
Specialized
Training or an
Associate's Degree

Surgical Technologists

Surgical technologists, also called “scrubs” or operating room technicians, assist in surgical operations under the supervision of other medical staff. Before an operation, surgical technologists help prepare the operating room by setting up, assembling, or testing equipment. They also help patients get ready for surgery by washing, shaving, and disinfecting incision sites. After surgery, they observe patients’ vital signs, check charts, and provide general assistance to medical staff.

Factors Driving the Job Growth

Employment of surgical technologists is expected to grow much faster than the average for all occupations through 2016, as the volume of surgery increases due to the aging of the population and resulting increase in surgery. Technological advances, such as fiber optics and laser technology, are also expected to result in an increase in the number of new surgical procedures performed.

Growth Rate: 22.1%

Current Jobs: 1,870

Job Change: 420

**Replacement Job
Openings:** 570

Where Jobs are Currently Found

Hospitals (86%)

Ambulatory Health Care Services (11%)

Wages and Salaries

Mean Hourly Wages: \$21.06

Education and Training Requirements

Surgical technologists receive their training in formal programs offered by community and junior colleges, vocational schools, universities, hospitals, and the military. Most employers prefer to hire certified technologists. Certification can be obtained by successfully completing an accredited course and passing a national certification examination.

Career Paths

With additional training, some technologists advance to first assistants, who help with retracting, sponging, suturing, cauterizing bleeders, and closing and treating wounds. Some transfer to manage central supply departments in hospitals, sterile supply services, and operating equipment firms. Related occupations requiring additional training include licensed practical nurses, clinical laboratory technologists and technicians, and medical assistants.

Veterinary Technologists and Technicians



Requires a Bachelor's Degree or Higher

Veterinary technologists and technicians perform many of the same duties that a nurse would for a physician. They perform various medical tests, under the supervision of a veterinarian, and also help diagnose and treat medical conditions and diseases in animals. While most of these duties are performed in a laboratory setting, many are not. For example, some veterinary technicians obtain and record patients' case histories, expose and develop x-rays, and provide special nursing care. Besides working in private clinics and animal hospitals, veterinary technologists and technicians may work in research facilities.

Factors Driving the Job Growth

Overall employment of veterinary technologists and technicians is expected to grow much faster than the average for all occupations through 2016. This is due, in part, to the growing affluence of pet owners and their changing attitude towards pets. The demand for feline medicine and services is expected to grow faster relative to the demand for canine specialties. Candidates for positions in zoos will face greater competition due to the relatively slow growth expected for zoos and the fact that the occupation in this industry attracts many candidates.

Where Jobs are Currently Found

Professional, Scientific, & Technical Services* (84%)

Wages and Salaries

Mean Hourly Wages: \$16.22

Education and Training Requirements

There are primarily two levels of education and training for entry into this occupation: a two-year program for veterinary technicians and a four-year program for veterinary technologists. All states require a credentialing exam following completion of coursework.

Career Paths

Some veterinary technicians or technologists rise to become supervisors but, the only other jobs related to working with animals have either lower skill and education requirements (veterinary assistants and animal caretakers), or significantly higher education requirements (veterinarian).

Growth Rate: 33.5%

Current Jobs: 1,840

Job Change: 610

Replacement Job Openings: 560

* This industry sub-sector includes the detailed industry Veterinary Services