

Cardiovascular Technologist and Sonographer

The certified cardiovascular technologist and sonographer perform diagnostic examinations and/or therapeutic interventions of the heart and/or blood vessels at the request or direction of a physician in one or more of the following concentrations:

- Invasive cardiovascular technology—cardiac catheterization
- Adult echocardiography
- Pediatric echocardiography
- Noninvasive vascular study—vascular ultrasound
- Cardiac electrophysiology

History

In December 1981, the AMA Council on Medical Education (CME) officially recognized cardiovascular technology as an allied health profession. Subsequently, an initial draft of the proposed *Standards and Guidelines for the Accreditation of Educational Programs in Cardiovascular Technology* was finalized in 1983.

Career Description

The cardiovascular technologist is qualified by specific didactic, laboratory, and clinical technological education to perform diagnostic or therapeutic procedures in various cardiovascular or peripheral vascular procedures. Careers in cardiovascular technology include:

- *Invasive cardiovascular technologists* maintain the cardiac catheterization laboratory and assist cardiologists in the catheterization procedures used to diagnose and treat the various diseases of the cardiovascular system.
- *Adult and pediatric echocardiographers* are cardiac sonographers who perform echocardiography examinations to evaluate heart function and physiology under the supervision of cardiologists. Echocardiography procedures are performed on adults and pediatric patients (infant through adolescence). Cardiac sonographers also perform cardiac stress testing and assist in trans-esophageal echocardiography.
- *Non-invasive vascular ultrasound sonographers* work under the direction of vascular surgeons, interventional radiologists, or cardiologists to perform vascular ultrasound and other non-ultrasonographic, non-invasive procedures to evaluate non-cardiac vessels throughout the vascular system.
- *Cardiac electrophysiology technologists* maintain the cardiac electrophysiology laboratory and assist cardiologists in the various procedures used to diagnose and treat patients with cardiac arrhythmias.

Employment Characteristics

Cardiovascular technologists provide their services to patients in medical settings under the supervision of a doctor of medicine (MD) or osteopathy (DO). The procedures performed by the cardiovascular technologist may be found in:

- Invasive cardiac catheterization or endovascular laboratories, where cardiac, electrophysiologic, and vascular catheterization procedures are performed;
- Noninvasive cardiac (Echocardiology) laboratories, where cardiac ultrasound and exercise stress tests are performed.
- Vascular laboratories, where peripheral vascular duplex ultrasound, segmental blood pressure, transcutaneous oxygen tension, and plethysmographic studies are performed.

Salary

Although salary may vary significantly depending on region and demographics, entry-level salaries range from \$40,000 to \$50,000. The overall average is \$50,000 to \$65,000, with the upper-level ranges from \$75,000 plus.

Data from the US Bureau of Labor Statistics (www.bls.gov/oes/current/oes292031.htm) from May 2009 show that wages at the 10th percentile are \$25,940, the 50th percentile (median) at \$48,300, and the 90th percentile at \$76,220. In addition, the American Society of Echocardiography has a salary survey that includes data for cardiovascular sonographers, and is available at www.asecho.org/i4a/ams/amsstore/category.cfm?category_id=19.

For more information, go to www.ama-assn.org/go/hpsalary.

Employment Outlook

Employment of cardiovascular technologists and sonographers is expected to increase 24% through the year 2018, much faster than the average for all occupations, according to the BLS. Demand will stem from the prevalence of heart disease and an aging population, which has a higher incidence of heart disease and other complications of the heart and vascular system.

Educational Programs

Length. Programs are located in colleges, hospitals, medical centers, or branches of the United States Armed Forces. Program length ranges from 1 year (hospital certificate) or 2 years (associate degree) to 4 years (baccalaureate degree).

Prerequisites. High school diploma or equivalent or qualifications in a clinically related allied health profession.

Requirements are determined by institutional requirements and concentration(s) studied.

Curriculum. Curricula of accredited programs include didactic instruction, laboratory experiences, and patient-based clinical instruction. Suggested areas of instruction in the core curriculum include an introduction to the field of cardiovascular technology, general and/or applied sciences, human anatomy and physiology, basic pharmacology, and basic medical electronics and medical instrumentation. Emphasis, following the core curriculum, is given in the concentration(s) selected: invasive cardiology, noninvasive/ echocardiography, noninvasive peripheral vascular, and

cardiac electrophysiology study. Both didactic instruction and clinical experiences are provided in these areas.

Inquiries

Careers/Curriculum

Society for Vascular Ultrasound
4601 Presidents Drive, Suite 260
Lanham, MD 20706-4831
(301) 459-7550 or 800 SVU-VEIN (800 788-8346)
www.svunet.org

American Society of Echocardiography
2100 Gateway Centre Boulevard, Suite 310
Morrisville, NC 27560
(919) 861-5574
www.asecho.org

Society of Diagnostic Medical Sonography
2745 Dallas Pkwy Ste 350
Plano, TX 75093-8730
(800) 229-9506
www.sdms.org

Society of Invasive Cardiovascular Professionals
1500 Sunday Drive, Suite 102
Raleigh, NC 27607
(919) 861-4546
www.sicp.com

Certification/Registration

Cardiovascular Credentialing International
1500 Sunday Drive, Suite 102
Raleigh, NC 27607
(800) 326-0268
www.cci-online.org

American Registry for Diagnostic Medical Sonography
51 Monroe Street, Plaza East One
Rockville, MD 20850-2400
(301) 738-8401
www.ardms.org

Program Accreditation

Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with:
Joint Review Committee on Education in Cardiovascular Technology (JRC-CVT)
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