

Medical Imaging

Includes:

- Diagnostic medical sonographer
- Magnetic resonance technologist
- Medical dosimetrist
- Nuclear medicine technologist
- Radiation therapist
- Radiographer

Post-Primary Specialties in Radiologic Technology

Practitioners of the following post-primary specialties in radiologic technology are eligible for certification by the American Registry of Radiologic Technologists. Candidates for certification must be certified in radiography, radiation therapy, or nuclear medicine

and document specific clinical competencies to be eligible for the certification examination.

- Bone densitometry
- Breast sonography
- Cardiac-interventional radiography
- Computed tomography
- Magnetic resonance imaging (both a primary and post-primary track)
- Mammography
- Quality management
- Vascular sonography
- Vascular-interventional radiography
- Sonography (both a primary and post-primary track)

Diagnostic Medical Sonographer

The diagnostic medical sonographer provides patient services using medical ultrasound (high-frequency sound waves that produce images of internal structures). Working under the supervision of a physician responsible for the use and interpretation of ultrasound procedures, the sonographer helps gather sonographic data to diagnose a variety of conditions and diseases, as well as monitor fetal development.



History

In 1972, the American Society of Ultrasound Technical Specialists (ASUTS) appointed a committee to explore the mechanism of accreditation of educational programs for the ultrasound technical specialist through the AMA Council on Medical Education (CME). In 1974, the occupation of diagnostic medical sonography received recognition by the AMA.

From 1974 to 1979, the *Standards (Essentials) of an Accredited Educational Program for the Diagnostic Medical Sonographer* were developed. Because of the multidisciplinary nature of diagnostic ultrasound, many interested medical and allied health organizations collaborated in drafting the *Standards*. Educational programs were first accredited in January 1982. The Standards were most recently revised in 2007.



Job Description

The sonographer provides patient services in a variety of medical settings in which the physician is responsible for the use and interpretation of ultrasound procedures. In assisting physicians in gathering sonographic data, the diagnostic medical sonographer is able to:

- Obtain, review, and integrate pertinent patient history and supporting clinical data to facilitate optimum diagnostic results
- Perform appropriate procedures and record anatomical, pathological, and/or physiological data for interpretation by a physician
- Record and process sonographic data and other pertinent observations made during the procedure for presentation to the interpreting physician
- Exercise discretion and judgment in the performance of sonographic services
- Provide patient education related to medical ultrasound

- Promote principles of good health

According to the US Bureau of Labor Statistics, sonographers may specialize in the fields noted below. (In addition, sonographers may specialize in vascular sonography or cardiac sonography, which are covered in the Cardiovascular Technologist section of this *Directory*. Formal training in vascular sonography is offered through 2-year associate degree and 4-year baccalaureate degree programs in cardiovascular technology and diagnostic medical sonography accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), which include a vascular technology component in their curriculum.)

Obstetric and gynecologic sonographers specialize in the imaging of the female reproductive system. Included in the discipline is one of the more well-known uses of sonography: examining the fetus of a pregnant woman to track the baby's growth and health.

Abdominal sonographers inspect a patient's abdominal cavity to help diagnose and treat conditions primarily involving the gallbladder, bile ducts, kidneys, liver, pancreas, spleen, and male reproductive system. Abdominal sonographers also are able to scan parts of the chest, although studies of the heart using sonography usually are done by echocardiographers.

Neurosonographers focus on the nervous system, including the brain. In neonatal care, neurosonographers study and diagnose neurological and nervous system disorders in premature infants. They also may scan blood vessels to check for abnormalities indicating a stroke in infants diagnosed with sickle-cell anemia. Like other sonographers, neurosonographers operate transducers to perform the sonogram, but use frequencies and beam shapes different from those used by obstetric and abdominal sonographers.

Breast sonographers use sonography to study diseases of the breasts. Sonography aids mammography in the detection of breast cancer. Breast sonography can also track tumors, blood supply conditions, and assist in the accurate biopsy of breast tissue. Breast sonographers use high-frequency transducers, made exclusively to study breast tissue.



Employment Characteristics

Diagnostic medical sonographers may be employed in hospitals, clinics, private offices, and industry. Most full-time sonographers work about 40 hours a week;

they may have evening weekend hours and times when they are on call and must be ready to report to work on short notice.

The demand for sonographers, including suitably qualified educators, researchers, and administrators, continues to exceed the supply, with faster than average job growth anticipated. The supply and demand ratio affects salaries, depending on experience and responsibilities.



Salary

According to the Society of Diagnostic Medical Sonographers, the hourly salary for diagnostic medical sonographers is \$29.00; median income in 2005 was \$61,984. Data from the US Bureau of Labor Statistics for 2007 shows that wages at the 10th percentile were \$42,250, the 50th percentile (median) at \$59,860, and the 90th percentile at \$81,260 (www.bls.gov/oes/current/oes292032.htm). For more information, refer to www.ama-assn.org/go/hpsalary.



Educational Programs

Length. Accredited programs are between 1 and 4 years (certificate, associate, and baccalaureate level), depending on program design, objectives, and the degree or certificate awarded.

Prerequisites. Applicants to a 1-year program must possess qualifications in a clinically related allied health profession. Applicants to 2-year programs must be high school graduates (or equivalent) with an educational background in basic science, general physics, and algebra. All applicants must demonstrate satisfactory completion of the following courses at college level: general physics, biological science, algebra, and communication skills.

Skills potential and practicing sonographers should exhibit include social perceptiveness, learning strategies, critical thinking skills, instructional skills, active listening, active learning, reading comprehension, and written/oral expression.

Curriculum. Curricula of accredited programs include physical sciences, applied biological sciences, patient care, clinical medicine, applications of ultrasound, instrumentation, related diagnostic procedures, and image evaluation. A plan for well-structured, competency-based clinical education is an essential part of the curriculum of all sonography programs.



Registration

Although no state requires licensure in diagnostic medical sonography, organizations such as the American Registry for Diagnostic Medical Sonography (ARDMS) and the American Registry of Radiologic Technologists (ARRT) certify the competency of sonographers through registration. Because registration provides an independent, objective measure of an individual's professional standing, many employers prefer to hire registered sonographers. Registration with ARDMS requires passing a general physical principles and instrumentation examination, in addition to passing an exam in a specialty such as obstetric and gynecologic sonography, abdominal sonography, or neurosonography. Registration by ARRT requires passing an examination in general sonography, vascular sonography, or breast

sonography. To keep their registration current, sonographers must complete continuing education to stay abreast of technological advances related to the occupation.



Inquiries

Careers/Curriculum

Society of Diagnostic Medical Sonography
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Plano, TX 75093-4706
214 473-8057
214 473-8563 Fax
E-mail: info@sdms.org
www.sdms.org

Society for Vascular Ultrasound
4601 Presidents Drive, Suite 260
Lanham, MD 20706-4831
301 459-7550 or 800 SVU-VEIN (800 788-8346)
301 459-5651 Fax
www.svunet.org

American Society of Echocardiography
1500 Sunday Drive, Suite 102
Raleigh, NC 27607
919 861-5574
919 787-4916 Fax
www.asecho.org

Registration

American Registry for Diagnostic Medical Sonography
51 Monroe Street, Plaza East Ore
Rockville, MD 20852
301 738-8401
www.ardms.org

American Registry of Radiologic Technologists
1255 Northland Drive
St Paul, MN 55120-1155
651 687-0048
www.arrt.org

Program Accreditation

Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with:
Joint Review Committee on Education in Diagnostic Medical Sonography
2025 Woodlane Drive
St Paul, MN 55125-2998
651 731-1582
E-mail: jrc-dms@jcahpo.org

Note: Adapted in part from the Bureau of Labor Statistics, US Department of Labor, *Occupational Outlook Handbook*, 2008-09 Edition, Diagnostic Medical Sonographers, on the Internet at www.bls.gov/oco/ocos273.htm.