

Radiologic Technician

Professional Activities

Some radiologic technologists and technicians, referred to as radiographers, produce x-ray films (radiographs) of parts of the human body for use in diagnosing medical problems. They prepare patients for radiologic examinations by explaining the procedure, removing jewelry and other articles through which x rays cannot pass, and positioning patients so that the parts of the body can be appropriately radiographed. To prevent unnecessary exposure to radiation, these workers surround the exposed area with radiation protection devices, such as lead shields, or limit the size of the x-ray beam. Radiographers position radiographic equipment at the correct angle and height over the appropriate area of a patient's body. Using instruments similar to a measuring tape they may measure the thickness of the section to be radiographed and set controls on the x-ray machine to produce radiographs of the appropriate density, detail, and contrast. Radiologic technologists and technicians must follow physicians' orders precisely and conform to regulations concerning the use of radiation to protect themselves, their patients, and their coworkers from unnecessary exposure.

In addition to preparing patients and operating equipment, radiologic technologists and technicians keep patient records and adjust and maintain equipment. They also may prepare work schedules, evaluate purchases of equipment, or manage a radiology department.

Radiologic technologists also perform more complex imaging procedures. When performing fluoroscopies, for example, radiologic technologists prepare a solution for the patient to drink, allowing the radiologist (a physician who interprets radiographs) to see soft tissues in the body.

Some radiologic technologists specialize in computed tomography (CT), as *CT technologists*. CT scans produce a substantial amount of cross-sectional x rays of an area of the body. From those cross-sectional x rays, a three-dimensional image is made. The CT uses ionizing radiation; therefore, it requires the same precautionary measures that are used with x rays.

Radiologic technologists also can specialize in Magnetic Resonance Imaging (MR) as *MR technologists*. MR, like CT, produces multiple cross-sectional images to create a 3-dimensional image. Unlike CT and x rays, MR uses non-ionizing radio frequency to generate image contrast.

Radiologic technologists might also specialize in mammography. Mammographers use low dose x-ray systems to produce images of the breast.

Physical stamina is important in this occupation because technologists and technicians are on their feet for long periods and may lift or turn disabled patients. Technologists and technicians work at diagnostic machines but also may perform some procedures at patients' bedsides. Some travel to patients in large vans equipped with sophisticated diagnostic equipment.

Although radiation hazards exist in this occupation, they are minimized by the use of lead aprons, gloves, and other shielding devices, and by instruments monitoring exposure to radiation. Technologists and technicians wear badges measuring radiation levels in the radiation area, and detailed records are kept on their cumulative lifetime dose.

Most full-time radiologic technologists and technicians work about 40 hours a week. They may, however, have evening, weekend, or on-call hours. Some radiologic technologists and technicians work part time for more than one employer; for those, travel to and from facilities must be considered.

Educational Requirements

Formal training programs in radiography lead to a certificate, an associate degree, or a bachelor's degree. An associate degree is the most prevalent form of educational attainment among radiologic technologists and technicians. Some may receive a certificate. Certificate programs typically last around 21-24 months.

The Joint Review Committee on Education in Radiologic Technology accredits formal training programs in radiography. The programs provide both classroom and clinical instruction in anatomy and physiology, patient care procedures, radiation physics, radiation protection, principles of imaging, medical terminology, positioning of patients, medical ethics, radiobiology, and pathology. Students interested in radiologic technology should take high school courses in mathematics, physics, chemistry, and biology.

Federal legislation protects the public from the hazards of unnecessary exposure to medical and dental radiation by ensuring that operators of radiologic equipment are properly trained. However, it is up to each State to require licensure of radiologic technologists. Most States require licensure for practicing radiologic technologists. Licensing requirements vary by State; for specific requirements contact your State's health board.

The American Registry of Radiologic Technologists (ARRT) offers voluntary certification for radiologic technologists. In addition, a number of States use ARRT-administered exams for State licensing purposes. To be eligible for certification, technologists must graduate from an ARRT-approved accredited program and pass an examination. Many employers prefer to hire certified radiologic technologists. In order to maintain an ARRT certification, 24 hours of continuing education must be completed every 2 years.

Radiologic technologists should be sensitive to patients' physical and psychological needs. They must pay attention to detail, follow instructions, and work as part of a team. In addition, operating complicated equipment requires mechanical ability and manual dexterity.

With experience and additional training, staff technologists may become specialists, performing CT scanning, MR, mammography, or bone densitometry. Technologists also may advance, with additional education and certification, to become a radiologist assistant. The ARRT offers specialty certification in many radiologic specialties as well as a credentialing for radiologist assistants.

Experienced technologists also may be promoted to supervisor, chief radiologic technologist, and, ultimately, department administrator or director. Depending on the institution, courses or a master's degree in business or health administration may be necessary for the director's position.

Academic Programs

[Advocate Trinity Hospital School of Radiologic Technology](#)

[Blessing Hospital School of Radiologic Technology](#)

[Carl Sandburg College](#)

[College of DuPage](#)

[Harper College](#)

[Heartland Community College](#)

[Illinois Central College](#)

[Joliet Junior College](#)

[Kankakee Community College](#)

[Kaskaskia College](#)

[Kishwaukee College](#)

[Lincoln Land Community College](#)
[Malcolm X College](#)
[Moraine Valley Community College](#)
[Parkland College](#)
[Rend Lake College](#)
[Richland Community College](#)
[Sauk Valley Community College](#)

[South Suburban College South](#)
[Southern Illinois University Carbondale](#)
[Southwestern Illinois College](#)
[Triton College](#)
[University of St Francis](#)
[Wilbur Wright College](#)

Employment/Salary Outlook

As the population grows and ages, there will be an increasing demand for diagnostic imaging. With age comes increased incidence of illness and injury, which often requires diagnostic imaging for diagnosis. In addition to diagnosis, diagnostic imaging is used to monitor the progress of disease treatment. With the increasing success of medical technologies in treating disease, diagnostic imaging will increasingly be needed to monitor progress of treatment.

The extent to which diagnostic imaging procedures are performed depends largely on cost and reimbursement considerations. However, accurate early disease detection allows for lower cost of treatment in the long run, which many third-party payers find favorable.

Although hospitals will remain the principal employer of radiologic technologists, a number of new jobs will be found in offices of physicians and diagnostic imaging centers. As technology advances many imaging modalities are becoming less expensive and more feasible to have in a physician’s office. In addition to job growth, job openings also will arise from the need to replace technologists who leave the occupation. Those with knowledge of more than one diagnostic imaging procedure—such as CT, MR, and mammography—will have the best employment opportunities as employers seek to control costs by using multi-credentialed employees.

Demand for radiologic technologists and technicians can tend to be regional with some areas having large demand, while other areas are saturated. Technologists and technicians willing to relocate may have better job prospects.

CT is continuing to become a frontline diagnosis tool. Instead of taking x rays to decide whether a CT is needed, as was the practice before, it is often the first choice for imaging because of its accuracy. MR also is increasingly used. Technologists with credentialing in either of these specialties will be very marketable to employers.

State and National Wages

Location	Pay Period	2021		
		Low	Median	High
United States	Hourly	\$22.53	\$29.50	\$45.62
	Annual	\$46,850	\$61,370	\$94,880
Illinois	Hourly	\$22.61	\$29.81	\$38.30
	Annual	\$47,020	\$62,010	\$79,670

State and National Trends

United States	Employment		Percent Change	Job Openings ¹
	2021	2031		
Health Technologist and Technicians, All Other	222,800	236,900	6%	13,800
Illinois	Employment		Percent Change	Job Openings ¹
	2020	2030		
Radiologic Technologists and Technicians	8,760	9,150	5%	670

¹Job Openings refers to the average annual job openings due to growth and net replacement.

Professional Organizations

American Registry of Radiologic Technologists (arrt.org)

Joint Review Committee on Education in Radiologic Technology (jrcert.org)

References

Occupational Outlook Handbook, U.S. Department of Labor, Bureau of Labor Statistics
(<http://www.bls.gov/ooh/healthcare/radiologic-technologists.htm>)

O*NET OnLine (<http://www.onetonline.org/link/details/29-2099.06>)

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