

Who Are Radiologic Technologists?

Radiologic technologists are the medical personnel who perform diagnostic imaging examinations and administer radiation therapy treatments. They are educated in anatomy, patient positioning, examination techniques, equipment protocols, radiation safety, radiation protection and basic patient care. They may specialize in a specific imaging technique, such as bone densitometry , cardiovascular-interventional radiography , computed tomography , mammography , magnetic resonance imaging , nuclear medicine , quality management , sonography or general radiography . The radiologic technologists who specialize in radiation therapy, which is the delivery of high doses of radiation to treat cancer and other diseases, are radiation therapists and medical dosimetrists.

Radiologic Technologists on the Medical Imaging Team

Radiologic technologists who perform imaging examinations are responsible for accurately positioning patients and ensuring that a quality diagnostic image is produced. They work closely with radiologists, the physicians who interpret medical images to either diagnose or rule out disease or injury. For the images to be interpreted correctly by the radiologist, the imaging examination must be performed properly by a radiologic technologist.

Radiologic technologists often specialize in a particular diagnostic imaging area:

Bone Densitometry Technologists

use a special type of x-ray equipment to measure bone mineral density at a specific anatomical site (usually the wrist, heel, spine or hip) or to calculate total body bone mineral content. Results can be used by physicians to estimate the amount of bone loss due to osteoporosis, to track the rate of bone loss over a specific period of time, and to estimate the risk of fracture.

Cardiovascular-Interventional Technologists

use sophisticated imaging techniques such as biplane fluoroscopy to help guide catheters, vena cava filters, stents or other tools through the body. Using these techniques, disease can be treated without open surgery.

Computed Tomography Technologists

use a rotating x-ray unit to obtain "slices" of anatomy at different levels within the body. A computer then stacks and assembles the individual slices, creating a diagnostic image. With CT technology, physicians can view the inside of organs - a feat not possible with general radiography.

Magnetic Resonance Technologists

are specially trained to operate MR equipment. During an MRI scan, atoms in the patient's body are exposed to a strong magnetic field. The technologist applies a radiofrequency pulse to the field, which knocks the atoms out of alignment. When the technologist turns the pulse off, the atoms return to their original position. In the process, they give off signals that are measured by a computer and processed to create detailed images of the patient's anatomy.

Mammographers

produce diagnostic images of breast tissue using special x-ray equipment. Under a federal law known as the Mammography Quality Standards Act, mammographers must meet stringent educational and experience criteria in order to perform mammographic procedures.

Nuclear Medicine Technologists

administer trace amounts of radiopharmaceuticals to a patient to obtain functional information about organs, tissues and bone. The technologist then uses a special camera to detect gamma rays emitted by the radiopharmaceuticals and create an image of the body part under study. The information is recorded on a computer screen or on film.

Quality Management Technologists

use standardized data collection methods, information analysis tools and data analysis methods to monitor the quality of processes and systems in the radiology department. They perform processor quality control tests, assess film density, monitor timer accuracy and reproducibility and identify and solve problems associated with the production of medical images.

Radiographers

use radiation (x-rays) to produce black-and-white images of anatomy. The images are captured on film, computer or videotape. X-rays may be used to detect bone fractures, find foreign objects in the body, and demonstrate the relationship between bone and soft tissue. The most common type of x-ray exam is chest radiography.

Sonographers

use sound waves to obtain images of organs and tissues in the body. During an ultrasound examination, the sonographer places a transducer in contact with the patient's body. It emits high-frequency sound waves that pass through the body, sending back "echoes" as they bounce off organs and tissues. Special computer equipment converts those echoes into visual data. [Click here for a profile of a sonographer](#) .

Radiologic Technologists on the Radiation Oncology Team

The medical team responsible for treating many types of cancers includes the patient's primary care physician, a physician specialist known as a radiation oncologist, a medical physicist, a radiation therapist and a medical dosimetrist. The radiation therapist and the medical dosimetrist are members of the radiologic technology profession.

Medical Dosimetrists

determine how much radiation will be delivered to a tumor site. Under the supervision of a medical physicist, they calculate and generate radiation dose distributions in accordance with the treatment plan developed by the radiation oncologist. Medical dosimetrists use their knowledge of physics, anatomy and radiobiology to design optimal treatments that apply an effective dose to the targeted area while sparing normal tissue that surrounds it.

Radiation Therapists

administer targeted doses of radiation to the patient's body to treat cancer or other diseases. As the radiation strikes human tissue, it produces highly energized ions that gradually shrink and destroy the nucleus of malignant tumor cells. Radiation therapists are highly skilled medical specialists educated in physics, radiation safety, patient anatomy and patient care. They typically see each of their patients three to five days a week throughout a four- to seven-week treatment plan.



Who Are Radiologists?

Radiologists are physicians who earn a four-year doctoral degree to become an M.D. (medical doctor) or D.O. (doctor of osteopathy). They then complete a four-year residency in diagnostic radiology or radiation oncology.

Diagnostic radiologists

specialize in the interpretation of medical images such as MR scans, CT scans, radiographs, nuclear medicine scans, mammograms and sonograms. They are specially trained to identify injury and disease in each of the body's systems, whether bone, tissue, organs or blood vessels. Radiologists may specialize in fields such as neuroradiology, angiography, cardiovascular-interventional radiology, pediatric radiology or nuclear medicine.

Radiation oncologists

are radiologists who specialize in the treatment of cancer. They consult with each patient and the patient's primary care physician to determine the best course of therapy and plan a treatment schedule. Then, they work with a medical dosimetrist to calculate how much radiation will be delivered. The radiation therapist is the medical professional who carries out the treatment plan by delivering targeted radiation to the tumor site.

Interventional radiologists

are radiologists who perform nonsurgical treatments for a number of medical conditions, most commonly vascular disease. Examples of these treatments include angioplasty, thrombolysis, atherectomy, embolization of bleeding vessels and occlusion of brain aneurysms. Interventional radiologists perform these procedures under the guidance of x-rays, magnetic resonance or other imaging methods.

With My Best Wishes .. **Jasem Alenazi**

Kingdom of Saudi Arabia is The Kingdom of Humanity



Source : American Society of Radiologic Technologists