



Health Career Directory

Medical Radiation Technologist

Overview

This occupational group includes technologists who operate radiographic and radiation therapy equipment. They use this equipment to administer radiation treatment and produce images of body structures for the diagnosis and treatment of injury and disease. *Medical radiation technologists* who are supervisors or instructors are also included in this group.

An interest in science and technology is important for workers in this occupation. Individuals also need to be detail-oriented, patient, and good at problem-solving, critical-thinking, and organizational skills.

Computer skills are an advantage because computers are used for electronic imaging in most facilities.

The ability to work well as part of a team, and communicate well (to both co-workers and patients) is important to this occupation. *Medical radiation technologists* also need to work compassionately with patients who have acute and chronic illnesses.

Main Roles

Radiological technologists create images of body structures. These images may be shown on x-ray film, computer monitors, film, videotape or closed circuit television systems.

Some of the main duties of a *radiological technologist* are to:

- explain procedures to patients and answer questions
- help patients prepare for procedures, when needed
- monitor patients during procedures
- provide primary patient care while patients are in the diagnostic imaging department
- guarantee patient comfort and privacy
- understand physicians' requests for radiological examinations
- use appropriate techniques for different pathological conditions
- correctly position patients and equipment
- inject contrast media when required. Contrast medium is a substance used to enhance the contrast of structures or fluids within the body in medical imaging
- operate diagnostic imaging equipment to create quality images that help in diagnosis
- recognize various anatomical structures radiographed
- critique images to ensure high quality results
- follow radiation protection practices, regulations, and philosophy to lessen risk to patients, staff, and visitors.

Radiological technologists work together with other technologists: They work with, for example,

- nuclear medicine technologists
- diagnostic medical sonographers

- magnetic resonance technologists
- combined laboratory and x-ray technologists
- respiratory therapists
- physicians (particularly radiologists)
- nurses
- administrative support personnel.

Typically, *medical radiation technologists* are divided into four groups:

- radiological technologists
- nuclear medicine technologists
- radiation therapists
- medical resonance imaging technologists.

The specialized duties for these occupations are described below.

Special Duties

Radiological technologists operate

- *X-ray*
- *radiographic and fluoroscopic equipment*
- *computerized tomography (CT) scanners*

Mammography units or magnetic resonance imaging (MRI) scanners They o produce radiographs or anatomic images of the human body. The technologist assesses the quality of the images, and then a radiologist reviews them for the purpose of diagnosis and/or treatment of the disease or injury.

Radiological technologists' main duties are to:

- record and process patient data
- perform basic verification and quality control checks on radiographic and film processing equipment
- provide appropriate care for patients during the radiographic examination
- apply radiation protection measures
- train and supervise student radiographers or supervise other radiological technologists.

Radiological technologists may specialize in areas, such as:

- computerized tomography
- angiography
- mammography
- magnetic resonance imaging
- interventional radiology
- dosimetry
- stereotaxy or brachytherapy.

Radiation therapists

Radiation therapists operate linear accelerators, cobalt 60, X-ray and other radiation therapy equipment to administer radiation treatment prescribed by radiation oncologists.

They check radiation therapy equipment to be sure of correct operation and help radiation oncologists and clinical physicists with preparation of radiation treatment plans. Dosimetry, stereotaxy, and brachytherapy are all aspects of radiation therapy.

Radiation therapists help in the preparation of sealed radioactive materials such as cobalt, radium, cesium and isotopes. As well as in the construction of devices, such as plaster casts and acrylic moulds, in order to help with radiation treatments.

They also monitor patients' physical and psychological well-being during the entire course of treatment, and give advice patients about the side effects of radiation.

They may also train and supervise student radiotherapy technologists or supervise other radiotherapy technologists.

Medical Resonance Imaging (MRI) Technologists

MRI technologists operate high field strength magnets to create detailed anatomical images of the human body. These images are then used for diagnosis by radiologists.

The MRI technologist is responsible for patient care, quality control of the equipment, and ensuring the safety of the patient and other individuals entering the MRI environment.

The MRI technologist may also be required to train and supervise students. As well, they may be involved in clinical trials for research.

Who is suited to become a radiation technologist?

Radiological technologists are most effective when they have the following skills and characteristics:

- a sense of responsibility
- a lot of integrity
- the ability to maintain a lot of accuracy in their duties
- patience and adaptability
- sensitivity to the needs of sick and hurt people
- good communication skills
- the ability to put people at ease
- an interest in science and technology
- willingness to keep their skills and knowledge up to date
- good organizational skills
- good problem solving
- good critical thinking skills
- the ability to work well in a team environment
- the ability to reach a minimum height of 180 cm to move overhead equipment.

They should enjoy using equipment to perform tasks that need exactness. They also should follow procedures and standards for their work. Finally, they should be able to put together information for research data and statistics.

Who employs this professional?

Medical radiation technologists work in:

- hospitals
- cancer treatment centres
- community clinics
- radiological laboratories
- doctors' offices
- government agencies
- public health agencies
- industrial medical service units
- military bases
- research and education facilities
- equipment sales
- service and training.

With experience and additional training, radiological technologists may move into:

- teaching

- information systems
- administration
- specializations (for example, neuroradiology, cardiac radiology, angiography, bone densitometry or mammography).

Magnetic resonance imaging, ultrasonography and nuclear medicine require completion of other education programs (for more information, see the Diagnostic Medical Sonographer, Magnetic Resonance Technologist, and Nuclear Medicine Technologist occupational profiles).

Medical radiation technologists typically work 37 to 40 hours per week. Those working in hospitals often rotate shifts, may work on weekends and holidays, and can often expect to be on call in case of an emergency. Opportunities for part-time work are also available.

The work is generally highly technical and mentally demanding. Most medical radiation technologists work in clean, bright and well-ventilated settings. They work at diagnostic machines and electronic imaging/digital archive systems. Workers also spend about half of their time with patients.

Physical stamina is important as these workers are on their feet for long periods of time. Medical radiation technologist may also have to lift or turn patients. Workers may also be required to move overhead equipment.

Radiation dangers exist. They are lessened, however, by the use of lead aprons, gloves and other shielding devices. They are also lessened by instruments monitoring radiation exposure. As a result, radiation exposure is extremely low.

Medical radiation technologists wear badges that measure radiation levels. In addition, detailed records of their cumulative lifetime dose are kept. With the phasing out of film processors in favour of electronic imaging, most technologists are no longer exposed to chemicals and fumes.

Salary

Hourly Range - \$25.11 - \$33.59

Required Training and Education for this Profession

Completion of a two- to three-year college, hospital or other approved program in diagnostic radiography (for radiological technologists), nuclear medicine technology (for nuclear medicine technologists) or radiation therapy (for radiation therapists) is required for certification.

Some workers may have a bachelor of health sciences degree in radiography, nuclear medicine or radiation therapy. In addition, a period of supervised practical training is usually required for employment.

Experience as a medical radiation technologist is required to become a supervisor or instructor.

To attain full-practice membership or registration in the profession, workers must write and pass the Canadian Association of Medical Radiation Technologists (CAMRT) certification exam, the national standard for those entering the profession. They may then register with their provincial association, the British Columbia Association of Medical Radiation Technologists (BCAMRT), which also allows them to obtain membership in the national CAMRT.

You can become a student member of BCAMRT if you are enrolled in a recognized medical radiation technology program. For more information, visit the CAMRT website at: <http://www.camrt.ca> and the BCAMRT website at: <http://www.bcamrt.bc.ca>

In BC, there is no provincial requirement that you require you to be certified to work as a medical radiation technologist. However, in practice, employers generally require certification and registration with CAMRT and/or BCAMRT.

Industry sources report that employers will accept qualified technologists for new job openings if they are graduates of an accredited program, and either certified with or are eligible for certification with CAMRT.

Career Advancement

With enough work experience and training, medical radiation technologists can advance to supervisory positions in radiography, fluoroscopy, nuclear medicine, CT scan and MRI fields.

Some may also pursue positions as clinical instructors or start their own business.

Resources

Education Programs

British Columbia Institute of Technology

<http://www.bcit.ca/study/programs/6510diplt#overview>

College of New Caledonia

http://www.cnc.bc.ca/CNC_Programs/Medical_Radiography_Technology.htm

Associations

British Columbia Association of Medical Radiation Technologists

<http://www.bcamrt.bc.ca>

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