CAREERS IN RADIOLOGY

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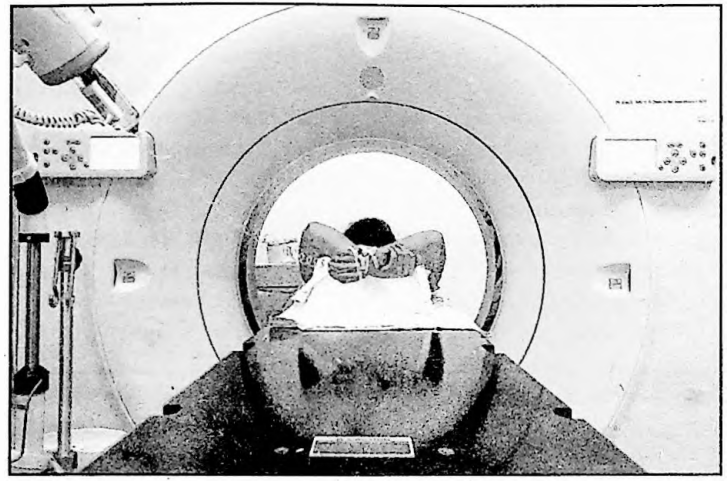
Radiology represents a branch of medicine that deals with radiant energy in the diagnosis and treatment of diseases and disorders. A physician who specializes in radiology is called radiologist. Radiography is used to diagnose the ailment and diseases of the internal and hidden parts of the body using X-ray, Fluoroscopy, Ultrasound (sonography), CT scan (Computer Tomography), MRI (Magnetic Resonance Imaging), Angiography, PET (Positron Emission Tomography) etc. These technologies are increasingly being used to help doctors identify the causes of illness, as well as for the treatment of certain diseases, which require radiation medicine. Radiography provides images of the body tissues, bones and organs for doctors to diagnose diseases and injuries and carry out treatment.

Thanks to the discovery of X-rays by Wilhelm Roentgen in November 1895, radiology has



grown immensely, both in its dimensions and capabilities and is now one of the most sought-after postgraduate courses for medical graduates. It is both a diagnostic specialty and an interventional specialty, with direct links to almost every other department in a hospital.

Radiology is an exciting and intellectually stimulating specialty that plays an important role in patient diagnosis and management. Technological innovations and the widespread availability of sophisticated imaging techniques has enabled radiography to advance rapidly in recent years.

The work of a radiologist is of utmost importance in the diagnosis of patients, and is crucial to the application of rapid and essential treatment. Radiography is concerned with operating radio imaging machines such as X-ray and interpreting results. It also involves treatment of cancers and tumors with radiation. There are two career choices in the field- Diagnostic Radiography and Therapeutic Radiography. The responsibility of a Diagnostic radiographer is to explain the procedure to the patients, prepare them for the tests and operate the machine, and do the maintenance of equipment and records. They also assist physicians in performing procedures such as Myelograms (an exam to detect injuries, Cysts or tumors in the spinal cord) and surgeons in the operating room with portable x-ray machines or fluoroscopic machines.

Therapeutic radiography or Radiotherapy is now being used in the treatment and diagnosis of a large number of diseases, including cancer, tumors and ulcers. A therapy radiographer use radiation in highly controlled conditions in the treatment of tumor. The exact amount of radiation can shrink a tumor.

Radiologist Plays a Key Role in Healthcare:

- Acting as an expert consultant to referring physician by aiding him or her in choosing the proper examination, interpreting the resulting medical images, and using test results for carrying out treatment.
- Treating diseases by means of radiation (radiation oncology)

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or minimally invasive, image-guided therapeutic intervention (interventional radiology).

- Correlating medical image findings with other examinations and tests.
- To know and monitor the levels of radiation exposure through correct positioning, and shielding of body parts, thereby, ensuring against over exposure to harmful radiation.
- Recommending further appropriate examinations or treatments when necessary and conferring with referring physicians.
- Directing radiologic technologists (personnel who operate the equipment) in the proper performance of quality exams.

As technology advances, radiologists would need to continue to study throughout their career, so as to ensure they learn of any advances in the investigative techniques used to test and diagnose patients.

Radiologists, radiographers and x-ray technicians are exposed to radiation and spend a lot of time in dimly lit rooms. They must therefore wear protective gear. Women in particular need to be extremely careful in handling radio active material.

ELIGIBILITY

Those who enjoy intellectual challenges and solving mind-boggling cases have an analytical mind and a keen eye for detail can take up radiology as a career and should have a interest in the science subjects such as Biology, Physiology and Anatomy.

While radiology is a medical speciality requiring a basic MBBS qualification, there are also degree and diploma courses for radiography for those who have passed their 10+2 or equivalent with 50% marks in mathematics, physics and chemistry.

Qualified MBBS doctors can take study of MD/DNB in radiology after qualifying in postgraduate NEET entrance examinations (conducted by the CBSE or State Boards or National Board of Examinations). During MD (Doctor of Medicine)/DNB (Diplomate of National Board), research has to be carried out apart from regular academics, carrying out ward duties and upgrading one's knowledge. One can then go for a three-year senior residency and/or sub-specialty training, after which she/he can practice as a radiologist. A radiologist can choose to specialize in one or more of the following: Breast, Cardiac, Gastrointestinal, Head and neck, Musculoskeletal, Neuroradiology, Oncological, Paediatric, Radionuclide, Thoracic, Uro-gynaecological, and Vascular.

There is a three-year B Sc course in radiography, and radiotherapy, as also two year diploma courses for medical technicians to qualify in this field. Post Graduate courses are also available for graduates.

SKILLS REQUIRED TO BE AN RADIOLOGIST

Radiography is essentially a service oriented field. Essential skills required are:

- Attention to detail.
- Ability to work as an individual and as part of a medical team of specialists.
- Excellent communication skills.
- Able to work well in stressful conditions.
- Critical thinking
- Good powers of observation
- Meticulous record keeping abilities
- Real desire to help patients get better.
- Understanding of patient concerns and anxieties.
- Technical abilities and dexterity in handling machines
- Desire to keep learning and improving skills

JOB OPPORTUNITIES

After training in the particular area of specialisation, radiographers, radiotherapists, X-ray and ECG technicians can work in the X-ray and ultrasound and other diagnostic departments in hospitals, clinics, private nursing homes, public health organisations, research institutions, pharmaceutical concerns and as well as medical institutions controlled by Defence, Central and State Governments. They can also opt for teaching, or go into nuclear medicine and research..

Radiologists and Radiographers are required in large numbers in

- Nursing homes
- Hospitals
- Diagnostic centers
- Super specialty hospitals
- X-Ray/ Ultra Sound departments of Medical Institutions
- Defence Forces
- Private Practice

Job profiles under Radiography:

Typical work activities a radiologist would need to carry out include the following:

- Carry out investigative techniques and treatments such as x-rays, ultrasound scans, chemotherapy, radioactive isotopes and hormone therapy.
- Put patients at ease during testing and ensure that they understand the process involved.
- Analyse and interpret test results and decide upon a diagnosis as soon as possible.
- Work with a host of medical professionals from differing specialities.
- Work in hospitals, specialist testing centres and for private organisations, such as the armed forces.
- Keep up-to-date with any advances in the diagnosis of patients through medical imaging.
- Work with patients throughout their recovery, particularly when working with those who have cancer, or other terminal illnesses.

The last decade has seen an explosion in healthcare facilities across the country - hospitals, health care centers, polyclinics, nursing homes, rural clinics, diagnostic centres, etc. Technology in the field of medicine is also advancing by leaps and bounds, as a result the need for trained personnel to operate, utilise and interpret the new equipment is increasing rapidly. There is therefore a growing need for trained doctors and surgeons, as also for various paramedical experts and technicians like radiographers, and medical technicians. Radiography, radiotherapy and radiation medicine have become important tools in the treatment and diagnosis of a large number of diseases. The future prospects for this career are extremely bright, as healthcare expands and with it the need for professional and technical work across the country.

LIST OF INSTITUTIONS

- All India Institute of Medical Sciences (AIIMS) Delhi.
- Christian Medical College (CMC) Vellore.
- Armed Forces Medical College (AFMC) Pune.
- JIPMER College Puducherry.
- Maulana Azad Medical College (MAMC) Delhi.
- Lady Hardinge Medical College (LHMC) Delhi.
- Madras Medical College, Chennai.
- Postgraduate Institute of Medical Education and Research, Chandigarh.
- Seth GS Medical College (KEM Hospital), Mumbai.
- Grant Medical College and Sir JJ Group of Hospitals, Mumbai.
- Kasturba Medical College (Mangalore & Manipal).

The list is indicative only

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