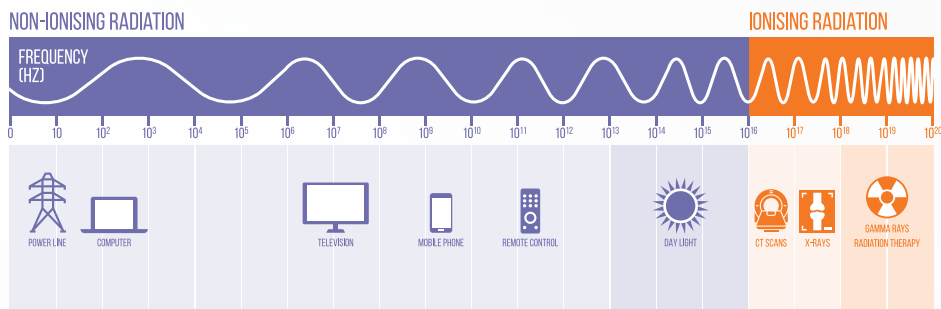


WHAT IS RADIOGRAPHY AND RADIATION THERAPY?

What is radiation?

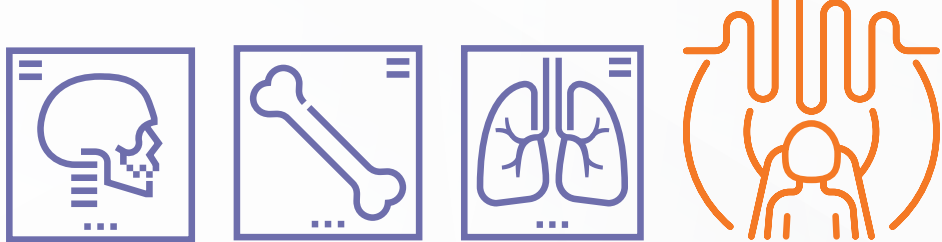
Radiation is energy travelling as waves or particles. Ionising radiation has enough energy to change the chemical composition of matter. Non-ionising radiation has less energy but can still excite molecules and atoms causing them to vibrate faster.



What is radiography and radiation therapy?

Radiography is the science of using radiation to provide images of tissues, organs, bones, and vessels.

Radiation therapy uses the information from diagnostic images for the treatment of abnormal tissues utilising high energy radiation.



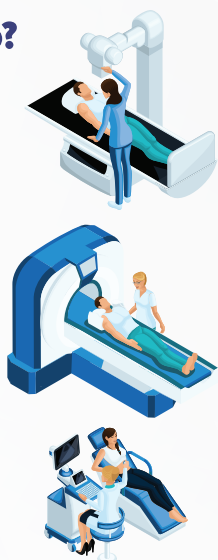
What do medical radiation professionals do?

Radiographers image patients with x-ray, CT, MRI or fluoroscopy to help diagnose or monitor their medical condition.

Radiation therapists calculate the radiation plan and operate the equipment to administer doses of radiation to assist in pain relief and treatment for cancer patients.

Nuclear medicine technologists prepare and give patients radiopharmaceuticals to help image the body and help diagnose the patient's medical condition.

Sonographers use high-frequency sound waves to produce dynamic visual images of organs, tissues or blood flow that assist doctors to diagnose, monitor and treat your illness or assess the health of your baby if you are pregnant.



How do you become a medical radiation professional?

You must complete an undergraduate Bachelor of Medical Radiation Science and specialise in radiation therapy, radiography or nuclear medicine technology. Entry to the course can also be via a Masters program.

How many medical radiation professionals are there in Australia?

There are 20,872 Medical Radiation Practitioners (MRPs) in Australia - Statistics from MRPBA Dec 2025

20,872 MRPs IN AUS

What technologies and procedures are used in the medical radiation profession?



General Radiography

Produces X-rays to detect a range of bone and soft tissue issues and show the relationship between bone and soft tissue.



CT

Computed tomography scans obtain "slices" of anatomy so physicians can view what's happening inside organs.



MRI scan

Magnetic resonance uses a strong magnet and radio waves to create detailed images of the body.



Nuclear medicine

Radiopharmaceuticals injected into the body emit gamma rays that provide functional information about organs, tissues and bone.



Radiation therapy treatment

Targeted doses of radiation are used to treat the patient's cancer or other diseases.



Sonography/Ultrasound

Commonly referred to as ultrasound, uses sound waves to obtain images of organs and tissues.



Cardiac-interventional radiography

Procedures targeted for diagnosis and treatment of cardiac diseases and abnormalities.



Vascular-interventional radiography

Procedures specifically targeted for catheter placement and the diagnosis and treatment of vascular diseases.



Mammography

Uses x-rays of breast tissue to diagnose and rule out breast disease.



Theatre radiography

Uses mobile X-ray equipment during surgery to guide procedures and check results in real time.



Bone densitometry

Measures bone mineral density to diagnose, monitor and rule out osteoporosis.



Radiation therapy planning

Radiation dose is carefully planned to deliver prescribed dose whilst protecting health organs and tissue.

What measures are in place to ensure safe levels of radiation exposure?

Concrete walls – Concrete shielding walls reduce the intensity of radiation depending on the thickness and density of the concrete structure. These are used in radiation therapy treatment rooms to absorb radiation.

Lead lining in walls – Walls lined with lead are used to guard people against radiation. Lead is very effective in absorbing radiation to prevent it from affecting surrounding areas.

Lead aprons – Lead or lead equivalent personal protection is used by healthcare staff to reduce radiation exposure.

All medical radiation professionals work towards the dosage aims **ALARA** (As Low As Reasonably Achievable). Time, distance and shielding are integral parts to help maintain radiation safety and protection.



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