



# WHY STUDY NUCLEAR MEDICINE?

***"An Australian will likely have two nuclear medicine scans in their lifetime".***

Nuclear medicine is part of the modality of diagnostic imaging (e.g., radiography, sonography); however, it is less known and understood. Nuclear Medicine is different and exciting because it provides the opportunity to:



## CONNECT DIRECTLY WITH PATIENTS

In many fields, there is a level of anonymity (blood samples don't reveal what a person looks like). In Nuclear Medicine you see with certain procedures the actual metabolic functions of organs in real time (unlike X-rays).

While of course, not all procedures result in success, there is the satisfaction in seeing patients recover and to be part of their journey.



## CAREERS IN NUCLEAR MEDICINE CAN MAKE YOU ANYWHERE IN THE WORLD

As technologies improve, new isotopes develop, and populations age, the use of modalities to diagnose diseases as early as possible will be and is becoming vital.

In Australia, there is a strong ecosystem of manufacturing (including ANSTO), innovation including world-leading research, commercialisation (Telix Pharmaceuticals started as a start-up) and industry. There is a strong opportunity to consider moving into different areas if you so wish.

Jobs for Technologists are frequently advertised, and several states and territories are listing these vacancies as skill shortages requiring overseas graduates.



## CONTRIBUTE TO THE FIGHT AGAINST CANCER AND DISEASE

NM techniques and technologies allow many cancers and diseases to be detected early, for example, Alzheimer's disease. The earlier the detection, the greater the chance of success with treatments. Techniques such as PET (positron emission tomography) scans "light up" the cancers. The lighting is the nuclear component (as safe doses of radioactive isotopes are used to light up the cancers).

With advances in techniques in nuclear medicine, we are increasingly able to not only diagnose but now treat cancers such as prostate cancer using different isotopes. Many large hospitals now administer these and continue to find ways to ensure patients have the best outcomes.

New isotopes and techniques are increasingly being utilised at quite a rapid rate. The use of isotopes to treat prostate cancer is probably less than 10 years from conception to acceptance. We now have "full body" PET scanners (considering Australia had its first scanners 30 years ago) that can scan entire persons with a level of accuracy that opens diagnosis pathways. Neuroendocrine conditions e.g., pancreatic cancer.

Each patient, due to their body mass and metabolism, and indeed disease progression requires their own specific dose and treatment. We like to think this is true personalised medicine and at the forefront of the concept of "see it, treat it".



## COLLABORATE IN A TRULY MULTIFUNCTIONAL TEAM

Diagnosing and treating cancers and diseases requires teamwork. Technologists interact with the patient, including administering the dose and using the equipment, Physicists determine the safe dose, Radio Pharmacists create the contents of the dose and Physicians supervise the process and assess the patient overall. Each of these persons is vital to the care of the patient and they all work together for the benefit of the patient.