

ACCELERATOR APPLICATION IN MALAYSIA TO CLOSE THE GAP IN REALIZING SDG3

SITI NAJILA MOHD JANIB

Malaysia Nuclear Agency, Kajang, Selangor, MALAYSIA

MUHAMMAD FAKHRURAZI BIN AHMAD FADZIL

National Cancer Institute, Putrajaya, WP Putrajaya, MALAYSIA

Nuclear medicine in Malaysia began initially with the use of radioiodine and radiophosphate for the investigation and treatment of thyroid and blood disorders around 1960. Since these early years, its scope has expanded from just providing diagnostic services, to the present therapeutic and also interventional nuclear medicine.

The nuclear medicine services began its operation as a unit in the department of Radiotherapy in Kuala Lumpur Hospital and in the next 30 years only 3 additional centres began operation within the Klang valley. It is only in the 1990's that more centres were setup due to the advancement of nuclear medicine technologies both in the hardware and computerization.

At present, there are 33 nuclear medicine facilities (government and private) in Malaysia offering general nuclear medicine services and/or positron emission tomography computed tomography (PET/CT). The mushrooming of these centres, particularly with the utility of PET/CT, has strengthened the role of the nuclear medicine discipline in the management of oncology cases in Malaysia.

The Ministry of Health installed the country's first PET/CT camera in 2005. In the following year, the first cyclotron was commissioned. The assistance and support of the IAEA was invaluable in realising this early endeavour. From this humble beginning it served as an impetus for the development of similar facilities in Malaysia. To date five cyclotron (<18MeV) facilities specifically for use in nuclear medicine have been established. With the introduction of Positron Emission Tomography (PET), the setting up of cyclotron facility and the use of targeted delivery agents for imaging and therapy, the possibility of achieving earlier, more accurate and more specific diagnosis, promises significant improvements in clinical outcomes. This increasing insight into the molecular origins of disease, the visualization of pathological changes at the cellular and biochemical level, before physical changes is observed has reshaped the whole pattern of healthcare.

The use of PET and SEPCT radiopharmaceuticals in Malaysia is growing significantly owing to the demand for non-invasive diagnosis and effective cancer treatment. A surge in incidences of cancer, cardiovascular diseases, and other chronic diseases, a rise in the geriatric population, and increasing demand for targeted cancer treatment is propelling the need for nuclear imaging techniques and radiopharmaceuticals.

To be current with existing medical procedures and accelerator technology, Malaysia has plans to expand into higher energy machines. With the establishment of such a facility in the country, it can further broaden Malaysia's capability to produce various types of radioisotopes that will be used in nuclear medicine. This will enhance the accuracy and diversification of the types of treatments that can be offered to patients.