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Next-gen scanner at NUH to make cancer detection faster and safer

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A new scanning system at the National University Hospital (NUH) will help medical professionals here to diagnose cancer and determine its spread faster, while also making the process more comfortable for the patients.

The Siemens Biograph Vision Quadra is a total-body PET/CT scanner which combines two imaging techniques – positron emission tomography (PET) and computerised tomography (CT) – to produce highly detailed images of the body.

It is expected to be operational by early November and will serve about 2,900 patients per year, while also supporting a wide range of clinical trials and research programmes.

Produced by German medical technology firm Siemens Healthineers and located at the NUH Medical Centre in Lower Kent Ridge Road, the new system is believed to be the first total-body PET/CT scanner in Singapore.

Professor Khong Pek Lan, who heads the diagnostic imaging department at NUH, described the next-generation scanner as a "transformative leap forward in medical imaging".

"A major benefit is the marked gain in sensitivity – nearly eightfold that of conventional scanners – for our patients. This means faster, safer and more comfortable scans, reducing scan times to under five minutes, and radiation exposure by up to 80 per cent," she said.

"The system also enables dynamic imaging, which is especially important for research and drug development, allowing us to track biological processes in real time," added Prof Khong, who also heads the diagnostic radiology department at NUS Medicine.

She noted the scanner has a wider scanning area of more than 1m – more than four times that of conventional scanners – which allows more of the human body to be imaged at the same time.

Other institutions using the Siemens Biograph Vision Quadra include King's College London and the University of Cambridge.

A senior radiographer and mock patient demonstrating the PET/CT system at NUH. It is expected to be operational by early November and will serve about 2,900 patients per year. PHOTO: LIANHE ZAOBAO

Prof Khong did not say how much the scanner cost, but noted that patients would not see an increase in their fees as a result of its use.

The scanner is at the heart of the new Molecular Imaging and Theranostics Centre, a new integrated facility jointly established by NUH and NUS Medicine.

Launched on Oct 16, the centre – also located at the NUH Medical Centre – will not only serve patients, but also focus on research and development.

This includes the development of new radiotracers – chemicals used to diagnose and assess medical conditions in the body – and radioligands, a type of cancer treatment that combines a targeting compound with a radioactive isotope (radioisotope) to locate and attack cancer cells.

The centre will work together with the Academic Cyclotron and Radiopharmacy lab at the NUS Clinical Imaging Research Centre to design and produce radiopharmaceuticals and molecular imaging biomarkers, said Prof Khong.

This in turn will strengthen Singapore's position in fields such as molecular imaging and theranostics, she added.

Theranostics is an emerging field that combines diagnositc imaging with targeted therapy.

On Oct 16, NUH, NUS Medicine and Siemens Healthineers signed a memorandum of understanding to work together to advance clinical diagnostics and technological innovation.

Ms Siow Ai Li, the managing director for Siemens Healthineers Singapore, Malaysia and Brunei, described the centre – and the new scanning system – as a catalyst that could transform how diseases are diagnosed and treated.

"PET/CT and molecular imaging play a pivotal role in detecting minute abnormalities such as metastases, or secondary tumours, that can significantly influence treatment decisions," she said.

In the coming years, the new centre is expected to serve some 3,000 patients annually, in addition to conducting a wide range of clinical trials and research programmes, said Prof Khong.

"It will also be a training ground for the next generation of imaging specialists and clinician scientists – those who will continue to push the frontiers of molecular imaging and theranostics, and advance care for our patients," she said.

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