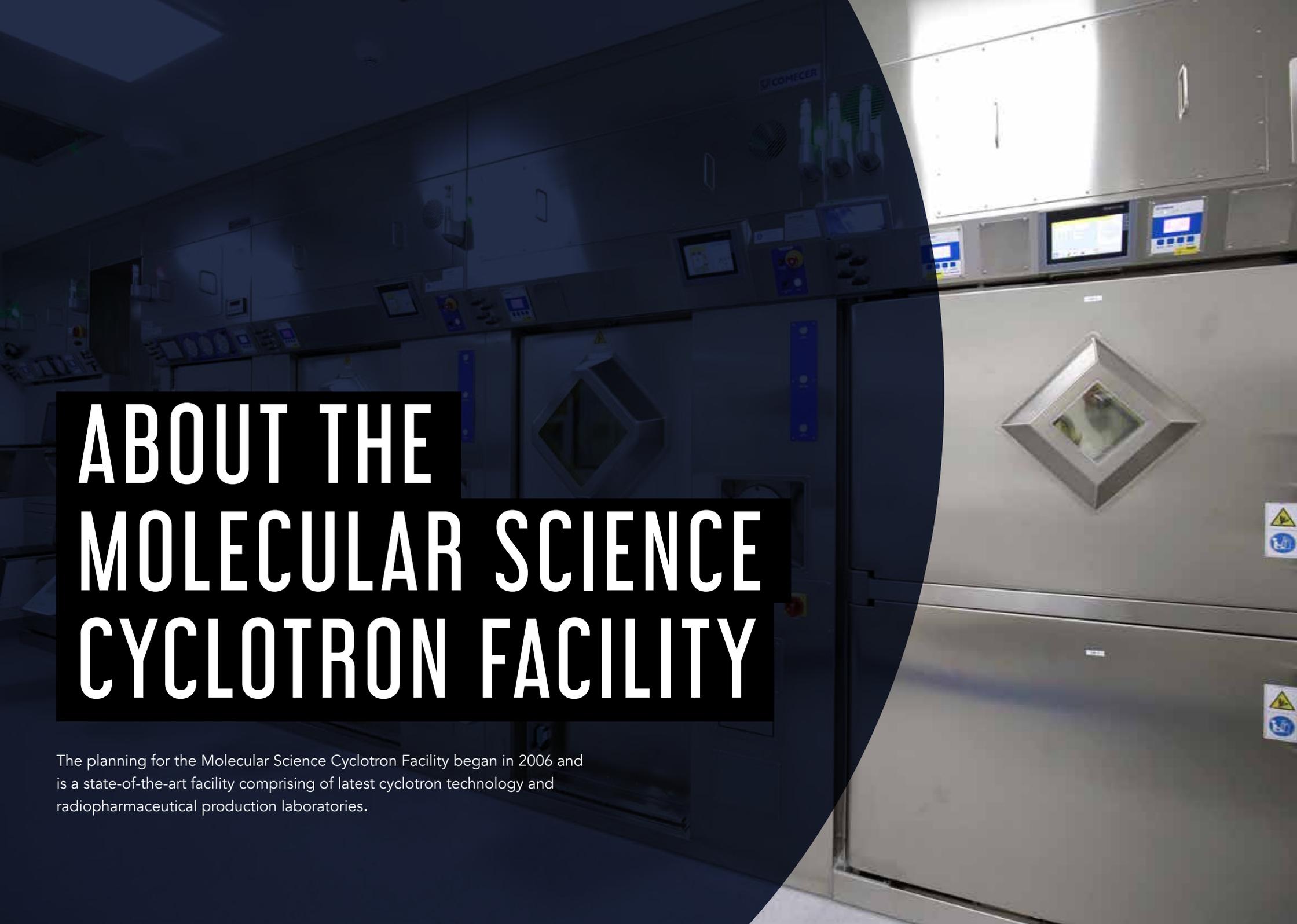




MOLECULAR SCIENCE CYCLOTRON FACILITY



ABOUT THE MOLECULAR SCIENCE CYCLOTRON FACILITY

The planning for the Molecular Science Cyclotron Facility began in 2006 and is a state-of-the-art facility comprising of latest cyclotron technology and radiopharmaceutical production laboratories.



**LIVERPOOL HOSPITAL
WAS ONE OF THE FIRST
HOSPITALS IN AUSTRALIA
TO PROVIDE A POSITRON
EMISSION TOMOGRAPHY (PET)
IMAGING SERVICE, WHICH IS
CURRENTLY IN ITS 20TH YEAR.**

The designed and purpose-built facility is compliant with the Good Manufacture Practice (GMP) standards, and the Hospital aims to meet Therapeutic Goods Administration (TGA) licencing requirements so diagnostic and therapeutic radiopharmaceuticals can be produced for other facilities.

PET diagnostic and therapeutic radiopharmaceuticals can now be distributed for both routine clinical use and for multi-centre clinical trials. The facility can also develop and validate novel molecular imaging biomarkers.

This facility has the ability to meet the growing clinical demands at Liverpool Hospital and expand health services in south western Sydney and NSW.

Picton woman, Elizabeth Doonan, 53, was one of the first beneficiaries from the molecular tracer produced by the Molecular Science Cyclotron Facility. It provided more accurate diagnosis to guide treatment of her lymphoma.

Despite the advanced stage of her disease, Ms Doonan is now in remission after receiving life-saving treatment.

"When you're so desperate to get help and get well it is such a big thing to get help quickly," she said.

"It's been a tremendous and overwhelming experience and I can't thank South Western Sydney Local Health District enough."

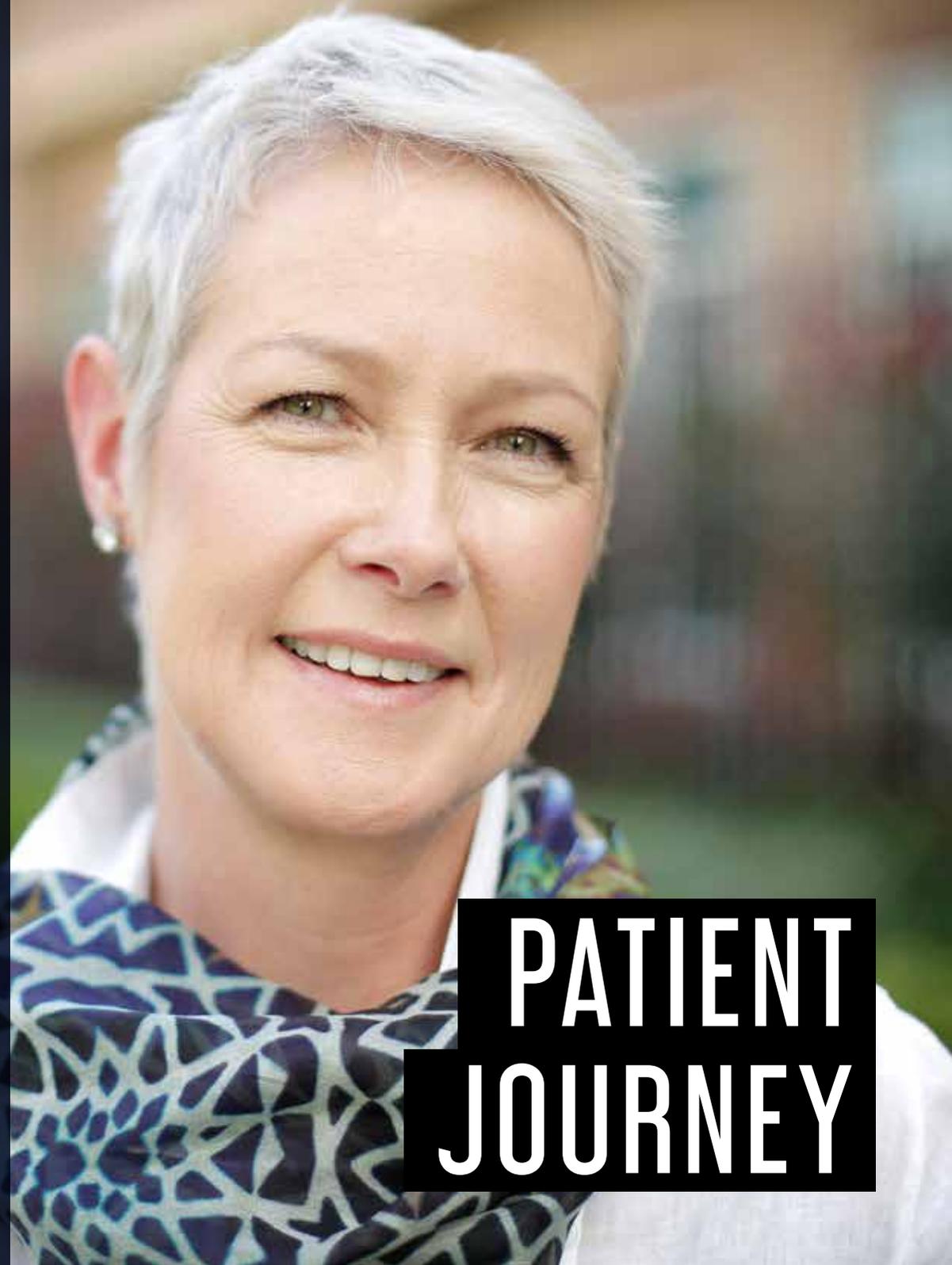
Ms Doonan said it was reassuring to know the products from the cyclotron facility would now be more readily available for patients to get scans and results quickly.

**"WHEN YOU'RE
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THING TO GET
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"I'm high risk for it to come back so if it comes back they can catch it quickly in a follow up scan and jump on it," she said.

Ms Doonan is now enjoying living her life cancer-free and will be getting married on 28 October.

"Every day is a wonderful day, something like this makes you rethink everything," she said.



**PATIENT
JOURNEY**



CLINICAL AND RESEARCH BENEFITS

MOLECULAR IMAGING PLAYS A KEY ROLE IN CHANGING THE MODEL OF CARE TOWARDS IMAGE-GUIDED PERSONALISED MEDICINE

The main clinical PET tracer used in this facility is a glucose analog called FDG which studies increased glucose metabolism seen in most solid tumours and haematological malignancies. It can be used to provide early and more accurate diagnosis of cancer as well as monitoring treatment responses and predicting patient outcomes.

This facility can also produce other novel molecular imaging biomarkers that can study different aspects of tumour biology and allows us to treat each patient as an individual, taking into account their own genetic make-up and tumour biology.

Instead of relying on pathology results, molecular imaging provides doctors with the ability to diagnose the disease early based on clinico-biological findings, and to predict the treatment response and patient

outcomes during the early stage of the disease.

Molecular imaging plays a key role in changing the model of care towards image-guided personalised medicine and minimally invasive therapeutic approaches, finding the right target for the right patient, and not purely based on epidemiology data.

Some of the collaborative clinical research programs in South Western Sydney Local Health District are in molecular and multi-parametric imaging for adaptive and targeted molecular therapy for various cancers such as head and neck, colon, pancreas, lung, prostate and neuroendocrine cancers.

THIS FACILITY WILL TRANSFORM HOW WE STUDY AND TREAT VARIOUS CANCERS

This facility supports the establishment of a state-of-art molecular imaging and therapy program, and places Liverpool Hospital and the District at the forefront of innovative diagnostic and therapeutic services. It will transform how we study and treat various cancers, as well as studying Alzheimer's disease, dementia, cardiac disease and various neurological and mental health conditions including brain injury.

This facility can foster and strengthen a translational approach (from bench to bedside) to provide clinical care and conduct research. It provides a platform for early adaption of new imaging technology and imaging biomarkers, linking to various clinical and pre-clinical research programs within the District, and also at state and international levels.

The co-location of this facility with a level 6 teaching hospital, with universities and basic science academic and research facilities, further facilitates this translational approach and makes this an unique set up in NSW. Collaborative research links have also been established with other centres in Australia and North America.

Over the next few years, there are plans to expand a number of clinical services in the District including advanced imaging, cancer, mental health and paediatric services. This will support the ongoing collaboration and alignment of research strategies between universities and the District, which will foster integrated research health facilities in south western Sydney.



**WHAT DOES
THE FUTURE
LOOK LIKE?**