FRONTIER

THE MAGAZINE OF MACQUARIE UNIVERSITY HOSPITAL | WINTER 2025

Celebrating 15 YEARS

of innovation, clinical care, education and research

Revolutionising frozen shoulder care through research

NSW first in cardiology: new hope for the forgotten valve

World-first: redefining eye surgery

MACQUARIE UNIVERSITY Health
MACQUARIE UNIVERSITY HOSPITAL

Macquarie University Hospital offers a new era in Australian healthcare. We are part of Macquarie University Health, Australia's first fully integrated university-led academic health sciences centre.

Macquarie University Health represents the convergence of the continuous learning and research endeavours of Macquarie's Faculty of Medicine, Health and Human Sciences with the clinical care provided at Macquarie University Hospital and multispecialty clinics.

At Macquarie University Health, we multiply our ability to achieve remarkable things. That's **YOU** to the power of *us*.

Professor I-Van Ho

Associate Professor Sumit Raniga

Dr Matthew Tait

Conjoint Associate Professor Walter Kmet

Please note any surgical or invasive procedure carries risks. Before proceeding, seek a second opinion from an appropriately qualified health practitioner.

Frontier
Macquarie University Hospital

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ISSUE 24

Welcome

TO MACQUARIE UNIVERSITY HOSPITAL

At Macquarie University Hospital, we are committed to pushing the boundaries of medical research, innovation, and patient care.

This issue of *Frontier* showcases the extraordinary work happening across our hospital and clinics - advancements that are changing lives, improving patient outcomes, and redefining what is possible in modern medicine.

As we proudly mark 15 years of excellence, we reflect on the journey that has shaped Macquarie University Hospital - Australia's first university-led private hospital.

From world-first technology trials to compassionate patient stories, this issue celebrates the impact of integrating clinical care with academic discovery.

In a world-first trial, Macquarie University Hospital is proud to be the first site globally to implement the groundbreaking Unity® VCS system, ushering in a new era of precision and efficiency in ophthalmic surgery.

We also feature a pioneering clinical trial offering new hope to patients suffering from frozen shoulder, Australia's inaugural Pulmonary Nodule Workshop, and remarkable surgical milestones, including the first use of fluorescent dye with the Versius robotic platform for endometriosis and groundbreaking hernia repair techniques.

On the cardiology front, Professor Martin Ng has made history as the first in New South Wales to perform a minimally invasive tricuspid valve repair using the PASCAL device, offering renewed hope for patients with this often-overlooked condition.

Beyond innovation, we honour the human impact of our work. The inspiring story of sisters Brenda and Lorraine, who underwent knee replacement surgery together through our No-Gap Joint Replacement Program, reflects our commitment to compassionate, accessible and patient-centred care.

As we look ahead, Macquarie University Health remains dedicated to integrating cutting-edge research with clinical excellence. Whether through new surgical techniques, multidisciplinary collaboration, or leading education programs for healthcare professionals, we are shaping the future of patient care.

I hope you find this issue of *Frontier* both informative and inspiring, as we continue to heal, learn, and discover together.

Walter Kmet
Conjoint Associate Professor
Chief Executive, MQ Health

Transforming lung cancer detection

Medical innovation and training leading a new era in early detection.

Abby Fyfe, Associate Professor David Fielding, Dr Nathan Mortimer, Associate Professor Catherine Oberg, Associate Professor Tajalli Saghaie, Clinical Professor Martin Philips, Professor Alvin Ing, Associate Professor Jonathan Williamson, Professor Kyle Hogarth, Dr Julia Fattore.

Macquarie University Hospital's (MUH) respiratory experts have conducted Australia's first workshop to prepare doctors for the National Lung Cancer Screening Program. The sold-out Pulmonary Nodule Workshop provided two days of hands-on training for doctors to master biopsying very small nodules using the latest methods.

The event also marked the launch of the hospital's Early Lung Cancer Detection (ELUCiD) program, a comprehensive initiative centred around state-of-the-art technology and multidisciplinary care.

ELUCiD Director, interventional pulmonologist and respiratory physician, Associate Professor Tajalli Saghaie, along with Professor Alvin Ing and Associate Professor Jonathan Williamson, led the workshop, sharing their expertise in early lung cancer detection and advanced bronchoscopic techniques. The event brought together world-leading experts and bronchoscopists from across Australia to explore cutting-edge innovations, including robotic-assisted bronchoscopy platforms and CBCT-guided techniques, providing attendees with a hands-on learning experience.

The workshop showcased the Noah Medical Galaxy System™, represented by Intervene Medical, and Intuitive's Ion® platform, represented by Device Technologies. Attendees gained practical experience with CBCT-guided bronchoscopic techniques, reinforcing their ability to perform early lung cancer detection and interventions with greater precision.

> "Early detection of small lung nodules, combined with robotic technology, is transforming lung cancer diagnosis – with over 90% success."
> — *Associate Professor Tajalli Saghaie*

Course convenor Associate Professor Saghaie highlighted the challenges posed by small nodules, which may be less than a few millimetres across and located deep within the lung. "The screening program is aimed at current and former heavy smokers aged between 50 and 70, and we are expecting the screening program to uncover hundreds, if not thousands, more of these small lesions every year," he said.

"This will increase demand for these difficult biopsies exponentially, making it vital that respiratory physicians and interventional pulmonologists from both the public and private healthcare sectors are prepared. In the past, many people with nodules that were very small or very deep in the lung had little choice but either to wait for it to grow large enough to biopsy or have upfront surgery for it. Obviously, that is not what we want for our patients.

"The latest technology increases the success rate to over 90 per cent. That includes robotic bronchoscopy, which uses highly specialised equipment, and CBCT-guided bronchoscopy, which is a method we developed based on imaging technology that most Australian hospitals will already have on hand. Early detection is vital if we are to successfully treat lung cancer, so training like this is important to ensure we are not only detecting more lesions but also ensuring they are biopsied quickly and safely so people can either be cleared of cancer or begin their treatment as soon as possible."

The event featured an esteemed international faculty, including Associate Professor Catherine Oberg from Memorial Sloan Kettering Cancer Center in the USA and Professor Kyle Hogarth, from the University of Chicago. Alongside them was a distinguished Australian faculty, including Associate Professor David Fielding from Royal Brisbane and Women's Hospital and Professor Alvin Ing, Associate Professor Tajalli Saghaie, Associate Professor Jonathan Williamson, Clinical Professor Martin Phillips, Dr Julia Fattore, Dr Nathan Mortimer, and Clinical Nurse Consultant Abby Fyfe from Macquarie University Health.

This groundbreaking workshop provided an invaluable platform for bronchoscopists to enhance their technical skills and prepare for the evolving landscape of lung cancer screening, diagnosis and intervention.

The success of the Pulmonary Nodule Workshop reflects MUH's commitment to shaping the future of respiratory care in Australia. As the National Lung Cancer Screening Program rolls out, MUH is proud to be at the forefront, equipping clinicians with the tools, training and technologies they need to detect lung cancer earlier and intervene more effectively.

With programs like ELUCiD and continued collaboration with global and local experts, MUH is driving real progress toward improving patient outcomes in lung cancer.

FOR MORE INFORMATION
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World-first:

redefining eye surgery

Professor I-Van Ho

In a world-first trial, Macquarie University Hospital (MUH) is proud to be the inaugural site to use the revolutionary Unity® VCS system—marking a new era in ophthalmic surgery.

The Unity VCS is the most significant upgrade in ophthalmic surgical platforms in nearly two decades. It replaces 18-year-old legacy technology and brings with it transformative improvements in both efficiency and patient safety.

During its first trial phase at MUH, the system has already demonstrated a remarkable 50 per cent increase in surgical speed and efficiency compared to current systems - an advancement with profound implications for surgical throughput and patient care.

"Using this technology is a major step forward in eye surgery - faster, safer, and more precise. We're proud to lead its global debut here at Macquarie. Being part of this world-first trial reflects our commitment to advancing patient care through innovation," says Professor I-Van Ho.

With enhanced precision and safety built into every step of the procedure, patients may expect less time in theatre and reduced stress on the eye during surgery, factors that support faster healing and improved visual outcomes. The system's ability to handle both cataract and retinal procedures seamlessly also means more comprehensive care in a single setting, potentially reducing the need for multiple appointments or follow-up surgeries. Ultimately, patients benefit from world-class technology that's designed to deliver safer, more efficient, and more effective treatment.

For surgeons, it means unprecedented stability and precision during both cataract and retinal procedures.

Leading the trial of the Unity VCS at MUH is Professor I-Van Ho, a highly respected vitreoretinal surgeon and macular disease specialist.

Professor Ho serves as Head of Ophthalmic Surgery at MUH and Vitreoretinal and Macular Surgeon at Sydney Eye Hospital. His clinical expertise spans medical and surgical diseases of the macular, retina, and vitreous, as well as retinal imaging techniques and small incision vitrectomy surgery.

Through the leadership of clinicians like Professor Ho and a commitment to exploring cutting-edge technology, MUH continues to set global benchmarks in ophthalmic care - delivering innovation that enhances outcomes and redefines standards.

> "Being part of this world-first trial reflects MUH's commitment to advancing patient care through innovation."
> — *Professor I-Van Ho.*

Currently on trial at MUH, the Unity VCS aligns with the hospital's broader approach to integrating advanced technology with clinical best practice. As experience with the system grows, valuable insights may emerge regarding its potential long-term benefits for patient care and surgical performance.

This early trial reflects the hospital's strategic focus on technology that improves patient safety, enhances precision, and contributes to better outcomes.

FOR MORE INFORMATION:
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Revolutionising frozen shoulder care through research

A NEW CLINICAL TRIAL IS TESTING WHETHER A MOLECULAR THERAPY ALREADY IN USE TO TREAT EYE DISEASE COULD HELP PATIENTS WITH FROZEN SHOULDER, A DEBILITATING CONDITION THAT MOSTLY AFFECTS ACTIVE WOMEN AGED 40 TO 60.

Associate Professor Sumit Raniga

Frozen shoulder, or adhesive capsulitis, has three stages: freezing, when the joint becomes increasingly painful and gradually stiffens up; frozen, when the pain lessens but movement is severely limited; and thawing, when movement gradually returns.

For most patients, the process takes an average of 18 months to two years, with the frozen phase lasting anywhere from four to 12 months.

About 70 per cent of patients are female. Women aged between 35 and 65 who also have conditions such as diabetes, hypothyroidism or ischaemic heart disease are most at risk of being affected.

Diabetes is a key risk factor that is driving a rise in the incidence of frozen shoulder. It can also double the length of time needed for the condition to resolve and worsen the severity of the symptoms.

Macquarie University Hospital orthopaedic surgeon Associate Professor Sumit Raniga says there is currently no effective treatment for this debilitating condition, leaving patients with no option than to wait for it to go away.

"This is a problem that has not had enough attention because it's seen as relatively 'benign', but it's incredibly painful, debilitating and disruptive to patients' lives," he says.

"Most people come to see me because the pain is so bad that it's preventing them from sleeping, and they are struggling even with simple activities of daily living like showering, tying their hair, dressing and driving.

"It's important to understand that frozen shoulder is not caused by damage to the joint, muscles or tendons as such, but you still get a severely stiff and painful shoulder.

"It's a molecular pathology with a biomechanical manifestation, but most orthopaedic surgeons don't have a background in molecular medicine, hence it is a mystery that remains unsolved.

"If you were to look into a frozen shoulder arthroscopically, the shoulder joint capsule is severely inflamed with a dense network of new blood vessels, almost like you could have landed on Mars."

During the freezing phase, Professor Raniga says a network of new blood vessels forms in and around the shoulder joint capsule, which is a process known as neoangiogenesis.

The new blood vessels are surrounded by nerve endings that are full of 'substance P (SP)', a neurotransmitter chemical associated with pain and inflammation.

Every time the person moves their shoulder during the freezing phase, SP is released from the nerve endings, causing pain.

With time, neoangiogenesis provides the infrastructure for a variety of molecular factors that cause significant scarring of the shoulder capsule. This dense web of scar tissue then causes stiffness and restriction of movement during the frozen and thawing phases.

The role of surgical intervention and its timing is controversial, though a corticosteroid injection during the freezing phase may reduce the inflammation in some cases.

Physiotherapy is not effective during the freezing or frozen phases, but it becomes very important during the final thawing phase.

For the past six years, Associate Professor Raniga has been researching the potential for a molecular treatment that could block the release of chemicals that trigger neoangiogenesis, in order to stop the process early in the freezing phase.

> "Frozen shoulder isn't 'benign' when you are the person living with it. It needs more research."
> — *Associate Professor Sumit Raniga*

By minimising the production of new abnormal blood vessels, there is less concentration of the nerves full of SP, and potentially less of the molecular factors that cause scarring.

Molecular treatments are next-generation medicines also known as targeted therapies, and they are personalised to individual patients. They are already being used to treat cancers and neurodegenerative diseases, and researchers are investigating further potential applications.

"We have just begun a trial of a molecular treatment already used successfully for other conditions to test its effectiveness in frozen shoulder," he says.

"We hope it will stop the development of new blood vessels and nerve endings around the shoulder capsule, removing the source of the pain, and preventing the scarring and stiffness.

"We hope that it would not only slash the length of time the condition lasts, but also reduce the severity of the symptoms, having a positive impact to a debilitating condition that predominantly affects women."

It is envisioned that the final version of the treatment could be a single injection.

If it proves safe and effective, the therapy will progress to a randomised control trial to test the difference in effectiveness between it and the most effective option currently available: an injection of corticosteroid and local anaesthetic.

But until a proven treatment for frozen shoulder becomes available, Associate Professor Raniga says prevention is the best option.

"Currently, the only way we have of reducing the chance of developing this condition is to ensure other contributing conditions such as diabetes are well controlled," he says.

"But there is still so much about it that we don't fully understand, like the potential role of hormones and the basis of genetic predisposition.

"This isn't 'benign' when you are the person living with it. It needs more research."

Associate Professor Raniga and his team are currently enrolling patients who have recently entered the freezing phase into the trial, and hope to have results to publish late next year.

FOR MORE INFORMATION

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CELEBRATING 15 YEARS

of innovation, clinical care, education and research at Macquarie University Hospital

Conjoint Associate Professor Walter Kmet

Fifteen years ago, Macquarie University Hospital (MUH) opened its doors with a bold vision: to redefine healthcare by integrating clinical excellence with academic rigour. That vision has been realised.

As Australia's first university-led private hospital, MUH stands as a testament to what is possible when education, research and patient care are seamlessly intertwined. From its inception, the hospital has embodied the University's mission to 'Heal, Learn, and Discover', creating a unique ecosystem where students, clinicians and researchers collaborate daily to push the boundaries of medicine.

The hospital has continued to grow and evolve, even in the face of the challenges of the COVID-19 pandemic, and our achievements over the past decade and a half are a credit both to the vision that led to the hospital's establishment and to the ongoing efforts of our doctors, nurses, staff and volunteers.

In the past few years, we have opened The Orthopaedic Institute in collaboration with Medibank and a group of leading orthopaedic surgeons, and established a new endoscopy unit.

We are currently in the process of expanding Macquarie Medical Imaging (MMI) to accommodate an expected increase in demand.

One of the most inspiring aspects of MUH is our unwavering commitment to dual identity: a world-class medical facility that is a vital part of the University community.

This is a place where students don't just learn: they contribute.

Walter Kmet, Chief Executive, MQ Health, says, "We can all take immense pride in the role we've played in supporting the growth and evolution of this hospital. Looking ahead, we are poised at the forefront of medical innovation, embracing cutting-edge technologies and practices that are shaping the future of healthcare.

"Driven by the passion of our people, we remain committed to improving patient outcomes and delivering exceptional care experiences. The next 15 years will be marked by progress, innovation, and an unwavering dedication to excellence in patient care."

From its inception, the hospital has embodied the University's mission to 'Heal, Learn, and Discover', creating a unique ecosystem where students, clinicians and researchers collaborate daily to push the boundaries of medicine.

MUH has consistently been in the vanguard of medical advancement. We have led the way in structural heart innovations through the TAVI program and driven groundbreaking innovations in orthopaedic surgery. Our interventional pulmonologists are trailblazers in robotic and guided bronchoscopy and have a key role to play in ensuring the hospital is ready for the lung cancer screening program, while our neurosurgery and spine unit is at the forefront of treating a range of brain cancers and diseases.

Research is not confined to labs. It is translated directly into improving community wellbeing, where it can and does transform lives.

To honour this connection, and to coincide with the anniversary, we are rebranding MQ Health to Macquarie University Health. The name change will celebrate the link between the University and our world-leading research, and the top-quality care we provide to thousands of people each year across the hospital and clinics.

Jo Vallance, Dr Andrew Hirschhorn, Professor Catherine Dean, Professor Patrick McNeil, Conjoint Associate Professor Walter Kmet

NSW first in cardiology:

NEW HOPE FOR THE FORGOTTEN VALVE

Professor Martin Ng

Macquarie University Hospital has ushered in a new era of minimally invasive treatment for an increasingly common but undertreated heart disease.

Interventional cardiologist Professor Martin Ng recently became the first doctor in New South Wales to perform a percutaneous tricuspid valve repair using a new clip.

The PASCAL device is introduced through the femoral vein in the leg and is used to bring together the leaflets of the heart valve to reduce regurgitation of blood.

Tricuspid regurgitation occurs when the tricuspid valve does not close properly, resulting in blood flow back into the right chamber of the heart after the right ventricle contracts.

Patients might not have noticeable symptoms until the condition becomes more severe, when they begin to show the common signs of heart failure, including shortness of breath, increased tiredness and swelling of the legs.

The PASCAL device allows transcatheter edge-to-edge repair and is already widely used to treat mitral valve regurgitation – the most common heart valve condition.

Professor Ng, who founded the Structural Heart Program at Macquarie, says degenerative tricuspid valve regurgitation is common in adults but is "vastly undertreated".

The recent OxVALVE study screened people 65 and older and found valvular disease in 51 per cent of them. Valvular heart disease is expected to become more common as the population ages.

The study also found only two per cent of people with mitral valve regurgitation, and less than one per cent of people with tricuspid valve problems were being treated for the conditions.

Professor Ng undertook Australasia's first successful percutaneous tricuspid valve repair and one of the world's first successful percutaneous repairs for degenerative tricuspid regurgitation at Macquarie University Hospital in 2019.

"The right side of the heart has long been overlooked in medicine," he says.

"The PASCAL device dramatically improves the safety of the procedure. The tricuspid valve is far more delicate than the mitral valve – it's like tissue paper compared to leather."

Professor Ng says the PASCAL is used in a large proportion of tricuspid regurgitation cases overseas, and he lobbied its maker, Edwards Lifesciences, to support its use in Australia.

"It has allowed us to more easily treat this forgotten valve," he says.

"This condition is life-limiting and there is no gold standard therapy. Open heart surgery has high rates of complications and is not generally recommended."

Professor Ng says GPs might not always recognise valve disease in older patients complaining of tiredness or shortness of breath.

Similarly, older people might either attribute these problems to ageing and not seek treatment or be reluctant to undergo surgery.

> "Degenerative tricuspid valve regurgitation is common in adults but is vastly undertreated."
> — *Professor Martin Ng*

But age is not necessarily a barrier, as his latest groundbreaking keyhole surgery case proves.

At 79, Irene had severe tricuspid valve regurgitation. She also has a pacemaker, adding complexity to the procedure because the leads pass through the tricuspid valve and into the ventricle of the heart.

"Irene went from having a significant leak to now having essentially none. We were really delighted with the outcome," Professor Ng says. "It allowed us to treat Irene in a way I don't think any other technology can."

And with tricuspid valve leading to heart failure, the importance of a new minimally invasive treatment option is significant.

"It brings in a new era for treating this disease, which has few options," he says.

"Recently Medicare in the US has decided to fund edge-to-edge repair of tricuspid valves, and we hope that this will happen in Australia too.

"In Irene's case the hospital provided compassionate support for the surgery, which is not currently funded by Medicare."

In 2013 Macquarie was one of the national pioneers of the use of the MitraClip on the mitral valve, and when Professor Ng performed Australasia's first successful percutaneous repair of a tricuspid heart valve he used the MitraClip device.

FOR MORE INFORMATION

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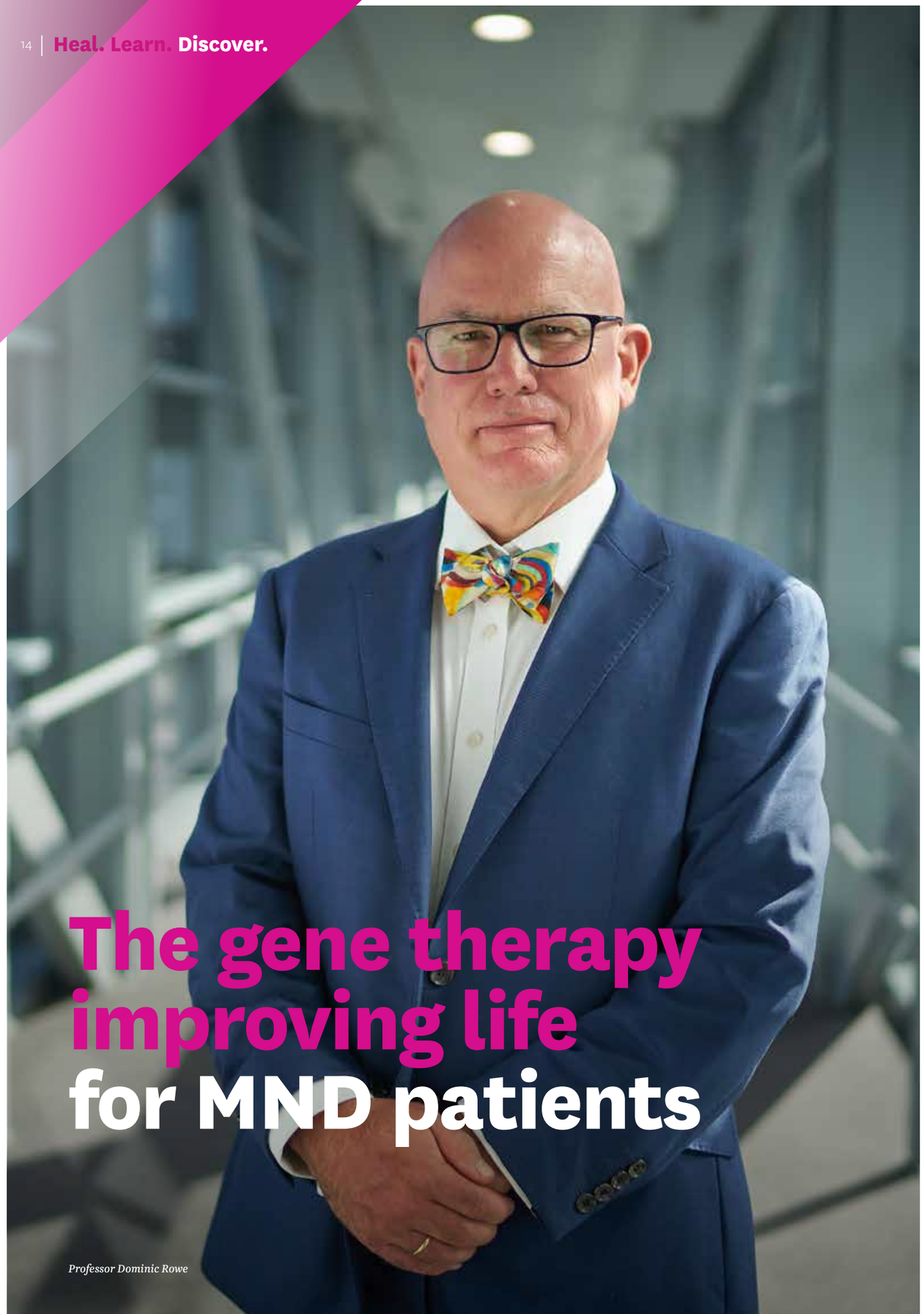

The gene therapy improving life for MND patients

Professor Dominic Rowe

A revolutionary genetic therapy is bringing rare hope to people who carry a killer gene, leading neurologists to look forward to a future where motor neurone disease (MND) can be prevented.

Macquarie University is the only institution in Australia and one of just a few worldwide to be taking part in a clinical trial of the gene therapy tofersen.

The drug was developed by international biotech company Biogen to combat one of the most common varieties of familial MND, carried in a mutation on the SOD1 gene.

About 10 per cent of MND is inherited, and 43 different genetic mutations have been implicated. The other 90 per cent of cases are believed to have environmental causes.

No matter its origin, the disease has always had the same outcome: increasing muscle weakness as the motor neurons falter and die, resulting in difficulty with walking, talking, swallowing and eventually even breathing unaided.

Most patients lose their fight within two to five years of diagnosis, and the Australian death toll has reached 800 a year – the equivalent of two-thirds of the national road toll.

Tofersen is the first therapy of its kind to carry a glimmer of optimism.

Four years ago, it was made available to people already experiencing symptoms from the SOD1 variation of MND under a Biogen Extended Access Scheme.

Four symptomatic patients at the Macquarie University MND clinic are receiving tofersen infusions every month, and the results so far have been remarkable, suggesting it can slow the disease's progression – and perhaps even halt it if the treatment is started early enough.

In a separate clinical trial, which has been running since 2022, people who carry the gene but have not yet begun to show symptoms of MND begin to receive monthly infusions when their blood levels of a protein called neurofilament rise above a set threshold.

When neurons are damaged, neurofilament begins to leak from them and appear in the blood, and even minuscule increases provide a reliable early warning sign that the faulty gene has been activated.

Professor of Neurology Dominic Rowe AM is a Director of Macquarie University MND Research, and the driving force behind the MND Clinic.

He is leading the Australian arm of the ATLAS trial and has 10 patients taking part, out of a total of 200 worldwide.

"Just having genetic testing for MND requires a huge amount of courage for people who have already seen multiple family members die from it," Professor Rowe says.

"They know what it means if the result is positive, and quite naturally, the knee-jerk reaction is 'I don't want to know.'"

"Getting the positive result is hard enough, but for those who are taking part in the trial, when they reach the neurofilaments threshold that shows the damage to their motor neurons has begun, it's like their world is about to cave in."

It can be a daunting prospect for patients, but gene therapies often need to be introduced directly into the spinal fluid to cross the blood-brain barrier, which protects the brain from toxins but also keeps out potentially life-saving drugs.

"Trials like this are made possible by our highly skilled radiologists, who can perform the lumbar puncture quickly and painlessly, using advanced imaging technology to ensure that it goes in precisely the right spot every time," he says.

"Patients see the same radiologist each time, usually Professor John Magnussen or Associate Professor Kevin Ho-Shon, and it gives them confidence that will be quick, precise and painless. It's very reassuring.

"I cannot speak highly enough of our team in the MND Clinic – the nursing and hospital staff who care for our patients, the clinical trial supervisors, the pharmacy staff who ensure the infusions are transported and stored at the correct temperature, the genetic counsellors who support patients through the testing process, the doctors and allied health professionals who help improve patients' quality of life through healthcare interventions, and the porters and hotel staff who make sure they are settled and comfortable.

> "Trials like this are made possible by our highly skilled radiologists, who can perform the lumbar puncture quickly and painlessly, using advanced imaging technology to ensure that it goes in precisely the right spot every time."
> — *Professor Dominic Rowe*

"Everybody has a role to play in making sure we give our patients everything we can.

"Our prime goal here is to either slow the disease to delay its onset or stop the progression so that people never have to get it.

"MND is an awful disease, but tofersen is looking like the golden fleece of treatments, and the results we are seeing give me real hope that one day we are going to beat it.

"I'm an optimist."

FOR MORE INFORMATION
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Dr Matthew Tait

CELEBRATING

100+

ROBOTIC-ASSISTED SPINE SURGERIES

Neurosurgeon Dr Matthew Tait is celebrating the completion of over 100 robotic-assisted spine surgeries that have transformed patient outcomes.

Macquarie University Hospital was the second hospital in Sydney to introduce the ExcelsiusGPS™ robot, which is used in surgeries involving screw and rod placement to stabilise the spine.

Minimally invasive, faster and more precise, it may also reduce pain and recovery time.

Dr Tait, who specialises in spinal disorders and cerebrovascular disease, has been using the robotic system for more than a year.

It assists with planning the surgery and guiding the placement of screws with astonishing accuracy.

Treating back pain through fusion involves immobilising the painful joint, removing the disc and putting in a spacer.

"I use it for all cases where I put screws in. It makes screw placement faster and more accurate and we can plan the positioning of the screws to a far more precise degree. It also makes it easier to do operations where patients are in different positions, such as on their side," he says.

The minimally invasive nature of ExcelsiusGPS means less muscle dissection as the muscles surrounding the spine can be separated rather than cut. This results in a smaller incision and less post-operative pain.

"So patients can recover more quickly and go home sooner," Dr Tait says.

The journey to surgery involves locating the source of the pain and ascertaining the impact on a patient's quality of life. Both MRI and CT scanning provide a complete picture and help create a roadmap for the robot.

"The MRI scan is very good for showing us all the soft tissue and identifying which nerves are trapped and which discs are worn out in the spine, while a bone scan shows us the hot spots within the spine. It shows us which discs and facet joints are causing the pain," Dr Tait says.

He also works with pain management specialists and anaesthetists to create a plan for each patient before they arrive at hospital. People who have suffered chronic pain over many years may have been using painkillers for a long time, meaning post-surgery painkillers are likely to be less effective.

"They might have built up a tolerance to opiates and that can make it very hard for us to control their pain after surgery," he says.

"We can reduce that tolerance by stopping them 48 hours before surgery. We bring them in to hospital for a couple of days and start them on a ketamine infusion. This controls their pain over that time, and it allows us to use opiates more effectively after their operation. Their care plan ensures that when they go around to the ICU there is analgesia ready to go.

"Before we introduced this regime it was very hard to control their post-operative pain."

> "Robotic navigation makes screw placement faster, more accurate and easier."
> — *Dr Matthew Tait*

With patients ranging in age from their 20s to their 80s, Dr Tait has seen this integrated approach result in patients being ready to go home in two or three days with well-controlled pain and a shorter recovery time.

FOR MORE INFORMATION:
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Sisters undergo no-gap knee surgery together

SAME DOCTOR, SAME DAY, NO FINANCIAL WORRIES.

Brenda, 82, and Lorraine, 80, recently had their left knees replaced by orthopaedic surgeon Dr Nick Hartnell at The Orthopaedic Institute, a leader in joint replacement surgery on level 5 of the hospital.

Both sisters had long struggled to maintain their active lifestyles despite increasing pain from worn-out, arthritic knees. When Lorraine decided to have surgery with Dr Hartnell, the sisters saw an opportunity – Brenda would travel from her home in regional Victoria, and they would undergo the procedure together.

What made their decision even easier was the no-gap arrangement through Medibank Private. Both sisters were eligible for the program so they could focus entirely on their health and recovery, without the stress of out-of-pocket expenses.

Brenda, an avid croquet player and gardener, had been struggling to keep up with activities she loved. A knee injury six years ago had only worsened her mobility. Lorraine, diagnosed with rheumatoid arthritis in her mid-30s, had to give up her walking group due to escalating knee pain. The sisters took comfort in knowing they would navigate the surgical process side by side.

They shared a hospital room, did daily physiotherapy together, and then underwent rehabilitation before continuing their recovery at Lorraine's home.

Coming from a close-knit family of eight siblings, they cherished the extra time together.

Lorraine says visits from one of their brothers, plus friends and neighbours, meant they would have plenty of company.

Lorraine admitted to some trepidation before the surgery but was optimistic about the results. "I knew it would be painful, but I just got on with it and have gradually improved ever since," she says. Brenda was looking forward to returning to Victoria in time for her granddaughter's wedding. With their mother living to 102, the sisters are hopeful that their new knees will serve them well for many years to come.

> "People just want more out of life — better mobility and less joint pain"
> — *Dr Nick Hartnell*

Dr Hartnell was charmed by the sisters and delighted by their unique request. "I've never done knee replacements on sisters on the same day before," he says. Remarkably, their knee conditions were "nearly identical".

With joint replacements becoming more common in older adults, Dr Hartnell emphasises the importance of maintaining mobility and quality of life. "People just want more out of life—better mobility and less joint pain," he says.

The facility boasts four state-of-the-art operating theatres, two specialised recovery units, and 29 comfortable inpatient beds, as well as six same-day beds. Patients also benefit from hotel-style rooms equipped with cutting-edge entertainment systems, ensuring a comfortable stay. The institute continues to invest in the latest advancements in robotic technology, including the ROSA Knee System, to enhance joint replacement outcomes.

To support patients in returning back to normal life as soon as possible, the team focus on the Enhanced Recovery After Surgery model which prioritises patient care before surgery, rapid mobilisation after surgery and early discharge when suitable, allowing patients to rehabilitate in the comfort of their own home.

With access to onsite resources such as ICU, imaging, pathology, pharmacy, and physiotherapy, The Orthopaedic Institute offers a seamless, patient-centred experience.

For Brenda and Lorraine, this world-class environment, combined with expert surgical care and the financial ease of the no-gap program, made all the difference in their journey to pain-free mobility.

Terms and conditions apply.
Patient eligibility criteria also apply.

FOR MORE INFORMATION
mqhealth.org.au/no-gap-partnerships

Lorraine, Dr Nick Hartnell, Brenda

ROBOTIC
SURGICAL PRECISION

New robotic techniques improve safety, precision and recovery for complex endometriosis, hernia and colorectal cancer surgeries.

Dr Dan Krishnan

Dr Dan Krishnan, gynaecologist, is at the forefront of surgical treatment for endometriosis. The painful condition occurs when tissue similar to the lining of the uterus grows in other parts of the body. It's estimated that around one in nine women will have it, but varying symptoms mean an average delay of around seven years before diagnosis.

Dr Krishnan recently became the first surgeon in Australia to use the CMR Surgical Versius robot with vLimeLite technology – a modified robotic approach that utilises indocyanine green (ICG) dye to highlight the ureter during endometriosis surgery.

"It was excellent - it just made sense. It was easy to use and it made the operation a lot quicker with easier visibility of the ureter," he says.

ICG was already being used during traditional laparoscopy to identify the ureter. It provides enhanced visualisation during difficult endometriosis excision where it can be challenging to visualise the ureter.

Depending on the severity of the condition, it can take hours to remove endometriosis from various organs.

> "Clear identification of the ureter with a fluorescent dye is excellent - it avoids radical dissection and improves surgical precision."
> — *Dr Dan Krishnan*

"In pelvic dissection, in difficult complex pelvic surgery, the ureter is a big part of your pelvic dissection," Dr Krishnan says.

"Clear identification of the ureter with a fluorescent dye is excellent, so that it avoids the surgeon having to dissect radically to find the ureters, because the ureters are lit up very obviously. And sometimes with endometriosis, you want to remove endometriotic nodules off the ureter completely."

The two main indications for endometriosis excision are pelvic pain and infertility.

Dr Krishnan says any woman with pelvic pain should be suspected to have endometriosis until proven otherwise. One of his youngest patients was a 14-year-old girl with crippling pain, who is now much improved within a few years of surgery.

But some patients will not have any symptoms, and endometriosis will only be discovered when they try to get pregnant. Endometriosis excision is proven to improve fertility rates in women trying to conceive.

Endometriosis can also present with non-specific and non-gynaecological symptoms.

"In one patient, the presenting symptom to me was actually the bowel – she had a lot of irritable bowel syndrome symptoms. And she was assumed to have allergies such as gluten and lactose intolerances. A tertiary ultrasound was organised which showed stage IV (bowel) endometriosis," Dr Krishnan says.

"After a prolonged combined robotic excision with Dr Henry Cheung, the patient is now significantly better."

Imaging such as a pelvic MRI and deep infiltrating endometriosis ultrasound are used to diagnose the condition and help guide the robotic surgery.

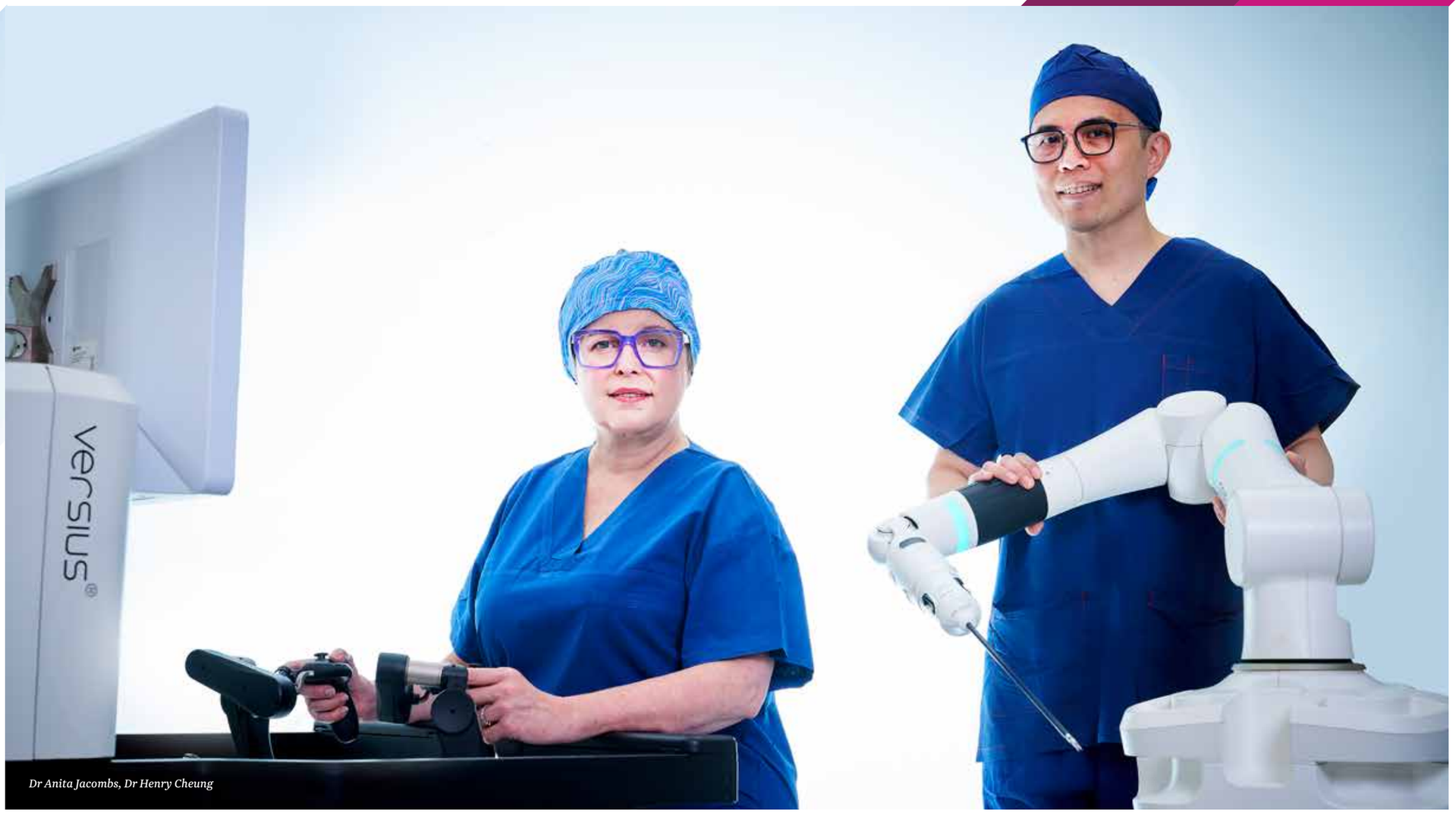
Hernia surgery

Versius is now the preferred tool for abdominal surgery specialist Dr Anita Jacombs.

Two of her specialties are hernia surgery and abdominal wall reconstruction, and patients who have had previous hernia surgery or a failed mesh repair in the groin often turn to her.

She has also worked as part of a research team developing improvements to pre-surgery preparation of abdominal wall muscles for patients undergoing surgical repair of large, complex abdominal hernias.

A hernia occurs when an internal organ or tissue bulges through a weak spot in the surrounding muscle or tissue wall, often causing a visible lump or bulge. Most will eventually need surgical repair.



Dr Anita Jacombs, Dr Henry Cheung

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"I'm really finding Versius very versatile for large inguinal hernias - we call them inguinal scrotal hernias in men, because the way the anatomy works, the hernias can just descend down into the scrotum," Dr Jacombs says.

"In my hands it offers me more dexterity, more control of the tissues, which includes the bowel and the hernia sac.

"It provides advanced visualisation, which I think is also very helpful, and importantly, because Versius is a modular robot platform, this modularity means I can place my ports where I need them.

"It offers more finesse in dissecting the tissues and controlling the tissues, meaning you can do finer, more complicated work.

"It's now my preferred surgical platform if I have a complicated groin operation to do – whether it's for a large hernia, hernia that has bowel in it or a redo-inguinal hernia operation.

"It is now my go-to across all those different modes of operating.

"I would probably do 80-plus per cent with the Versius rather than any other mode."

Dr Jacombs only operates on adults, and says hernias are very common, occurring in about 7.7 per cent of people globally, and more often in males.

> "Versius offers me more dexterity, more control, and better visualisation – it's now my go-to for complex hernia repairs."
> — *Dr Anita Jacombs*

Colorectal surgery

Macquarie University Hospital has recorded another surgical first with the use of new technology on a cancer patient.

Dr Henry Cheung became the first colorectal surgeon in Australia to use the Versius/vLimeLite system to perform a colorectal cancer resection.

A recent update at Macquarie enabled the Versius system to use ICG, which fluoresces important structures like blood vessels, some of which need to be removed, and some preserved.

"We need to identify the key blood vessels in order to know that we are removing all the lymphatic tissues that runs with that blood vessel," Dr Cheung says.

"More precision means that we get a better oncological package for the patient so that we can get proper removal of the tumour and associated tissues like lymph nodes, but also the information required for staging of the patient, because that determines the need for further treatment.

"It also improves the patient's safety in terms of reducing key risks like anastomotic leaks.

"It's another step forward in what we can do with Versius and it will allow us to offer robotic colorectal resections to more and more patients."

Dr Cheung says the precision, coupled with the minimally invasive technique, means there is less damage to tissue, so patients lose less blood, recover more quickly and go home faster.

The patient was a woman in her 80s who went home about five days after her surgery.

"She has done very well. She could have gone home a day or two earlier, but because she lived outside of Sydney, I extended her stay. I've seen her since, and she looks like nothing has been done. She's recovered remarkably," Dr Cheung says.

> "More precision means a better oncological package – proper tumour removal, lymph node clearance and safer outcomes."
> — *Dr Henry Cheung*

"It shows that the technology we have is so good that age itself is not a contraindication now to having cutting-edge, minimally invasive surgeries."

Dr Cheung is a key member of Macquarie's multidisciplinary teams and often works with other Macquarie surgeons during robotic procedures.

EXPANDING MACQUARIE MEDICAL IMAGING

Macquarie Medical Imaging (MMI) is embarking on a significant expansion to accommodate the growing number of patients and meet the rising demand for diagnostic services. Along with this expansion, MMI is introducing several exciting new developments to further enhance the quality of care.

Matt Ayers, Associate Director of Imaging and Hospital Operations, shares some of these developments: “From 1 July 2025 , MMI will offer a Medicare rebate for MRI services for the first time, which is very exciting,” he says. “Additionally, the launch of the National Lung Cancer Screening Program this year will further drive demand for our services.”

To keep pace with the increasing need for diagnostic imaging, MMI is enhancing its capabilities with several key updates:

- New equipment: A third MRI machine, a second CT scanner, and a fifth ultrasound unit will be added to the facility, helping to meet the growing demand for imaging services.
- Improved patient flow: Expanding the main reception from 24 to 38 seats and creating streamlined extra sub-waiting areas will improve the overall patient experience and reduce wait times.

These improvements reflect MMI’s commitment to providing the best possible care as it continues to adapt to the evolving healthcare landscape.

Matt Ayers

New developments and patient benefits

In response to patient needs, MMI is rolling out two key updates that will make diagnostic services more accessible:

Medicare rebate for MRIs

As well as adding a new MRI machine, MMI will begin offering a Medicare rebate for MRI scans, reducing the financial burden on patients and minimising delays in diagnosis and treatment. A GP referral will be required.

Bulk-billed low-dose CT scans for lung cancer screening

To support the Lung Cancer Screening Program which launched on 1 July 2025, MMI will offer bulk-billed low-dose CT scans for early lung cancer detection. This non-invasive procedure reduces radiation exposure while helping to identify lung cancer at its most treatable stage. A GP referral will be required.

Additionally, MMI’s collaboration with the Early Lung Cancer Detection (ELUCiD) program specialists will help to ensure high-risk patients receive comprehensive care. Expert respiratory physicians will provide diagnostic clarity, interpretation, and ongoing treatment options for those undergoing lung cancer screening.

MMI’s commitment to excellence in imaging

Macquarie Medical Imaging is committed to providing a broad range of high-quality diagnostic services to GPs and patients alike. With locations at Macquarie University Hospital and Macquarie Shopping Centre, MMI is an integral part of the healthcare ecosystem, working closely with healthcare professionals to ensure a seamless, patient-centred experience from diagnosis to treatment.

Innovative imaging techniques in clinical research

As a leader in clinical research, MMI is dedicated to integrating innovative imaging techniques to improve patient care and advance medical knowledge. We actively engage in industry and academic research, supporting more than 150 clinical trials and collaborate with universities across Sydney. MMI also conducts its own internal research to set new standards in image quality and apply these advancements to clinical practice. Our expertise spans various fields, including oncology, dementia, Parkinson’s disease, movement disorders, and respiratory and cardiovascular diseases. Strong partnerships with GE, Philips and Siemens further enhance our access to emerging technologies.

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International Nurses Day 2025

OUR NURSES. OUR FUTURE.

CARING FOR NURSES STRENGTHENS ECONOMIES

On Monday 12 May 2025, Macquarie University Hospital celebrated International Nurses Day.

Find out more at **mqhealth.org.au/no-gap-partnerships**

Terms and conditions and patient eligibility criteria apply. The Macquarie University Hospital No-Gap Joint Replacement Program for HCF members will end on 31 December 2025.

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