FRONTIER

THE MAGAZINE OF MACQUARIE UNIVERSITY HOSPITAL | SUMMER 2024/25

A MAGICAL MILESTONE CELEBRATING 1000 TAVI CASES

Advanced early lung cancer detection GP support service

Transforming ACL injury – prevention for young athletes

Trial of new vaccines for kidney and bladder cancer begins

MACQUARIE UNIVERSITY Hospital

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

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

Walter Kmet

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

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Frontier
Macquarie University Hospital

Editor:
Bernadette Robinson
T: (02) 9812 3167
E: bernadette.robinson@muh.org.au

Writer: Melissa King
Subeditor: Jacqui Stone
Contributors: Georgia Gowing

Designer: Emorfia Design

Photographer: Tim Robinson
Contributors: Chris Barlow, Kyisoe Han, Chris Stacey, Jesse Taylor, Chris Walsh, Paul Wright

Macquarie University Hospital
3 Technology Place
Macquarie University NSW 2109
mqhealth.org.au
ABN 46 141 203 125

ISSUE 23

Welcome

TO MACQUARIE UNIVERSITY HOSPITAL

Welcome to this edition of *Frontier*, where we showcase the transformative advancements at Macquarie University Hospital that are setting new standards in patient care.

We are thrilled to celebrate a remarkable milestone: our Structural Heart Team, led by Professor Martin Ng, Professor Michael Wilson and Professor Michael Vallely has successfully performed more than 1,000 transcatheter aortic valve implantation (TAVI) cases! This achievement underscores our commitment to excellence in cardiac care and reflects the dedication of our entire team, who continually strive to push the boundaries of what's possible in treating heart conditions.

In line with our commitment to early detection and better outcomes, we are also excited to announce our leadership role in the upcoming national lung cancer screening program set to launch in July 2025. Through the ELUCiD program, led by Professor Alvin Ing at the MQ Health Respiratory and Sleep Clinic, we will integrate clinical expertise and advanced diagnostics to ensure that lung cancer is detected early, when it is most treatable.

In the evolving landscape of gastroenterology, Dr Brandon Baraty is pioneering a centre of excellence at Macquarie University Hospital, where he harnesses the power of advanced ultrasound technology to enhance the diagnosis and treatment of inflammatory bowel disease (IBD).

Gastroenterologist Dr Lisa Shim provides insights into the diagnosis and treatment of reflux disease, highlighting the importance of advanced diagnostic tools like high-resolution oesophageal manometry and 24-hour pH impedance studies.

Furthermore, we are at the forefront of kidney cancer research, introducing cutting-edge personalised vaccines for patients to prevent tumour recurrence. This innovative approach positions Macquarie University Hospital among the first in the world to implement such therapies, significantly enhancing our cancer care capabilities.

We highlight advancements in prostate cancer treatments aimed at enhancing quality of life and present emerging data on breast implant illness.

In the realm of orthopaedics, we are proud to highlight advancements in ACL surgery aimed at preventing recurrent injuries, particularly among young athletes. Orthopaedic specialist, Dr Michael Dan, is dedicated to implementing innovative techniques that improve recovery and enhance performance, ensuring that athletes can return to their sports safely.

Also in orthopaedics, Dr Mustafa Alttahir, foot and ankle surgeon is harnessing the power of 3D printing technology to create custom surgical solutions that improve patient outcomes. This pioneering approach allows for more precise and individualised treatment options, enhancing the surgical experience and recovery for our patients.

Finally, we explore the advancements in hip and knee replacement surgery at The Orthopaedic Institute. Our team of specialised orthopaedic surgeons is redefining joint replacement care by merging state-of-the-art technology with a patient-centred approach. This model enhances recovery outcomes, guiding patients through a comprehensive journey from pre-operative planning to rehabilitation, ultimately restoring mobility and improving quality of life.

We would like to recognise Professor Ray Sacks for his outstanding contributions in the field of otolaryngology/head and neck surgery and to Macquarie University Hospital. Eminent orthopaedic surgeon Professor Des Bokor has joined Associate Professor Sumit Raniga at the MQ Health Shoulder and Elbow Clinic to share his internationally renowned expertise.

Join us as we celebrate these significant advancements and reaffirm our commitment to delivering the highest standard of care for our patients.

Walter Kmet
Conjoint Associate Professor, Chief Executive, MQ Health.

Prostate cancer treatment innovations to improve quality of life

Prostate cancer is the most common cancer in Australian men, with one in six at risk of developing it by the age of 85. New treatments for prostate cancer patients are providing more options and less invasive alternatives.

Professor David Gillatt

MQ Health's Urology Clinic now offers Rezūm™ treatment for benign prostate conditions caused by enlargement of the prostate. While not as concerning as a cancer diagnosis, these symptoms can have a significant impact on quality of life.

Professor David Gillatt, recognised as one of the world's foremost robotic surgeons in the treatment of prostate cancer and bladder cancer and Director of Medical Services at Macquarie University Hospital, says the minimally invasive Rezūm treatment uses the stored thermal energy in steam to treat the extra prostate tissue that is causing symptoms such as urinary frequency or urgency, irregular flow, weak stream, straining and getting up at night to urinate. The tissue ablation reduces the size of the prostate, leading to a lessening of symptoms.

Now covered by Medicare, the treatment takes approximately half an hour. Rezūm can be an option for patients who do not want a more invasive procedure such as transurethral resection of the prostate (TURP). It can be a good option for patients who are not responding well to medication or who are experiencing a moderate impact on their quality of life due to prostate symptoms.

Professor Gillatt says an enlarged prostate is common. "It will happen to around 80 to 90 per cent of older men," he says.

Another newer treatment, focal therapy, is becoming more popular for managing localised prostate cancer. It can be an alternative to radiation treatment or surgical removal of the prostate.

A laser targets only the lesions or areas of the cancer and avoids damage to the surrounding tissue. Preserving healthy tissue helps minimise the side effects that can be common in radical treatment, such as impacts on urinary continence and sexual function, as well as some bowel-related side effects.

"Focal therapy is a quicker treatment with fewer side effects. We can treat a single area under ultrasound and MRI guidance." Professor Gillatt says.

"We think that up to 30 per cent of the people who have surgery might be suitable for focal therapy instead. While it's not covered by private health insurance, some people might choose to pay for this treatment because they want to reduce the likelihood of complications from more radical treatment."

Professor Gillatt says urology patients at Macquarie have access to a full range of treatments and leading-edge diagnostic services. It is also a research, education and training centre.

He says those who opt for prostate surgery can be reassured that they will receive robotic surgery in a centre of excellence. The Da Vinci robotic system can be used for prostate, kidney and bladder cancer, among others.

"We've got excellent surgeons doing robotic surgery in the best facilities, and for prostate and kidney cancer we are the biggest centre in New South Wales," he says.

Ongoing support and survivorship care

Macquarie University Hospital has a range of onsite services including imaging, pathology and allied health services. Prostate cancer specialist nurse, Laura Dennehy, supports and guides patients through their diagnosis, treatment and follow-up, providing up to two years survivorship care.

A calmly reassuring presence, the prostate cancer specialist nurse is a touchstone for patients throughout their journey, whether it includes surgery, radiation therapy or other treatment. She meets with them at the time of diagnosis at MQ Health's Urology Clinic and continues to provide supportive care, education and management of side effects at each stage.

"I am that continuous point of contact, no matter what treatment they have done. I think patients appreciate having someone to educate them and support them through their options, at such an unknown and scary time. It's quite nice being that person who follows them from diagnosis and provides survivorship care for up to two years after surgery," she says.

Laura Dennehy, Professor David Gillatt

Laura provides support either in the urology clinic, in person or by phone at multiple points in the patients' recovery. Having this familiar and trusted link enables them to ask any questions they might have.

The clinic's multidisciplinary approach means urologists work with a range of specialists and support staff.

"Therefore, if patients are experiencing issues we can refer them to physiotherapists, exercise physiologists, clinical psychologists or other specialists," Laura says.

"The patient is seen from a holistic perspective and we're caring for all their issues, not just their cancer."

Laura's prostate cancer patients have ranged in age from their 40s to their 90s. "Our average age of surgical patients is about 62, but I have met men as young as the age of 40 being diagnosed with prostate cancer, which is hard and obviously quite distressing for them as well," she says.

"I know how much they need that support, so I am happy to be that person who's there."

Laura is supported by the Prostate Cancer Foundation of Australia, with Macquarie University Hospital one of the first sites to have a prostate cancer specialist nurse.

FOR MORE INFORMATION
CALL (02) 9812 3838

REVOLUTIONARY LUNG BIOPSY PROCEDURE

transforms cancer diagnosis

Associate Professor Jonathan Williamson, Professor Alvin Ing, Dr Julia Fattore, Associate Professor Tajalli Saghaie

LUNG CANCER IS THE MOST COMMON CAUSE OF DEATH BY CANCER IN AUSTRALIA, WITH 14,000 NEW CASES DIAGNOSED EVERY YEAR.

For many, this terrifying diagnosis begins with the discovery of one or more lung nodules.

Early on, these nodules are less than one centimetre in diameter and are often located deep in the lung, making them difficult to biopsy using traditional methods for even the most skilled physicians.

Up to 20 per cent of such procedures fail to get a viable sample, while another 20 per cent result in serious complications such as a collapsed lung, or bleeding that is difficult to control.

With tens of thousands of tiny branches and a surface area roughly the size of a three-bedroom house, lungs are incredibly complex, and taking a biopsy from a one-centimetre nodule in the lungs can be a significant challenge. Reaching a nodule means not only guiding the needle to the correct location but also holding the equipment still during the procedure.

Computed tomography (CT) scans taken while the patient is awake may be of limited use once they are anaesthetised, and even the camera at the end of the flexible bronchoscope cannot assist much with inserting the needle if the nodule is not in an airway.

Until recently, the only options for many patients with small nodules were to undergo surgery to remove them without a diagnosis or to wait for them to grow bigger.

A new generation of high-tech medical robots that incorporates live imaging technology can guide doctors to the correct site, provide the stability needed to take the sample, and reduce both complication and failure rates.

However, this equipment is in the million-dollar-plus range, making it an impossible dream in a lot of countries and out of reach for many Australian public hospitals.

Thinking outside the box

Macquarie University Hospital interventional pulmonologists, Professor Alvin Ing, Associate Professor Tajalli Saghaie and Associate Professor Jonathan Williamson were involved in a clinical trial of one of the robotic devices.

After the trial, the team began looking for alternatives that would achieve the same result at a reduced cost to ensure they would be accessible to more hospitals.

With an existing Philips Azurion interventional lab that is already used by many vascular surgeons for live image guidance, they acquired a cone beam computer tomography (CBCT) data set, which was used to map access to the target lesion.

Combined with specialised software developed by the manufacturer, a surgical clamp, and the expertise of Macquarie University Hospital anaesthetists, the team has been able to reach deep into patients' lungs, accurately biopsying nodules as small as six millimetres in diameter and reducing the complication rate to less than one in 100.

They have recently performed their 240th biopsy using this new technique, which was first trialled in May 2023. As word spreads, they expect to receive referrals to double that number by the end of this year.

Out of the 240 procedures they have performed so far, they have diagnosed cancer in 120 cases, allowing those patients to begin treatment immediately and providing peace of mind to the others.

Associate Professor Saghaie says equity was an extremely important motivating factor in their research.

"Not every hospital can afford a million-dollar surgical robot, but if they have a vascular surgeon or an interventional cardiologist, then it's very likely they already have the right CT scanner," Associate Professor Saghaie says.

"Early detection and treatment is the key to improving patient outcomes in lung cancer. If we can see a nodule that we can't get to, it's incredibly stressful and upsetting for the patient to have to choose between waiting for it to grow bigger or having surgery that they may not need.

"The National Lung Cancer Screening Program begins in July 2025, with the aim of preventing at least 500 lung cancer deaths a year in Australia, but for it to have any meaningful benefit, early-stage biopsies need to be more widely available.

"We're incredibly excited about this procedure and about sharing what we've learned."

The technique has been adopted by other public hospitals in New South Wales, and doctors from Victorian and Western Australian hospitals are set to visit to learn it.

Professor Ing and Associate Professor Saghaie are planning a workshop at Macquarie University Hospital, followed by interstate and overseas workshops in 2025 to maximise training opportunities.

FOR MORE INFORMATION
T: (02) 9812 3709

Transforming ACL injury

PREVENTION FOR YOUNG ATHLETES

Young athletes who suffer repeated anterior cruciate ligament (ACL) injuries often share a common factor. MQ Health orthopaedic surgeon Dr Michael Dan wants to keep more players on the field by making a procedure already helping our canine companions a more common fix for humans.

Dr Michael Dan

The shape of the bottom part of the knee joint is emerging as an important predictor of whether someone who ruptures their ACL will repeat the injury after reconstruction and rehabilitation.

The ACL is one of the main ligaments stabilising the knee joint. Ruptures or tears are common injuries in all codes of football, as well as netball and basketball, and they usually happen when a player lands badly from a jump, twists, or changes direction quickly.

A ruptured ACL can be surgically reconstructed by replacing the damaged ligament with a tendon taken from elsewhere in the patient's body, such as a hamstring, but the athlete cannot return to sport for 12 months.

One severe ACL injury can be career-ending, but up to 35 per cent of all ACL reconstructions fail, with patients potentially going on to suffer a second or even a third injury.

As a former rugby player, specialist orthopaedic surgeon Dr Michael Dan has seen many careers ended by knee injuries.

Before beginning his medical training, Dr Dan played for Australia in the Under 21s World Cup, going on to be signed to the Western Force rugby team in Western Australia.

"With every ACL reconstruction, the likelihood the player will return to their sport drops," Dr Dan says.

"That's devastating at any stage of your career, but these repeat injuries are particularly common in young men in their late teens and early 20s – just when they're just coming into their peak.

"When you combine high rates of participation in pivoting sports with the sense of being bulletproof that we can have at that age, the increased rate of reinjury isn't really that surprising.

"Female participation and exposure to professional sporting environments is increasing, and young women now seem to be overtaking their male counterparts with regards to the incidence of ACL injuries."

FOR MORE INFORMATION
T: (02) 9812 3583

Tibial plateau angle as a predictor

The tibial plateau is the top surface of the tibia – the heavier of the two bones in the lower leg. This is where the femur rests, forming the knee joint.

Observed from the side, the tibial plateau has a visible slope, and in most people, the angle between the two bones is between 6 and 12 degrees. In some people, however, the tibial slope is steeper, and each extra degree means more pressure is being exerted on the ACL.

"We're beginning to collect data now on these repeat cases, and so far, that is pointing to reinjury being most likely in patients with a higher tibial plateau angle," Dr Dan says.

"In dogs, the cranial cruciate ligament (CCL) performs a similar function to the ACL in humans, and like humans, injuries are common and often required surgical intervention.

"To reduce the likelihood of the failure of CCL reconstructions, veterinary surgeons reduce the angle at which the bones meet by performing an osteotomy, which involves removing a small wedge of bone.

"This puts less pressure on the ligament, making a second rupture less likely without affecting the operation of the joint."

For dogs, this has been the main treatment since the early 1990s.

Bringing a French gold standard to Australia

French orthopaedic surgeons pioneered a similar procedure for human patients in 1991 for people who had multiple ACL failures.

It has now evolved to become more common and is now performed on an almost weekly basis in France. In some cases, it is performed at the same time as the first reconstruction.

Dr Dan was first exposed to the slope-levelling osteotomy in its earlier days, while a friend was playing for a French rugby team.

One of his friends, a champion player who was contracted to a club in Lyon, suffered a third ACL injury that looked certain to sideline him permanently.

The club encouraged him to see their own surgeon, who reconstructed the ACL and performed an osteotomy. He made a complete recovery and went on to play for another seven years before retiring in his early 30s.

Completing his own orthopaedic training, Dr Dan discovered the procedure was uncommon in Australia, so he returned to France to complete fellowship training in complex knee surgery at the Lyon Knee School.

He is continuing to refine the process he learned, now using low-radiation EOS scanning to accurately measure the angle of a patient's tibial slope and exactly how much bone needs to be removed and from where.

"I think a lot of Australian orthopaedic surgeons either aren't familiar with tibial slope osteotomy and its benefits, or they think of it as too risky because they haven't observed its development and natural progression over the past 30 years," he says.

"It's something I believe we should be doing more of in Australia, particularly when someone has a higher-than-average tibial plateau angle and is potentially more vulnerable to reinjury.

"It's hugely beneficial, particularly for teenagers who have a high likelihood of re-rupture and their whole sporting careers ahead of them.

"Why should we put these individuals with a high tibial slope through a standard ACL reconstruction on its own when we know it has such a low chance of success?

"If we can do it once and do it right by putting the new ligament in the optimal biomechanical environment, that's going to be advantageous."

Trial of new vaccines for kidney and bladder cancer begins

Kidney and bladder cancer patients at Macquarie University Hospital (MUH) are among the first in the world to receive cutting-edge personalised vaccines to prevent the recurrence of their tumours.

Oncologists may soon have a new weapon in the arsenal against cancer, with mRNA vaccines joining the existing battery of treatments.

Developed by international biotech company Moderna, the vaccine V940 is being trialled on kidney cancer at four clinical sites in Australia, including Macquarie University Hospital.

mRNA vaccines do not work directly on the disease itself but stimulate the body's own immune cells to destroy the cancer.

The 'vaccine' is not like the vaccines commonly used to prevent viral infections like COVID-19 or influenza.

The technology replicates abnormal proteins produced by an individual's cancer, which is then injected into that person. Their immune system identifies these proteins as foreign, then gears up to attack any cancer cells that might be still in the body after surgery.

Professor Howard Gurney, Macquarie University's Director of Clinical Trials and Head of its Cancer Program, says most kidney and bladder cancers are small tumours with a low risk of recurring once they have been removed and don't require any further treatment.

"Cancer falls into the high-risk category if it is larger than 10cm when diagnosed, has invaded nearby lymph nodes, or appears aggressive under the microscope," he says.

"These features make it more likely to metastasise and take hold elsewhere in the body, such as the lung, bone, liver and brain. These may be present in microscopic amounts at the time of surgery and are therefore undetected even with the most sensitive scans.

"About half of all patients with high-risk kidney cancer relapse, and the more of these bad risk factors they have, the more likely it becomes."

About 3000 new cases of kidney cancer and 3100 cases of bladder cancer are diagnosed each year.

Both diseases are most common in people over the age of 55, with men more likely to be diagnosed than women.

Unlike the COVID-19 mRNA vaccines, each patient's vaccine is unique to them.

A sample of the person's tumour is sent away to the lab and used to develop a personalised therapy, a process that takes about eight weeks. It is then delivered as an infusion every three weeks for up to a year.

A two-pronged attack on cancer

The Macquarie University Clinical Trials Unit has become known as a centre of excellence in the clinical trials sector.

It carries out about 160 in-human trials a year, many of which are world-firsts or run on behalf of pharmaceutical, biomedical companies or Australian cancer clinical trials groups. A number of these are run across multiple sites worldwide.

The V940 kidney cancer vaccine trial builds on a previous study that showed an immunotherapy treatment, pembrolizumab, was effective both in reducing the recurrence of high-risk kidney cancers and improving patients' overall survival rate.

Thirteen MUH patients were part of a worldwide cohort of 994 who took part in the double-blind, randomised trial that was spread across nearly 40 sites, just two of which were in Australia.

Pembrolizumab is an established immunotherapy used to treat many advanced cancers including malignant melanoma, lung cancer, urothelial cancer and head and neck cancers.

Like the mRNA vaccine, it has also been used as an adjuvant treatment, which is given following surgery and to patients with various cancers who have a high risk of recurrence. For the trial, it was administered as an infusion every three weeks for up to 12 months.

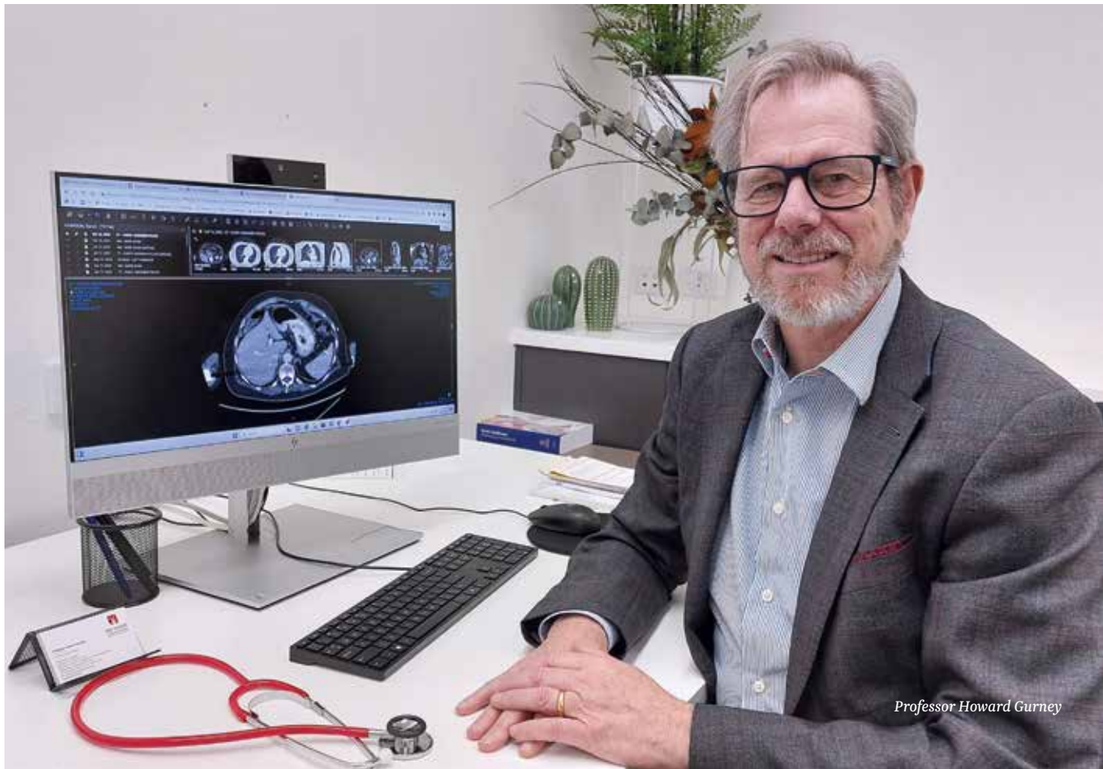
Clinicians hope pembrolizumab will be added to the Pharmaceutical Benefits Scheme in coming months for use on kidney, bladder and urothelial cancers, paving the way for it to become the standard treatment in combination with surgery.

Patients on the V940 trial are also receiving pembrolizumab. The control group will receive it on its own, and the trial group will receive it in combination with the vaccine to test whether the two together will prove even more effective than the immunotherapy alone.

Another V940 trial has also commenced at Macquarie University Hospital using the vaccine to prevent recurrence in bladder cancer patients after surgery.

Professor Howard Gurney is Director of Clinical Trials and Head of the Cancer Program at the Macquarie University Faculty of Medicine, Health and Human Sciences.

FOR MORE INFORMATION
T: (02) 9812 3614



Professor Howard Gurney

Professor Ray Sacks

Tools down to focus on mentoring others

ONE OF MACQUARIE UNIVERSITY HOSPITAL'S ORIGINAL SPECIALISTS HAS PUT ASIDE THE SCALPEL TO CONCENTRATE ON TEACHING AND RESEARCH.

For almost 30 years, ENT surgeon Professor Raymond Sacks has balanced private and public practice and academia, working as a surgeon, clinical professor, chief examiner and professional leader.

He has been part of the Macquarie University Hospital family since it began, and completed the first full day of operating in March 2010, before the hospital officially opened its doors. He is still a clinical professor of surgery at Macquarie University.

"Mine is a constantly evolving specialty with new information and technology and I have embraced that," Professor Sacks says.

"I love technology. One of the things that attracted me to Macquarie was that it was a new university hospital with state-of-the-art technology.

"I've also been involved with the clinical accreditation committee there from day one and I'm still involved."

Professor Sacks has held visiting professorships at multiple universities in the USA and UK and has been a PhD examiner at seven universities.

He has co-written two textbooks, including the first text on endoscopic orbital surgery.

Among his many awards was the Australian Society of Otolaryngology's Head and Neck Surgery Medal for 2015 for Outstanding Contribution to the Art and Science of Otolaryngology-Head and Neck Surgery.

In Brazil the same year he was awarded the International Rhinologic Society medal for distinguished service to the international rhinologic community.

But he is most proud of being the first and only specialist ENT surgeon from Australasia to be given the prestigious Honorary Life Membership of the European Rhinology Society in recognition of his contribution to teaching and education of rhinology in Europe.

"I'm proud to say I've run sinus surgery courses on six of the seven continents and in 35 countries," Professor Sacks says.

His passion for academia led to the decision earlier this year to step back from surgery. While he will still meet with patients in the public hospital system, he is committed to teaching and nurturing the careers of others.

"I love teaching, governance, education, assessment and training. I'm not retired. I'm just doing what I love doing most," he says.

"Nearly every one of my fellows has achieved tremendous academic heights. You just feel proud because your fellows, in a way, are like your children. I am unbelievably proud of my trainees and thrilled that I had some part in their development and their pathway to success."

Thank you, Professor Sacks, for your remarkable dedication to your field, your patients, and the next generation of specialists. Your legacy of excellence and innovation continues to inspire us all.

Answering the Burning Questions about reflux

GETTING TO THE BOTTOM OF THE CAUSES OF REFLUX CAN OFFER MORE TREATMENT OPTIONS AND SIGNIFICANTLY IMPROVE QUALITY OF LIFE.

Reflux can cause a range of symptoms, including heartburn and acidic regurgitation, and can also lead to more serious conditions such as oesophageal cancer.

Gastroenterologist Dr Lisa Shim has a special interest in gut dysmotility and says high-resolution oesophageal manometry and a 24-hour pH impedance study are the gold standard for diagnosing reflux diseases.

“Macquarie University Hospital is the only private hospital in NSW with these services and because of that we’re able to provide an efficient and high-quality service for patients,” she says.

Oesophageal manometry takes about 15 minutes and offers real-time information about oesophageal peristalsis. Performed without sedation, it involves a thin probe being placed via the nose and passes down to the gastro-oesophageal junction.

“Unlike a gastroscopy, we can measure the motor function of the oesophagus by getting the patient to do a series of liquid and solid swallows in real time,” Dr Shim says.

“This is the only test that can diagnose problems associated with peristaltic disorder of the oesophagus or where the lower oesophageal sphincter doesn’t relax.”

In some cases, including when patients have had a normal gastroscopy report but are still experiencing reflux, Dr Shim recommends a 24-hour pH impedance study in addition to oesophageal manometry. The patient can go home after a very fine tube is placed into the lower oesophagus and connected to a small portable recorder. This enables them to press buttons to record when they eat, go to bed and experience symptoms.

“The idea is to capture what happens with their reflux in a normal day,” Dr Shim says. “It gives us more information about the type of reflux they have or if they have a hypersensitive oesophagus.”

The study confirms whether a patient has acid reflux and might need acid suppression medication, and whether it needs to be tailored for certain times of the day. It can also show whether patients have non-acid reflux, which might need to be managed through other lifestyle changes rather than acid suppression medication.

Others have reflux hypersensitivity, in which the nerves in the oesophagus trigger symptoms. This can be caused or exacerbated by stress and anxiety.

“The information from these studies gives a lot of pathways and treatment strategies,” Dr Shim says.

Denise Osmand, 76, went to Dr Shim in late 2023 with a persistent cough and breathlessness. Over the previous two years she had met with several specialists and undergone a series of investigations.

“I had spent four weeks in hospital having tests and I had lost my voice and had no idea as to the cause,” she says.

The 24-hour pH impedance study found she was experiencing acid reflux that was three times more severe than the average case, and that she was also having significant reflux at night. A tailored medication regime now has her reflux under control.

“There is no more burning and choking,” she says. “I still watch the types of food I eat but I’ve got my life back – I’m not totally frightened and in pain.”

Dr Lisa Shim

MORE INFORMATION
T: (02) 9159 3878

ADVANCED EARLY LUNG CANCER DETECTION

GP SUPPORT SERVICE

In July 2025, Australia will implement a national lung cancer screening program aimed at early detection, where lung cancer has a higher chance of being curable.

The team at MQ Health Respiratory and Sleep Clinic is prepared to lead this initiative with its ELUCiD – Early Lung Cancer Detection program, offering a seamless integration of clinical expertise, advanced diagnostics, and cutting-edge research.

The team will also integrate clinical trials and academic collaboration to drive advancements in early diagnosis, staging and treatment.

Professor Alvin Ing, Respiratory Physician and Interventional Pulmonologist, emphasises the significance of this program.

“Early detection is crucial. By leveraging the expertise of our clinicians and utilising our innovative technology and state-of-the-art facilities, we will ensure our patients receive the most advanced care possible, resulting in improved outcomes and a higher standard of treatment. With the resources we have established, we can now deliver comprehensive, rapid access care for patients while providing robust support for GPs.”

Lung nodule rapid access service

At the heart of MQ Health’s approach is the Lung Nodule Rapid Access Service, providing streamlined care from initial GP referral to tailored interventions. Key features include a dedicated GP support line, individualised triaging, and one-stop diagnostic services featuring interventional pulmonology and radiology. Each case is reviewed by a multidisciplinary team (MDT) to ensure that patients receive the most appropriate, evidence-based care.

The MDT plays a pivotal role in delivering personalised care for each patient. This team includes respiratory physicians, interventional pulmonologists, thoracic surgeons, oncologists, radiologists, pathologists, nurses, clinical librarians, and allied health professionals. During a dedicated Nodule MDT Meeting, the team assesses each patient’s case, reviewing imaging, diagnostic results, and patient history to develop a comprehensive care plan. This collaborative approach ensures that each aspect of care is considered, from diagnosis to treatment, giving patients access to the latest therapies and clinical trials.

With a tailored treatment plan for each patient, the MDT approach also strengthens communication with GPs. Clear, concise summaries are provided to the referring GP, enabling shared care and ensuring that the patient’s journey from diagnosis to treatment is seamless and well-coordinated.

Comprehensive patient support

MQ Health’s service offers more than just diagnostics - it provides comprehensive care, including smoking cessation, pulmonary rehabilitation, and access to cardiothoracic surgery, oncology treatments, and allied health services.

Clinical Nurse Consultant Abby Fyfe ensures a smooth, patient-centred experience, with a focus on early intervention.

By integrating expert clinicians and advanced technology with compassionate care, ELUCiD is well-positioned to provide better outcomes for lung cancer patients.

Professor Alvin Ing, Dr Julia Fattore, Associate Professor Tajalli Saghaie, Abby Fyfe, Associate Professor Jonathan Williamson.

MORE INFORMATION
T: (02) 9812 3709

Mentor joins his protégé

Associate Professor Sumit Raniga, Professor Des Bokor, Dr Jasan Dannaway

Eminent orthopaedic surgeon Professor Des Bokor has joined the MQ Health Shoulder and Elbow Clinic to share his internationally renowned expertise.

Professor Bokor was the inaugural Head of the Bone and Joint Program at MQ Health. He was also the Chairman of Macquarie University Hospital's Medical Advisory Committee.

Founder of the Shoulder and Elbow Society of Australia and instrumental in establishing the Macquarie University Hospital's Department of Orthopaedic Surgery, Professor Bokor has given new quality of life to many thousands of people and saved the careers of countless elite athletes.

He was instrumental in the initial research and development in 2012 of a bio-inductive collagen implant for rotator cuff repairs, which has now been used in more than 500,000 patients.

Having retired from surgery in June this year to focus on patient consultation, research and teaching – as well as spending more time with his family – Professor Bokor has now joined his protégé and former Fellow, Associate Professor Sumit Raniga, Head of Upper Limb Surgery and Therapy.

Professor Bokor trained and worked internationally, including 15 years spent teaching surgeons in Cambodia. He has been at the vanguard of exponential change and increased knowledge and understanding of shoulder disorders.

"In 1980 the surgical repair of rotator cuff tear was rare. Now society has different expectations. People want to be more physically active," he says.

"We do see a lot more people who are middle-aged and older with high expectations of their bodies. Sixty is the new 40 – people want to be in the gym, but the body still wears out and we are seeing an increase in shoulder issues, especially in middle age."

Professor Bokor says he is keen to draw on his expertise while contributing further to research by joining the Macquarie University Translational Orthopaedic Research Lab established by Associate Professor Raniga. Along with Dr Jasan Dannaway, the pair are consulting on complex shoulder and elbow patients with difficult problems for which there are no straightforward solutions.

"I wanted to do some more research and I am still keen to see patients," Professor Bokor says.

"Sumit and I get on very well and I felt very confident with his knowledge, his skills and his approach. I saw an opportunity to be able to hand on the baton. It was a matter of finding the right person."

Associate Professor Raniga says it is both humbling and exciting to have Professor Bokor by his side.

"To have such a renowned and established shoulder surgeon join his protégé is quite a huge moment," he says.

"He has probably operated on more rugby players' and elite athletes' shoulders than anyone else in Australia. It is a privilege to be his protégé, and an even greater honour for him to trust me with the care of his patients."

Associate Professor Raniga, an award-winning internationally recognised shoulder and elbow surgeon, teacher and mentor, specialises in shoulder and elbow reconstruction, arthroscopy and arthroplasty. He and his team have developed the world's most advanced ex-vivo cadaveric shoulder simulator. It replicates the biomechanics of the human shoulder joint and aids in the shoulder replacement implant evolution and the development of novel surgical techniques to improve patient outcomes.

He says shoulder replacement surgery is recording the most growth in the field of orthopaedic surgery, and research and technology will continue to allow treatments to evolve.

"The shoulder is the most complex biomechanical joint in the human body," he says.

"This is a dynamic specialty that has undergone several revolutions in just the past 15 years and having Des join us and provide his invaluable insight and experience will further strengthen our research lab."

MORE INFORMATION
T: (02) 9812 3583

Transforming hip and knee replacement surgery

A PATIENT-CENTRIC APPROACH AT THE ORTHOPAEDIC INSTITUTE

At Macquarie University Hospital's Orthopaedic Institute, our orthopaedic surgeons who specialise in hip and knee surgery have redefined joint replacement care, merging state-of-the-art technology with a streamlined, patient-centered model to enhance recovery outcomes for hip and knee replacements alike. By utilising a structured journey that begins before surgery and continues through rehabilitation, the Institute's innovative approach offers patients more than just surgery – it provides a pathway back to mobility and a renewed quality of life.

A personalised patient journey

Each patient journey starts with an in-depth consultation, followed by comprehensive evaluations at the Pre-admission Clinic. Here, advanced imaging technologies, such as EOS scans, give the surgical team a precise, weight-bearing view of the hip or knee, facilitating exact pre-surgical planning. The EOS technology captures the full skeletal structure and enables the team to identify any deformities or additional affected areas, ensuring a highly customised surgical approach. Patients may also be assessed for custom 3D-printed implants, which are particularly beneficial for those with complex bone anatomy.

The consultation phase isn't just about assessments; it's designed to empower patients. Each patient meets with a physiotherapist prior to surgery, preparing them with exercises and information to optimise recovery. For some, the team may arrange consultations with other specialists to address underlying conditions, helping to ensure surgery proceeds as smoothly as possible.

Enhanced recovery after surgery

The Orthopaedic Institute's Enhanced Recovery After Surgery (ERAS) model forms the backbone of this patient-centered experience, fostering faster recovery times and a seamless transition back home. Patients often begin walking on the day of their surgery, thanks to expert guidance from the physiotherapy team. This early mobility is a critical part of the ERAS model, helping to reduce complications and boosting patient confidence in their own progress.

Once home, patients benefit from a personalised rehabilitation program that includes at-home physiotherapy visits for up to six weeks, which helps monitor progress, fine-tune exercises, and ensure a smooth recovery process. The ERAS model supports patients through structured steps to full mobility, whether they're recovering from a hip or knee replacement.

Financial peace of mind with no-gap coverage

Recognising the financial concerns often associated with joint replacement surgeries, Macquarie University Hospital has collaborated with Medibank and HCF to offer a No-Gap Joint Replacement Program. Eligible patients can undergo their hip or knee replacement surgery with no out-of-pocket expenses, aside from any applicable health fund excess, covering hospital accommodation, diagnostic tests, surgery and rehabilitation at home costs. This partnership removes financial barriers, allowing patients to focus fully on their recovery. Terms and conditions and eligibility criteria apply.

A patient testimonial: Margaret's journey

Margaret, a recent knee replacement patient, experienced firsthand the benefits of this holistic approach at The Orthopaedic Institute. Through the No-Gap Program, her surgery, hospital accommodation, and post-surgery rehabilitation at home were covered, allowing her to focus on her recovery (excess may apply). Margaret's journey exemplifies the comprehensive support patients receive from a "well-oiled machine" pre-admission clinic experience to guided rehabilitation that continued seamlessly in her home. She was back on her feet the day after surgery and able to drive within weeks.

The future of joint replacement at The Orthopaedic Institute

Through leading-edge technology, a focus on individual patient needs, and the proven success of ERAS, The Orthopaedic Institute is setting new standards in hip and knee replacement care. With a world-class facility, expert clinicians, and a supportive, cohesive approach to each patient's journey, Macquarie University Hospital is committed to delivering outstanding outcomes that restore mobility, freedom, and confidence – one patient at a time.

MORE INFORMATION
T: (02) 9812 3333

Dr Brandon Baraty

The fast, accurate and non-invasive tool for DIAGNOSING AND TREATING IBD

LEADING GASTROENTEROLOGIST DR BRANDON BARATY IS CREATING A CENTRE OF EXCELLENCE AT MACQUARIE UNIVERSITY HOSPITAL.

Head of gastroenterology at Macquarie University Hospital, Dr Baraty has a special interest in inflammatory bowel disease (IBD) and completed a fellowship in advanced IBD and IBD imaging in Canada.

The leading expert in New South Wales for intestinal ultrasound, he uses the technique as part of the arsenal of diagnostic tools for people with IBD (Crohn's disease and ulcerative colitis) and non-IBD gastrointestinal illnesses. The method is also non-invasive in monitoring inflammation and assessing treatment.

Dr Baraty says ultrasound improves patient care and patient satisfaction and is less expensive and more accessible than MRI. It can also be more accurate than blood or stool tests.

As one of only a few gastroenterologists in New South Wales accredited by national and international ultrasound bodies to perform gastrointestinal ultrasound assessment, Dr Baraty is also training others in the techniques that can improve patient care.

"Ultrasound is not a replacement; it's another tool. Patients might still need an MRI or colonoscopy, but less frequently. Importantly it provides instant assessments and decreases lag periods for medical decisions and decreases days lost from work for patients," Dr Baraty says.

It can also be used to determine whether patients have properly prepared for colonoscopy or endoscopy.

Dr Baraty is accredited by the International Bowel Ultrasound Group (IBUS) and the Australian Gastroenterology Network of Intestinal Ultrasound (GENIUS) to perform this assessment for patient care, research and teaching others. He is also part of the GENIUS committee and has created the Sydney Network for Gastrointestinal Ultrasound to support newly trained gastroenterologists.

At the hospital's Endoscopy Unit he is working with advanced trainees to increase their experience with ultrasound, gastroscopies and colonoscopies.

He has been able to attract a number of specialists to the team and IBD research will be another focus, as will developing more streamlined processes with other specialists and departments at Macquarie.

The new Endoscopy Unit, opened in late 2021, has state-of-the-art equipment and offers the full range of diagnosis and treatment options, including soon having access to AI for cancer screening and polyp detection.

With the incidence of IBD on the rise, Dr Baraty says improved diagnosis and individualised management is crucial.

"IBD is unfortunately growing at a rapid rate in Australia. The complex intermingling reasons include genes, diet, the environment and our microbiome," he says.

"Australia will have more than 100,000 cases (up from around 80,000 now) by 2030."

Dr Baraty believes environmental changes and dietary changes over generations, including consumption of more processed foods and fewer legumes and vegetables, have contributed to the increasing incidence of IBD.

"Though it's probably a lot more complex than we expect," he says. He also added that an up to date multidisciplinary approach is always best and what we are striving for at MQ Health.

Dr Baraty is also working on expanding the availability and use of endoscopic retrograde cholangiopancreatography, which combines the use of X-rays and an endoscope, to examine the ducts of the gall bladder, pancreas and liver.

MORE INFORMATION
T: (02) 9874 1251

Study reveals predictor of shoulder surgery complications

Better management of patients' blood sugar levels before a common shoulder surgery can lead to improved outcomes, a new study has found.

Dr Jasan Dannaway

Led by Macquarie University Hospital orthopaedic surgeon Dr Jasan Dannaway, in collaboration with previous shoulder fellow Dr Gaurav Sharma, academic shoulder and elbow surgeons Associate Professor Sumit Raniga, Professor Des Bokor, and statistician Dr Petra Graham, the research found a link between diabetes control and stiffness after rotator cuff repair.

It looked at 250 people with full thickness postero-superior rotator cuff tears who underwent surgical repair between 2016 and 2018. Patients' glycated haemoglobin (HbA1c) levels had been measured before surgery, which served as a marker for glucose control.

The study found that, six months after surgery, 41 patients had experienced post-operative stiffness. Those with an elevated pre-surgery HbA1c were seven times more likely to have stiffness.

Dr Dannaway says the results show that measuring HbA1c for all patients before this surgery could help identify those at greater risk of stiffness.

"GPs can actively influence this peri-operatively," he says.

"For those patients with a known history of diabetes, it's good for us to know how well it is controlled. But we also found a number of patients who didn't think they had diabetes who actually had diabetes.

"It's important not to only rely on patient history of diabetes alone."

Diabetes is a known risk factor for bone and tendon healing and adhesive capsulitis. As rotator cuff disease is the most common cause of shoulder disability in over-50s, and the rate of surgical repair is on the rise, the study results could benefit all patients.

Dr Dannaway says people with poorly controlled diabetes are also at greater risk of infection and poorer general post-surgery outcomes.

"This research adds to the mass of evidence that glycaemic control is important," he says.

Dr Dannaway received a grant from the US Association for Academic Surgery to present the research at its annual congress in Washington, DC in February this year.

FOR MORE INFORMATION
CALL (02) 9812 3583

New breast implant illness data supports removal

A three-year, multipronged research project on breast implant complications is continuing to build on the body of knowledge on breast implant illness (BII), with the latest data showing ongoing physical and psychological benefits from removing the implants, Professor Anand Deva says.

Professor Anand Deva

About 20,000 Australian women get breast implants every year, whether for cosmetic reasons or for reconstruction following breast cancer, but there is little data available on complications.

There are no figures on how many women experience the better-known problems of leakage, rupture or deformity, let alone the myriad symptoms linked to BII, such as autoimmune disease, gastritis, chronic fatigue, joint pain, hair loss, anxiety and depression.

Head of Plastic and Reconstructive Surgery at Macquarie University Hospital, Professor Anand Deva has been performing breast augmentations and reconstructions for three decades, and dealing with the associated problems for nearly as long.

In 2018, he set up the world-first Macquarie University Hospital Breast Implant Clinic to provide women with a low-cost, convenient way of having their implants checked and seeking help for complications.

For the past few years, he has been filling the gap in the understanding of complications by gathering data from his patients.

“About 80 per cent of women are coming to the clinic to seek help for physical complications, but we are seeing a rise in women with the symptoms of breast implant illness as more people learn about the condition,” he says.

“It’s still hard to put a number on how many women get these systemic symptoms, and we still don’t know what causes them.

“There is such a wide range of symptoms and they vary not only from patient to patient but even in the same patient from month to month that BII is frustratingly hard to define, let alone pinpoint the cause.”

Some BII patients have leaking or ruptured implants, but most don’t, so in trying to find the root cause, he and his colleagues have been investigating other aspects including the presence of bacteria and foreign bodies, as well as psychological links.

They have found inflammation and changes in the tissue surrounding implants that suggests changes due to contact with foreign bodies, but the answer is likely to be more complex than a single cause.

Removal as the starting point

The first option Professor Deva offers to all women with BII is removing their implants, and he and his colleagues are doing ongoing research on the physical and psychological results.

“What we do know is that when we offer these women explant surgery, with a full or partial capsulectomy to remove the thickened tissue that has formed around the implants, in many cases, most of their symptoms disappear and those that remain become less severe and less impactful in their lives,” he says.

“But not everyone continues to feel great, which indicates there are likely to be other factors at play that we don’t fully understand yet.”

In a six-month follow-up after removal, 80 per cent of patients with BII symptoms reported feeling significantly better, and Professor Deva recently presented at a conference in the US on new data that indicates this benefit continues in about 70 per cent of cases at the 12-month mark.

A common symptom of BII is anxiety, and in a collaborative study with psychologists that is now being finalised, women with BII symptoms were found to have anxiety levels three times higher than a control group of women with breast implants but no related health issues.

When the BII group’s anxiety was assessed six months after explant surgery, it had returned to the same level as the control group.

“Taking the implants out and removing that concern of having something in their body that is making them sick is hugely beneficial to their mental health, and we know that the mind and body are closely linked,” Professor Deva says.

“After studying this for three years, my thought is that it must be a combination of physical, biological and psychological factors that leads some women to feel so unwell, but we still don’t know who is at risk of developing BII.”

The importance of regular check-ups

Breast implant design may have had a few tweaks along the way, but Professor Deva says implants are still essentially the same bag full of silicone that was created in the 1960s.

Being subjected to changes like pregnancy, breastfeeding, weight loss and menopause, they will eventually fail.

“Everyone with implants should have a yearly check, then after three to four years, think about getting some imaging done in the form of an ultrasound or mammogram to make sure there’s no pathology around them,” he says.

“There is still such a lack of understanding of BII that unless a clinician asks about systemic symptoms, they may never put two and two together.

“I also want to see surgeons taking responsibility for their own work, by doing these checks themselves and listening to their patients’ concerns.”

With the long history of regulatory failures, and the ongoing pressures of societal ideals of beauty, advertising and now social media, he says we are continuing to fail women – and we need to do better.

Professor Anand Deva is a Professor of Surgery at Macquarie Medical School, and Head of Reconstructive and Plastic Surgery at Macquarie University Hospital.

MORE INFORMATION
T: (02) 9812 3899

A MAGICAL MILESTONE

In October, Macquarie University Hospital (MUH) reached a significant milestone celebrating its 1000th transcatheter aortic valve implantation (TAVI) case.

This achievement marks not only the success of a cutting-edge medical procedure but also the profound impact it has had on the lives of patients, offering a lifeline to those living with severe heart conditions. What was once considered a revolutionary treatment is now the standard for treating aortic stenosis (AS), one of the deadliest forms of heart disease, and it continues to change the landscape of heart care.

AS is a condition where the heart's aortic valve becomes narrowed, restricting blood flow and forcing the heart to work harder. Symptoms like breathlessness, dizziness, and chest tightness often occur as the disease progresses, significantly affecting quality of life. Left untreated, severe AS can lead to heart failure and death.

Before the advent of TAVI, the only option for patients with severe AS was open-heart surgery, which carries significant risks, especially for elderly and frail patients. TAVI offers a less invasive alternative, allowing doctors to replace the faulty valve through a catheter inserted into the artery, typically through the groin, without the need for open surgery. This means patients recover much more quickly, with many discharged within 24–48 hours.

Today, TAVI accounts for more than half of all aortic valve replacements in Australia, and its use continues to grow. The procedure is now available to patients at all levels of surgical risk, from high-risk patients to those previously considered low risk for surgery.

Macquarie's trailblazing role

The TAVI program at Macquarie University Hospital began in 2013, when Professor Martin Ng and his team saw a gap in available treatments. At that time, there was no Medicare funding for TAVI, and many private hospitals hesitated to adopt the new technology due to cost concerns. However, MUH, committed to advancing medical innovation, stepped up and invested millions of dollars to support the program, funding the procedure for patients who needed it most.

Professor Ng reflects on the challenges faced during those early years: "Surgery was too risky for many patients over the age of 80, and they were suffering. TAVI was once seen as 'science fiction,' but today, it's a lifeline."

The first Medicare rebate for TAVI was introduced in November 2017, and by 2023, about 58 per cent of all aortic valve replacements in Australia were performed via TAVI. The procedure's increasing accessibility has saved countless lives, particularly among the elderly, who previously had few options.

Multidisciplinary care: a key to success

TAVI procedures at MUH are performed by highly experienced teams, involving interventional cardiologists and cardiothoracic surgeons. This collaborative approach, involving specialists across various disciplines, ensures that every patient receives the highest level of care.

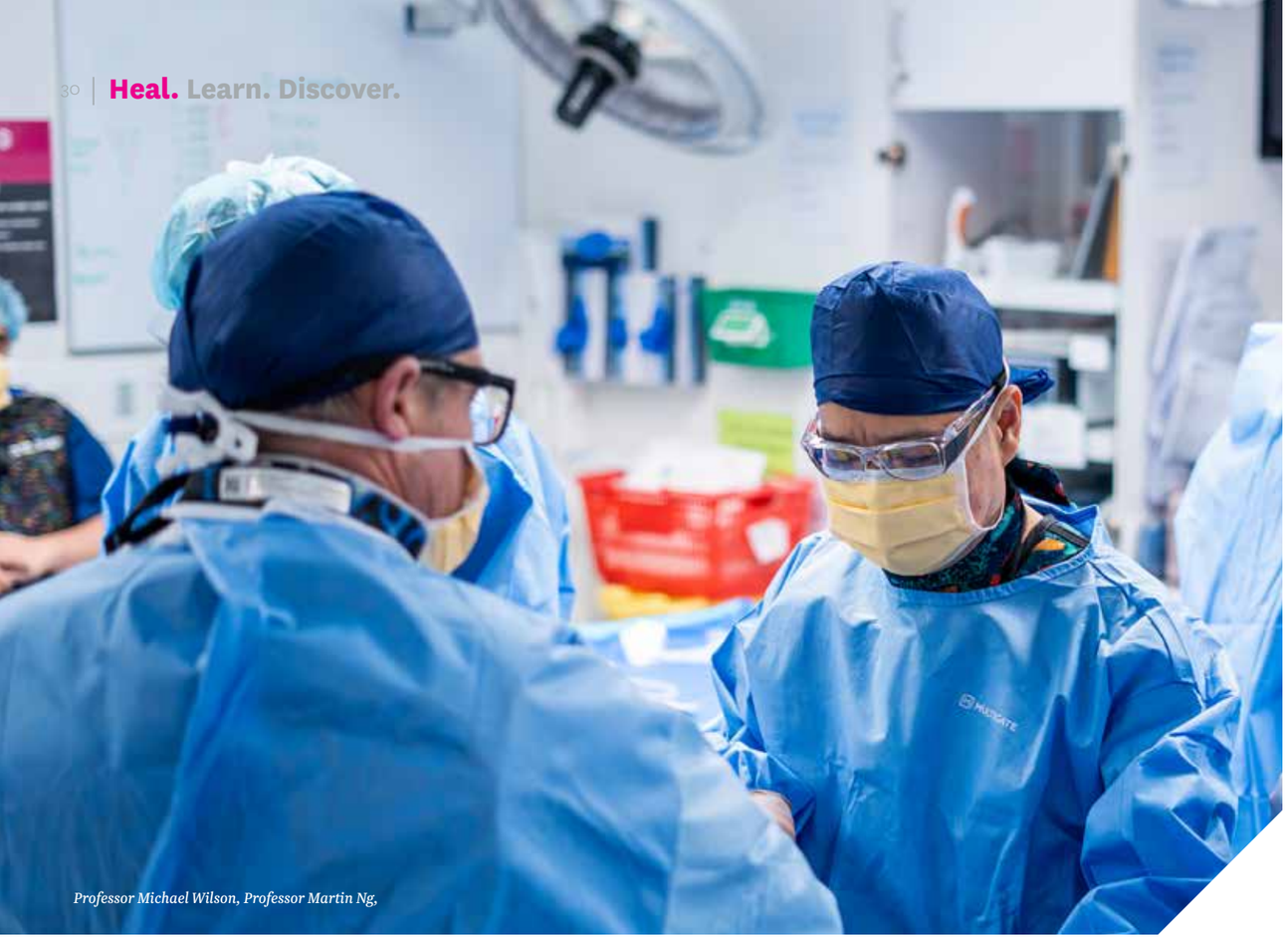
Professor Michael Wilson, cardiothoracic surgeon, highlights the significance of this multidisciplinary approach: "The success of TAVI is not just due to the procedure itself, but the teamwork behind it. By combining the expertise of both interventional cardiologists and surgeons, we ensure the best possible outcome for each patient. It's incredibly rewarding to see the dramatic difference this procedure makes in our patients' lives."

The program includes cardiologists, surgeons, intensive care specialists, anaesthetists, specialist nurses, geriatricians and allied staff all working together under one roof. The team's commitment to comprehensive care is a key reason why MQ Health has become the busiest accredited private TAVI centre in New South Wales.

CELEBRATING

1000

TAVI CASES



Professor Michael Wilson, Professor Martin Ng,

Bianca Coelho, senior manager of cardiac physiology services, is one of the team members who plays a critical role in the program. A highly skilled cardiac sonographer, she performs expert imaging before and after TAVI procedures. “It’s magical to see how lives change,” Coelho says. “Patients who could barely walk are now able to pick up their grandkids and enjoy life again. It’s incredibly rewarding.”

Clinical nurse consultant Mareen Maladda, who has been with the program since 2017, also sees the life-changing effects of TAVI. “Some patients walk out of the hospital the day after the procedure, and their families are amazed at the improvement. It’s very rewarding to be part of that journey,” she says.

Another key member of the team is Morgan Smith, clinical nurse consultant. Morgan’s role involves providing vital pre and post procedure care, helping patients recover swiftly and comfortably.

Talking to patients after a TAVI reminds me of why I’m in this job,” Morgan says. “They tell us how much better they feel, and their families notice the difference, too. We love what we do. There’s a real satisfaction in seeing patients come and go with very few complications. It’s the most rewarding part of the job for me.”

For many patients, the results of TAVI are nothing short of miraculous. “We did a TAVI on a 97-year-old woman who invited us to her 100th birthday,” says Professor Ng. “At 100, she was still living independently, driving, and even playing lawn bowls twice a week.”

The growing need for TAVI

Despite the growing success of TAVI, many Australians remain unaware that they suffer from heart valve disease. According to Professor Ng, as many as 100,000 people in Australia have severe symptomatic aortic stenosis, and without treatment, this will result in an estimated 50,000 excess deaths in the next five years. Yet, many of these individuals remain undiagnosed.

A study from Oxford University highlighted the increasing prevalence of valvular heart disease, particularly among the elderly. Professor Ng believes TAVI can address this unmet need: “Aortic stenosis is a common, life-limiting condition that can be easily treated. We need to recognise that many people who have this deadly condition are not getting the care they need.”

A new standard in cardiac care

Today, the TAVI procedure is seen as the gold standard for treating severe AS. It’s not just the patients who benefit – the entire field of heart care has been transformed by TAVI’s success. The procedure has led to advancements in other minimally invasive cardiac treatments, with the potential to revolutionise care for a wide range of heart conditions.

Professor Ng is optimistic about the future: “Right from the start, clinical trials showed that TAVI was superior to open-heart surgery, even for patients at low surgical risk. This has now been proven in studies, and TAVI is the preferred option for more and more patients.”

Looking ahead: the road to greater impact

With more than 1,000 successful TAVI procedures completed, the team at MQ Health is committed to continuing its mission of saving lives and advancing heart care. In addition to performing life-saving procedures, the hospital’s research efforts have played a crucial role in understanding AS and improving the TAVI technique. In 2021, Professor Ng published the world’s largest-ever study on the prevalence and clinical outcomes of AS, which has had a global impact on the field.

Walter Kmet, Chief Executive, MQ Health, reflects on the significance of this achievement: “Reaching the 1000th TAVI milestone demonstrates our commitment to innovation and excellence in patient care. Under the leadership of Professors Ng and Wilson, Macquarie University Hospital has become a leader in adopting cutting-edge technologies that improve both outcomes and the patient experience.”

As the demand for TAVI continues to grow, the hospital remains at the forefront of this transformative treatment, improving lives and setting a new standard in heart care.

The achievement of 1,000 TAVI procedures at Macquarie University Hospital is not just a milestone; it is a testament to the hospital’s dedication to improving patient care and advancing medical innovation.

Through a collaborative, multidisciplinary approach, our team continues to lead the way in treating AS, giving patients a new lease on life and proving that even the most serious heart conditions can be overcome with the right treatment and care.

A major UK study by Oxford University found that more than one-third of people over 85 had severe valvular heart disease.

“What the Oxford study suggests is that yes, we have an ageing population, we’re going to have a tsunami of valvular heart disease,” says Professor Ng.

“Most of these people are not seeking medical attention, even though they’re quite limited by it,” he explains.

“The TAVI landmark can remind people that this common, life-limiting, severe condition can be very easily treated,” adds Professor Ng.

MORE INFORMATION
T: 0491 215 002

Structural Heart Team, Executive and Support Services

Dr Candice Delcourt

EVERY. MINUTE. COUNTS. in treating stroke

Advances in stroke treatment are rapidly reducing the disabling effects of stroke and improving patient outcomes. The multidisciplinary team at MQ Health Neurology and Macquarie University Hospital are at the forefront, delivering cutting-edge therapies and continuously refining faster, more effective ways to treat stroke.

Neurologist Dr Candice Delcourt emphasises that "time is brain", highlighting the urgency of stroke treatment. "Every minute we can save is crucial," she explains.

Current acute stroke therapies include antiplatelet agents, thrombolysis, and thrombectomy. Thrombolysis involves administering intravenous drugs like Alteplase (recombinant tissue Plasminogen Activator or rtPA), or Tenecteplase. "Thrombectomy, on the other hand, is a mechanical procedure where a clot is removed via an intra-arterial catheter," says Dr Delcourt. "This is essential when a large blood vessel is blocked, as thrombolysis alone is not as effective in such cases."

Thrombolysis is widely available in Australia, including in rural areas, thanks to the development of Telestroke networks. It is recommended within four-and-a-half hours of symptom onset. However, thrombectomy can only be performed at 19 centres in Australia, with just 15 offering 24/7 access. For patients in regional areas requiring thrombectomy, transfer to a major centre may be necessary. Ideally, this procedure should be performed within 24 hours of stroke onset.

"For every minute lost after a stroke, 1.9 million neurons die," says Dr Delcourt. "It's critical to act fast to minimise brain damage and preserve function."

Reducing the time to treatment is an ongoing challenge. Dr Delcourt explains that paramedics play a vital role in early stroke response by notifying receiving hospitals in advance so that stroke teams can be ready. "As soon as the patient arrives, they should go straight to a CT scan, and from there, we make an immediate decision on treatment – thrombolysis with or without thrombectomy," she says.

Dr Delcourt also emphasises the role of GPs in stroke prevention and post-stroke care. Managing high blood pressure, cholesterol, diabetes and smoking cessation are essential to reducing stroke risk. After a stroke, about 20 per cent of patients are at risk of recurrence within 10 years, so the ongoing role of the GP in managing preventive medications is crucial.

"Someone who has had an ischemic stroke will be prescribed an antithrombotic agent, blood pressure-lowering medication, and cholesterol-lowering medication," she says. "We rely on GPs to ensure patients understand the importance of adherence. Blood pressure should be kept below 130/80 mmHg, total cholesterol under 4.0 mmol/L, and LDL cholesterol below 1.8 mmol/L."

MORE INFORMATION
T: (02) 9812 3720

PRECISION IN ACTION: ADVANCES IN INTERVENTIONAL STROKE CARE

Interventional Neuroradiologist Dr Brendan Steinfort recalls the early days of stroke where hyperacute recognition and treatment was far less effective than the modern treatments available today.

"Over the past 20 years, the field has evolved with the introduction of stent retrievers," he says. These devices, deployed within the clot and then pulled out, have vastly improved outcomes.

The pivotal Extending the Time for Thrombolysis in Emergency Neurological Deficits – Intra-Arterial (EXTEND-IA) trial in 2015 demonstrated that advanced imaging and quicker intervention significantly improved recovery by ensuring complete vessel reopening. Today, the focus is on achieving full vessel opening more rapidly, often on the first attempt.

This approach has dramatically improved patient outcomes, increasing the rate of patients returning home with fewer deficits from around 20 per cent to as much as 70 per cent. "This is one of the most clinically and cost-effective treatments in medicine," Dr Steinfort says, noting that even patients who arrive later or with more severe strokes can benefit, returning to functional lives instead of facing lifelong disability.

Dr Steinfort praises the multidisciplinary approach at Macquarie University Hospital and MQ Health Neurology. "I'm privileged to work in an academic environment like Macquarie, where we have combined neurovascular clinics and multidisciplinary meetings. Our patients benefit from the collective wisdom of many academic doctors, ensuring they receive the safest and most effective treatment."

MORE INFORMATION
T: 1300 553 339

Dr Brendan Steinfort

AS THE ONLY ORTHOPAEDIC SURGEON IN THE WORLD WHO INDEPENDENTLY DESIGNS 3D-PRINTED IMPLANTS, DR MUSTAFA ALTTAHIR IS LEADING A REVOLUTION IN JOINT REPLACEMENT AND LIMB RECONSTRUCTION SURGERY.

Shaping the future

IN COMPLEX ORTHOPAEDIC SURGERY

Dr Mustafa Alttahir

His pioneering work restores function and transforms lives, especially for patients with conditions so complex that traditional solutions are inadequate. Combining surgical expertise with advanced engineering skills, Dr Alttahir is charting a new course for orthopaedic care.

Custom implants – a lifeline for complex cases

Dr Alttahir's bespoke implants are often the last hope for patients facing severe challenges. For those whose conditions cannot be addressed with 'off-the-shelf' implants, the alternatives have traditionally been joint fusion or amputation, life-altering outcomes that severely limit mobility and quality of life.

"These implants are not just pieces of metal; they are lifelines," says Dr Alttahir. "For patients with no other options, I can design solutions that preserve function, mobility, and independence. It's about transforming lives, not just performing surgery."

At Macquarie University Hospital, one of Dr Alttahir's focuses is on revision ankle replacements, particularly in cases where previous implants have failed or the talus bone – the large bone between the ankle joint and heel – has collapsed. His implants preserve the natural length and function of the limb, offering outcomes that were previously unimaginable.

The journey to mastery

Dr Alttahir's journey into implant design began when he joined Macquarie University Hospital's Limb Reconstruction Centre alongside experienced colleagues, Professor Munjed Al Muderis and Dr Tim O'Carrigan. Inspired by what he saw at Osseointegration International, where engineers used 3D design software, Dr Alttahir decided to master the technology himself.

"It wasn't just curiosity; it was a calling," he explains. "I spent countless hours learning Materialise 3-Matic, one of the most advanced medical CAD software systems available. This isn't something you pick up casually. It took years of dedication, trial and error, and countless hours of refinement to reach the level where I can confidently design implants that are both anatomically precise and surgically practical. It requires a deep understanding of both the software and the intricacies of human anatomy."

Most surgeons rely on biomedical engineers to design custom implants. Dr Alttahir, however, is a pioneer, handling the entire process himself. "From slicing the CT scans to creating a digital model of the patient's anatomy, to designing, refining and finalising the implant for printing – I do it all," he says. "This gives me full control and ensures the design is tailored perfectly to the patient's needs."

A broad portfolio of life-changing designs

Dr Alttahir's skills extend far beyond custom ankle replacement implants. Since 2021, he has designed implants for a wide range of cases, including custom acetabular shells (hip sockets), elbow joints, custom plates to allow bone lengthening, and even a pelvic mega-prosthesis for a woman who had undergone a major bone tumour excision. These implants, 3D-printed locally by Osseointegration International, have changed lives of Australian and international patients by addressing conditions where no commercial implant exists.

"Each case is unique, and each implant is a testament to what's possible when you combine technology with surgical insight," Dr Alttahir explains. "As a surgeon, I bring a perspective that no engineer alone can match. I understand the surgical approach, anatomical challenges, and potential risks, which allows me to design implants that integrate seamlessly with the body."

Restoring function, preserving movement

For patients with severe talus bone collapse, traditional approaches often involve shortening the leg, fusing the ankle, and sacrificing movement. Dr Alttahir's implants break this mould.

"With this approach, we avoid losing limb length and preserve the function of the ankle," he explains. "The result is a more natural gait and a better quality of life for the patient. We're giving them back their ability to walk and live actively."

His work is also transforming outcomes for patients with traumatic injuries, deformities, amputations, cancer, and severe arthritis. "Whether it's restoring movement after trauma or offering solutions for rare conditions, the goal is always the same: maximise function, minimise disability, and improve lives."

A vision for the future

Dr Alttahir is passionate about advancing the field of 3D-printed implants, constantly refining his techniques and pushing the boundaries of what's possible in orthopaedic surgery. "We're at the forefront of something extraordinary," he says. "The integration of 3D printing with advanced surgical techniques is changing how we treat patients. It's no longer about finding a way to adapt a patient to an implant – it's about designing the implant to fit the patient perfectly."

Macquarie University Hospital remains a hub of innovation, combining expertise and cutting-edge technology to deliver life-changing results. Dr Alttahir's work has brought hope to patients worldwide, showcasing the transformative power of personalised medicine.

"Every implant I design is a solution for a problem no one else could solve," Dr Alttahir reflects. "It's not just about surgery – it's about giving people their lives back."

MORE INFORMATION
T: (02) 9809 2111

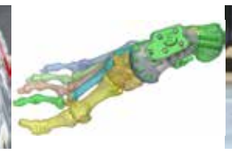
3D printed custom implants

Elbow replacement

Hemipelvis megaprosthesis

Acetabular shell

Talus replacement



3D modelling view of talus replacement

Scapula osseointegration implant

Macquarie University Hospital No-Gap Joint Replacement Program

Working together to provide peace of mind when it matters most

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 30 September 2025.

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