Welcome from the CEO

Dear Doctor

This is our final opportunity for 2018 to let GPs know about the latest services, treatment options, training and research at Macquarie University Hospital and the broader MQ Health.

In this edition, we bring you an update on findings from the National Bowel Cancer Screening Program and other gastroenterological research conducted by Dr Darren Pavey, along with key information for GPs and their practice in this area.

Amongst several new procedures introduced to Australia via Macquarie University Hospital, Associate Professor Andy Yong has trained in and performed the first distal radial artery access procedures for patients undergoing angiogram. This procedure, rapidly being adopted in Europe and the US, offers patient increased comfort and shorter procedure time.

Our Continuity of Care model of service is exemplified in the story on our Parkinson’s and Movement Disorder Service that sees CNC Madelaine Rafiola working alongside Professor Dominic Rowe in a highly personalised patient-centered model of care.

And as part of MQ Health’s commitment to advanced training, Associate Professor Antonio Di leva recently held an advanced workshop in white matter dissection, and Associate Professor Felix Chan in robotic gynaecological surgery. Both training activities made use of the advanced technologies and laboratories here at MQ Health.

Now a full tertiary teaching hospital, Macquarie University Hospital is excited to be hosting the first cohort of Macquarie MD students through the hospital in 2019. Their presence in the Hospital will bring scaled-up services and care for patients, with the private setting offering trainee doctors an alternative to large public teaching hospital programs.

MQ Health’s unique interconnection of clinical, educational and research activity in a private setting affords us the ability to respond to need and build innovative models and clinical practice, based on the latest research, that offer exceptionally personalised level of care to our patients.

May I take this opportunity to wish you and your loved ones a safe and wonderful holiday season.

Carol Bryant, CEO
Macquarie University Hospital

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GP SURVEY

We would like your feedback and suggestions.
Please take our GP Survey and be in with a chance to win a $500 prepaid visa voucher.

If you would like to receive further information about our GP education activities for 2019, please email events@muh.org.au
Gastroenterology: new data and research
WHAT GPs NEED TO KNOW

NATIONAL BOWEL CANCER SCREENING PROGRAM: HOW ARE WE TRACKING?

THE LATEST RESULTS FROM THE NATIONAL BOWEL CANCER SCREENING PROGRAM (NB CSP) MONITORING PROGRAM SHOW THAT INITIAL PARTICIPATION, FOLLOW-UP COLONOSCOPY AND OVERALL SCREENING RATES ARE INCREASING ANNUALLY. HOWEVER, PARTICIPATION REMAINS LOWER THAN WHAT IT SHOULD BE, AND PARTICIPATION STILL NEEDS TO BE THE KEY MESSAGE.

The National Bowel Cancer Screening’s initial faecal occult blood test (FOBT) screening is free to everyone between 50 and 74 years of age.

Of those who participate and receive a positive FOBT, data shows only two-thirds of people go on to have the recommended colonoscopy. “We are definitely diagnosing bowel cancer earlier – especially at a point where it can be endoscopically resected. This is of great benefit to patients – to be able to have a relatively simple, minimally invasive procedure and to remove a cancerous polyp before the disease spreads. “For the patient, this means not only avoiding open surgery but also avoiding chemotherapy and radiotherapy.” GPs should talk proactively with their patients about screening. If patients are between the ages of 50 and 74, patients should do the NB CSP test mailed to them by the Federal Government.

For patients who do test positive, GPs should refer patients on for colonoscopy.

RESEARCH REVEALS HPV AND BARRETT’S LINK TO OESOPHA GEAL CANCER

MACQUARIE UNIVERSITY HOSPITAL RESEARCHER, DR DARREN PAVEY HAS CO-AUTHORED AN ARTICLE IN THE AUGUST 2018 ISSUE OF JAMA NETWORK OPEN DEMONSTRATING THE ASSOCIATION BETWEEN HPV, BARRETT’S OESOPHAGUS AND OESOPHAGEAL CANCER.

Ten per cent of people with chronic heartburn develop Barrett’s oesophagus, and are at risk of long-term complications including dysplasia and oesophageal cancer.

Oesophageal adenocarcinoma is one of fastest growing cancers in the Western world. Increasingly, HPV has been linked to Barrett’s oesophagus and cancer.

The new JAMA Network Open findings reveal that patients with Barrett’s high-grade dysplasia and oesophageal adenocarcinoma who are HPV positive have a favourable prognosis compared with viral-negative oesophageal tumours and may benefit from treatment de-escalation.

GPs should consider referring patients with chronic heartburn, especially males over the age of 50 with other known risk factors for oesophageal cancer (such as smoking and obesity) for endoscopy.

In addition, patients should be screened for Barrett’s oesophagus and enrolled in a surveillance program if Barrett’s is found.

EARLY DETECTION OF PANCREATIC CANCER AND DIABETES

Research studies suggest that new-onset diabetes (NOD) in people over 50 may be an early symptom of pancreatic cancer. A sudden change in blood sugar levels in diabetics who previously had well-controlled diabetes may also be a sign of pancreatic cancer. Of subjects with NOD –50 years of age, 1% will have pancreatic cancer diagnosed in the three years following diabetes onset.

A recent study has offered further guidance to assist GPs and specialists with stratifying the risk in these patients.

A risk prediction model, Enriching New-Onset Diabetes for Pancreatic Cancer (ENDPAC), identified NOD subsets at very high risk (4%) and extremely low risk (0.01%) of having pancreatic cancer.

If findings are validated, clinical work-up may be warranted in those at very high risk for pancreatic cancer.

READ FULL ARTICLE HERE

READ FULL ARTICLE HERE

READ FULL ARTICLE HERE
In mid-June, Associate Professor Antonio Di Ieva, who holds a joint appointment in both neuroanatomy and neurosurgery at MQ Health, ran the Hospital’s first ‘white matter dissection’ workshop, also bringing this specific technique to Australia for the first time.

White matter dissection – known as the Klingsler technique – was first introduced in Switzerland about 70 years ago, and was later revived in Europe and the US in the 1990s. The technique is now widely considered internationally to be an important component of standard brain anatomy study, above all in the neurosurgical field.

The RACS OPD-approved activity took place at Macquarie University Hospital in June and was designed for registrars, surgeons and consultants to improve their understanding of neuroanatomy and brain tumour resection.

“There is nothing more important for a neurosurgeon to master than a deep understanding of neuroanatomy,” said Associate Professor Di Ieva, who received his PhD from the Medical University of Vienna and has held positions as a consultant, researcher, lecturer and professor at major neurosurgery and neuroanatomy centres and universities across Europe and in Canada.

“The schematic understanding of connections in neuroanatomy that is gained during medical school is the skeleton upon which substance must be built as a neurosurgeon.

“To this end, the complex structures of the brain can be much better understood when the delicate fibres of white matter are dissected. Internationally, white matter dissection is now regarded as better than other anatomical techniques in understanding the brain, and is part of the armamentarium of several neurosurgeons worldwide.

“Our training at Macquarie University Hospital aimed to bring Australia into line with international best practice, by providing advanced training through three-dimensional visualisation of the brain connections as applied in vitro, in vivo and on neuroimaging.

“For surgeons, the training will allow them to perform more accurate dissections of brain tumours and brain surgery in general. For specialists and physicians, the knowledge will help enormously with better diagnosing of brain lesions by enhanced understanding a brain MRI – above all, modern MRI sequences aimed at visualising brain white matter, such as Diffusion Tensor Imaging.”

The Brain Anatomy and White Matter Dissection Workshop saw 18 participants – including neurosurgery consultants from China, New Zealand and South Africa – in the two-day workshop experiencing 3D visualisation of white matter connections, along with lectures and hands-on training in performing the technique on human brain specimens.

Associate Professor Di Ieva used cutting-edge neurosurgery visualisation technologies, including the synaptic robotic system of visualisation and the Storz 3D exoscope – at the time, the only 3D exoscope in the world.

“When I was a completing my fellowship overseas, I organised several of these lectures and workshops in Europe and Canada,” he said. “I am pleased to be bringing this advanced training to MQ Health as part of my dual expertise in neurosurgery and neuroanatomy, and as part of MQ Health’s commitment to advanced training for doctors.”

A second training activity – the 2nd Macquarie Neurosurgery Micro-Vascular Anastomosis Workshop – was held on day three of the initiative. This one-day training saw Professor Stoodley, Dr Assaad and Associate Professor Davidson teach microvascular anastomosis to eight national participants.

Participants learned state-of-the-art bypass surgery techniques, indications for revascularisation surgery, microsurgical techniques for microvascular anastomosis, and complications and outcomes of bypass surgery. Morning lectures were followed by hands-on training in performing end-to-end and side-to-side anastomoses on realistic biomodels, making the use of animal models unnecessary and avoiding the sacrifice of any animals, as usually happens in other similar workshops.

The one-day workshop following the 2015 Inaugural Macquarie Neurosurgery Micro-Vascular Anastomosis Workshop, which was presented by the world-renowned Professor Michael Morgan.

This year’s training was made possible with support from Aesculap Academy Australia and sponsorship by B. Braun, Zeiss, Synaptive and Karl Storz.

About Associate Professor Di Ieva

Associate Professor Di Ieva has published more than 160 scholarly articles and several book chapters on brain anatomy and neurosurgery and is the recipient of five international awards for neurosurgery and neurosciences. He is the main author and editor of the Handbook of Skull Base Surgery, published in 2015 and now one of the most widely used books in the field.

Moreover, he edited the only book in the field about the application of computational fractal-based analysis into the neurosciences, The Fractal Geometry of the Brain.
Interventional cardiologists have performed the first distal radial artery access procedures for coronary angiograms at Macquarie University Hospital. The procedures are amongst the first cases in Australia.

The new approach is an alternative to both traditional femoral artery approach and the subsequent proximal radial artery approach. Distal radial artery access is less invasive and more comfortable for patients and requires less observation time post-operatively, reducing the overall duration of the procedure from three hours to one-and-a-half.

Associate Professor Andy Yong trained in the technique with Professor Ferdinand Kiemeneij from the Netherlands, along with a handful of fellow interventional cardiologists. Professor Kiemeneij is widely regarded as the “father” of transradial intervention, which he first developed in the late 1980s. Macquarie University Hospital cardiologists performed their first four cases in November. All were successful.

“Only a few hundred of these have been done around the world,” said Associate Professor Yong. “So we are excited to be adding Australia to the list of countries now offering this approach.

“In addition to the procedure being more comfortable and convenient for patients, it is also potentially safer. However, data is still currently being collected on this.”

The technique is rapidly being adopted for use in Iran, Europe and America.

WHO IS CARRYING OUT THE STUDY?

The study is being led by Professor Frances Rapport from the Australian Institute of Health Innovation, Macquarie University, Sydney (T: 02 9850 2320, E: frances.rapport@mq.edu.au). This study is funded by Cochlear Ltd and supported by Macquarie H:EAR research centre.

WANT TO BE INVOLVED?

Please contact Dr Emilie Auton, the study researcher, (T: (02) 9850 3423, E: emilie.auton@mq.edu.au) to express an interest in participating in the study, or for more information about the study.

WHAT IS THE STUDY ABOUT?

You are invited to participate in a study collecting information from individuals with hearing loss, their support networks and healthcare professionals. The information will focus on perceptions of hearing loss, evidence-based decision making, study design, and the types of evidence that influences decisions about treatment and care. This study aims to provide results that will improve services for patients with hearing loss and help with the design and execution of future evidence collection activities.

WHAT DOES THE STUDY INVOLVE?

If you decide to participate, you will be asked to:

1. Participate in a 1-hour focus group facilitated and observed by study researchers, or a 1-hour individual interview with notes and an audio-recording taken.

   If you are unable to attend you may be interviewed over the phone/via skype or by email correspondence. You will not be identified in any way, and none of the data used in study reporting will include your name.

2. Complete a 3-page questionnaire immediately before or after the focus group regarding non-identifiable information about yourself, and your professional experience.

3. Provide some information about the scientific and medical information that you source about hearing loss and the types of information that influence your clinical practice.

Participants will be provided with a stipend for travel time and participation, as a gesture of appreciation for their involvement in the study.

TO PARTICIPATE IN THIS STUDY, you must be a GP, ENT surgeon or Audiologist consulting with people with hearing loss.

YOU ARE INVITED TO JOIN A BRIEF DISCUSSION ABOUT

BEHAVIOURAL AND ATTITUDINAL RESPONSES TOWARDS TREATMENTS FOR HEARING LOSS

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ABOUT ASSOCIATE PROFESSOR ANDY YONG

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7
Known for its strong robotic program, Macquarie University Hospital has established excellence in robotic gynaecological surgery and has commenced accredited advanced surgical training in the field.

In November, Associate Professor Felix Chan, a gynaecology oncology surgeon who specialises in minimally invasive surgery, held a two-day training for qualified surgeons.

The training included the observation of two live cases on day one, theoretical and technical training and dissection along with didactic training on day two. Both live cases were of endometrial cancer. Training included the full process – set-up of instruments and theatre, team work during the process – set-up of instruments and theatre, team work during the process – set-up of instruments and theatre, team work during the process – set-up of instruments and theatre.

On day two, participants could practice the technique in MQ Health’s unique cadaver laboratory – one of a few of its kind in Australia and the only one of its kind in NSW.

“MQ Health is uniquely set up for advanced robotic training,” said Professor Chan. “MQ Health was established with a commitment to and culture of training in advanced procedures. So we have the technology, but we also have the integrated team and seamless system that is needed where experienced nurses, anaesthetists, ward staff and day staff – a whole chain of professionals – make this work very effectively.

“The education skill lab offers a conference room, cadaveric lab, telecommunications technology that connects worldwide, and highly trained technical staff who manage all the ethics and the technicalities for bodies donated to medical research.

“Overall, this training program is a step forward in providing support for Australian gynaecological surgeons wanting to hone their expertise in robotic surgery.”

Professor Chan is fully trained to the highest level by Intuitive Surgical, the company that produces the Da Vinci Surgical Systems.

Professor Chan has been performing minimally invasive surgery for about 20 years, and robotic surgery for the past six.

He has completed more than 1600 robotic gynaecological surgeries. In 2013, he performed the first sing site robotic hysterectomy in Australia and since then has completed more than 150 cases. Professor Chan has also published widely and is a training supervisor for RANZCOG.

Macquarie Neurology and Macquarie University Hospital, both part of the larger MQ Health initiative, together form an internationally renowned centre for MND.

The highly patient-centred approach – integrating rapid access to specialists, continuity of care ‘under one roof’ and advanced research immediately informing clinical practice – also underpins the treatment of patients with Parkinson’s and other movement disorders.

At the core is Neurologist Professor Dominic Rowe and Madelaine Rañola, Clinical Nurse Consultant. Holding a weekly clinic would not be sufficient to see more than 60 patients on the books, or a new model sees the doctor working through patient lists together on several days each week.

“We see patients together in consultation,” said Ms Rañola, who has been working with Professor Rowe for 16 years. “Because I’m involved in the consultations, I know what treatment decisions have been made. Once consultations are finished, patients and carers have an opportunity to spend more time with me to work through what they need – whether it’s more information, a referral, a hospital admission or just practical solutions for living with Parkinson’s disease.

“Years of experience working with Professor Rowe informs my clinical practice, so I have some autonomy in decision-making, which means patients receive an intuitive and responsive service. “If something comes up for patients between consults, they can call me. We talk through it and I can consult with Professor Rowe for his input. In the age of ‘Dr Google’, many patients become anxious when reading the vast amount of information available. We have a responsibility to offer them emotional support and sensitively communicate appropriate information.

“The key thing is that they have direct access through me. It’s a really patient-centred service that we offer.”

The service sees patients predominantly with Parkinson’s, but also with other movement disorders, including Lewy Body Dementia and Parkinson’s look-alike disorders Multiple Systems Atrophy, Progressive Supranuclear Palsy and Cortico Basal Degeneration.

The service has good relationships with MQ Neurosurgery, Day Surgery, MND Multidisciplinary Team and Macquarie Medical Imaging (MMI), which is located on-site and an important component of the Movement Disorder Service.

MMI has capabilities in sophisticated brain scanning and played a big role in the Hospital successfully tendering as a research node in the Michael J. Fox Foundation’s Parkinson’s Progression Markers Initiative. Macquarie University Hospital is one of 28 sites worldwide – and the only Australian site – to participate in the study, which is following a cohort for five years, starting from early diagnosis. Ms Rañola is the trial coordinator for that study.

“MQ Health’s Movement Disorder Service is very much about continuity of care,” she said. “We stay with the patient for the whole journey. If they transition to residential care, we continue seeing them, with Professor Rowe on occasion visiting patients in this setting. For our rural and remote patients we offer Skype if that is appropriate, and if a patient goes into palliative care, we remain involved, working with GPs and palliative care staff as needed.

“Our overall aim is to keep people well for as long as possible. If a patient has a straightforward Parkinson’s diagnosis with slow progression, there are many good treatments available. For those with more complex and debilitating movement disorders, ease of access to specialist nurse consultancy ensures that patients receive timely advice and interventions tailored to meet the changing needs of their condition. This is in keeping with the MQ Health value of delivering the best patient outcomes through the provision of holistic care.”
MEDICAL DEGREE (MD) STUDENT CLINICAL PLACEMENTS AT THE HOSPITAL AND MQ HEALTH CLINICS

THE MACQUARIE MD
The Macquarie Medical Degree (Macquarie MD) program is a four-year program that commenced in 2018 with a cohort of 50 students. It builds on MQ Health’s original vision for medical training to provide an alternative model to traditional programs that depend almost exclusively on large teaching hospitals. The program’s first two years focus on biomedical, clinical and social sciences and lay the foundations for clinical practice. This is followed by a third and fourth year in which the focus is on immersion in Australian and international clinical teams. The Macquarie MD combines innovative educational techniques such as team-based learning, inter-professional learning, simulation learning and competency-based assessment, and early experiential learning with regular clinical placements.

CLINICAL PLACEMENTS AT MUH
As a private hospital and clinics that are part of Australia’s first university-led fully integrated health precinct – MQ Health – we provide a unique setting for training the next generation of doctors. Commencing from 2019, the Hospital and Clinics will play a key role in the training program. This is part of our doctor training with listening, provision of information, discussion, and language and cultural communication needs all of key importance. We recognise that patients may not always be comfortable with visitation or observation by our medical students. If patient’s participation is requested, they have the right to decline.

PARTNERING WITH PATIENTS
Partnerships with patients and communities are vital to any tertiary medical training. At MQ Health, we partner with our patients and their families throughout their healthcare journey. Our clinical programs and services coordinate patients’ needs from initial consultation at primary care and specialist clinics, imaging and allied health through to inpatient hospital treatment if required. Our MD clinical placement program is part of supporting a patient during this journey, where their care and comfort are of top priority. Interactions between our students and our patients – always under the supervision of a fully qualified doctor – are designed to be mutually beneficial.

BENEFITS TO PATIENTS
Macquarie MD’s teaching and training program brings scaled-up services and scaled-up care for patients. The presence of students in a clinical setting can stimulate medical teams and supervisors to keep abreast of new developments and consolidate their knowledge as they respond to teaching needs and students’ eagerness to learn. Students can provide an extra set of hands, support a consultant to provide additional or faster service to a patient, and be on hand to answer additional patient questions. Given MQ Health’s academically driven model of care in an integrated healthcare environment, the high quality of training has flow-on effects for the quality of care that we provide to our patients.

PATIENT PRIVACY
Macquarie MD student clinical placements have been established to meet the highest standards of professional conduct and the Code of Conduct as laid out by the Medical Board of Australia. The Macquarie MD Program falls under the NSW Health Records Information and Privacy Act 2002 and personal patient records will be treated accordingly. Patient respect, support and privacy are central to the MQ Health way of working. Respectful and effective communication is part of our doctor training with listening, provision of information, discussion, and language and cultural communication needs all of key importance. We recognise that patients may not always be comfortable with visitation or observation by our medical students. If patient’s participation is requested, they have the right to decline.

MOVEMBER
Many of our doctors and staff either participated in the ‘Grow a Mo’ or ‘Move’ challenge to raise much needed funds for this great cause. On Friday 23 November, we organised a Movember fundraiser at the front of the Hospital. Kevin Kelly, Director Hotel Services, and his team arranged a wonderful BBQ. A selection of delicious desserts were supplied by Cakes and Cups by Maria and Hong Huynh and Bernard Riley ran a fundraising raffle.

This important fundraising event was supported by staff, doctors, patients and visitors to the Hospital. Together we raised over $4,109, which we have donated to The Movember Foundation.

The Foundation focuses on three main health issues faced by men – prostate cancer, testicular cancer and mental health and suicide prevention.

To find out more please visit movember.com
Based at Macquarie University Hospital, GenesisCare now offers skin cancer patients innovative Volume Modulated Arc Therapy (VMAT), a newer version of Intensity Modulated Radiation Therapy (IMRT). Arc-based intensity-modulated radiotherapy delivers a more flexible beam that can be shaped to the area of cancer. The system’s enhanced software also improves treatment planning and how the control system ‘talks to’ the machine delivering the radiation, allowing it to continuously reshape and change the intensity of the radiation.

Because the beam intensity is varied as the machine rotates around the body, damage to surrounding tissues is minimised while the target area receives an overall higher and more homogenous dose. This enables more treatment coverage to sun damaged areas and better access to tumours located in awkward places.

“Previously, treatment was by way of a fixed beam with poorer ability to treat curved surfaces or large areas,” explained Associate Professor Dion Forstner, radiation oncologist at GenesisCare with sub-speciality interests in head, neck and skin cancers. “This has meant a ‘cherry picking’ approach to invasive and in-situ skin cancers. Large areas on the lower limb or scalp were particularly challenging to treat, because of the inflexible beam shaping.

“VMAT means that treatment can go around the curve of a leg or head. And with the lower dose, we can treat larger lesions on the scalp, while sparing healthy tissue – especially reducing impact on the brain.

“What we have now is an effective non-surgical option – often curative – for skin cancer patients with larger areas of sun damaged skin. This is a great improvement on what was available just five years ago. Treatment time is also greatly reduced – taking around 10 minutes compared to the previous half an hour.”

Radiotherapy contributes to around 40 per cent of all cancer cures – and its importance in cancer management is not as recognised as it needs to be. Evidence shows one in two patients with a cancer diagnosis should receive radiotherapy as part of their treatment, whereas, somewhere between only one in three or four cancer patients actually receive radiation therapy.

Studies have shown that levels of awareness and understanding of radiotherapy is low amongst junior doctors, GPs and other specialists.

Guidelines for GPs: When to Refer to a Radiation Oncologist

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Preoperative planning for total ankle replacement – using patient-specific instrumentation – is now in use at Macquarie University Hospital.

Whilst hip and knee osteoarthritis is more common in the general community, it has been estimated the prevalence of symptomatic radiographic osteoarthritis is around 3%. Considering the ageing population, this translates into a major challenge moving forward to find a viable solution to relieve pain and maintain movement.

We also know that relief of foot and ankle pain has positive affects on a patient's mental health.

It is widely known that hip and knee replacements are viable solutions for the treatment of symptomatic hip and knee arthritis but many people in the community are not aware that total ankle replacement is available for the treatment of ankle arthritis.

This is because far fewer ankle replacements are performed compared with knee and hip replacements and the traditional and still most common treatment for ankle arthritis has been an ankle fusion.

Ankle fusion is a reliable and robust long-term solution for symptomatic ankle arthritis with two major disadvantages. Firstly, by definition it eliminates movement at the ankle joint and, secondly, this leads to development of arthritis in other joints around the ankle over time.

Ankle joint replacement can relieve pain and maintain movement and is also more protective of the other surrounding joints over time and, as a result, is a much more attractive solution for patients.

Ankle joint replacements, however, have been associated with a higher revision rate than hip and knee replacements and it has less predictable long-term viability. We know from hip and knee replacements that increased accuracy in implantation in terms of bony alignment and soft tissue balancing leads to better long-term results and a lower revision rate.

This is now available at Macquarie University Hospital, where we are performing a preoperative protocol specific CT scan to create a 3D model of the patient's ankle. Detailed preoperative planning is performed to determine implant size and alignment and rotation and this is reviewed, adjusted as required by the Limb Reconstruction Clinic at MQ Health foot and ankle surgeon Dr Tim O'Carrigan, and then approved.

Once approved, patient-specific jigs are 3D printed and made available for the case. These jigs are custom made to only fit the intended patient.

Once the ankle is exposed the jigs are applied to the tibia and then the talus. This allows insertion of pins in specific locations that allows us to reproduce in theatre what we planned preoperatively. This has greatly increased the accuracy and reproducibility of our preoperative plan. This PSI (Patient Specific Instrumentation) technology is well established for hip and knee replacement but has only recently become available for total ankle replacement in conjunction with the Infinity total ankle replacement developed by Wright Medical.

Ongoing research and clinical review will help answer the question in time. However, we know from our hip and knee replacement experience that increased accuracy of implantation leads to improved outcomes and we are confident that this new technology now available at Macquarie University Hospital will help to achieve this and provide new hope for thousands of Australians with symptomatic arthritis of their ankle.

Please contact Dr Tim O'Carrigan at the Limb Reconstruction Clinic at MQ Health if you would like more information or a clinical assessment.

T: (02) 8602 1113
Macquarie University Train Station Upgrade will begin on 30 September 2018

GETTING TO MACQUARIE UNIVERSITY HOSPITAL AND CLINIC

Increased bus services
120 new buses and 7 additional bus routes will be introduced to help minimise the disruption of the closure.
For more information please visit mysydney.nsw.gov.au/stationlink.

Valet service
A valet service will be available at the Hospital for patients and visitors. The cost is $25 for a maximum of 4 hours parking.
For more information please call 02 9812 3000.

Keoride
Keoride is a new on demand public transport service operating within a 7km radius of Macquarie Park which will pick you up and drop you off 100 metres from your destination.
For more information please visit keoride.com.au or call 1800 536 7433.

Driving
Increased congestion is expected on the roads during peak times. Those travelling on the roads are encouraged to allow for extra travel time.

SYDNEY METRO NORTHWEST WILL OPEN IN EARLY 2019. THIS WILL MEAN A FASTER, SAFER, AND A BETTER CONNECTED TRAIN SERVICE FOR MACQUARIE PARK.

Please email knowyouroptions@muh.org.au if you would like more information about your visit to Macquarie University Hospital.