

# GP e-News

AUGUST 2018

## Welcome from the CEO

Dear Doctor

Welcome to the August edition of our GP e-News. MQ Health, of which the Hospital is a part, is committed to developing a comprehensive structural heart program of which TAVI is a key component. We have featured an update on our TAVI Program. We would also like to congratulate the team on performing the most TAVI surgeries in one week in Australia.

On Tuesday July 24, 11-year-old Jack Ottens underwent Gamma Knife treatment at the Hospital performed by Dr John Fuller. Gamma Knife surgery has revolutionised the management of many complex or inoperable brain conditions. While smaller AVMs can be removed surgically, larger ones and those buried deeper in the brain are now best treated by Gamma Knife. We feature Jack's story.

We also include stories on our lymphoedema program, how exercise can benefit patients undergoing cancer treatment and an interesting article on how urological surgeon, Professor Manish Patel recently completed his fifth retroperitoneal lymphadenectomy.

We would also like to invite you to two upcoming GP Education events we have planned - osseointegration and other orthopaedic services and our cardiothoracic and respiratory program.

Kind regards

**Carol Bryant, CEO**  
Macquarie University Hospital



If you would like to receive further information about our GP education activities for 2018, please email [events@muh.org.au](mailto:events@muh.org.au)



MACQUARIE UNIVERSITY  
**Hospital**

# OUR TAVI PROGRAM: INNOVATING, EXPANDING, LEADING

By Professor Martin Ng, interventional cardiologist, Macquarie University Hospital

MQ HEALTH IS COMMITTED TO DEVELOPING AN ACADEMIC CARDIOVASCULAR CENTRE OF EXCELLENCE, WITH TAVI A KEY COMPONENT. HERE ARE RECENT HIGHLIGHTS FROM OUR TAVI PROGRAM.

## CUSTOMISED AORTIC VALVE SHOWS OUR INNOVATIVE CAPABILITY

In June, we collaborated with bio-engineers from the Heart Research Institute to deliver an innovative solution for a patient.

In a one-of-a-kind surgical procedure, the TAVI team at Macquarie University Hospital were able to insert an adapted commercially available transcatheter valve to suit a patient's unique situation.

Last month, Professor Michael Wilson and I treated 76-year-old Mr Mycheal McLoughlin by customising a standard Edward Sapeitns aortic valve to generate an extra large valve to treat Mr McLoughlin's aortic sclerosis (AS).

Mr McLoughlin had had previous open-heart surgery and suffers from severe lung disease, putting him in a high-risk category for open surgery.

TAVI was the only option for him – its minimally invasive approach intended to be suitable for many high-risk and elderly patients.

With Mr McLoughlin's aortic valve too large for any current standard TAVI devices, his doctors in Newcastle referred him to me and my team at MQ Health.

We examined the idea of controlled oversizing of a transcatheter valve to treat Mr McLoughlin's AS.

Working in my bioengineering laboratory at the Heart Research Institute with two engineers, we comprehensively characterised the method for safe and controlled oversizing of a commercially transcatheter valve.

Using the insights from this bench research, we were able to successfully deploy the oversized transcatheter heart valve to very successfully treat Mr McLoughlin such that he now has a perfectly functioning new aortic valve.

This kind of innovation that we can do through cross-collaboration between the academic and the clinical means patients who might not have a solution elsewhere can come to us for possible treatment that is life saving.

By Professor Martin Ng

TAVI – TO MAKE AN APPOINTMENT PLEASE CALL 0491 215 002



## PATIENT STORIES

### THE EXPONENTIAL GROWTH OF TAVI AT MACQUARIE UNIVERSITY HOSPITAL

We have just finished our first six months of clinical activity post the MBS listing of TAVI late last year.

At Macquarie University Hospital, our team performed a record 58 TAVI procedures in this six-month period.

This volume is greater than our entire 2016 annual TAVI volume and highlights the rate of growth of quaternary structural heart activities at MQ Health.

Without capacity constraints, the Hospital would have been able to do an additional 30 cases during this period, easily surpassing our entire volume for 2017.

These volumes now make us the busiest centre in Australasia, and most like in the Southern Hemisphere.

Structural heart interventions are at the forefront of new developments in cardiovascular research, innovation and clinical care today, with TAVI a leading example of this.

In the coming years, TAVI will become the norm for treating AS – not just for the elderly but for people of all ages – and Macquarie University Hospital is positioned to be at the forefront of this revolutionary change, given its extensive experience to date and its early programs in basic and clinical research and in advanced training.

## ON THE ROAD AGAIN: LIFE AFTER TAVI HAS RESUMED FOR MYCHAE MCLOUGHLIN

Mycheal McLoughlin said that he feels very fortunate and grateful that his Newcastle referring cardiologist Dr Ruba Haddad knew of Professor Ng and his advanced expertise with the TAVI procedure.

"I can't praise Professor Ng, the Hospital and all the team highly enough," said Mycheal. "They were fantastic.

"To make sure I would be good to undergo TAVI, my Newcastle doctors had already run several tests on me, then Professor Ng did all the necessary tests again to make sure I was a suitable candidate.

"I had the procedure and was up and walking the next day, and now I'm back to normal life, just a week or so later.

"We do a lot of travelling so Professor Ng said wait a few weeks and then we could be on the road again with our caravan. We are living the life of a grey nomad and I couldn't be happier."

## ABOUT PROFESSOR MARTIN NG

Specialty: Cardiology  
Sub-specialty: Interventional Cardiology

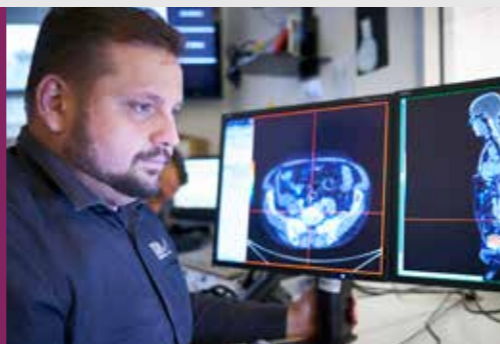
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# MEDICAL IMAGING TARGETING OSTEOBLASTIC BONE REPAIR

By Marko Trifunovic, Head of Nuclear Medicine & PET  
Adjunct Fellow Macquarie University



MMI HAS RECENTLY ACQUIRED A GE SPECT/CT PRO FOR ALL OF ITS GENERAL NUCLEAR MEDICINE SCANS. IT IS A HYBRID GAMMA CAMERA THAT INCORPORATES A DIAGNOSTIC 16 SLICE CT SCANNER.

## ABOUT MARKO TRIFUNOVIC

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Nuclear Medicine imaging procedures are an excellent tool for patient management. A bone scan for example is enhanced by this hybrid system to a highly specific diagnostic tool, far more sensitive than x-ray or even CT.

Gone are the days when nuclear medicine scans were referred to as “unclear medicine”. The sensitivity of nuclear medicine scans has never been in doubt. However, the ability to anatomically place pathology has been difficult, especially in joints of overlapping small bones. Wrists, ankles, knees and spine have previously been challenging areas for nuclear medicine in terms of specificity.

Standard x-ray or CT relies on changes in bone density to create an image. For example a fractured bone has lower density (thickness) along the line of the fracture. Indeed a space may be created once a bone cracks and in many cases a x-ray can find this space. However there is in many circumstances no space in the crack; the 2 parts have pressed back together with continued pain.

Arthritic conditions can also be challenging for x-ray or CT – easily found by these imaging modalities but unable to determine which joint is actively inflamed and causing pain. Furthermore patients with previous surgical history or pathologies that present with new pain after successful intervention pose a challenge.

Bone scans target the actual process of bone regeneration. The gamma emitting radio-pharmaceutical is rich in phosphorus that chemically bonds on the surface of hydroxyapatite crystals. These hydrolyze and bind normally to bone as tin oxide or TcO<sub>2</sub>.

On the scan these present as prominent focal areas of osteoblastic activity. The Gamma camera builds an image over several minutes to visualise these areas of increased uptake as they emit gamma rays that collide with the gamma camera’s surface. A complete lack of uptake in bones suspected of injury is also of diagnostic value as it can detect vascular necrosis. Bone scans have also been used on patients that have undergone bone grafts to ascertain vascular perfusion of the new graft.

Bone scans are a sensitive imaging procedure that can identify inflamed facet joints in the spine. Once identified these joints can be treated by steroidal injections guided by CT. Bone scans are an excellent investigation for any patient experiencing ongoing bone or joint pain, or suspected sporting injuries that often are not seen on x-ray CT or MRI. The 16 slice diagnostic CT is highly important in bone scans as the fine slices can determine fractures from inflamed joints by fusing (overlying) together the slices from the SPECT scan with those of the CT scan. The CT can also easily separate small overlapping bones in the ankles, feet, wrist, hand or cervical spine for accurate diagnosis.

These images are fused to incorporate the sensitivity of the bone scan with the accurate anatomy of the CT scan. This fusion technique allows clear visualisation and separation of prosthetic hardware from new areas of bone damage. Bone scans are also an easy way to determine spread of metastatic disease in patients with known cancer – particularly important when occult fracture is suspected.

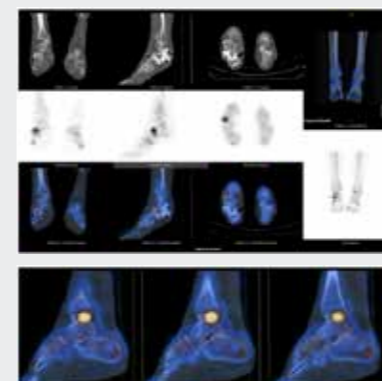
Bone scans are also highly useful for elderly patients who are prone to falling. A whole body bone scan on an elderly patient who has pain in the lower back or pelvis after a fall would benefit from a bone scan. Insufficiency fractures in the sacro-iliac joint, fractures of the femoral neck and crush fractures in the spine are easily found on a bone scan. It is not uncommon to find other fractures whose symptoms are masked or unnoticed such as rib fractures in a whole body bone scan. That is a particular strength of bone scans; the one procedure can cover the entire skeletal system when searching for fractures post trauma.

Lists of clinical indications to obtain a bone scan for your patient:

- Detection of primary and staging metastatic disease.
- Detection of osteomyelitis
- Detection and evaluation of suspected infections, avascular necrosis, and prosthesis pain
- Evaluation of bone pain: trauma, occult fracture, metabolic bone disease
- Detection and evaluation of Paget’s disease
- Detection and evaluation of arthritis and joint disease
- Evaluation of bone graft viability, bone viability when infarction is in question.
- Evaluation of increased PSA pathology results
- Evaluation of neoplasm or known lesions
- Evaluation of response to chemotherapy, radiation therapy, antibiotic therapy and other treatment.
- Localisation of sites for biopsy.

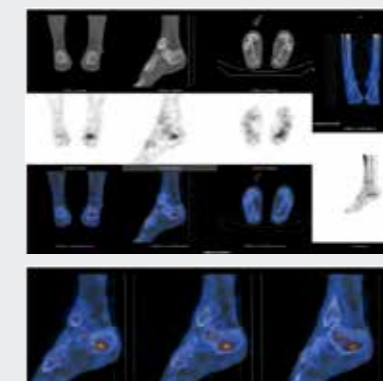
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**Case 1:** Patient with previous surgery with prosthetic implants. Now presenting with new pain in both feet.  
**Conclusion:** In the delayed images in the left foot focal increased uptake is seen in the tibiotalar joint and associated with sclerosis and subchondral cyst formation. There has been previous surgery in the right foot with metal implants and with increased uptake in the talocalcaneal joint associated with arthritic change including sclerosis and subchondral change.



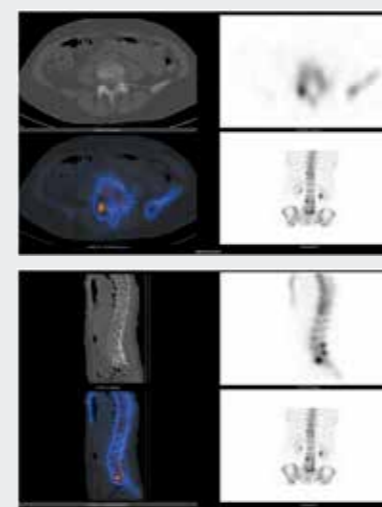
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**Case 2:** Patient presents with left heel pain and 1st metatarsal  
**Conclusion:** In the delayed study, there was mild focal uptake within the left medial sesamoid bone with an associated fracture. There was mildly increased uptake within the inferior aspect of the left calcaneum.



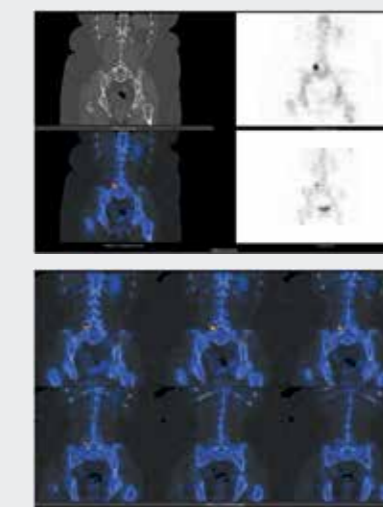
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**Case 3:** Male patient presents with known Rheumatoid arthritis and worsening back pain.  
**Conclusion:** Increased uptake is seen at L5/S1 intervertebral disc consistent with degenerative disease. There is facet joint arthropathy at L3/4 bilaterally worse on the left and at L4/5 worse on the right. There is also some degenerative disease at L3/4.



4

**Case 4:** Patient presents with known breast cancer. Lower back pain for evaluation.  
**Conclusion:** SPECT images confirm uptake in the right L4/5 facet joint region, due to inflammatory degenerative change.





# NEW LYMPHOEDEMA TREATMENTS HELP CANCER SURVIVORS

MACQUARIE'S ALERT CLINIC IS BRINGING NEW HOPE TO PEOPLE WITH THE LIFETIME CONDITION OF LYMPHOEDEMA.

At just 25, Jasmine O'Donoghue had life-changing surgery to treat her lymphoedema and now, for the first time in over a decade, she's doing long bushwalks, travelling overseas comfortably – and she's even taken up the five-kilometre Park Run challenge.

In November last year, through Macquarie's ALERT lymphoedema clinic, O'Donoghue underwent surgical liposuction to reduce the persistent swelling in her left leg that had hindered her since she was 12.

"On any given week, I will go for walks, jogs, cycle, play tennis, swim and do weights and on weekends I try to explore somewhere new," she says.

"My left leg used to be 20 per cent larger than the right and by my six-week check-up, it was only 3.6 per cent bigger."

O'Donoghue's lymphoedema began with a persistent swelling in her left leg, an outcome of the surgery that removed a malignant melanoma that first appeared as a dark mole on O'Donoghue's hip when she was just 12.

The cancer had spread to her lymph nodes but after two operations, O'Donoghue was pronounced clear of melanoma.

Lymphoedema, however, is a lifelong progressive condition, often beginning with slight swelling which gradually escalates.

"By today's standards my lymphoedema really wasn't managed very well at all and it took me many years to find the right treatment and eventually the stockings which I'm in now, and by then my left leg was about 20 per cent bigger than my right," she says.

Professor John Boyages, director of the ALERT lymphoedema program at Macquarie, says the condition is often unrecognised in the general community and there is a lot of uncertainty around treatment.

The early stages of lymphoedema can last for months or years and symptoms may not be obvious. Traditional treatments include exercise, massage, skin care, limb elevation and the continual wearing of expensive compression stockings, which aren't subsidised by Medicare.

Increased medical and therapist consultations get minimal rebates and soon add up, and patients also have trouble finding clothes or shoes to cater for the swelling, says Boyages.

"It can have a domino effect on the body; people develop arthritis from lifting a heavier limb, they put on weight because they can't exercise, they end up with frequent hospital visits because of infections, so it affects their overall health, self-esteem, their lifestyle and their finances," he says.

## THE CHANCE TO BE ACTIVE AGAIN

O'Donoghue was an active teenager who had survived cancer and wanted to get on with her life, but her leg continued to swell.

"I avoided sport and eventually cut out any activities which would involve a lot of walking or being on my feet for a long time – including my part-time job," she recalls.

She avoided wearing shorts or skirts when meeting new people, and shoe shopping often ended in tears because she struggled to find shoes to fit both feet – and the few shoes that fit her were ugly, she says.

Lymphoedema patients often experience infection. The characteristic swelling – which can be in a leg or arm, the neck or even the abdomen – comes from an overflow of the lymph fluid which circulates in the body to remove wastes and bacteria.

"Not long before my HSC I had my first bout of cellulitis," O'Donoghue recalls. As the condition progressed, infections became more regular. "I adjusted to plan my life and study habits with the knowledge that at any time, I could have to drop everything, go to hospital and then spend a couple of weeks recovering."

Determined to keep active, O'Donoghue took up swimming and weights, and had decided she would have to "just get on with it", but lymphoedema continued to restrict her.

She was assessed for treatment by the ALERT clinic and joined a health fund, waiting a year for treatment that she could not otherwise afford.

During that waiting time, an infection that began on the first day of a holiday to Queensland in 2017 marked the start of a spate of poor health for O'Donoghue. "I hadn't done anything particularly risky, it was just a hot day," she says. "For the next six months I had five infections, some triggered by as little as standing up for a couple of hours."

O'Donoghue says that treatment at Macquarie's ALERT clinic has been life changing. She lost four kilograms over the seven months following her surgery. "I've been able to try new hobbies such as bushwalking, jogging and tennis with friends," she says.

"And then there's the confidence that comes with feeling better about how I look and being able to wear what I want – shiny new heels included!"



Life-changing: Lymphoedema patient Jasmine O'Donoghue at Macquarie's ALERT clinic.

## ALERT CLINIC BREAKTHROUGH TREATMENTS

"As a radiation oncologist treating patients with breast cancer, I sometimes cause lymphoedema in the course of treatment, though of course we try to avoid that," says Boyages.

He heads Macquarie University Hospital's ALERT program, which combines not-for-profit lymphoedema research and education with a world-class clinical service.

The clinic uses a new technique to work out how much damage there is in lymphatic vessels, by injecting a green dye into the person's swollen limb and scanning the vessels.

Some patients with early-stage lymphoedema can be helped with lymph node transplants, which surgically transfers lymph nodes from an unaffected area of their own body. The procedure is sometimes done together with surgical breast reconstruction following breast cancer.

Another surgical procedure used to treat early-stage lymphoedema, called Lymphovenous anastomosis (LVA), involves precise micro-surgery to divert a lymph vessel close to the swelling by making several connections joining it to a nearby vein, bypassing the damaged area

and allowing lymph fluid to flow back to the venous system.

In patients where lymphoedema has progressed, the ALERT clinic is the first in Australia to use liposuction to remove excess fatty tissue that builds up in the swollen limb. It's this surgery that gave O'Donoghue a new lease on life.

"We've seen lymphoedema that's been triggered by surgery, industrial and vehicle accidents, pregnancy and it can be genetic," says Boyages.

"With cancer treatments becoming more effective, we're now seeing many people who survive cancer, only to be confronted with this lifetime condition."

Nearly half of the patients treated at ALERT come from outside NSW and overseas, he says.

"We have an international reputation, as the ALERT clinic is one of the few places in the world with this combination of treatments underpinned by research and education. It's great that we can give people hope."

By Fran Molloy,  
The Lighthouse, Macquarie University.



Below: Domino effect: Lymphoedema can impact on overall health, says Professor John Boyages.



## ABOUT PROFESSOR JOHN BOYAGES

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# KEEP MOVING FOR BETTER HEALTH DURING CANCER TREATMENT



CLINICAL RESEARCH HAS ESTABLISHED EXERCISE AS A SAFE AND EFFECTIVE INTERVENTION TO COUNTERACT MANY OF THE ADVERSE PHYSICAL AND PSYCHOLOGICAL EFFECTS OF CANCER AND ITS TREATMENT. MACQUARIE UNIVERSITY HOSPITAL PATIENT LIZ ELLIS IS A SHINING EXAMPLE OF THIS APPROACH.

In May this year, Liz Ellis had her 100th IV treatment. She's also had 420 oral chemotherapy treatments for metastatic breast cancer, which has spread to her liver, lymph nodes and, recently, her kidney.

Throughout, she has focused on one thing to keep her going: exercise.

"I do four personal training sessions per week," said Liz. "They include conditioning and cardiovascular, yoga with a personal trainer and strength building.

"I wanted to keep my body and mind sharp during treatment. I was very fit before I was diagnosed, so it was fairly easy for me to continue after surgery and during ongoing treatment.

"I focused on exercise to protect against the effects of the chemo and the cancer itself – to get oxygen around my body and into my cells. But the exercise is also about not putting my cancer first in my life."

Liz's approach is in line with the 2017 COSA (Clinical Oncology Society of Australia) Position Paper on Exercise in Cancer Care, which calls for, amongst other things, 'exercise to be embedded as part of standard cancer care and to be viewed as an adjunct therapy that helps counteract the adverse effects of cancer and its treatment.'

For Liz, exercise has contributed to her wellbeing throughout treatment, and she believes this has been the key factor in helping her live with metastatic breast cancer for this long as well as allowing her to do the things she loves doing, like camping.

Liz and her husband Glen started Black Bear BBQ last year, which was featured recently on Channel 7 before the annual Meatstock festival. Liz was actively involved in the business while undergoing treatment. She and Glen have a seven-year-old son, so family life is busy, and Liz has kept actively engaged throughout her four-year journey.

"My message to others is that you don't have to be in bed all the time," said Liz. "Do that extra little bit, just to keep going. If you are wavering 50/50 whether to exercise or not, just do it. Start small if you have to, but do something every day."

Professor Richard Kefford, Head of Cancer Medicine and Head of the Cancer Clinical Program at Macquarie University, is part of the team treating Liz.

"Liz has been an inspiration to our entire team, her family and her many Facebook friends," said Professor Kefford. "There is no doubt that her consistent exercise commitment has made a massive contribution to her wellbeing and the minimisation of side effects from her incredibly prolonged chemotherapy program.

"All oncologists now vigorously promote exercise at all stages of cancer because the benefits are so clear and so diverse."



## EXCERPT FROM COSA POSITION STATEMENT ON EXERCISE IN CANCER CARE

- Being physically active and exercising regularly is important for health, function, quality of life and, potentially, survival of people with cancer
- The majority of people with cancer do not meet exercise requirements.
- People with cancer should progress towards and, once achieved, maintain participation in:
  - o at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic exercise (such as walking, jogging, cycling, swimming) each week; and
  - o two to three resistance exercise (for example, lifting weights) sessions each week involving moderate to vigorous-intensity exercises targeting the major muscle groups.
- To maximise safety and therapeutic effect, exercise should be prescribed and delivered under the direction of an accredited exercise physiologist or physiotherapist with a focus on transitioning to ongoing self-managed exercise.

FOR THE FULL POSITION STATEMENT: [www.cosa.org.au](http://www.cosa.org.au)



# GAME-CHANGING GAMMA KNIFE SURGERY PROMISES HOPE FOR 11-YEAR-OLD BOY



**JACK OTTENS IS ONE OF AUSTRALIA'S YOUNGEST PATIENTS TO UNDERGO NEW AND ADVANCED FORM OF TREATMENT FOR BRAIN SURGERY**

- Diagnosed with Complex Deep-Brain arteriovenous malformation (AVM) at age 5, Jack Ottens had Gamma Knife surgery at Macquarie University Hospital.
- As a potentially fatal condition that affects blood vessels in the brain, AVM can cause serious bleeding without warning.
- Gamma Knife offers one of the most precise, powerful and proven surgical treatments for deep brain disorders.



Jack Ottens became one of Australia's youngest patients ever to have Gamma Knife surgery for a deep-brain arteriovenous malformation (AVM). The procedure took place at MUH, which includes one of Australia's leading neurosurgery and neurosciences programs, on Tuesday 24 July.

"Gamma Knife surgery has revolutionised the management of many complex or inoperable brain conditions – including AVMs," said Dr John Fuller, the Macquarie University Hospital surgeon who performed Jack's treatment, along with his team.

"While smaller AVMs can be removed surgically, larger ones and those buried deeper in the brain are now best treated by Gamma Knife."

Melbourne-based Jack was born with Complex Deep-Brain AVM, which was only discovered when he was five years old as he underwent an MRI scan after a serious head injury.

Jack initially had linear accelerator (LINAC) radiosurgery, which obliterated most, but not all, of the mass. After enduring many health complications as a result of his AVM and treatment, doctors knew the risks were too high to repeat LINAC radiosurgery. This means there was only one choice left for Jack – Gamma Knife surgery, which is the safest option available for someone of Jack's age and with the location of his AVM.

An AVM is an abnormal tangle of blood vessels in the brain or spine, with haemorrhage a major risk. Bleeding from an AVM most often occurs between the ages of 10 and 30. Jack has already experienced two such haemorrhages.

"In Jack's case, Gamma Knife presents a promising option in the absence of other viable treatments," said Dr Fuller.

"My team and I are confident that with the right approach and a high-dose gradient, we can effectively manage the residual mass in Jack's brain. It takes a long time, however, for complete obliteration to occur, so final results won't be determined for years.

"We are fortunate to have Gamma Knife at Macquarie University Hospital, to make this surgery a possibility for Jack," said Dr Fuller.

Macquarie University Hospital brought Gamma Knife technology to Australia eight years ago in an effort to offer patients stereotactic radiosurgery in the management of brain tumours and many other brain conditions, including complex AVMs that may have previously required invasive surgery. The Gamma Knife is one of the most

precise, powerful and proven treatments for brain disorders. It delivers an extremely accurate dose of gamma radiation, while reducing exposure to sensitive healthy brain tissue.

After Jack's AVM diagnosis, his mother, Christine Ottens, spent years looking for the best available treatments – both in Australia and overseas. The family feels fortunate that Macquarie University Hospital offers Jack his best option in Gamma Knife surgery.

"Just last month we had to put our family home in Berwick on the market to help us manage over \$500,000 of debt that we have amassed over the past seven years since Jack's AVM diagnosis," said Ms Ottens.

"During that time, Jack has had over 600 absences from school and has had to attend more than 200 medical appointments each year. We have had to refinance the mortgage on the house three times just to cover the cost of managing Jack's AVM," she said.

Jack's treatment at Macquarie University Hospital is being made possible with funds from the Doug and Monique Thompson Fund, established with a philanthropic gift from the Thompson family to provide access to Gamma Knife surgery for those who could not otherwise afford it.

"We are so thankful to have been able to get the support for Jack's surgery through the Macquarie University Hospital. Without the Doug and Monique Thompson Fund, we would have never been able to even consider Gamma Knife surgery as a possible treatment option for Jack," said Ms Ottens.

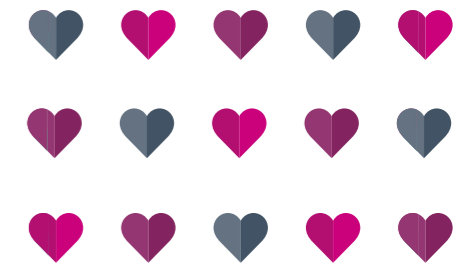
"When Jack was first diagnosed with AVM, we were told he would be unlikely to live past his tenth birthday. We are so grateful to the team at Macquarie University Hospital for giving us some hope for Jack's future," she said.

## ABOUT DR JOHN FULLER

Specialty: Neurosurgery  
Sub-specialty: Cranial Tumour Surgery, Radiosurgery & Spinal Neurosurgery, Gamma Knife

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For more information about Gamma Knife at Macquarie University Hospital, please visit: [muh.org.au/services-specialties/gamma-knife](http://muh.org.au/services-specialties/gamma-knife)



## TAVI

MUH TAVI Festival 2018. Congratulations to our TAVI team! They have performed the highest number of TAVI surgeries in Australia in one week.



TO FIND OUT MORE ABOUT TAVI AT MUH, PLEASE CLICK HERE ▶



# ARTHROSCOPIC SCAPHOID BONE GRAFTING AND PERCUTANEOUS NEUTRALISATION SCREW FIXATION



SCAPHOID FRACTURES HAVE A BAD REPUTATION, WHICH IS FAIRLY WELL DESERVED. A POOR BLOOD SUPPLY, INTRA-ARTICULAR POSITION AND COMPLEX BIOMECHANICAL ROLE MEAN THAT UNSTABLE FRACTURES HAVE A TENDENCY TO NON-UNION, OFTEN ASSOCIATED WITH A FLEXION DEFORMITY.

Scaphoid non-unions may progress to SNAC wrist (scaphoid non-union advanced collapse) where there is progressive arthrosis of the radio-carpal then midcarpal joints.

In treating scaphoid non-unions, the bone ends must be freshened, the deformity corrected, the defect filled with bone graft and the construct stabilised with internal fixation. Corticocancellous grafts are effective at holding the defect open, but are dense, avascular and can be slow to integrate. Herbert, who worked in Sydney, introduced the headless compression screw, to improve stability and healing. With this technique, healing rates are accepted at around 80%.

Techniques aimed at improving the vascularity of the graft have included local pedicled vascularised grafts and more recently free flaps from the medial femoral condyle (MFC), with K-wire or screw fixation. Healing rates with vascularised MFC grafts are up to 95%, but the surgery is quite invasive, with the potential for significant donor site morbidity.

Open approaches to the scaphoid must further reduce the vascularity of the scaphoid, by stripping the soft tissues.

With this in mind, P.C. Ho from Hong Kong introduced the technique of arthroscopic bone grafting (ABG).

With this technique, soft cancellous bone graft is introduced into the defect and the fragments stabilised with percutaneous K-wires, which are left beneath the skin until union has occurred. Because the soft tissues are minimally disrupted, vascularity is preserved, and the reported healing rates are 95-100%. My experience with the technique has been excellent, reflecting these results.

Because the bone graft in ABG is soft, compression screws cannot be used, as the compression will re-create the deformity. It is also questionable whether the soft graft and K-wires are enough to hold the correction of a significant deformity. Motion of the wrist must also be delayed until the wires have been removed, after bone union has occurred, which is usually after 10-12 weeks. This leads to a variable degree of wrist stiffness.

To maintain the benefits of ABG, but removing the problems associated with K-wires or compression screw fixation, I have introduced percutaneous neutralisation screw fixation. The screw is headless, with even threads, which hold the deformity in its corrected position. Finite element analysis suggests the screw fixation is 1.4 stronger than the traditional K-wire fixation. Since the screw is buried in bone, and does not require removal, unrestricted motion

can be commenced at 6 weeks, if CT demonstrates bone graft incorporation.

This technique has many significant advantages for patients with scaphoid non-unions: high healing rates, less chance of stiffness, minimal donor site morbidity and minimal scarring.



ABOUT NICHOLAS SMITH

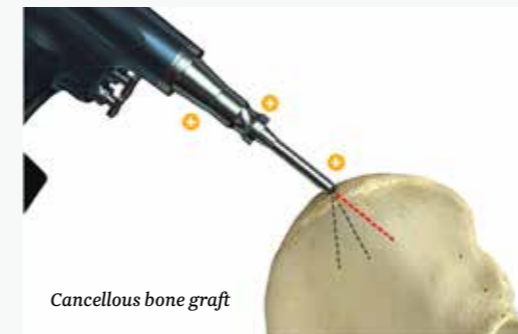
Specialty: Hand Surgery

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Cancellous bone graft



Herbert screw



Hinge stress

225 MPa



Hinge stress

160 MPa



Fixation - PC Ho



Neutralisation screw



Technique: 3 MC ports



# ROBOTIC APPROACH TO TESTICULAR CANCER MAKES GETTING BACK TO LIFE EASIER



UROLOGICAL SURGEON PROFESSOR MANISH PATEL RECENTLY COMPLETED HIS FIFTH RETROPERITONEAL LYMPHADENECTOMY WITH THE HOSPITAL'S LATEST DA VINCI XI SURGICAL SYSTEM, MAKING HIM THE MOST EXPERIENCED IN THE COUNTRY IN A ROBOTIC APPROACH FOR THIS COMPLEX PROCEDURE.



## ABOUT PROFESSOR MANISH PATEL

Specialty: Urology  
Sub-specialty: Robotic Prostatectomy, Bladder Cancer & Kidney Cancer  
Team: Uro-oncology

Macquarie University Clinic  
Suite 304, Level 3,  
2 Technology Place  
Macquarie University, NSW, 2109

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Unlike many other cancers, testicular cancer appears in young men, with the average age of diagnosis just 26 years old.

“These are young men with their whole life ahead of them, including having their own family,” said Professor Manish Patel, urological cancer surgeon and clinical professor in the Faculty of Medicine and Health Sciences at Macquarie University Hospital.

“It’s important to get these men back to study and work.”

If patients present with the disease having already spread to the Lymphnodes in the abdomen, after having chemotherapy they may still need surgical removal of the primary mass if it was greater than one centimetre. In some cases where the disease is diagnosed earlier, a mass can appear later.

For these men, recommended treatment is a retroperitoneal lymphadenectomy – removal of lymph node tissues in the abdomen and resection of any residual mass. It’s not a simple procedure and few urological surgeons in Australia perform it.

“The procedure is complex partly because the lymph nodes are located in front and behind the vena cava and the aorta, the major vessels across abdomen,” explained Professor Patel, who has also competed a fellowship at the world-renowned Memorial Sloan Kettering Cancer Center in New York.

“The mass is frequently stuck to the vena cava and aorta and needs to be freed from vessels. The procedure is detailed and intricate, and requires great caution not to damage the major vessels.

“In addition to working around a major vein and a major artery, you need to preserve nerves for ejaculation to ensure men can still have children. You are also working near the duodenum and colon, which need to be moved in order to access the mass.”

For the past year, Macquarie University Hospital has been offering this procedure robotically, making it much easier for men to undergo because recovery time is so much faster.

While the robotic version of retroperitoneal lymphadenectomy is done overseas at selected sites, Professor Patel was the first to perform the procedure in Australia and remains the most experienced in the country.

“Macquarie University Hospital has the latest Da Vinci Xi system that works across all quadrants of the body,” explained Professor Patel. “This more flexible version of the robot is needed, given the complexity of this procedure.”

While the traditional open retroperitoneal lymphadenectomy is performed via a large mid-line abdominal incision, the robotic version requires six small one centimetre incisions to allow access to the abdomen.

“A few months ago, I did two of these procedures close together – one robotic, and one open,” said Professor Patel. “The difference on the ward when I went to see patients was like chalk and cheese. The patient who had had robotic surgery, experienced no pain and was up and about on the first day, while the patient who had had traditional open surgery was in pain, had slow bowels and far less mobility.”





SPECIALIST BRIEF 59

# Osseointegration and other orthopaedic services at Macquarie University Hospital

**Heal. Learn. Discover.**

**Date**  
Wednesday 5 September 2018

**Time**  
6.00pm to 9.15pm  
Registration 6.00pm.  
Dinner served at 6.30pm

**Location**  
Deckhouse  
End of Clarke Road  
Woolwich Dock  
Woolwich NSW 2110

**Parking**  
Clarks Point Reserve – parking meters \$3.50 per hour from 8am to 8pm weekdays (max. \$9 per day)

**RSVP**  
Monday 3 September  
[orthopaedicsatmuh.eventbrite.com.au](mailto:orthopaedicsatmuh.eventbrite.com.au)

**Presenters**

**Associate Professor Munjed Al Muderis**  
Hip and Knee Surgeon  
FAILED HIP REPLACEMENT SURGERY

**Dr Tim O’Carrigan**  
Foot and Ankle Surgeon  
VIABLE SOLUTIONS FOR SEVERE FOOT AND ANKLE ANOMOLY

**Dr Kevin Tetsworth**  
Orthopaedic Surgeon  
SEVERE LIMB DEFORMITIES AND LEG LENGTH DISCREPANCIES

**Dr Razvan Stoita**  
Hip and Knee Surgeon  
FAILED KNEE REPLACEMENT SURGERY

Please note presenters biographies and topics for the discussion are located on the booking form.



SPECIALIST BRIEF 60

# Cardiovascular and Respiratory Program at Macquarie University Hospital

**Heal. Learn. Discover.**

WITH AN INTRODUCTION BY DR JASON KAPLAN  
CARDIOLOGIST AND CLINICAL LEAD  
CARDIOVASCULAR PROGRAM, MQ HEALTH

**Date**  
Wednesday 12 September 2018

**Time**  
6.00pm to 9.15pm  
Registration 6.00pm.  
Dinner served at 6.30pm

**Location**  
Deckhouse  
End of Clarke Road  
Woolwich Dock  
Woolwich NSW 2110

**Parking**  
Clarks Point Reserve – parking meters \$3.50 per hour from 8am to 8pm weekdays (max. \$9 per day)

**RSVP**  
Monday 10 September  
[Click here >](#)

**Presenters**

**Dr. Walid Mohabbat**  
Vascular surgeon  
UPDATE ON PERIPHERAL VASCULAR DISEASE

**Professor Tristan D. Yan**  
Cardiothoracic and Vascular surgeon  
ADVANCED TECHNOLOGY AND TECHNIQUES IN CARDIOVASCULAR SURGERY

**Dr Hariharan Raju**  
Cardiologist  
VENTRICULAR ECTOPY: THE GOOD THE BAD AND THE UGLY

**Dr Robin Gasiorowski**  
Haematologist  
WHAT’S NEW WITH NOACS?

**A/Professor Jonathan Williamson**  
Respiratory and Sleep Physician  
LUNG CANCER - SHIFTING THE GOALPOSTS

Please note presenters biographies and topics for the discussion are located on the booking form.



# MQ Health Grand Rounds

DEPARTMENT OF CLINICAL MEDICINE  
WED 29 AUGUST 2018  
11:45 – 1:00PM

## Location

Clinic Building (2TP),  
Ground Floor, Rooms G10/11  
11:45 – 12:00pm  
Lunch  
12:00 – 13:00pm  
Presentation

## On the day

Held at the end of each month MQ Health Grand Rounds are open to all clinical staff and researchers. Current and interesting medical and surgical cases will be presented with lively discussion.

## For more information

Contact Collette Tosen on [collette.tosen@mq.edu.au](mailto:collette.tosen@mq.edu.au)

## What becomes of the broken hearted?



**Dr Grant Shalaby**  
Cardiology



**A/Prof Bernard Champion**  
Endocrinology

## Spectral stories....and other ghost tales



**A/Prof Antonio Di Ieva**  
Neurosurgery



# Macquarie University Train Station Upgrade will begin on 30 September



## 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](http://mysydney.nsw.gov.au/stationlink).

### Valet car parking service

A valet car parking 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](http://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](mailto:knowyouroptions@muh.org.au) if you would like more information about your visit to Macquarie University Hospital.



MACQUARIE UNIVERSITY  
**Hospital**