Welcome from the CEO

Dear Doctor

Welcome to a new year, and to some great beginnings for Macquarie University Hospital. We kick off the year by showcasing some outstanding services that are particularly well aligned with the academic learning environment that is the cornerstone of MQ Health.

Our new Complex Shoulder Clinic sees the orthopaedic surgeon scientist Professor Sumit Raniga working alongside our orthopaedic surgeons to address challenging shoulder conditions and build our growing Bone and Joint Clinical Program. The Healthy Weight Clinic continues to tackle complex cases through its outstanding multidisciplinary approach, and we are pleased to showcase the important full-time cognitive assessment service offered by the MQ Neuropsychology Clinic.

Our research-based approach to treatment also underpins new approaches to Peyronie’s disease – more common than assumed and historically poorly treated – and for breast cancer surgery patients, with research demonstrating that monitoring and early detection is key to preventing the development of lymphoedema.

Our co-location with Macquarie Medical Imaging (MMI) continues to be a crucial part of our ability to offer highly specialised services and our story on cardiac imaging services shows how MMI’s research-grade equipment and skilled clinicians – many with sub-specialist expertise – are actively engaged in research themselves – supports us to deliver on our promise of excellent patient care.

This will be my last message to you as I am retiring from my position as CEO of Macquarie University Hospital. It has been an absolute pleasure leading this exceptional organisation. I have enjoyed communicating with you via our various publications as well as meeting many of you at our GP education sessions. Thank you again for your support over the years as we’ve worked together to provide exceptional care to the community we serve.

Carol Bryant, CEO
Macquarie University Hospital

If you would like to receive further information about our GP education activities for 2019, please email events@muh.org.au

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MQ Health to add a third clinic to its orthopaedic shoulder and elbow clinics. Dr Sumit Raniga’s appointment has enabled MQ Health to add a third clinic to its existing shoulder and elbow clinics – a Complex Shoulder Clinic. The clinic is available to all patients who feel that they would like to have a high-level review or a second opinion by shoulder specialists with extensive experience, expertise and training in an academic research environment.

This Complex Shoulder Clinic offers patients with difficult shoulder problems the highest level of evidence-based care with a collaborative and multidisciplinary approach. Dr Raniga works closely with preeminent shoulder surgeon Professor Des Bokor – a highly experienced and fellowship-trained shoulder subspecialist. The team is available to consult, provide non-operative and operative care of patients with complex problems related to the shoulder, and offer second opinions for failed treatments – including failed surgery.

The clinic also engages pain and infectious diseases specialists should the patient require such expertise. Working in close collaboration with this clinic is the MQ Health physiotherapists who also have a specialist interest and expertise in rehabilitation of complex shoulder problems. The MQ Health shoulder and elbow clinics see all shoulder and elbow injuries – from minor ones treated without an operation, while other injuries such as recurrent instability of the shoulder or severe elbow fractures that may require surgery to alleviate pain, restore movement and improve quality of life.

In most conditions affecting the shoulder and elbow, surgery is only required once all other non-surgical treatments have failed. We specialise in open and arthroscopic (key hole) reconstruction as well as shoulder and elbow replacement surgery.

Dr Sumit Raniga is a Fellow of the Royal Australasian College of Surgeons and a subspecialist orthopaedic shoulder and elbow surgeon with three years of dedicated post-fellowship training in world-renowned centres of excellence. Dr Raniga provides the highest standard of evidence-based management and surgical treatment of complex shoulder and elbow problems with a collaborative and interdisciplinary approach.

Dr Raniga specialises in shoulder and elbow reconstruction, arthroscopy and arthroplasty. With a background in molecular medicine, including gene therapy, as well as orthopaedic surgical sciences, including biomechanics, his aim is to develop and implement a world-class centre of excellence in translational orthopaedic research, that not only produces top quality basic science that influences surgical practice, but also trains the academic surgeons of tomorrow.

Dr Raniga has published numerous research articles in international peer-reviewed journals during his Fellowships and also became the first fellow of the Royal Australasian College of Surgeons to be awarded the prestigious Charles S. Neer Award by the American Shoulder and Elbow Society in 2016. This is the highest honour in shoulder and elbow surgery research in the world.

Dr Sumit Raniga is the first fellow of the Royal Australasian College of Surgeons to complete a one-year fellowship in shoulder and elbow surgery at the prestigious Bern University Hospital (Inselspital). He was mentored by Professor Matthias Zumstein, who is widely regarded as one of the top shoulder and elbow surgeons in Europe. He had the privilege to receive intense training in arthroscopic and open reconstruction of the shoulder and elbow, as well as joint replacement surgery.

He also worked with Professor George Athwal, who has earned the reputation of being one of the best shoulder surgeons in North America. Dr Raniga focussed on learning novel joint preserving surgery for the treatment of high demand patients with unreparable rotator cuff tears. He also gained further experience in arthroscopic and open surgery, as well as more complex shoulder replacement surgery.

FOR MORE INFORMATION
www.mqhealth.org.au/orthopaedics

MQ Health strategies to deliver on its heal, learn, discover promise in the area of bone and joint medicine include a mix of medical specialists and academics, uniquely qualified to lead in their fields and to collaborate on medical and surgical innovation and excellence in clinical care.

The Bone and Joint Clinical Program at MQ Health has moved a step closer to this vision with the appointment of orthopaedic surgeon scientist Dr Sumit Raniga to the team. Dr Raniga is uniquely qualified through three dedicated world-renowned fellowships in orthopaedic shoulder and elbow surgery. Dr Raniga is also the recipient of the prestigious Charles S. Neer Award for outstanding research in shoulder surgery.

SHOULDER, ELBOW AND COMPLEX SHOULDER CLINICS

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Doctoral candidate Louise Koelmeyer has found that the use of Bioimpedance Spectroscopy (BIS) – as part of an early prospective surveillance model of care – results in significantly earlier detection of lymphoedema over time and that earlier detection of lymphoedema shows better clinical outcomes and will lead to lower health care costs.

"This large retrospective analysis of a busy practice study examined the outcomes of 473 patients who were followed in either an early surveillance group (n=188) or a traditional referral group (n=285). The early surveillance group included patients prospectively followed from a pre-operative baseline (212) or within 90 days of their surgery (67). The traditional referral group consisted of patients who were referred to the practice >90 days from the time of surgery.

More women in the traditional referral group (59%) were diagnosed with clinical lymphoedema (stage I, II or III) compared with those in the early surveillance group (19%). More women in the traditional referral group (37%) were diagnosed with subclinical (stage 0) lymphoedema compared with those in the early surveillance group (1%).

"The findings from the current study support the adoption of an early prospective surveillance model of care which includes monitoring using BIS technology, education and early intervention."

The L-Dex BIS system is a next generation non-invasive means of detecting extracellular fluid changes leading to sub-clinical lymphoedema and is also the subject of the largest international multi-centre randomised controlled trial undertaken in the prevention of breast cancer-related lymphoedema.

Based on the success of the ALERT program, Macquarie University Hospital was selected as the only Australian site to participate in the PREVENT Trial, which is being led by Vanderbilt University's School of Nursing. Ms Koelmeyer's BIS retrospective study has been published in the journal Cancer and can be accessed here.

You can find out more on the PREVENT Trial here.

For more information visit https://www.mqhealth.org.au/hospital-clinics/lymphoedema-clinic

Ruth Cho has taken up the position of McGrath Breast Care Nurse, a leadership role in care coordination that will facilitate optimal health outcomes for breast cancer patients at Macquarie University Hospital, and across Australia.

As the primary point of contact for patients, the role provides physical and emotional support to individuals and their families affected by breast cancer from the time of diagnosis and throughout treatment. The position is also responsible for building awareness, services and best practice models in breast cancer care.

"One of the exciting things about the role is that I will act as a liaison and provide input into research projects between the Hospital, MQ Health and the McGrath Foundation," said Ruth. "I can then use research findings to improve breast cancer care and services, contribute to the development and delivery of education programs and support strategic and operational planning with the Hospital and MQ Health."

"It is a challenging role as treatment can be complex and each patient has individual needs. As a nurse, you need to use all your skills and knowledge to assist patients and their families to navigate through a cancer journey."

"Despite the challenges, breast care nursing is very rewarding when you become trusted, and form a close bond with your patients. I love nursing and knowing that I can make a difference to breast cancer patients and their families really motivates me."

Ruth says that a key focus is to implement a structured clinical pathway, which will help breast cancer nurses to provide a structured approach and continuity of care for patients at Macquarie University Hospital.

"I am also excited that I have been involved in the set up of the breast assessment clinic – part of Integrated Breast Health Clinic – which starts early this year," she said.

The McGrath Breast Care Nurse supports the provision of contemporary, high-quality, person-centred clinical nursing practice at Macquarie University Hospital.

The McGrath Foundation places breast cancer nurses to provide a structured approach and continuity of care for patients at Macquarie University Hospital. The McGrath Breast Care Nurse enhances breast cancer service.

Ruth Cho, the newly appointed McGrath Breast Care Nurse at Macquarie University Hospital.

Ruth Cho
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CONGRATULATIONS TO CLINICAL NURSE CONSULTANT RUTH CHo, THE NEWLY APPOINTED MCGRATH BREAST CARE NURSE AT MACQUARIE UNIVERSITY HOSPITAL.
Peyronie's disease (PD) is an abnormal inflammatory condition, characterised by the presence of penile pain, curvature or deformity, length loss and erectile dysfunction. PD is the result of an abnormal tissue healing process following penile injury, with excessive collagen deposition and loss of elastin fibre within the penis causing a plaque formation. The condition can affect up to 13 per cent of the male population.

Associate Professor Eric Chung, a urological surgeon at Macquarie University Hospital, has led a group conducting an Australian-first survey into the prevalence of PD across major metropolitan and rural areas. Results have recently been published in the British Journal of Urology and reported in several newspapers.

Of the total of 2972 men who responded to the nationwide study, at least one in ten Australian men reported a bend or curve in their penis. A third of men with penile curvature (33%) reported penile curvature greater than 30 degrees, with approximately equal proportions across various age groups. There was no significant difference in the prevalence of penile curvature between men living in major metropolitan areas and those in rural cities across Australia.

One in six men reported an adverse impact of penile curvature in their lives, complaining of penile pain or discomfort when they had an erection, while 26% of men were bothered by the appearance of their penis and 26% were bothered when they tried to have sexual intercourse. Men aged 35-49 years were more likely than those aged 65-75 years to be bothered by the penile curvature (31% vs 18%; P < 0.05) and men in the age group 65-75 years were twice as likely to have trouble with sexual intercourse compared with other age groups (39% vs 18%; P < 0.05).

“This is a relatively common sexual condition that remains a very taboo and private issue and literature shows that PD adversely affects various psychosocial domains in men,” said Associate Professor Chung. “Many men find it difficult to speak to someone or seek appropriate medical input since many GPs are not aware or do not have a good understandings about the condition and current treatment strategies.

“These men become frustrated, angry and end up going home from medical consultation feeling depressed and thinking that there is nothing that can be done.”

The full article on the study can also be accessed here: https://www.ncbi.nlm.nih.gov/pubmed/27215686

MANAGEMENT GUIDELINES AND TREATMENT OPTIONS

There is a clear lack of general understandings about PD amongst medical professionals and the available evidence-based treatment options. Clinicians should discuss with their patients that this condition can be treated effectively and that treatment in the acute phase will alter the development and progression of PD.

Medical treatment is effective in up to 46% of cases in the early stage of PD and should be offered early in the course of PD when a patient first presents with PD. Intralesional injection of collagenase Clostridium Histolyticum (Xiaflex®) remains the only approved medical treatment for PD and can provide up to 66% improvement in penile curvature. Surgery offers the quickest and most definitive (permanent) solution to treat penile curvature/deformity. However, the risks of surgery include penile length loss, sensory change and possible erectile dysfunction.

Peyronie's disease implant addresses underlying erectile dysfunction, and when coupled with penile graft reconstruction surgery, allows for penile length and girth restoration. The International Consultation on Sexual Medicine (ICSM) is held once every 4-5 years to formulate clinical guidelines and provide current evidence-based recommendations on various sexual medicine topics.

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Associate Professor Chung is the leading author on the latest ICSM evidence-based management guidelines on PD endorsed by the International Society of Sexual Medicine (ISSM), the peak body of sexual medicine organisation in the world. https://www.ncbi.nlm.nih.gov/pubmed/27215686

About Associate Professor Eric Chung

Specialty: Urology
Subspecialty: Erectile restoration, Peyronie's disease (penile conditions), male incontinence, penile prosthesis implant and reconstructive surgery
Team: Functional urology

Associate Professor Eric Chung has been appointed as an Associate Professor of Surgery at Macquarie University Hospital and is the Chair of the Andrology Group for the Urological Society of Australia and New Zealand. He is recognised as an international leading authority in the field of male sexual dysfunction and penile prosthesis surgery, and is the only urologist in Australia invited to the recent International Consultation on Sexual Medicine where he serves on the Peyronie’s Disease, priapism and penile reconstruction clinical guidelines committee. He is the Chair of the Prostate Cancer Survivorship committee at the International Society of Sexual Medicine, and has published extensively on erectile restoration, penile prosthesis implant and penile reconstructive surgery in Australia.

Contacts

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WEIGHT LOSS SURGERY AND A COMPREHENSIVE APPROACH MANAGED BY MACQUARIE’S HEALTHY WEIGHT CLINIC RESOLVE A LONG-STANDING CASE OF METABOLIC SYNDROME.

After years of living with the host of conditions associated with metabolic syndrome, Peter decided to take action. Not just overweight, Peter was also living with Type 2 diabetes, deranged lipid levels and hypertriglyceridaemia. He was on six different medications.

Peter’s GP referred him to MQ Health’s Healthy Weight Clinic, where he saw Associate Professor Ken Ho, who presented him with a range of options for long-term management of his weight and the group of symptoms that make up metabolic syndrome. Having tried to reduce weight unsuccessfully, bariatric surgery was also presented to Peter as a surgical option.

“Peter’s health problems were significant,” said Associate Professor Ho on an ongoing basis for monitoring. He also receives support with making realistic and sustainable changes to his dietary habits and food choices from the Healthy Weight Clinic’s Accredited Practising Dietician Juliana Chen.

Tom Moore was badly burnt in a house fire when he was just three months old. Scarring over most of his body has required more than 150 surgeries – mostly skin grafts to accommodate pressure on his skin as he grew.

Tom’s right foot was particularly badly burnt, and was left small and without toes. Pain and difficulty with walking have challenged him ever since.

“We’ve tried several options over the years,” said his mum Dawn, who adopted Tom as a young child. “Tom had muscle replacement surgery but it failed. A socket foot was considered but that won’t work because of the scarring.”

At 21, Tom is still in pain and has limited walking ability, which affects his day-to-day quality of life.

In mid-November, Tom had osseointegration surgery below the knee. Professor Munjed Al Muderis performed a below-knee amputation, followed by an osseointegration procedure – placing a titanium rod inside his tibia then attaching a prosthetic foot to it.

“I looked on the internet and found out about Professor Al Muderis and osseointegration,” Tom said. “Then some family friends and Dr Tetsworth in Brisbane helped us get in contact with him.

“I’m looking forward to walking, exploring and being able to actually go out without the pain and the skin on my foot breaking down and requiring dressings.”

Professor Al Muderis advised that Tom’s surgery went well and that Tom is expected to regain freedom of mobility in the coming weeks. Tom is interested in computer-based audio engineering so will probably study and pursue this after he recovers from the procedure. He already puts his interests and skills to use as a DJ and music composer.

Tom has been a mentor and support person for burns victims at Kids Foundation burn survivor camps in Victoria, New South Wales and Queensland. He says he has loved helping other children and adults over the years who have been burnt or had their skin damaged through accidents like his own, or dog attacks.

“The osseointegration surgery will be life changing for Tom,” said Dawn.

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“The osseointegration surgery will be life changing for Tom,” said Dawn.

He hasn’t been able to work properly because of the pain in his foot and can’t walk long distances. This will open up his world.”

CONTACT

Dr Munjed Al Muderis
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Subspeciality: Hip and Knee
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There are many reasons why a person would need to investigate their heart and how it functions. It may be that the individual is suspected of suffering from an undiagnosed cardiac condition, it is time to check on a known cardiac disease or there is a strong family history of cardiac disease/dysfunction. Another important category is on pre-operative patients who are scheduled for general anaesthetic but have never had their cardiac function looked at and tested. Unknown cardiac conditions can be fatal once general anaesthesia is involved.

Over the last 20 years there have been extraordinary breakthroughs in cardiac medical imaging. These breakthroughs were once seen as competitive between the different imaging modalities. At MMI we see them as complementary; each has strengths and weaknesses which are best served covering each other. Cardiac Nuclear Medicine, Cardiac MRI and Cardiac CT are found at MMI. Experienced clinicians understand the complexity of cases that present clinically and that each modality has its part in discovering the complete patient diagnosis and in the process creating the best outcomes. At MMI we use only research grade equipment and we are actively involved in cardiac research. This means we are constantly reviewing our imaging techniques and adjusting them in light of insights gained from research.

NUCLEAR MEDICINE

1. MIBI Rest/Stress scan: Molecular imaging is still a sensitive and accurate way of imaging cardiac cells and the images give a detailed representation of the cells blood perfusion (ability to receive blood and absorb nutrients). There have been major improvements in SPECT/CT scanning technology especially in advanced computerised analyses programmes (Polar map quantification) and the use of CT in the procedure to compensate for the density of the patient’s body tissue. Myocardial perfusion depends on the state of the cardiac vessels supplying blood. If the vessel is partially or fully occluded the health of the cardiac cells are directly affected. By injecting intra venously a small amount of radio-tracer called Tc99m-MIBI we can then scan the cardiac muscle of the left ventricle. Tc99m-MIBI is absorbed through passive transport into myocardial mitochondria in proportion to blood flow. By scanning the patient at rest and then again after physical exercise (or in some cases after a pharmacological agent is introduced to dilate the myocardial vessels) we are able to compare the health of the cardiac cells at rest and after stress. These 2 sets of scans are accompanied with ECG monitoring through both procedures. The cells could be infarcted (death of the cells); they could be ischemic (cells are stable at rest but during exercise they are not receiving enough blood due to a partial blockade of a cardiac vessel) or they are in good health with plenty of blood supply during rest and exercise. This imaging is directly looking at the effects of blood perfusion to the cardiac cells and gives good indication on how these cardiac cells will react to restricted blood flow with the ability to compare them to ECG monitoring. Both rest and stress SPECT/CT imaging data sets are gated and also give an ejection fraction for the left ventricle. The scans are compared by fine slicing the cardiac image and by quantification using advanced cardiac programs.

2. Cardiac Amyloid (PYP) scan: There is a rise in the number of cardiac patients experiencing heart failure form amyloidosis and this is due in part to an aging population. There are different types of amyloidosis that involve different types of protein chains (ATTRwt chain or AL chain). Additionally symptoms of amyloidosis are virtually the same to many other types of cardiac conditions. Molecular imaging offers a safe and accurate way of diagnosing this condition. By injecting a pharmaceutical agent known as Tc99m-PYP we are able to diagnose ATTRwt (V122I) protein infiltrated cardiac amyloidosis. Tc99m-PYP seems to differentiate between the different types of protein chains. The imaging involves several planar images that are used to quantify the amount of Tc99m-PYP absorbed into the myocardium. A gated SPECT/CT scan is then acquired to obtain fine slice images all the way through the myocardium and to obtain an ejection fraction.

3. PET Cardiac scanning: PET cardiac scanning is a valuable tool and underutilised in Australia to diagnose the extent of cardiac viability in patients experiencing cardiac failure. It uses glucose metabolism as the mechanism for F1-FDG absorption. Patients are first asked to undergo a resting gated Tc99m-MIBI scan and then to return 2 days later for the PET cardiac scan. The PET scan is also gated and is displayed for comparison with the resting Tc99m-MIBI scan; both generate ejection fractions and are analysed using advanced cardiac programs including Polar-Bulb E7 quantification.

Conclusion: Patchy perfusion in the rest images and with pharmacologic stress demonstrates distal inferolateral and inferior wall reversible defect.
CARDIAC MRI

Using the power of very large 3-Tesla magnets we are able to scan the heart as it beats; dynamic cardiac MRI scanning is a breakthrough in imaging technology. Cardiac MRI (CMRI) is a non-invasive imaging technique that does not utilise ionising radiation. CMRI began to be utilised in the clinical setting in the 1980s and is often considered a “one stop shop” imaging modality.

Gated Cardiac MRI images

CARDIAC CT

Coronary Angiogram or Computed tomography of the heart or Cardiac CT is routinely performed to gain knowledge about cardiac or coronary anatomy, to detect or diagnose coronary artery disease (CAD), to evaluate patency of coronary artery bypass grafts or implanted coronary stents or to evaluate volumetry and cardiac function (including ejection fraction). Cardiac CT is also used for pre-operative planning in cases such as AF Ablation, TAVI, AVR, MVR, as well as general health checks prior to non-cardiac related surgery (such as Hip or Knee replacements). Advanced processing programs enable each vessel to be mapped and analysed for stenosis, plaque and calcium. MIM recently acquired a new generation GE Revolution CT Smart Cardiac scanner. It can scan at amazing high speed using the best phase with the least coronary motion.

1 beat cardiac CT scan: cardiac vessels are mapped

Each cardiac vessel is tracked individual; quantified for calcium deposits and for narrowing.

Cardiomypathies
Congenital heart disease
Valvular disease
Cardiac tumour
Pericardial disease
Assessment of myocardial viability/ventricular function
Assessment of myocardial perfusion
Aortic disease

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 2-hour individual interview with notes and an audio-recording taken.
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 evidence that influence 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.

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

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

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.

WANT TO BE INVOLVED?

Please contact Dr Emilie Auton, the study researcher to express an interest in participating in the study, or for more information about the study.

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WANT TO BE INVOLVED?

Contact Dr Marko Trifunovic, Head of Nuclear Medicine & PET Adjunct Fellow Macquarie University MIMACQUARIE MEDICAL IMAGING Macquarie University Hospital Ground Floor 3 Technology Place Macquarie University NSW 2109

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CONTACT

Cardiac imaging modality and is often considered a “one stop shop” imaging modality.
Macquarie University’s Graduate Diploma of Anatomy provides specialist training in clinical and surgical anatomy. Suitable for busy professionals, this postgraduate course offers an in-depth revision of clinically applied anatomy and embryology through two flexible online sessions and a 16-day intensive whole body dissection under the guidance of Macquarie University Hospital surgeons, radiologists and anatomists.

**Key Features of Macquarie’s Graduate Diploma of Anatomy**

Accredited by the Royal Australasian College of Surgeons, it is particularly suited for those preparing for the SET Surgical Science Examination of RACS. You will develop advanced technical skills in surgical anatomy, integrated with clinical radiology in our state-of-the-art anatomy laboratories. You will build advanced research skills and engage in collaborative enquiry-based learning through a research project under the guidance of a supervisor.

The faculty is part of MQ Health – Australia’s first fully integrated university-led health sciences centre, combining excellence in clinical care with teaching and research.

**How to Apply**

Go to the web page for the Graduate Diploma of Anatomy and click on ‘Apply now’.


MQ Health Neuropsychology has five endorsed clinical neuropsychologists who make up the full-time service offering comprehensive assessment of brain function.

Using precise psychometric testing of all aspects of cognition, neuropsychological testing can characterise a range of functions, including memory, language, attention, spatial functioning, problem solving, strategic thinking and cognitive flexibility.

“Neuropsychologists focus on the subtle or unusual changes in thinking with the precision of the metric used enabling us to develop a comprehensive profile of how well someone’s brain is functioning,” explained Professor Greg Savage, who teaches on the Master of Clinical Neuropsychology program at Macquarie University and conducts research on a wide variety of cognitive disorders.

“This means that we can contribute important data to help make a diagnosis in the early stages of dementia, or pick up on rare conditions. As specialists in early detection, we could advise on additional tests – such as MRI or PET scans – or we can develop management plans in consultation with a patient’s GP, medical specialist and the family, if it’s necessary.”

Individuals and families are often reluctant to seek a diagnosis. People might suspect cognitive weakness but they make adjustments and keep going, often until disease has further progressed, or life becomes too challenging.

GP’s often refer to geriatricians or clinical psychologists for diagnosis and management of patients with typical signs and symptoms. Comprehensive cognitive assessment by a neuropsychologist, however, can be very useful in determining subtle brain changes – especially if someone is high-functioning and doesn’t exhibit immediately discernible difficulties.

“Over time, periodic assessments can show changes – whether recovery from a stroke or brain injury, or decline in the case of progressive cerebral disease,” said Professor Savage. “Either way, we can track changes and work with clinicians to develop and adjust management or treatment plans. For example, in neurosurgery, our role in providing gold standard level of care is to characterise cognition before and after surgical treatments – again so that treatments can be appropriate and effective.”

Aside from making diagnostic contributions, assessments by a neuropsychologist can have very practical benefits, such as providing information about a person’s capacity to make decisions about financial, accommodation and/or medical issues, or their ability to drive (and in particular, whether they would be likely to pass an on-road driving test). Assessments can also help guide someone’s return to work, prove study strategies or plan rehabilitation goals.

All MQ Health Neuropsychology clinicians have strong backgrounds in research that continually informs their practice. In addition to Professor Savage, endorsed neuropsychologists include Dr Nora Breen, Dr Vincent Oxenham, Ms Jillian McMillan and Dr Heather Francis.

**Information for GPS**

Neuropsychology assessments are not covered by the Medicare Benefits Scheme or Mental Health Plans. However, some private health insurers provide small rebates. We are open from 8am to 5pm Monday to Friday.

To refer patients to MQ Health Neuropsychology clinic:

P: (02) 9812 3997

E: neuropsychology@mqhealth.org.au


**Professors Gregory Savage, Dr Nora Breen, Dr Vincent Oxenham, Ms Jillian McMillan, Dr Heather Francis**
A patient at Macquarie University Hospital has been given access to the innovative Neuronode technology, enabling her to communicate after a tracheotomy.

Neurologist Professor Dominic Rowe has been working with Australian software developer and entrepreneur Peter Ford since 2005 to make assistive technologies available for people unable to move or speak as the result of severe movement disorders.

Ford is the founder and chair of Control Bionics, a neural systems technology company that developed the game-changing NeuroSwitch technology in 2000.

"Unlike other assistive devices that require someone to move a muscle in order to activate a device, ours picks up electrical signals inside the muscle in response to commands from the user’s brain, then conveys that signal in full sentences by text and computer-generated speech. Now the team has delivered the next generation: Neuronode. Launched in January 2017, Neuronode is the first clinical grade, wearable, WiFi and Bluetooth-equipped EMG (electromyograph)-based communications system for people with profound disabilities, including MND.

"MND patients gradually lose motor ability, and begin to find it harder to swallow, breathe and speak," said Professor Rowe. "Yet most retain full cognition, continuing to think, hear, see and experience emotion as normal yet with no way to communicate."

In November, Macquarie University Hospital patient Dr Kirsten Harley received Neuronode, funded by the NDIS. Kirsten was familiar with the technology having used it for several months before she had a tracheotomy, which rendered her unable to speak. But Ford, working with Matt Goldman from the Hospital’s IT department, took the technology one step further, linking it up to the Hospital’s Rauland Responder Nurse Call System.

"With Kirsten unable to use the call button, she controls her iPhone with Neuronode to call the stuff station," explained Matt. "However, someone would have to be there to hear the phone and pick it up, and would have to recognise that the call is from her because she is unable to speak into the phone."

"We wanted Kirsten to be able to do the equivalent of ‘pressing the call button’, which reaches the Responder Nurse Call System and calls a nurse from wherever they are.

"So I built an API to get her phone to talk to our Rauland Responder Nurse Call System, which could then call the relevant nurse to Kirsten’s bedside. It was about getting different systems talking and we’ve now got a foundation on which we can build."

Ford says he is delighted to see the Neuronode technology be used in an ICU for the first time.

"I think this is a game-changer for ICU patients, not only for those with MND but for others unable to move after they have had major surgery," he said.
Breast density is a risk factor receiving increasing attention. Breast Cancer is the most commonly diagnosed cancer in Australia, with ongoing education and research into recognizing and quantifying risk factors for breast cancer.

Several risk factors are now generally accepted and are helpful in identifying populations requiring intensified screening, however, the broad risk factors we have identified are still not completely understood. Some patients have many risk factors and will not develop breast cancer. Similarly, we also see breast cancer develop in patients with very few or no risk factors.

Well-known risk factors include being a woman, age 50 – 70, a strong family history of breast and/or ovarian cancer or inheriting a gene mutation. Specifically:

- Being a woman is the single biggest risk factor
- The risk of breast cancer increases with age up to the age of 75 years and ¾ of all breast cancers occur in women over the age of 50
- Having one or more first-degree relatives or multiple second-degree relatives on the same side of the family with breast cancer increases the risk category
- Only 5% of all breast cancers are related to a known gene mutation.

Breast density is a risk factor receiving increasing attention with evidence that higher breast density is an independent risk factor for developing the disease. Historically, increased breast density was thought to 'mask' underlying cancers due to the challenges of interpreting mammograms of dense breasts. However, the relationship appears to be more significant than that.

Breast Density refers to Mammographic density or the proportion of glandular tissue to fat on a mammogram. Measuring breast density is challenging. However, the BI-RADS (Breast Imaging Reporting and Data System) is widely used and accepted within Australia. This classifies breast density into 4 categories:

- Category 1: <25% glandular tissue
- Category 2: 25-50% glandular tissue
- Category 3: 51-75% glandular tissue
- Category 4: >75% glandular tissue.

The increased risk relates to women falling within the BI-RADS categories 3 and 4. These women may benefit from alternative or additional imaging modalities or referral to breast specialist may be required depending on their overall risk profile.

Several studies including a large meta-analyses suggest there is a strong positive correlation between mammographic density and increased risk of breast cancer. However, mammographic density itself is also influenced by a number of other lifestyle factors included heritability, parity, BMI, ethnicity and use of medications. The underlying mechanisms of increased risk relating to density are not yet fully understood and are likely to be an area of focus for researchers moving forward.

ABOUT DR KAREN SHAW

Dr Karen Shaw is a Breast and General Surgeon who obtained her FRACS in 2015. She has a special interest in breast surgery for both benign and malignant conditions.

Karen completed her Bachelor Medicine and Surgery, Master of Surgery and Graduate Certificate in Breast Surgery at the University of Sydney. Her Clinical Fellowships include being a BSANZ Fellow at Concord Hospital in 2017 and the Concord Clinical Surgical Superintendent in 2018, where she gained valuable experience in clinical care, governance, training and teaching. She has also completed a Graduate Certificate in Breast Surgery at Sydney University.

Karen is passionate about providing high-quality care to breast cancer patients together with multidisciplinary team members. She is committed to effective communication with a patient and their caring team – including their GP – to optimise health outcomes.

CONTACT

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You can also make an appointment with Dr Shaw on (02) 9030 1644