

frontier

THE MAGAZINE OF MACQUARIE UNIVERSITY HOSPITAL • SUMMER 2010



macquarie university hospital
redefines
innovation



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WELCOME

TO MACQUARIE UNIVERSITY HOSPITAL

Welcome to the inaugural edition of *Frontier*, Macquarie University Hospital's biannual magazine. The publication is designed to provide you with insight into our hospital's capabilities and community.

Macquarie University Hospital is part of a large and integrated medical community, which includes the Macquarie University Clinic, the Australian School of Advanced Medicine, and a number of other service partners that exist on site. Together we have created a model of health care unlike any other in the country. This model has a commitment to patient care at its core and is supported by the very latest technology.

In fact, Macquarie University Hospital, boasts a number of Australian firsts:

- A fully digital facility that is also virtually paperless
- A hospital that is not only owned and operated by, but located on, a university campus
- The nation's first gamma knife
- A world-class cyclotron
- An Intra-Operative CT Theatre, and
- A Hybrid Theatre with Angiographic Capabilities

In the following pages, you will read more about these novel technologies and the people who operate them. The concentration of our state-of-the-art technology

has meant that the hospital has been able to attract some of the country's leading health professionals.

Over the last few months, this exceptional group has put their personal lives on hold to ensure our doors opened on the June 15, 2010.

I'd like to take this opportunity to thank Professor Michael Morgan, Dean of the Australian School of Advanced Medicine, who had the initial vision for the hospital: a nexus where advanced technology, research, training programs and comprehensive services could be brought together to deliver an unparalleled service.

Thanks must also be extended to Macquarie University, in particular to the Vice Chancellor Professor Steven Schwartz, who had the foresight and resolve to provide the financial support and infrastructure for this grand vision.

With this institutional commitment, Macquarie University Hospital offers patients access to unrivalled expertise and a broad range of services, while the teaching and research undertaken at this facility will make a very real and significant contribution to the future of Australian health.

Robert Glynn,
CEO, Macquarie University Hospital

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MACQUARIE UNIVERSITY HOSPITAL

REDEFINES INNOVATION





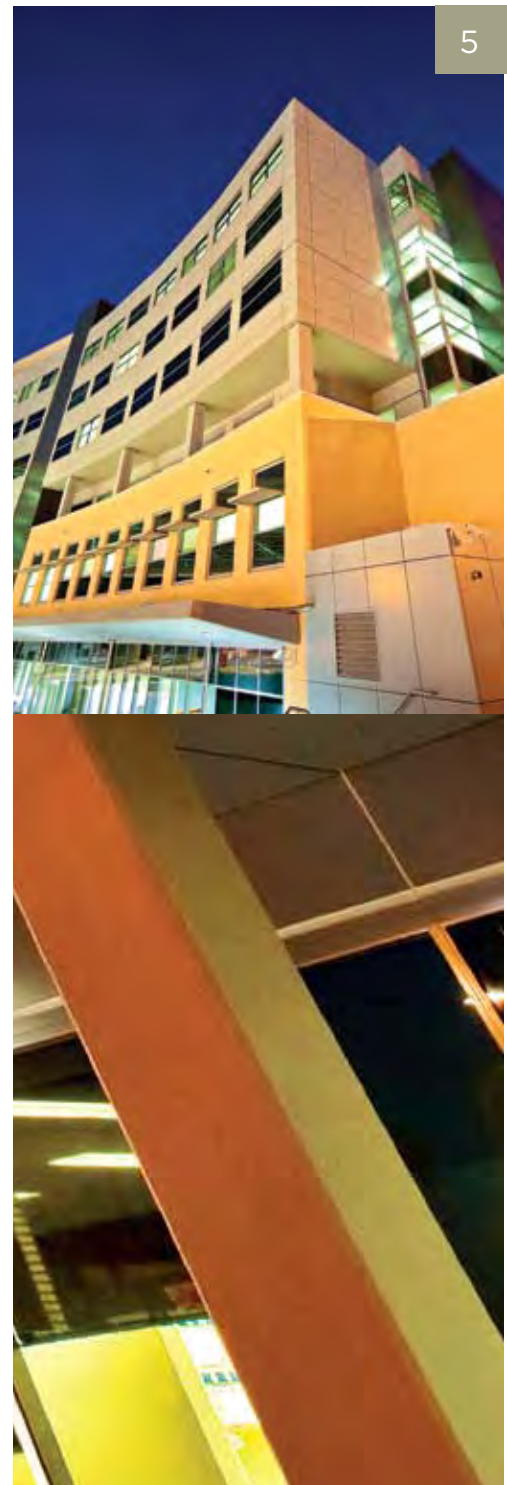
Australia's first and only private university hospital opened its doors in mid-June, showcasing a number of medical firsts. Macquarie University Hospital offers not only advanced technology and training unavailable elsewhere in the nation, but also a digital interface that elevates patient safety and services to new levels.

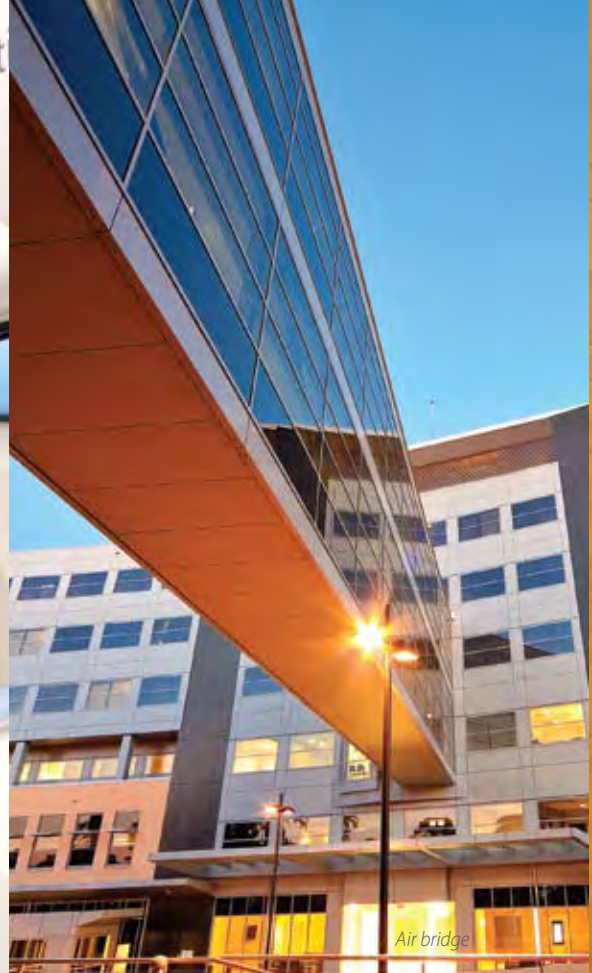
When Macquarie University Hospital opened its doors on 15 June this year, it offered the nation an unparalleled suite of medical services, technologies and training programs – many of them only ever seen in leading hospitals in the US. Anticipating national healthcare demands, Macquarie University Hospital has established itself at the high-tech end of the private hospital sector in Australia with a strong focus on the future of medical science.

The brand new hospital is owned and operated by Macquarie University and located on the leafy grounds of its North Ryde campus. It has some of the most advanced medical technology in the country, supported by a range of sophisticated digital infrastructure and operating systems.

CEO Robert Glynn says that the hospital philosophy is simple: the provision of high-quality facilities with technology that is, for the most part, unavailable at other hospitals for the purposes of providing the best patient care.

“Macquarie University Hospital is, in many ways, at the forefront of innovation for hospital and medical treatment,” said Mr Glynn. And not just because we have previously unavailable technology, but for a host of other reasons too.





“Indeed, the point of difference with Macquarie University Hospital is the close and important connection between advanced technology, new research and comprehensive services that we can offer to patients. The key here is that all of these things function at an advanced level, and that innovation takes place in ways that are broader than just technological.”

“At Macquarie University Hospital, we are about the whole system of healthcare designed to address not only current, but future, needs in Australia. We are about the interconnectedness between technology, research and better patient outcomes.”

Because the hospital is a university hospital, one of the vital components of the Macquarie University Hospital system is its approach to education, the lynchpin to which is its highly regarded medical school – The Australian School of Advance Medicine (ASAM) at Macquarie University.

The first medical school in Australia to be connected to a private teaching hospital on a university campus, ASAM is in itself an innovation – in effect, offering doctors what wasn't previously available in Australia. ASAM is the first medical school in Australia to award degrees for sub-specialties in surgery. It also offers PhD research opportunities.

ASAM accepts to its programs scholars who are already qualified surgeons or specialists and are seeking sub-specialty training. Scholars work as doctors, while they advance their own education and participate in research.

Professor Michael Morgan, Dean of ASAM, says that the close three-way linkage between education, research and practice is what drives clinical excellence.

“All scholars accepted to ASAM must have a medical degree and a career pathway,” said Professor Morgan. “The collegiate approach means an environment in which practice is constantly evolving as specialists educate the next generation of experts.

“It's an intensive and collaborative activity where you train, research and work as a surgeon at the same time.”

“At Macquarie University Hospital, we are about the whole system of healthcare designed to address not only current, but future, needs in Australia. We are about the interconnectedness between technology, research and better patient outcomes.”



ASAM foyer

What the Macquarie University Hospital approach means for disease treatment in Australia is a clear orientation towards the future of medicine. At Macquarie University Hospital, this takes a predominant focus on oncology, neurosurgery and cardiovascular medicine, with innovative technology available to propel patient services to a new level.

As an important part of the oncology services, Macquarie University Hospital can proudly boast the nation's first and only gamma knife. The impressive piece of equipment is widely in use in Europe and America, but hadn't yet made its way to Australia.

Gamma knife surgery has revolutionised the management of brain tumours and many other brain problems that might have previously required invasive surgery. The focused concentration of gamma rays to a targeted area in the brain can be performed with the utmost surgical precision.

"The level of precision is so advanced that it is now the first-line treatment for many patients in other parts of the world," said Professor Morgan.

"For Australia, its introduction is a very important step forward in the treatment of difficult cancers. It means that patients no longer have to travel overseas to access this potentially life-saving treatment. They can now be treated without the need for surgery and can go home from hospital only a few hours after having had a potentially curative treatment."

Another area of impressive technology and service can be seen in Macquarie University Hospital's medical imaging capabilities. A purpose-built neurosurgical theatre has been uniquely designed to house a series of innovations, including the first gantry-mounted intra-operative CT scanner in Australia.

By allowing CT scans to occur during operations, this novel technology eliminates the

need to move patients to a different imaging location during surgical procedures, with the smart integration between imaging, assessment and theatre technologies giving surgeons the ability to immediately review and verify the results of a procedure.

The hospital also has a collaborative research agreement in place to use the cyclotron owned by private company Cyclopet. The cyclotron plays an important part in advanced brain, heart and cancer imaging. The specialised piece of equipment produces radio-isotopes that enable advanced three-dimensional scanning for more accurate diagnosis of the brain, heart or cancers.

Cyclopet also has the latest GE PETtrace cyclotron in Australia. An external Beam line is attached to the cyclotron, enabling the production of short-lived PET (Positron Emission Tomography) isotopes.

And Macquarie University Hospital's hybrid theatre contains the first robotic angiography device in an Australian hospital. Until recently, the manoeuvring of the structure that holds the x-ray delivery and receiving instruments has been highly complicated, requiring radiologists to stop their work to change the position of various devices. The intelligent C-arm allows doctors and nurses to move around the theatre without being distracted from their immediate care of the patient.

The optimal use of Macquarie University Hospital's cutting-edge technology is evident in the hospital's research programs, designed not only to break the boundaries of new knowledge about the human body, but also to develop practical applications for human health by commercialising intellectual property and bringing new therapies to the marketplace.

With patient medical records one of the most crucial parts of delivering safe and efficient medical care, Macquarie University Hospital has put into place a hospital-wide electronic system for recording patient information.

Currently, in most hospitals, a patient's physical chart is still the focal point for care delivery. If that chart is not at the foot of a patient's bed, records can't be checked or updated and the risk of error exists. With Macquarie University Hospital's paperless system, information is always instantly available and a patient's journey can be tracked throughout the entire hospital system.

"Macquarie University Hospital is the first hospital in Australia to be completely electronic," said Mr Glynn. "It is a virtually paperless system where all recording is done electronically, either at the patient's bedside or in operating theatres."

The system is also an administrative godsend by avoiding duplication of administrative efforts. As just one example, the hospital systems deliver prescriptions for medication directly to the pharmacy.

"In terms of running a hospital such as this, efficiency is greatly improved," said Mr Glynn. "But the benefits to patients are also enormous. Nursing staff can accurately confirm dosages and timings of medications, pharmacists can pick up and fill orders much more quickly, and reminders can be programmed into the system according to patient needs."

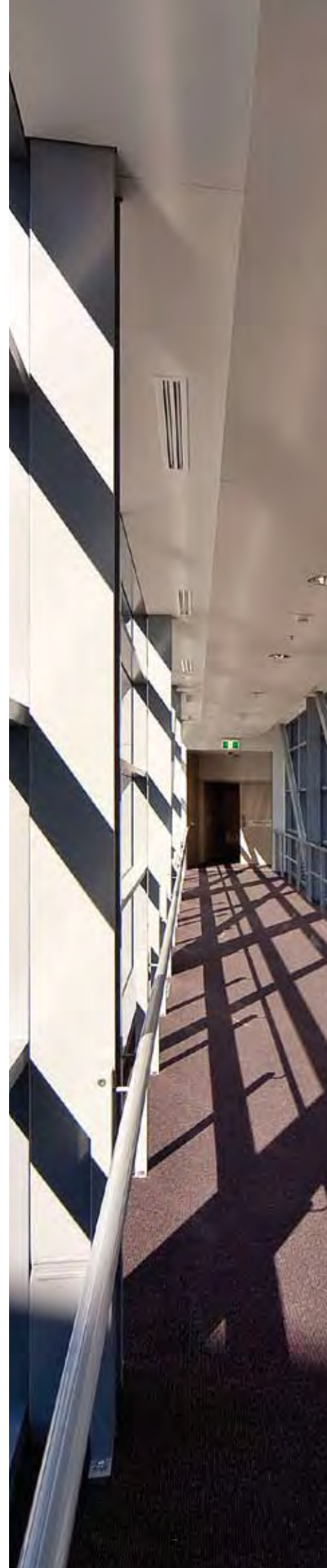
The digital services also enhance patient comfort and convenience. Beds are linked to superb entertainment and communication systems, featuring internet and VoIP connections, as well as meal ordering from the hospital's five-star catering service. There is also an advanced nurse paging system accessible through the high-tech bed interface.

The vision behind such an amazing undertaking – indeed, the building itself is architecturally striking – has been long in the making, with a carefully considered strategy coming from Macquarie University's senior management, medical specialists and policy makers.

"Worldwide, our ability to deliver improved hospital healthcare is accelerating at such a pace that it is impossible to keep up unless there is an institutional commitment to education and research," said Professor Morgan.

"For many years, we have looked to the US for leadership in hospital healthcare delivery. Many of our best and brightest have gone to the US to be trained. However, the time has come for us to do this for ourselves, and this is what Macquarie University Hospital will strive to do."

Macquarie University Hospital has recruited some of the finest doctors in the country and has the capability to perform some of the most complex treatments available. It is a spectacular place – where novelty and care converge to ensure that the future of private healthcare in Australia is in good hands.



Macquarie University Hospital has recruited some of the finest doctors in the country and has the capability to perform some of the most complex treatments available.



Gamma Knife

In Use

Dr John Fuller



At the leading edge of cancer therapy, Macquarie University Hospital now houses Australia's first gamma knife – a non-invasive radiotherapy technique that is international best practice for brain cancer.

Macquarie University Hospital has established Australia's first stereotactic radiotherapy program using the sophisticated technology of the Leksell Gamma Knife Perfexion system.

The Gamma Knife system is an intracranial radiosurgery technique using focused gamma rays on a highly defined target area of the brain. One hundred and ninety-two radiation beams from cobalt-60 sources converge with extremely high accuracy on the identified area. Because each individual beam has low intensity, it does not affect the healthy tissue through which it passes. When all individual beams converge, however, the cumulative intensity is extremely high.

The precision of the technology has become further refined over time through its ability to link to the advanced imaging techniques provided by the latest generation CT, PET and MRI scanners – which allows the planning and the delivery of the treatment to become more precise.



Macquarie University Hospital Neurosurgeon and Clinical Senior Lecturer at ASAM Dr John Fuller, who trained in Sweden and treated the first patient in Australia with the procedure, says that the Gamma Knife has significant benefits for both complex cancers and benign tumours.

"Multiple metastatic tumours in different parts of the brain can be treated in a minimally invasive way," said Dr Fuller. "Multiple metastases can be treated in a single session, compared with traditional surgery that can only treat one at a time. With only traditional surgery, multiple metastases carry a significant morbidity risk.

"But a number of benign conditions can also be treated – often with both traditional and Gamma Knife surgery. In combination, these two approaches are more effective and reduce the morbidity that may be associated with surgical excision alone.

"Arteriovenous malformations, acoustic neuromas, trigeminal neuralgia, meningiomas, pituitary

adenomas, trigeminal neuralgia as well as a number of functional disorders – such as Parkinson's disease – can all be treated very effectively with the Gamma Knife."

The technology is now a well-proven standard of care around the world, having been used for approximately 40 years worldwide. Well over 2,000 papers examine the effects of Gamma Knife surgery, demonstrating good results. Risks associated with Gamma Knife surgery compared to open surgery are significantly lower. For many conditions, a success rate in excess of 90 per cent can now be confidently predicted.

"A body of evidence now confirms that positive effects for patients have been safely established," said Dr Michael Izard, Clinical Senior Lecturer at ASAM and Sydney Medical School, and Radiation Oncologist at Macquarie University Hospital.

"The huge leap forward is in being able to shape the dose of radiation to the lesion by using sophisticated computer imaging and modelling. With greater power in computers, not only are

the lesions better identified, but we can now apply radiation doses more accurately.

"This means that every treatment is part of a customised treatment plan. Especially for patients with benign tumours, significantly less radiation is transmitted with this approach compared to other forms of stereotactic surgery – particularly to the surrounding normal tissue.

"Thanks to improved computer technology, we can not only place the treatment more effectively but also more efficiently, with treatments taking much less time than was required with earlier versions of the Gamma Knife. This of course means greater patient comfort and ease of treatment delivery."

In most cases, a patient can be treated within one to two hours under only mild sedation, and then discharged in 24 hours or less. There is no incision, with the headframe attached by four slender pins to hold it in place. With this equipment, Macquarie University Hospital has the ability to treat up to 500 patients per year.

Through the Australian School of Advanced Medicine, clinical trials in areas such as effectiveness, radiation oncology, medical oncology and quality of life after Gamma Knife treatment will be conducted by multidisciplinary research teams. Research studies will aim to build local data on outcomes of Gamma Knife treatments.

"Having the Gamma Knife at MUH enhances the multi-modality options that we as neurosurgeons now have," said Dr Fuller. "And working closely with oncologists means that we have strong teams aimed at enhancing patient care and clinical outcomes.

"We are building a one-stop-shop where we can offer a broad range of interventions for cancer, but also offer some highly specialised treatments for those patients needing advanced-level care. This combination is clearly advantageous for oncology treatment today, as cancers are varied, and require individualised programs of treatment."

A woman with long dark hair, wearing a pink and white tweed jacket with a large white ruffled collar, is smiling and looking down at an open book on a table. In the background, another person is blurred. The text 'continuous CARE' is overlaid on the right side of the image.

continuous
CARE

making the cancer journey easier

Macquarie University Hospital offers not only the most advanced medical oncology diagnostics and treatment, but a model of managing a patient's treatment that is highly individual and targeted – increasing the success of oncology interventions.

A patient's journey with cancer is a long and complex one. From screening and diagnosis through to treatment and supportive care, a patient can see as many as 80 care providers as they grapple with a potentially devastating disease that will forever change their life.

With cancer now known as 150 different diseases and having many sub-classes, increasingly specialised medical knowledge and treatment are required. As a result, there has been more direct emphasis on clinical sub-specialties and multidisciplinary teams for delivering good patient care, with providers aiming to

deliver comprehensive and integrated services across the continuum of care.

Research has shown that this model of care is more than a warm and fuzzy idea: it's directly linked to the increased uptake of the latest proven cancer therapies and improved patient outcomes.

As a brand new facility with the latest technologies and systems, Macquarie University Hospital has ensured that this multidisciplinary model of continuous cancer care is at the core of its cancer services.

Macquarie University Hospital's combined cancer services are extensive – including imaging, surgery, radiotherapy, medical oncology, pathology and nursing – and the hospital delivers comprehensive cancer care through ten specialised programs, including breast, colorectal, urology, skin and upper gastrointestinal.

"Having multidisciplinary teams made up of staff with specialised knowledge allows us to deliver highly individualised care," said Robert Glynn, CEO of the hospital. "Everything in the hospital – from the technology to the staff we have recruited to the management models of care – enable targeted approaches to treatment"

Best Practice Management: The Tumour Program

Macquarie University Hospital has ten site-specific Tumour Programs to coordinate the comprehensive services provided to cancer patients and to engage teams of doctors and healthcare workers. The Tumour Programs provide the framework for managing a patient's pathway, as well as standardising treatment protocols. They also provide the framework for overseeing service quality improvement, staff education and research programs.

Multidisciplinary teams meet at the onset of a patient's journey to recommend treatment decisions for discussion with the patient and their loved ones. Treatment decisions at the beginning of a diagnosis play a vital role in setting the direction and tone for a patient's journey. Good ongoing communication and coordination amongst this group of caregivers is essential to the patient's physical and emotional wellbeing.

Associate Professor Martin Berry, Director of Radiation Oncology for Genesis Cancer Care at Macquarie University Hospital, says that the idea of integrated oncology services is still relatively new.

"About ten years ago in New South Wales, the idea of the cancer 'hub' or centre became recognised as the future direction of cancer services," said Associate Professor Berry. "With the cooperation of all the specialist services and doctors, Macquarie University Hospital has made that model the core of how it approaches its cancer services."

Leading the Way: New Technologies and Research

One of the most innovative technologies in operation is the gamma knife, the first in Australia and a well-proven standard of care around the world (see full story on page 11). Gamma knife technology is used for multiple metastases, benign tumours and some neurological disorders such as Parkinson's disease.

"The gamma knife is an intracranial radiosurgery technique using focused gamma rays," said Dr John Fuller, Director of the Gamma Knife program. "Complex cancers, such as multiple metastatic tumours, can be treated in a minimally invasive way. Multiple metastases can be treated in a single session. This is a huge advance when compared with more traditional neurosurgery techniques that are limited in the number of tumours they can treat at any one time."

Used for about 40 years worldwide, research results from thousands of treatments show that the efficacy of gamma knife surgery is well-established and accepted, with risks associated with gamma knife surgery compared to craniotomies significantly lower. For many conditions, a success rate of well in excess of 90 per cent can now be expected.

"In most cases, a patient can be treated within one to two hours under only mild sedation, and then discharged in the same day," said Dr Fuller. "At the hospital, we can treat around 500 patients per year."

One of the big advantages of gamma knife technology is that quality of life is significantly enhanced – compared with conventional surgery, whole brain radiotherapy or chemotherapy. Through the Australian School of Advanced Medicine, clinical trials in areas such as radiation oncology, medical oncology and quality of life after gamma knife procedures are being conducted.

Enhanced quality of life is also a focus of Macquarie University Hospital's breast surgery services, where Dr Deborah Cheung – Breast Surgeon and Clinical Lecturer at ASAM – is pioneering the use of oncoplastic surgery in Australia.

"This breast-conserving therapy is an emerging field in breast surgery," said Dr Cheung. "The idea of oncoplastic surgery is not only to remove the cancer, but also to achieve a cosmetically pleasing result at the same time. Outcomes from this approach reduce the psychological impact of breast surgery significantly."

Macquarie Medical Imaging, also located at Macquarie University Hospital, further supports the hospital's advanced cancer care by offering the most up-to-date imaging facilities as well as minimally invasive therapies housed in purpose-built facilities.

Professor John Magnussen, Head of the department, says that Macquarie Medical Imaging has taken a no-compromise approach to its choices of imaging technology and has installed the most advanced equipment for each of the modalities.

"The latest imaging technologies that we have are minimally invasive and have broad applications," said Professor Magnussen. "Our imaging technology is used for primary diagnosis, but it is also engaged for targeted treatment and to follow-up and monitor the effectiveness of treatment."

The full suite of the latest imaging equipment also includes a PET (positron emission tomography combined with CT). The integrated technologies allow PET scans to be performed at the same time as diagnostic CTs as well as MRI scans, correlating all the modalities to provide far better diagnostics.

A collaborative agreement is in place with private company Cyclopet to produce the short-lived radio-isotopes required for PET imaging.

Macquarie Medical Imaging's MRI scanner has twice the field strength as most available, giving better resolution images and allowing faster time to make the procedure more tolerable for the patient. The CT scanner uses newer technology to provide for much lower radiation scans.

"Combining the strengths of the technologies in this way is so much more effective," said Professor Magnussen. "It also means up to two-thirds less radiation for the patient."

Separately, the radiotherapy department has superior image guidance systems. Two linear accelerators deliver the latest dynamic IMRT (intensity-modulated radiation therapy) and VMAT (volumetric intensity-modulated arc therapy) external-beam radiotherapy treatments, the latter significantly reducing treatment time for patients and both requiring less radiation.

ONCOLOGY NURSES SHINE

Caring/Nursing

Nurse Unit Manager Narelle Driver says that oncology nursing can be very different to other types of nursing.

"Patients can live with cancer for a very long time," said Narelle. "This differentiates them from the patient who requires acute surgery – for example, a hip replacement.

"Cancer patients can be long-term patients. They may have surgical treatment initially, then systemic treatment or radiotherapy. The intention may be to enhance the benefit of surgery, to effect a reduction in tumour size or to stop the disease spreading. And they may have a disease-free period. But they are still being monitored by a range of oncology professionals."

As Narelle builds her nursing team at Macquarie University Hospital's oncology ward, she is looking for both highly experienced staff and a diversity of experience. She wants to select the right people, enhancing the benefit of low staff turnover. Her own experience has demonstrated that patients feel a sense of comfort seeing the same team members over their treatment journey.

"On the oncology ward, the patient can benefit from staff continuity," said Narelle. "We become part of their life while they have cancer treatment."

Narelle also wants staff who understand patient care in oncology. The nursing team will include a nurse educator role to ensure staff are up to date with clinical knowledge. She will also make sure there are clinical nurse specialists, who know the nature and delivery protocols of chemotherapy products.

The Nursing Department will have close ties with training at Macquarie University Hospital, to ensure staff are stimulated to learn and can participate in clinical studies.

Like the rest of the hospital, nursing is also benefiting from the latest technologies installed at the hospital. With patient medical records fully electronic, nurses can have pathology or radiology results at their fingertips. Through the use of computers on wheels, or COWS as they're known, nurses can have this access at the bedside. All patient data is integrated into the same system, streamlining ways of working.

Narelle sees the high level of care and commitment as paramount to the role of nursing at Macquarie University Hospital.

"A cancer diagnosis can completely change a person's life, and can have a huge impact on their family. We need to be the patient's advocate so that we can make a difference to their lives. It is important that the patient feels supported and well cared for, and can trust their treatment team."

MAQUARIE UNIVERSITY HOSPITAL OFFERS COMPREHENSIVE CANCER CARE FOR...

- Brain
- Prostate
- Bladder
- Kidney
- Testis
- Colorectal
- Breast Cancer
- Lung Cancer
- Skin Cancer
- Gynaecological Cancer
- Head and neck
- Upper Gastro Intestinal Cancer
- Central Nervous Systems Cancer

MACQUARIE
UNIVERSITY
HOSPITAL

Narelle Driver



In a unique model of care, the Gastroenterology Department at Macquarie University Hospital is offering integrated services, co-locating medical with surgical staff, and giving patients unprecedented access to fast and effective treatment.

Macquarie University Hospital's Gastroenterology Department is aiming to provide patients with a model of care that is so integrated it can provide more efficient responses to a variety of patient needs.

The strength of the model lies in bringing together a group of expert gastrointestinal professionals in a novel way, where the central focus of the group is best care for patients with optimal outcomes.

"We are building medical and surgical teams in gastroenterology," said Professor John Cartmill, Head of the Gastroenterology Department at Macquarie University Hospital. "We are combining expertise in new ways.

"We have recruited some of the best-trained doctors from

across Sydney. The team is broadly trained; we are capable of performing the standard procedures. But each one of us is also specialised, with the group comprised of sub-specialists in all aspects of gastrointestinal and liver diseases.

"We have a team of close to 20 gastroenterologists and surgeons working side-by-side."

In a model not previously seen, physician gastroenterologists Alice Lee, Eric Lee, Rupert Leong and David van der Poorten will be sharing rooms and consulting alongside upper gastrointestinal surgeons James Gallagher and Sam Kuo, and colorectal surgeons John Cartmill, Anthony Evers, Anil Keshava and Matt Rickard.

The philosophy of the members is to focus on the development of an integrated group practice that incorporates the highest quality evidence-based patient care, research and education. In practical terms, with such a concentration of specialists, patients can quickly be referred to a sub-specialist on-site. Colorectal, gall bladder, liver and other specialists mean that the patient gets the best care – without having to travel to another location and, often, without having to wait.

At the same time, patients can feel confident that all doctors involved in their care are fully briefed, resulting in less confusion and anxiety for patients, carers and the referring doctors.

"If a patient comes for an examination, and we find a condition requiring a fairly simple and standard procedure, rather than send them home to make another appointment weeks later, we can do the necessary procedure that day," explained Professor Cartmill.

Part of the Department's efforts to be at the forefront of clinical practice is the integration of ongoing learning through a close working relationship with the Australian School of Advanced Medicine (ASAM). Each member of the group has already demonstrated commitment to teaching and education, which will continue to be an integral part of the department.

ASAM Associate Professor Alice Lee says that the line between being a scholar and being a clinician is not one that is clearly defined – intentionally so.

"At the Gastroenterology Department, we are all clinicians, but we are also scholars and teachers. Twenty-five to 30 per cent of our time will be spent doing non-clinical work: teaching, pursuing research activities, auditing ourselves to ensure international best practice is being followed and learning about new techniques and equipment.

"In an environment like Macquarie University Hospital, there is no barrier between being an academic and being a clinician. If we are keeping up

with the latest developments academically, then we will also be the best clinicians."

Indeed, the gastro facilities at the hospital enable the best performance: they have been purpose-designed and built. All operating rooms were designed with new technologies in mind, and the hospital has a full suite of both standard and specialised equipment.

A stand-alone day-only endoscopy suite has been established and equipped with state-of-the-art equipment, allowing for high-definition imaging for standard gastroscopy and colonoscopy procedures, and enhancing the detectability of subtle lesions in the early stages of cancers.

Plans are currently in place to develop an entire diagnostic and therapeutic interventional portfolio, including procedures such as the pill camera, endoscopic ultrasound and enteroscopy.

Extraordinary multimodality imaging systems allow 3T, MRI, PET and CT images to be brought together in one information package, with highly experienced radiologists interpreting the images as an additional mode.

The team can bring the most up-to-date technologies to bear on problems that range from minor to life threatening. A bowel cancer, for example, may require the multidisciplinary application

GASTROENTEROLOGY

AT MACQUARIE UNIVERSITY HOSPITAL



of chemotherapy and radiotherapy, as well as the intervention of specialists, psychologists and a surgical team.

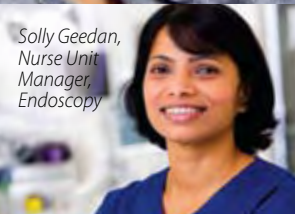
The surgical team are all experts in the use of minimally invasive keyhole approaches to treatment, always improving current practices with access to training tools such as simulators. Strong links with other departments such as radiotherapy to shrink tumours, and with anaesthetists who bring advanced post-operative pain management expertise, are aimed at ensuring that patient care is delivered in the optimal manner.

At the other end of the spectrum are simple haemorrhoids that can be treated using ultrasound-guided arterial ligation, simple banding, stapling or traditional surgical techniques, depending on the nuances of the case.

"We will always have multidisciplinary teams managing a patient's case," said Associate Professor Lee. "This is the new model of best practice, which we are committed to. The co-location of a broad team allows for ongoing and genuine communication to take place regularly, in order to track a patient's journey and offer them outstanding services and care.

"It is evident that the gastro group at Macquarie University Hospital is a team where we all want to do something extraordinary. We want to offer a patient the best care that we can."

For more information on this service please call 9812 3880.



Solly Geedan,
Nurse Unit
Manager,
Endoscopy



Professor
John
Cartmill



Tucked away in laboratories and working far from the bright lights of the operating theatre, pathologists are playing an increasingly vital role in our understanding of cancer – and the most effective ways to treat it.

THE PATHOLOGY TEAM:

UNSUNG HEROES





Scientist Loretta Lo



Dr Debra Jensen (left) and Dr Fiona Bonar (right) (histopathology)



Scientist Nisa Bordado

With well over 150 different diseases making up what we know to be cancer, a one-size-fits-all approach to treatment is no longer appropriate. Defining the precise nature of blood or tissue abnormality is now the key to selecting the treatment that will most effectively target that abnormality.

Highly detailed knowledge about both the nature of the irregularity and the most appropriate treatment is the work of pathologists. At every step of the way in cancer treatment, pathologist's expertise is required.

The new Pathology Department at Macquarie University Hospital has been established by Douglass Hanly Moir. Like all departments at the hospital, this is a state-of-the-art laboratory offering the most advanced systems and the best practice 24 hours a day over seven days a week.

Dr Annabelle Farnsworth, Honorary Clinical Associate Professor of Pathology at Macquarie University Hospital and Medical Director of Douglass Hanly Moir Pathology said that the Pathology Department works across all areas of cancer care: in diagnosis, treatment and the ongoing monitoring of a patient.

"Macquarie University Hospital has a new, modern and comprehensive laboratory and collection centre on site, located in the Macquarie University Clinic," said Dr Farnsworth. "The laboratory offers a full range of pathology services, from urgent cross-matching of blood in the

middle of the night, to blood tests integral to the management of patients with the complex medical and surgical diseases the hospital will be treating.

"Rapid diagnostic tests such as intra-operative frozen sections are also performed. Surgeons can send tissue to the pathology lab in mid-operation, and it can be examined in five to ten minutes. This is part of the intra-operative management care that pathology supports.

"Macquarie University Hospital has set itself apart by recruiting the best staff and offering the best diagnostic services of any private pathology facility in the country."

The hospital also has fast and easy access to the Douglass Hanly Moir facility located less than one kilometre away at Macquarie Park. Douglass Hanly Moir is the largest private pathology facility in Australia and is able to perform highly specialised and esoteric tests in-house.

Macquarie University Hospital's on-site laboratory will be supported by the advanced testing capacities of the main laboratory. Genetic testing, in particular, has capability in highly advanced genetic tumour analysis. Some of the most advanced tests in the country will be offered as part of the diagnostic oncology service.

"The genetic basis of cancer is being increasingly unravelled," said Dr Farnsworth. "By

understanding some of the critical genetic abnormalities in certain cancers, specific treatments can be tailored to individual patients."

Pathology provides the molecular understanding of these conditions. Pathology also defines the surgical extent of a tumour, helping surgeons plan their operations.

It is essential for pathologists to participate in multidisciplinary teams where treatment decisions are made according to accurate diagnoses. At Macquarie University Hospital, with its strong focus on multidisciplinary teams, this is possible.

"Pathology is also vital to the ongoing monitoring of a patient years after their initial treatment," said Dr Farnsworth. "Questions such as whether a cancer has recurred – a pathologist plays a key role in answering these, with the special fine needle biopsy or blood tests they have available to them.

"The change in cancer management during my career has been profound. Cancer care is moving towards a very patient-centred model managed by a multidisciplinary team. Macquarie University Hospital has this at its core.

"The entire hospital and its associated clinic and research programs have been set up with this as its primary model of care. This is a very advanced thing in terms of the ways in which hospitals work."



ALL EYES ON OPHTHALMOLOGY

20

Offering Sydney a new benchmark in ophthalmic services, Macquarie University Hospital's new eye clinic provides an impressive breadth of eye tests and access to the latest operating theatres. It will also be a hub of ongoing learning for scholars, optometrists and GPs.



Michael Costick with patient

Macquarie University Hospital's Ophthalmology Department opened in June, along with many other parts of the hospital, and is now the newest private ophthalmic teaching clinic in Australia. The digitally integrated clinic features prominent ophthalmologists drawn from the Sydney area and is located in the Macquarie University Clinic, alongside the hospital and the Australian School of Advanced Medicine (ASAM).

The department is led by Professor Stuart Graham, who has also been appointed Professor of Ophthalmology and Visual Science at ASAM. The surgical department is led by Associate Professor Ivan Ho, one of Australia's most prominent vitreo-retinal surgeons.

"Along with recruiting high-calibre medical staff, the clinic has also installed superior diagnostic equipment," said Mr Brock Flowers, Manager, Ophthalmology.

What's unique about the clinic is that it has such an extensive range of equipment. We have, for example, high-definition OCT scanning for detailed viewing of both anterior and posterior chambers of the eye.

"We also have a Heidelberg retinal tomographer for detailed imaging of the nerve fibre layer of the eye, as well as the Rostock Corneal attachment to allow specular microscopy and detailed imaging of the cornea along with the Oculus Pentacam."

Complementing this is the Zeiss FF450 retinal camera featuring auto fluorescence, fluorescein and ICG angiography as well as Humphrey field and matrix perimetry. There will also be a full electrophysiology suite featuring full-field and multifocal ERG/VEP using the Veris and Espion systems. Ultrasound facilities include A, B and UBM scanning for complex cases with limited visibility through the optical media.

The clinic is equipped with an Ellex tango laser offering SLT and YAG treatments alongside the Quantel Argon laser with supra scan and indirect delivery systems. A surgical procedure room is available for minor surgical procedures and Anti VegF treatment for wet macular degeneration.

The hospital also has two designated ophthalmic theatres and can cater for surgical procedures in sub-specialty areas of anterior segment,

cornea, medical retina, glaucoma, electrophysiology, oculoplastics, paediatrics, vitreo-retinal surgery, refractive surgery and cataracts. It contains an ocular implant unit to make use of the latest technology in intra-ocular lenses. Operating theatres are digitally linked to ASAM for teaching and research purposes.

Links to ASAM also mean the clinic can offer advanced sub-specialty training for doctors, particularly in surgery, and is currently accepting enrolments for Masters and PhD programs.

The clinic also offers ongoing training to ophthalmologists, as part of its commitment to further education, via the links with ASAM. There are plans for a fifth-year ophthalmic registrar in 2011 and to be part of the training rotation from 2012 in conjunction with the Royal Australian and New Zealand College of Ophthalmology training program.

The clinic's administration and paperwork systems are fully electronic. "Everything is integrated into one extensive system," said Mr Flowers. "The theatre, the medical school, the digital and paperless systems. It's very advanced both in terms of services offered and the management of patient records.

"Combining records with an image management system used to capture and analyse all diagnostic imaging gives practitioners all the information they need for accurate and timely diagnosis, and allows them to focus on appropriate treatment that is all available at the hospital and adjacent clinic.

"Patients also have access to the range of sub-specialties, reducing the need for those with multiple pathologies to travel to different locations. All doctors, imaging equipment and records are, essentially, under one roof.

"Bringing together this level of medical expertise with innovative diagnostic technology, theatres, teaching and research has really lifted the standard of eye care that is available to patients."



connecting in CAMBODIA

Macquarie University Hospital orthopaedic surgeons are helping to rebuild the medical system in Cambodia, by running a highly successful teaching and training program for hand and shoulder surgeons in the country.

When Cambodia's highly destructive Khmer Rouge regime was finally deposed, the country faced enormous infrastructure problems, including the complete lack of a functioning medical system and adequately trained health professionals.

Training of doctors is now gradually improving, but doctors still receive inadequate medical education, with many graduating after just six months.

In response to this, Macquarie University Associate Professor Graham Gumley has established a highly successful teaching and training program that offers ongoing training for local surgeons in current hand, elbow and shoulder surgical procedures and techniques.

Associate Professor Gumley lived in Cambodia between 1997 and 2003, during which time he established the structure for the program at Sihanouk Hospital Center of Hope (SHCH) in Phnom Penh. He also developed a significant network of participating hospitals. This has afforded the program its ongoing success.

Today, the team of five includes two Macquarie University Hospital surgeons. Three hand surgeons – Dr Mark Allison, Dr Damian Ireland and Associate Professor Gumley –

are joined by shoulder and elbow surgeon Associate Professor Des Bokor and anaesthetist Dr Nigel Symons.

The team does consulting working at a number of hospitals. They meet with local surgeons in different hospitals, to review complex surgical cases. Together they discuss diagnosis and treatment, offering advice. In complex cases, the Macquarie team will assist with the surgery.

"We oversee 15 surgeries while there," said Associate Professor Gumley. "We hold two half-day workshops, consulting with patients and educating the surgeons. We see between 50 and 80 cases during this time – which means the same number of educational sessions. Our goal is to teach the medical teams there to be self-sufficient. We see our role as a training and a facilitating one."

The program has been largely successful because of the infrastructure for teaching that exists at SHCH and as a result of the annual visits made by the Macquarie medical team that provides continuity of patient care and surgical education.

"Seeing the same patients every year if we can means that we can track their progress. And seeing the same surgeons every year means long-term training and development of skills is possible," said Associate Professor Gumley.

Associate Professor Des Bokor says that the Macquarie team has formed good relationships with the doctors that they train. This has allowed them to become integrated into the orthopaedic community in Cambodia and have a real impact.

"The surgeries we perform are varied. It's a mixture of congenital abnormalities, trauma, accidents, deformities and injuries," said Associate Professor Bokor. "When people have accidents, they are often treated using traditional Khmer medicine. They get wrapped in bamboo leaves and vines, which are usually left on for six weeks.

"Generally, the bones have not been properly set, causing all types of issues. A significant portion of our time is spent trying to reconstruct inadequate treatments.

Following up is sometimes difficult. "People travel from rural areas to the city to have an operation, but then they can't always afford to return to the city to see us again."

Language differences pose another challenge to effective care. In order to train as a doctor, students need to learn to speak French. Then, depending on the specialty they want to undertake, they have to either learn French, Russian or English.

"Trainee doctors spend much of their time trying to communicate, and often have to use translators," said Associate Professor Bokor.

Equipment is also a major challenge, and part of the doctors' visits to Cambodia involves the sourcing and organising of equipment. Overseas hospitals have donated lots of equipment but much of it is old and not always useful.

"Despite the challenges, we have seen improvements in the quality of surgery in the cities," said Associate Professor Gumley. "But we need to go further afield and undertake some training in the rural areas.

"HOPE worldwide is now looking to open a facility in the provinces."





Maxine McKew, former member for Bennelong and Radiologist, Dr Kevin Ho-shon



Prof Steven Schwartz, Vice Chancellor Macquarie University and Hon Michael Egan, Chancellor, Macquarie University



John Fuller

THE OFFICIAL OPENING OF MACQUARIE MEDICAL IMAGING

Macquarie Medical Imaging was officially opened by Maxine McKew MP, on July 28th 2010.

The facility has been established as the most integrated imaging department with the most advanced technologies and technical and clinical expertise. The philosophy of working in partnership with primary medical carers and specialists enable Macquarie Medical Imaging to provide a full range of medical imaging services available anywhere in the world in the most integrated and committed department to find new frontiers in patient care.

Macquarie Medical Imaging provides comprehensive Diagnostic and Interventional Radiology services on the Macquarie University Hospital Campus. Sub-specialty Radiologists, Cardiologists and Nuclear Medicine Physicians provide dedicated reporting from all of the modalities, including: Ultra-low dose, high resolution CT scanner which is cardiac capable as well as providing 4D images of vascular beds, 3T multichannel MRI which has been designed for both anatomical imaging as well as functional MRI, tractography and diffusion PET/CT scanner with Time-of-Flight that reduces both the scan time and patient dose by half.

Please contact Macquarie Medical Imaging on (02) 9430 1100 or visit our website www.mqmi.com.au

THE GRAND OPENING OF MACQUARIE UNIVERSITY HOSPITAL

On Saturday 26 June 2010, 400 guests came to Macquarie University Hospital to celebrate our official opening. Formal proceedings included presentations by Robert Glynn, CEO, Macquarie University Hospital, Steven Schwartz, Vice Chancellor, Macquarie University and Professor Michael Morgan, Dean of the Australian School of Advanced Medicine. The presentations highlighted the immense vision behind Australia's first private university hospital and the benefits of an integrated approach to teaching, research and medicine. Following these proceedings guests were taken to see some of our state-of-the-art facilities.

AGREEMENTS WITH PRIVATE HEALTH FUNDS

Macquarie University Hospital has now finalised contract discussions with Medibank Private and AHM Health Funds. The contract was effective on 10 September 2010.

THE GAMMA KNIFE

On 3 August 2010, Macquarie University Hospital performed Australia's first Gamma Knife® surgery with its new Leksell Gamma Knife® Perfexion™ system, making it the country's first and only center capable of providing dedicated intracranial radiosurgery.

Macquarie University Hospital's first radiosurgery patient, a 33-year-old man with multiple small brain tumours, underwent a 100-minute Gamma Knife surgery treatment and was able to return home the same day.



GIDEON BIBLES PRESENTED TO MACQUARIE UNIVERSITY HOSPITAL

Peter Brown, from Gideons International presented Robert Glynn, CEO, and Macquarie University Hospital Gideon Bibles to place in each patient room at the hospital.

the specialist brief

In the month of August and September Macquarie University Hospital hosted a series of GP educational events. Sydney GPs participated in interactive educational sessions by leading Macquarie University Specialists. As well as learning about developments in each specialist's respective fields, GPs had the opportunity to raise questions and discuss issues with these experts.

The event began with a short tour of the hospital and was followed on by dinner and rotating presentations.

For information regarding upcoming events please call 9812 3099.

COMPREHENSIVE CANCER SERVICES PART 1 AUGUST 10

A/Prof. Martin Berry
Radiation Oncology
Phone: 02 9812 3220

Dr. Annabel Goodwin
Medical Oncology
Phone: 02 9812 3233

Dr. Michael Izard
Radiation Oncology
Phone: 02 9812 3233

A/Prof. Celi Varol
Urology / Oncology
Phone: 02 4721 8383

NEUROSURGERY IN A NEW ACADEMIC ENVIRONMENT AUGUST 17

Prof. Marcus Stoodley
Neurosurgery
Phone: 02 9812 3800

Dr. John Fuller
Neurosurgery
Phone: 02 9812 3999

Dr. Rosalind Jeffree
Neurosurgery /
Paediatric
Phone: 02 9812 3999

Dr. Andrew Davidson
Neurosurgery
Phone: 1300 622 782

ORTHOPAEDIC SURGERY AT MACQUARIE UNIVERSITY HOSPITAL AUGUST 24

A/Prof. Desmond Bokor
Orthopaedic Surgery
Elbow & Shoulder
Phone: 02 9812 3702

Dr. Rami Sorial
Orthopaedic Surgery
Hip and Knee
Phone: 02 9812 3702

Dr. Roger Brighton
Orthopaedic Surgery
Hip and Knee
Phone: 02 9812 3702

A/Prof. James Sullivan
Orthopaedic Surgery
Arthroplasty/
Hip and Knee
Phone: 02 9812 3702

Dr. Mark Haber
Orthopaedic Surgery
Phone: 02 9812 3702

COMPREHENSIVE CANCER SERVICES PART 2 7 SEPTEMBER

Prof. Warick Delprado
Pathology/
Haematology
Phone: 02 9855 5155

Dr. Elizabeth Elder
Breast Surgery
Phone: 02 9845 8888
or 9845 8464

Prof. John Magnussen
Radiology
Phone: 02 9430 1100

Prof. John Cartmill
General Surgery
Colorectal Surgery
Phone: 02 9812 3880

OPHTHALMOLOGY AT MACQUARIE UNIVERSITY HOSPITAL 21 SEPTEMBER

Dr. Rohan Merani
Ophthalmology
Medical Retina
Phone: 02 9812 3933

Dr. Hemamalini Arvind
Ophthalmology
Glaucoma / Cataract /
Electrophysiology
Phone: 02 9812 3933

Dr. Shish Lal
Ophthalmology
Cataract Surgery
Phone: 02 9812 3933

A/Prof. I-Van Ho
Ophthalmology
Retina Surgery
Phone: 02 9812 3933





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