



Health
Northern Sydney
Local Health District

RESEARCH YEAR IN REVIEW

SEPTEMBER 2019 – SEPTEMBER 2020



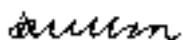


Northern Sydney Local Health District acknowledges the Traditional Custodians of the lands on which our health services have been built, the Gaimariagal, Guringai and Dharug peoples, and we honour and pay our respects to their ancestors. We acknowledge and pay our respects to all Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging. We acknowledge that past, current and future Aboriginal and Torres Strait Islander peoples are the continuing custodians of this country upon which we live, work and meet and that it is from their blood, courage, pride and dignity that we are able to continue to live, work and meet on this ancient and sacred country.

MESSAGE FROM THE CHAIR OF THE BOARD AND THE CHIEF EXECUTIVE

Northern Sydney Local Health District (NSLHD) is proud to celebrate the significant research achievements across the district over the last 12 months, and what a year it has been! COVID-19 has posed a significant challenge to health services across NSW, but it has also provided an opportunity to demonstrate the agility and capacity of research at NSLHD. Within weeks of the seriousness of the pandemic becoming apparent, NSLHD established a COVID-19 Research Group to facilitate high quality research that improves knowledge of COVID-19 for the benefit of our patients and the broader community. We now have eight COVID-19 studies occurring across the district.

We know that health research is the key to improving health outcomes for our patients and our community. NSLHD has a strong research profile, and the district has gone from strength to strength over the last year.



Deborah Willcox, Chief Executive
Northern Sydney Local Health District

In September 2019, NSLHD launched its first research strategy, identifying 22 initiatives to be delivered in the first 18 months, and establishing a Research Advisory Committee to oversee this. Progress towards the delivery of these initiatives can be seen in this “Research Year in Review”. Our staff have achieved significant research goals in 2019/2020, supporting and delivering high quality health research, and ensuring this underpins our patient care, alongside the successful grant applications across multiple NHMRC and other major funding schemes.

NSLHD continues to strengthen partnerships with many stakeholders, in particular with the University of Sydney and Sydney Health Partners. This Year in Review shines a spotlight on some of the amazing achievements over the last year. This is just a taste of what has happened over the last 12 months, and an indication of what to expect in 2020/2021.



Trevor Danos AM, Chair
Northern Sydney Local Health District

STRATEGY MILESTONES

Priority	Initiatives	Timeline	Comments	Status
 Grow our Research	Widely promote our research achievements and our researchers using a variety of media platforms and communications mechanisms.	0 - 18 months	Complete	G
	In conjunction with the NORTH Foundation, develop a fundraising strategy to increase philanthropic contribution to research.	0 - 18 months	Complete	G
	Help researchers identify seed funding, in particular for early and mid-career researchers.	0 - 18 months	Open	G
 Engage our Community	Ensure our diverse community is sufficiently represented in all aspects of the research process, including planning, co-designing, evaluating and participating in research at NSLHD.	0 - 18 months	Open	G
	Add research as a standing item to the NSLHD Consumer Committee.	0 - 18 months	Complete	G
	Engage consumers, carers and families in the implementation of this Strategy via the Research Advisory Committee.	0 - 18 months	Complete	G
 Improve Research Leadership and Career Development	Promote research training opportunities provided by universities and other external bodies, and support access to these activities.	0 - 18 months	Open	G
	Support research open days and targeted research forums to improve networking opportunities.	0 - 18 months	Open - delayed due to COVID-19	A
	Establish a Research Advisory Committee that includes representation from researchers and consumers across NSLHD to oversee the implementation of this Strategy.	0 - 18 months	Complete	G
	Add research as a standing item on the agenda of the NSLHD Executive Committee and Board.	0 - 18 months	Complete	G
 Build Research Infrastructure	Establish a clinical trials working group, to improve coordination of trials, as well as increase the number and quality of clinical trials, and clinical trial participation rates, across NSLHD.	0 - 18 months	Complete	G
	Review the current model of research management, with a view to centralising and optimising the functionality of research support activities, including financial and grant management, ethics and governance, legal support, intellectual property and commercialisation.	0 - 18 months	Open	G
	Develop and maintain a web presence for NSLHD research via a variety of resources to enhance our research profile and promote our strengths.	0 - 18 months	Complete	G
	Investigate and implement systems and processes to reduce ethics and governance complexity, and approval timeframes.	0 - 18 months	Open	G
 Enhance Research Partnerships	Strategically engage with research policy and funding bodies, such as the Ministry of Health, NHMRC and others to inform collaborative partnership arrangements.	0 - 18 months	Open	G
	Work in collaboration with Sydney North Health Network to continue developing primary care research that impacts on clinical care.	0 - 18 months	Open	G
	Continue to strengthen existing research partnerships with Sydney Health Partners, the Northern Sydney Academic Health Sciences Centre, as well as our industry, university and health organisation partners to drive research efficiencies and encourage innovation.	0 - 18 months	Open	G
 Increase Research Impact	Establish a "research register" to map existing researchers and research activities and track future growth.	0 - 18 months	Open	G
	Investigate mechanisms to ensure research conducted within NSLHD (either by NSLHD staff, or using NSLHD resources) acknowledges NSLHD in publications and communications.	0 - 18 months	Open	G
	Adopt an agreed and transparent approach for measuring research impact.	0 - 18 months	Open	G
	Ensure research that improves the health and wellbeing of our vulnerable populations is supported.	0 - 18 months	Open	G
	Develop knowledge and capacity for intellectual property management and identify potential commercialisation partners.	0 - 18 months	Complete	G

SPOTLIGHT ON...



The Kolling Institute

As the longest-running research organisation in NSW, the Kolling Institute is recognised as a world leading centre linking the Northern Sydney Local Health District with the University of Sydney through a joint venture partnership.

This year has been an exciting period. Like our local and international research colleagues, our focus turned to COVID-19 midway through the year, when the severity of the pandemic became evident. Significant grants were awarded to some of our researchers for a range of important COVID-19 related projects.

This research activity is being undertaken alongside our broader program of work, and the Kolling continues to bring in large grants from government, philanthropic partners and the wider community. This valuable funding has supported research across a wide range of disciplines from musculoskeletal projects and renal research, to investigations into cardiovascular disease, Parkinson's and spinal injuries.

Kolling centenary celebrations in 2020 have coincided with the development of the new Kolling Institute Research Strategy. The strategy is the culmination of significant consultation with researchers, community and joint venture partners. It will direct our research focus, strengthening our ability to achieve research excellence and attract increased and diversified funding. The strategy will maintain and build valuable collaborations across the health care sector, academia, industry, government and the community. Importantly, it will strengthen the Institute's reputation as a centre of translational research excellence.



Sydney Health Partners

NSLHD was a founding partner of Sydney Health Partners. In 2019, the partners agreed upon a series of strategic platform projects for health and medical research translation, with the aim of speeding the application of evidence into clinical practice. NSLHD is leading efforts to build research capacity and remove barriers to the timely conduct of research, with partners Western Sydney Local Health District, the University of Sydney, Sydney Children's Hospital Network and Sydney Local Health District. The "Platform Three" group involves the delivery of 12 projects designed to streamline research commencement.

A governance mapping working group, comprised of governance officers from all local health district partners and the University of Sydney has mapped out the gaps and crossovers in governance requirements across the partner organisations, with the aim of minimising the differences between governance requirements.

The "Research Passport" project aims make it easier for health and medical researchers to get access to more than one hospital or health district for research purposes.

This is a three year program of work, with delivery scheduled for delivery in 2022.



NSLHD IS LEADING EFFORTS TO BUILD RESEARCH CAPACITY AND REMOVE BARRIERS TO THE TIMELY CONDUCT OF RESEARCH



The Surgical Education Research Training (SERT) Institute

The Surgical Education Research and Training (SERT) Institute was established in 2017 to promote the engagement of surgeons in academic research, clinical auditing, teaching, mentoring and leadership at RNSH.

In 2020 the SERT Institute led an initiative to produce the inaugural Surgical Research Activity Report, a collation of research conducted and published across the RNSH departments of surgery from January 2018-June 2020. This report highlights the large volume of research activity and peer-reviewed publications conducted during this period, with almost 350 manuscripts published, equating to an average of 138 publications annually. The volume of research undertaken by our surgeons underscores the extent to which research is embedded in our clinical work.

The SERT Institute has been instrumental in the expansion of Research Electronic Data Capture (REDCap) across NSLHD. REDCap is a secure web-based application for building and managing online surveys and databases. REDCap is recommended for use for data capture and management by the Human Research Ethics Committee, as all data captured within REDCap, including research data, is protected by our robust ICT practices. The appointment of a full-time REDcap administrator in 2019 has led to an increase in the number of REDcap projects and user accounts by 137 per cent and 149% per cent respectively.

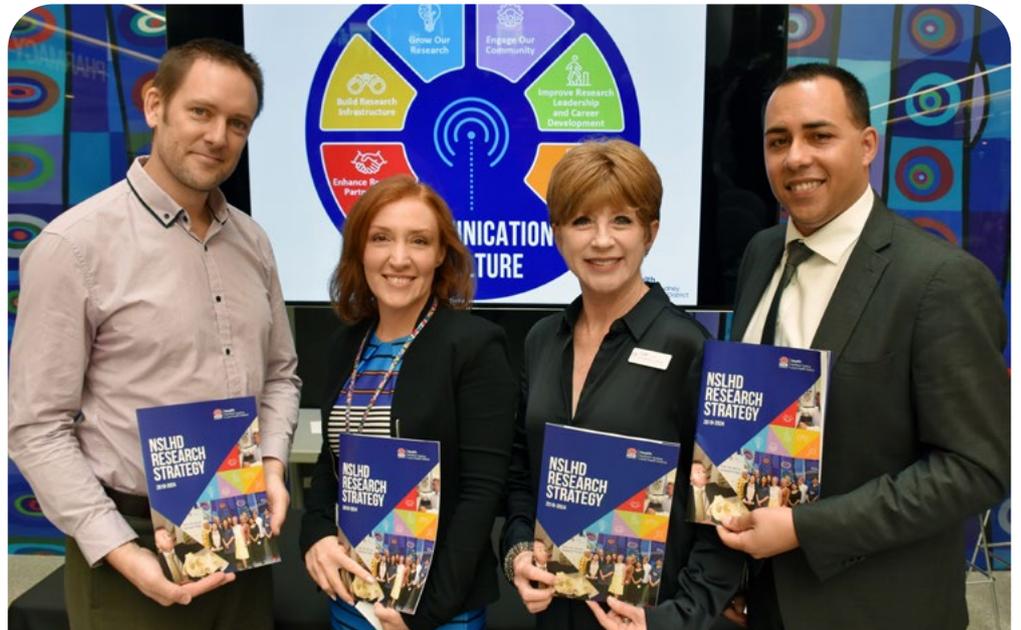
The SERT Institute continues to grow with a strong commitment to clinical and translational research, the teaching of today's and tomorrow's surgeons and improvements in patient care.



Professor Tom Hugh,
Professor Tom Reeve AC CBE,
Professor Bill Walter

SEPTEMBER 2019
— SEPTEMBER 2020

RESEARCH



In September 2019, NSLHD launched its inaugural five year Research Strategy 2019-2024 after six months of consultation across the district. The implementation of the initiatives within the Strategy is overseen by the NSLHD Research Advisory Committee, a group that meets bi-monthly and is chaired by the Chief Executive, Deborah Willcox.

Our ethics and governance team reviewed 147 ethics applications, and 185 governance applications over the last twelve months.



Prof Jim Elliott, Prof Jim Middleton, Prof Ashley Craig and NEURA colleagues received \$2.5 million via the Spinal Cord Injury Research Grants scheme for their project *RESTORE: Immersive Virtual Reality Treatment for Restoring Touch Perception in People with Discomplete Paraplegia (2020-2025)*.



Ms Sally McCowatt, Manager of the NSLHD Oncology and Radiation Oncology Clinical Trials Unit, accepting the prestigious award on behalf of the unit



In 2019, NSLHD's oncology trials unit won the NSW Premier's Awards for Outstanding Cancer Research, in the category of Outstanding Cancer Clinical Trials Unit. The unit demonstrated a strategic approach to trial selection that led to over 60 per cent of trials recruiting to target.



The Cancer and Palliative Care service at the Northern Lights showcase in February 2020



The Musculoskeletal team at the Northern Lights showcase in September 2019

Two Northern Lights Research and Innovation showcases were held over the past 12 months, highlighting the fantastic work done within the Musculoskeletal Network (September 2019) and the Cancer and Palliative Care service (February 2020). Northern Lights is a new event that will showcase advances in research and innovation across NSLHD.

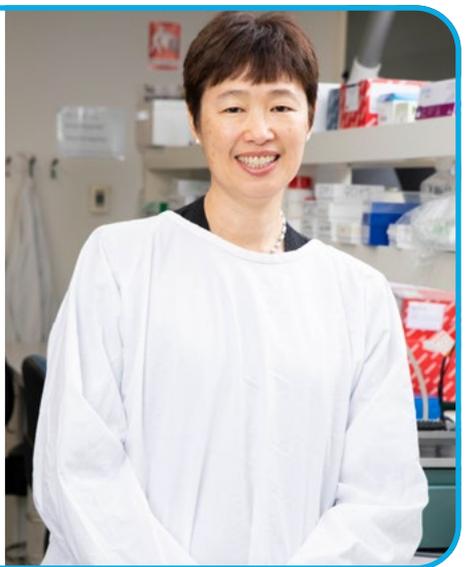


NSLHD Director for Drug and Alcohol Services, Dr Mark Montebello

NSLHD's Clinical Director for Drug and Alcohol Services Dr Mark Montebello received the Clinicians Award at the Australasian Professional Society on Alcohol & other Drugs conference dinner. The award recognises excellence and leadership in substance use.

The Renal Research Unit at NSLHD won over **\$7.8 MILLION** in 2019/2020.

Kolling Director Professor Carolyn Sue will help drive a \$12.5 million international project into the genetic links to Parkinson's disease. The program is funded by the Aligning Science Across Parkinson's initiative, with the grant administered through the Michael J. Fox Foundation for Parkinson's Research.



HIGHLIGHTS...



In response to the COVID-19 pandemic, NSLHD quickly established a COVID-19 Research Group, chaired by Dr Bernie Hudson, Head of Infectious Diseases, to facilitate high quality research that improves knowledge of COVID-19 for the benefit of our patients and the broader community.



NSLHD staff Professor Marg Fry, Meredith Oatley and team were awarded the 2019 NSW Health Award for transforming patient experience for the Oncology Telephone Helpline, developed to establish a person-centred service for people living with cancer. This service demonstrated a significant increase in access to care; an improvement on quality of life for people living with cancer; and a reduction in ED presentations.

Research staff from radiation oncology, including A/Prof Tom Eade and A/Prof Jeremy Booth are key investigators on a \$3.7 million Cancer Institute NSW Translational Program Grant with colleagues from various local health districts and universities, entitled *Cancer imaging and targeted radiation therapy: Innovation, discovery and translation*.



In 2019, Dr Naomi Hammond, Intensive Care Clinical Research Manager, Royal North Shore Hospital, has been awarded an NHMRC Investigator Grant for \$553,664 for her study, *Delineating the role of fludrocortisone and hydrocortisone in the management of patients with septic shock*.

Major grants success

Prof Sue Kurrle, Prof Ian Cameron and colleagues received \$1.47 million in Targeted Calls for Research on Frailty from the NHMRC in 2019 for their study, *FORTRESS*, examining frailty and rehabilitation treatment in older people in various settings.



Could intergenerational care be the answer to our aged care crisis? Prof Sue Kurrle attempted to bring this question to the general public, with a popular tv series called *Old People's Home For 4 Year Olds* that aired in 2020.



Prof David Hunter was successful in securing over \$2,500,000 in the competitive NHMRC Investigator Grants for his research *Transforming treatment options and delivery of care for osteoarthritis*.



Major grants success

CANCER SERVICES AT NSLHD

Neuroendocrine Tumour Treatments

NSLHD is a leading provider of cancer treatments and support for patients. Exemplary multidisciplinary research feeds into the highest quality, evidence-based clinical care, leading to excellent outcomes for our patients and the broader community. NSLHD hosts the NSW Health funded Centre of Excellence for Neuroendocrine Tumour (NETs) Treatments. The Centre uses an advanced radiation therapy known as a “theranostics”, which combines diagnostic imaging and therapy using the same molecular approach. This approach has been driven by translational research within Sydney Vital, the Cancer Institute NSW funded research centre based at NSLHD.

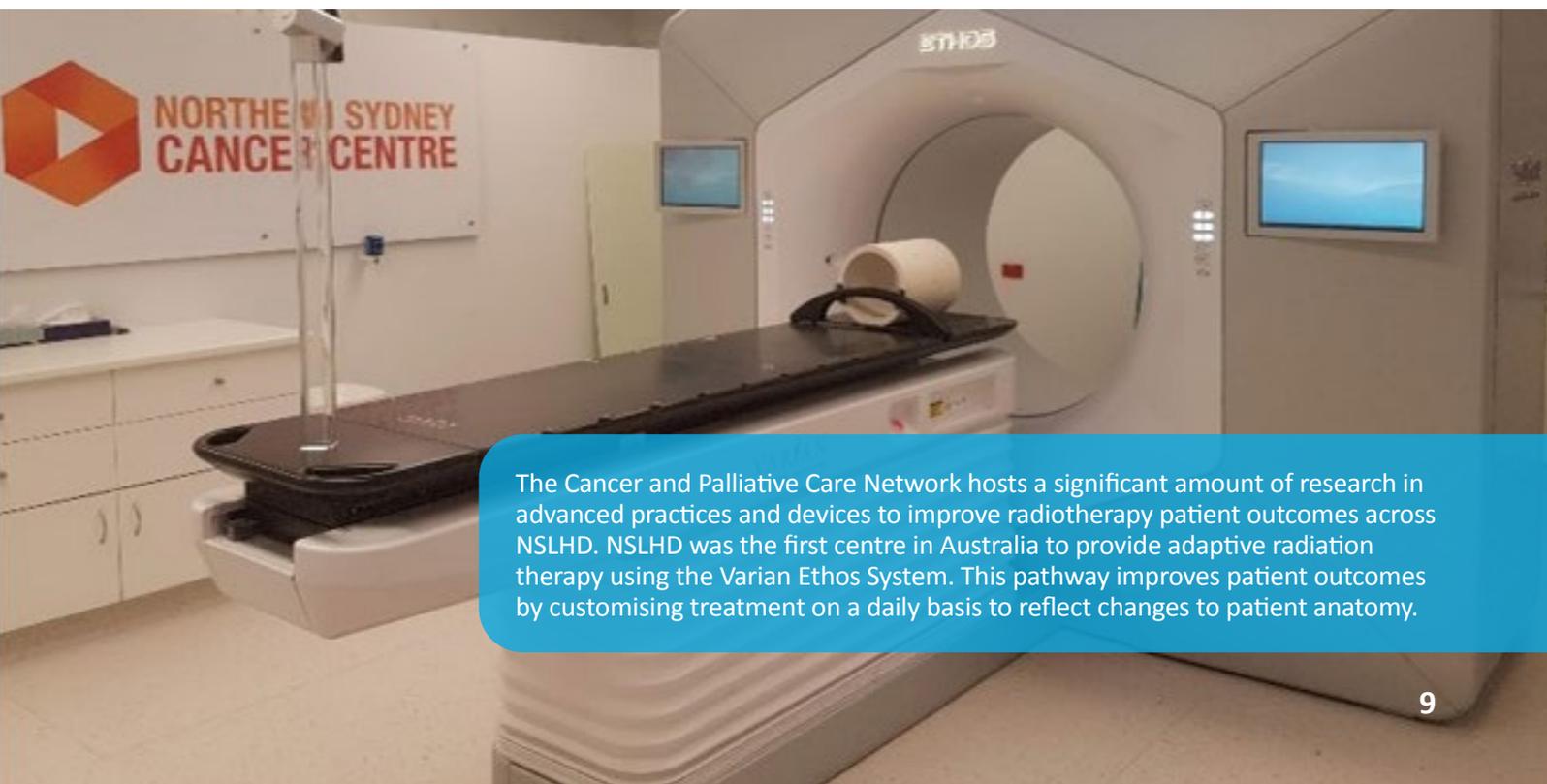
In recognition of the high quality of patient management, with treatment strategies defined by research output, the Centre has been formally designated as an “ENETS Centre of Excellence”, of which there are only four outside of Europe, by the European Neuro-Endocrine Tumour Society (ENETS).

Further recognition of the talent and research output from the group was the success of a Five Year NHMRC Investigator Award of over \$600,000 to Dr David Chan, a former research fellow of the Sydney Vital NETs program. Dr Chan has been funded to further develop prognostic imaging biomarkers for improving the outcomes in NETs patients.

Sydney Vital

Sydney Vital is a Translational Cancer Research Centre based at NSLHD that aims to ensure the latest advances in cancer prevention, treatments and care are available to patients in the shortest time possible. The group also coordinates research facilities that facilitate the translating of cancer research from the laboratories into routine patient care and improve treatment guidelines.

As an example of this work, treatment and care for people with cancer involves a number of different medical and health care professionals. Evidence suggests that centres that take a team approach to cancer care, in which health care professionals as a group consider treatment options and develop individualised treatment plans for each patient, can reduce mortality and improve quality of life for the patient. Multi-Disciplinary Team (MDT) meetings are thus an ideal vehicle to converge expertise across all relevant medical and health care professionals, along the integral patient pathway, to facilitate improved patient outcomes by incorporating treatment feedback loops. At NSLHD, MDTs are used in conjunction with randomised controlled trials (RCTs) as the mainstay of new treatment assessment to ensure the best outcomes for our patients, and the broader community.



The Cancer and Palliative Care Network hosts a significant amount of research in advanced practices and devices to improve radiotherapy patient outcomes across NSLHD. NSLHD was the first centre in Australia to provide adaptive radiation therapy using the Varian Ethos System. This pathway improves patient outcomes by customising treatment on a daily basis to reflect changes to patient anatomy.

INTRODUCING SOME OF OUR CLINICAL RESEARCHERS



Associate Professor Sean O'Neill Clinical Academic Rheumatologist

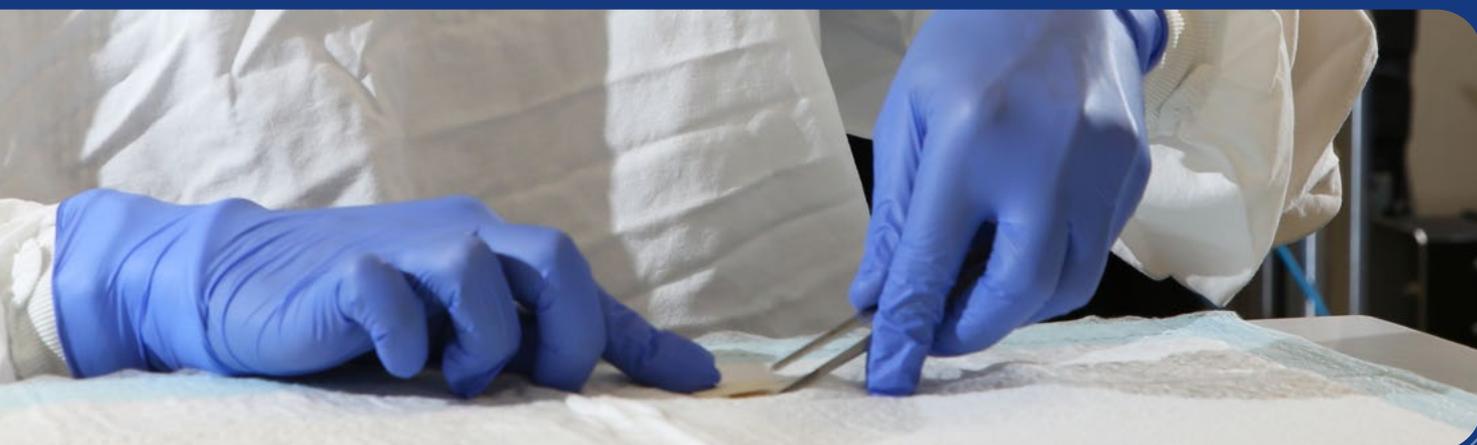
Associate Professor Sean O'Neill joined NSLHD in late 2019, with an interest in lupus. A/Prof O'Neill has established a new lupus clinic to embed research in clinical practice with opportunities for patients to participate in clinical trials of novel targeted treatments, patient reported outcome measure studies, and national and international registry and biobanking studies. He has established RNSH as a site of the Australian Lupus Registry and Biobank, linking with collaborators throughout Australia, the United Kingdom and the Asia Pacific region. Work as part of the Asia Pacific Lupus Collaboration – one of the largest prospective lupus studies in the world – has contributed to multiple publications in the major rheumatology journals in the last year, most notably three recent publications in *Lancet Rheumatology* defining and validating new treatment targets and improved outcome measures for people with SLE.



Professor Bill Walter Chair of Orthopaedics and Traumatic Surgery

Orthopaedics contributes broadly to teaching and research at NSLHD and beyond. In 2019/2020, each subspecialty area hosted prospective clinical trials, retrospective case series and radiological reviews. Orthopaedics also established a new trauma and spine database, a fantastic research resource for NSLHD, which will support the district's ability to study the huge volume of surgery performed weekly.

Cadaveric and biomechanical studies continue and with the installation of some exciting new equipment, our abilities in this area will soon grow. The group has also co-authored a worldwide consensus document on the safe return of elective orthopaedic surgery during the COVID-19 pandemic, a resource being used world-wide.





Professor Geoffrey Tofler

Clinical Academic, Medical Director of Preventative Cardiology at RNSH and the Heart Failure Program at NSLHD

In Preventative Cardiology, Professor Tofler leads a multidisciplinary team that recently published in the *American Heart Journal* findings from the first randomised controlled clinical trial to show it is possible to reduce several cardiac risk factors during early bereavement, without adversely affecting the grieving process. The paper, which had been previously awarded the CSANZ Preventive Cardiology Prize, and received national and international attention, was inspired by the increased heart attack and death rate among recently bereaved people, particularly those grieving a spouse or child.

In a second program of work on heart failure, the group published findings from its database of 7000 patients on precipitants of heart failure hospitalisation and the risk of rehospitalisations, to address the ongoing challenge of how to minimise heart failure hospitalisations. *The International Journal of Cardiology* publication showed that three quarters of the patients identified one or more precipitating factors.



Professor Gin Malhi

Clinical Academic and Head of Department of Academic Psychiatry

The last year has been important with respect to University of Sydney mental health research within the NSLHD. Two major long-term ambitious projects have come to fruition.

The first involved identifying changes within the brain that could be used to predict the onset of anxiety and depression. This study examined the brains of adolescent girls using functional MRI between the ages of 12 and 17 years and identified changes within the hippocampus and neural networks related to one's sense of self. These ground breaking findings have been published in top tier journals including the *British Journal of Psychiatry* and *Psychoneuroendocrinology* and provide a clear signal as to where we need to be looking within the brain to better understand the origins of depression.

The second set of studies again used neuroimaging to understand the neural basis of suicidal thinking in adults with mood disorders. This research has found that suicide attempts fundamentally alter neuronal connections within the brain, explaining why suicide is more likely in those that have attempted it in the past. It also identified abnormalities within the default mode network of the brain and networks that serve to regulate emotional tone. Again, this research, which has been published in international journals such as *Psychological Medicine* and *Acta Psychiatrica Scandinavica*, provides novel and valuable mechanistic insights that we are pursuing further to seek out interventions that can alter these changes and reduce the risk of suicide.



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