



# Blacktown and Mount Druitt Hospitals Research Strategic Plan

2019 - 2024



BLACKTOWN AND  
MOUNT DRUITT HOSPITALS  
WE'RE GROWING

WESTERN SYDNEY  
UNIVERSITY  




Health  
Western Sydney  
Local Health District



# Welcome

**Mr Ned Katrib**  
**General Manager, BMDH**

Clinicians at Blacktown and Mt Druitt Hospitals (BMDH) have been involved in clinical research for many decades. However, in the new era of BMDH as a major teaching hospital, we will see this aspect of our institution become increasingly important. BMDH recognises that research and education are integral parts of the delivery of high-quality health care. We will support the development of research capability and activity in all aspects of the organisation. Our partnerships with other hospitals in Western Sydney, Western Sydney University (WSU), the Westmead Research Precinct and other partnerships are critical in this.

This research strategic plan outlines clear steps for the next stage of development of BMDH as a research-active hospital. It envisages the incorporation of research practice into all parts of our organisation, making it part of the fabric of our professional lives. In this way we will enrich the professional experience of our staff, bring best practice to the care of our patients, educate the next generation of health professionals, and benefit the community that we serve. I commend this plan to all members of the BMDH team, and the partners who work with us.



Cover image: Blacktown and Mount Druitt Hospitals Expansion Project/Richard Glover

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## Preface

**Professor Stephen Leeder AO**  
**Director, Research & Education Network,**  
**Western Sydney Local Health District**

As BMDH develops into a major teaching facility in association with WSU, research is growing and being translated into improved care. The growth of research is such that it is appropriate now to decide on priorities and seek the resources to support what BMDH decides to do.

It is encouraging that research in allied health and nursing are also flourishing, reflecting the commitment at BMDH to multi-disciplinary care. Cooperation of this calibre signals a bright future and will lead to success in the hospitals' endeavours.



## Preface

**Professor Annemarie Hennessy AM**  
**Dean, School of Medicine, WSU**

As Dean of a medical school, I often am asked, 'What does the future of medical practice look like?' I would answer today that it looks like what is being created at BMDH and embodied in this research strategic plan. This plan puts people at the centre of the strategy and this especially includes the patients, their families and the wider community. Just as the hospital plans were designed by the community and partners according to their vision and needs, so is this research strategy informed by the community-at-large, the health care community and its educator partners.

The future of health care, with its focus on disease prevention through better mapping in the community, is already exemplified by the research efforts of the Blacktown Mt Druitt Diabetes and Obesity teams. This team shows a whole-of-institution approach. It provides opportunities and support for its people; it is attracting important funding support; it allows the dissemination of research results in a way that constantly improves care; and it shows leadership to the Local Health District (LHD), the region and on a national scale. This strategic plan takes those ideas and expands them across the Blacktown–Mt Druitt collective and shows us that all health professionals have a role to play in enhancing care to the highest possible standard.

As a major partner in the education endeavours of BMDH at the Blacktown Clinical School and Research Centre, and on behalf of the WSU team, I commend this strategic plan and look forward to the fun and hard work involved in realising its full potential.

## Introduction to research at BMDH

### Dr. Mark McLean, Director, Research and Education, BMDH



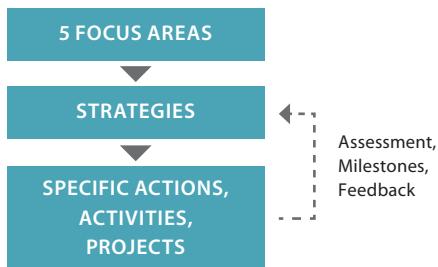
This is an exciting time to be working at BMDH. We are experiencing a phase of extraordinary growth in services, facilities and staffing. BMDH is emerging as a major academic and teaching hospital, and as part

of this new identity we are developing research as a key activity. *Why would we want to undertake research at BMDH? Isn't it enough to simply deliver good quality health care?* Actually, the two are inseparable: health research has a very high value to society. It generates new knowledge and, importantly, seeks to translate that knowledge into better delivery of care. It is important that we participate in this because the research questions and the translation challenges are different in every population and location. Development of research at BMDH, alongside our clinical care, will make us better health care providers, better teachers and better members of the health professions.

How does an emerging academic hospital like ours develop the expertise and capacity to undertake research? To address this challenge we have identified **five key focal areas** for us to work on together as laid out this strategic plan. These key focal areas are:

- 1. Culture:** Establish an institutional research culture and academic leadership
- 2. People:** Develop our research workforce and support research-active staff
- 3. Funding:** Increase funding and resources for research
- 4. Information:** Disseminate information about our research
- 5. Collaboration:** Foster research collaboration within Western Sydney Local Health District (WSLHD), our university partners and beyond

Our strategic plan 2019–2024 is an outline of how we will develop our capacity and performance in each of these domains over the next five years. The plan has been developed by a multi-disciplinary group of research-active staff at BMDH and it outlines specific strategies and actions to be undertaken, as well as measurable outcomes against which to assess our progress. Our overall vision is that we all work together to make health research an indispensable part of our 'day job', and that it will be integrated with clinical care and enhance the experience of staff, patients and our entire community.



## Research Landscape of BMDH

### People

Our people are our most important resource; patients, their families and the community are the most important ingredient for clinical research. The diverse, vibrant and growing population of Western Sydney has shown itself to be very willing to become involved in medical research. Our clinicians are well placed to identify the important research questions that arise from their clinical work – especially questions relevant to our local community.

When our clinicians form partnerships with our patients, and with experts in research design and methodology, we have the right ingredients for world-class research. The integration of research into health care offers opportunities for staff development and delivers evidence based, high-quality health care to our community, ensuring the quadruple aim of health care: high-quality care, high-value care, good patient experience and good staff experience.

## Facilities

The Blacktown Clinical School of WSU, adjacent to Blacktown Hospital, features a purpose-built clinical trials centre including consulting rooms, treatment areas and sample processing facilities; as well as diagnostic equipment such as a FibroScan, dual energy X-ray absorptiometry (DEXA) scanner and retinal camera.

These facilities are available to all clinician-researchers who conduct clinical research projects in collaboration with WSU. The WSU Clinical School also accommodates a physical containment level 2 research laboratory equipped for molecular biology, genomic and cell culture research techniques, as well as a physiology laboratory. These facilities allow an array of options for translational or basic research in collaboration with full-time scientists who are keen to form partnerships with BMDH clinicians.

## Research support

WSLHD Research and Education Network (REN) maintains an office at Blacktown Hospital to provide on-site support to BMDH researchers. REN manages research ethics approvals through the Western Sydney Human Research Ethics Committee (HREC), and research governance approval through the Research Governance Office (RGO).

At Blacktown, REN staff (including HREC and RGO) will assist with applications for research ethics approval, management of research funds and applications for research grant funding. REN also provides expert statistical advice for any WSLHD staff undertaking research, assists in establishment and management of clinical trials, and runs a program of skills development for researchers.

## Partnerships to enable research

BMDH clinicians will find willing research partners in multiple institutions very close to home.

WSU has formal relationships with BMDH as a teaching hospital and as a research partner. WSU has established a Clinical School and Research Centre on the Blacktown Hospital campus, and a Clinical School at Mt Druitt Hospital.

WSU's clinical academics have extensive experience in research methodology and practice, and they are keen to collaborate with practicing clinicians to identify and address 'real-world' research questions and to recruit patients as participants for research studies.

WSU facilitates translation of research into clinical practice through their Translational Health Research Institute (THRI), and is also a partner in the Ingham Research Institute (at Liverpool Hospital). As part of WSLHD, BMDH employees also have access to research institutes in the Westmead Research Hub such as the Westmead Institute for Medical Research, Children's Medical Research Institute and Kids Research.

These institutes offer access to shared facilities and high-cost equipment such as genomics laboratories, animal holding facilities, electron microscopy, bio-banking and other state-of-the art research methodologies.



The new Acute Services Building at Blacktown Hospital, due for completion in mid-2019.



Many other partnerships are available through collaborations with two National Health and Medical Research Council (NHMRC) Advanced Health Research and Translation Centres: Sydney Health Partners (University of Sydney) and Sydney Partnership for Health, Education, Research and Enterprise (SPHERE); incorporating WSU, University of New South Wales (UNSW), University of Technology Sydney (UTS) and others.

### **Academic appointments**

Several research and teaching academic positions have been established, based at Blacktown and Mount Druitt Hospitals. These include professorial appointments in allied health, medicine and surgery. Clinicians employed by BMDH are eligible for consideration for adjunct or conjoint academic appointments with WSU and the University of Sydney. These appointments enable hospital staff to supervise research students, access university facilities and libraries, and participate in the academic life of the universities. Development of strong academic units is one of the key strategies for growth of research at BMDH (see 'Our vision for the future', page 22).

### **Research students**

Research students are a valuable resource and future research workforce. University students in medicine, nursing, allied health, social sciences, public health and other disciplines are often keen to become involved in hospital-based research projects. Students undertaking an honours, masters or PhD degree program are able to devote extended periods of time to a major project. Funding for such work may be arranged through the university (e.g. WSU or University of Sydney) in the form of a tax-free scholarship or stipend, if the student is enrolled in a higher degree program. This can be a highly cost-effective way of bringing enthusiastic young people to work on a research project in the hospitals. The pursuit of a research higher degree can be an important step in career development for many health professionals.

BMDH appreciates the advantages that accrue to the hospital when members of our clinician workforce undertake career development through research training. The hospital is committed to supporting its staff to undertake such training, e.g. through part-time work or support of research projects which are embedded in clinical service roles. This enables the



development of a future workforce equipped with research skills and experience. The WSLHD Board also supports staff development through its bursary scheme, and has recognised the valuable contribution of research by supporting staff pursuing these opportunities.

#### Funding for research at BMDH

Funding for research is always keenly sought and is often scarce. In general, the funding of BMDH for clinical activity does not extend to research activity. However, much research can arise from routine clinical activity without needing specific additional funding (e.g. audit activity, descriptive research). Local sources of funding for broader research projects include the Better Foundation, REN and other local philanthropic donors.

Pharmaceutical companies seek hospital partners for the conduct of clinical trials of new therapies (drugs, devices and protocols). These studies provide funds to employ research-focused staff within a clinical department, and often allow the conduct of investigator-initiated projects in parallel with the sponsored studies, while also giving access to cutting-edge therapies.

Left: part of the Molecular Research Laboratory in WSU Clinical School, at Blacktown Hospital.

Centre: the WSU Clinical School and Lecture Theatre.

Right: Kathleen McMillen, Parnita Sharma and Anne Gray, staff in the Peter Zelas Medical Library.

#### Library and information services

As part of WSLHD Library Services, Blacktown and Mount Druitt Hospitals both have professionally staffed libraries. The libraries provide access to high-quality information resources, client-focused services and state-of-the-art physical and online spaces that support teaching and research at our hospitals.

Our library staff can transform the way researchers engage with information, and can provide key resources and services to support researchers throughout their project.

# Improving the health of our community through investigation and innovation



## 1. Culture

- Research translation
- Evidence-based best practice
- Innovation
- Knowledge transfer

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## 2. People Support

- Develop research skill
- Develop research champions
- Develop a BMDH research agenda

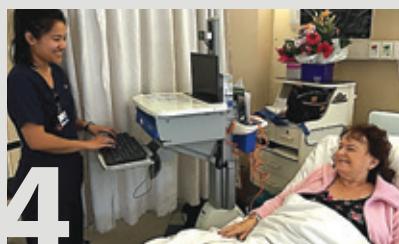
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## 3. Funding

- Centre of Health Research Excellence
- Increased grant success
- Research fellows

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## 4. Information

- Share success
- Public and peer awareness
- Research impact

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## 5. Collaboration

- Multi-disciplinary research
- Multi-organisation research
- Academic partnership

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Former General Manager Sue-Anne Redmond (centre) and staff celebrate the 50th anniversary of Blacktown Hospital.

## 1. Culture

### Establish an institutional research culture

**Research translation | Evidence based best practice | Innovation | Knowledge transfer**

Everyday health care at BMDH should be based on the best available knowledge and research findings. For this to be realised, all our health professionals need to become critical consumers of research, and our organisation needs to become one where research is valued at all levels and integrated into all clinical activity.

Individual clinicians at every level need educational support in research processes. Young investigators require mentors to help them grow in their understanding of research. Our clinical teams, both departmental and multi-disciplinary, need support and encouragement to conduct research projects and have appropriate resources, training and team-level mentoring.

At an organisational level, we aspire to build structures, processes and systems that value and promote research. BMDH will seek stronger links with research partners within WSLHD, and with other LHDs, universities and institutes. Of particular importance are our existing partnerships with WSU, Sydney Health Partners and the Westmead Research Hub.

### Building clinical teams that value research (a BMDH example)

Obesity is a major health problem in Western Sydney. To treat morbid obesity and its complications requires sustainable weight loss. Bariatric surgery is a highly effective treatment strategy to achieve this, but many other treatment approaches (diet, lifestyle modification and drug therapy) can also be employed. Blacktown Hospital has recently been granted substantial funding by NSW Health to establish a new obesity service including funding for 100 bariatric surgical procedures each year, and a large multi-disciplinary clinical and research program.

While this new service is being established, the team will ensure that they incorporate a sophisticated clinical and translational research program and a multi-faceted research agenda. This will involve all team members, our patients and even their families and carers developing a strongly collaborative research culture within the team. The team has already established collaborative relationships with Nepean and Westmead Hospitals and several research institutes. The research efforts span many disciplines, from surgery and hepatology to dietetics, metabolism and psychology.

Because the research and clinical work are integrated, the results will feed back immediately and directly into the clinical management of our patients. Aligning this new clinical program with a strong research program will develop multi-faceted research capacity and provide a platform for future funding applications.

## 1. CULTURE – key areas of strategy and activity

KEY AREA	OBJECTIVE	ACTIVITY/STRATEGY	TARGET MEASURES	SPONSOR/CHAMPION
<b>1. CULTURE</b> Establishing an institutional research culture	<b>1.1 Research is incorporated into the operational goals of all aspects of the organisation</b>	1.1.1 Research is an agenda item for all standing committees	<ul style="list-style-type: none"> <li>• Modify document templates for committee terms of reference and agenda/minutes</li> <li>• Evaluate activity in Research Committee</li> </ul>	BMDH Executive  BMDH Research Committee
		1.1.2 Research performance indicators are established and monitored	<ul style="list-style-type: none"> <li>• Establish a database of grants funded, presentations and publications</li> </ul>	BMDH Research Committee  BMDH Librarian
		1.1.3 Each clinical department has a research plan	<ul style="list-style-type: none"> <li>• Each BMDH department to develop a research plan</li> <li>• Annual departmental reports of research activity highlighting research-based changes to practice</li> </ul>	BMDH Research Committee  Clinical heads of department, researchers, divisional heads
	<b>1.2 Multi-disciplinary teams (MDTs) function as both clinical and research teams</b>	1.2.1 Every MDT has a research plan	<ul style="list-style-type: none"> <li>• Each MDT to develop a research plan</li> <li>• Annual MDT reports of research activity highlighting research-based changes to practice</li> </ul>	BMDH Research Committee  MDTs/researchers
	<b>1.3 Future Research Institute</b>	1.3.1 Plan for a WSLHD/WSU co-funded BMDH Research Institute	<ul style="list-style-type: none"> <li>• Preliminary development of a 'virtual' institute to establish and develop relationships before planning institute building</li> <li>• A signed memorandum of understanding between WSLHD and WSU to establish BMDH Research Institute</li> </ul>	WSLHD Executive  BMDH Executive  WSU (Schools of Medicine, Nursing & Midwifery, Science & Health)



### Better Foundation

A joint initiative of Blacktown City Council, WSLHD and WSU, Better Foundation is dedicated to raising funds and support for BMDH – to provide equipment, enable research programs, and to support professional development and clinical education. Better Foundation is an independent organisation committed to enriching the health and lives of people in our communities by facilitating exceptional patient care and innovative clinical practice in our local hospitals.

This new clinical and research program is set to be an exemplar for other multi-disciplinary clinical teams at BMDH, demonstrating that research can be embedded within the clinical environment.



Dr Scott Read, WSU Senior Lecturer, in the Blacktown Molecular Research Laboratory.

## 2. People and support

### Development of a research workforce and support of research-active staff

#### Develop research skills | Develop research champions | Develop a BMDH research agenda

BMDH will provide support for all health professionals to undertake research, and build their capacity for research involvement. Support will include research education and training, with a focus on skills development, networking, supervision and mentorship of researchers (including research students).

A survey conducted across all WSLHD health professionals in December 2016 confirmed that people who were actively engaged with research, or had completed or were undertaking a research degree, were more confident in conducting research and in translating research findings into practice. We will encourage staff to undertake research training, including research higher degrees, to enhance these skill within our workforce.

Each clinical team at BMDH will be encouraged to identify and support their 'research champions', and to direct resources to support their work.

BMDH will encourage inclusion of students from affiliated institutions in research projects, for example as honours projects or research higher degree projects. This will foster research efforts in clinical teams by providing additional research personnel, building collaborations with academic partners and developing a future research-ready workforce. Supervision of students will occur as a partnership of our health professionals with tertiary institutions, and will focus on research areas of priority to BMDH.

BMDH will develop funding streams for creation of research-focused positions within clinical teams, including positions for research nurses and allied health staff. We will partner with academic institutions to bring additional resources to the clinical environment, facilitating staff to perform research as part of their clinical service role.

## Research-active staff at BMDH



**Dr Gary Gan** (MBBS, FRACP) completed his medical degree in 2009, graduating from the University of New South Wales. He then undertook prevocational and physician training

at Westmead Hospital with numerous commendations. In 2013 he commenced cardiology training at Blacktown Hospital, which he completed in 2015, and was accepted as a Fellow of the Royal Australasian College of Physicians.

Dr Gan is both a dedicated physician and a passionate academic, and has a great interest in clinical research. His enthusiasm for research was sparked in his medical internship working on the early diagnosis and staging of pancreatic cancer. This work led to a publication.

Now, as a cardiologist, Dr Gan's focus is on the mechanisms underlying cardiovascular disease and heart failure. In his research, he uses non-invasive imaging techniques and clinical trials. He has presented his work at the European Society of Cardiology and European Heart Failure Congress. He is a conjoint lecturer with the WSU and has supervised over 25 student research projects.

Dr Gan's commitment to research has led him to pursue a PhD degree which he is undertaking concurrently with his work as a clinician. His thesis is on the identification of novel echocardiographic parameters to help identify early cardiovascular disease in patients with chronic kidney disease.



**Professor Vicki Flood** (MPH, PhD) holds a conjoint appointment as Professor of Allied Health with WSLHD and the University of Sydney. Her role at WSLHD is to build research capacity among allied

health professionals across the LHD. She works closely with a range of disciplines including staff at BMDH.

Prof Flood's own research background is in public health, nutritional epidemiology, nutrition science and dietetics. She also conducts research in longitudinal cohort studies and clinical trials.

WSLHD Allied Health implemented a strategic plan for research in 2017 and elements of this plan have informed this BMDH Strategic Plan. The principles include a focus on translation of research into practice; working in collaboration to conduct multi-disciplinary research; and to communicate the research findings to peers, consumers and the wider population. Initiatives include Kickstarter grants for research, publication and grant-writing workshops, and supporting people to enroll in higher degree research training.



**Dr Caleb Ferguson**  
(RN, BScN, MHlth, PhD) is a Senior Research Fellow at the Western Sydney Nursing and Midwifery Research Centre (WSNMRC) and holds a conjoint appointment

with WSU and WSLHD. Dr Ferguson has over a decade of clinical experience caring for individuals with stroke, cardiovascular and neurological conditions. His research primarily focuses on stroke prevention, management of atrial fibrillation, and digital health. He has methodological expertise in both quantitative and qualitative research, particularly focus groups, survey methods, cohort studies and social media research.

Dr Ferguson is committed to delivering the WSLHD Nursing and Midwifery Research Strategy and building nursing and midwifery research capacity in Western Sydney. Current initiatives of the WSNMRC include research methods masterclasses, lectures from visiting professors, journal clubs, writing for publication and qualitative master class series, and Kickstarter grants. Dr Ferguson is also available to supervise higher degree research (HDR) students.



**Professor Vlasios Brakoulias** (MBBS [Hons], MPsychiatry, PhD, FRANZCP, Cert. Psychotherapies) is a senior staff specialist in Psychiatry at BMDH. Dr Brakoulias heads the new Western Sydney

obsessive-compulsive and related disorders service, which aims to assess and treat people with these disorders as promptly and efficiently as possible. This service is an international leader in research on this topic, with researchers conducting studies locally, and implementing their results in local clinical practice. Dr Brakoulias is passionate about improving mental health in the Blacktown area and he has a strong focus on his local community, having been born and raised in the area. Dr Brakoulias is currently the Editor in Chief of the *Australasian Psychiatry* journal.

## 2. PEOPLE AND SUPPORT – key areas of strategy and activity

KEY AREA	OBJECTIVE	ACTIVITY/STRATEGY	TARGET MEASURES	SPONSOR/CHAMPION
<b>2. PEOPLE AND SUPPORT</b> <b>Development of a research workforce, and support of research-active staff</b>	<b>2.1 Build capacity for clinician involvement in research</b>	2.1.2 Train staff in research skills and methodology to enable them to be 'research ready' e.g. literature reviews, research methods (quantitative, qualitative), statistics, data management, grant writing, ethics proposals and writing for publication	<ul style="list-style-type: none"> <li>Establish links with university partners to support training</li> <li>Establish an annual introductory research skills workshop at BMDH</li> <li>Establish research degree candidate support meetings</li> <li>Instigate a program for research skills development</li> <li>Develop a calendar of research training and education events</li> </ul>	Academics Prof Medicine Prof Surgery Prof Nursing Prof Allied Health BMDH Research Committee  REN
	<b>2.2 Increase the number of higher degrees in research (HDR) undertaken by health staff/clinicians (e.g. Masters of Research, PhD)</b>	2.2.1 Encourage and support staff to undertake HDR	<ul style="list-style-type: none"> <li>Audit of the number of HDR students at BMDH</li> <li>Develop a reporting method for HDR research being undertaken</li> <li>Conduct poll of HDR student needs</li> <li>Establish research education program for HDR students and staff</li> <li>Provide office hub for HDR student use</li> <li>Increase of 50% of health staff enrolled in HDR 2019-24</li> </ul>	Academics Prof Medicine Prof Surgery Prof Nursing Prof Allied Health WSU
	<b>2.3 Increase dedicated research positions within BMDH</b>	<p>2.3.1 Plan for establishment of research time/support staff for research (e.g. Centre of Nursing/ Midwifery )</p> <p>2.3.2 Increase clinical research positions within divisions and departments of BMDH</p>	<ul style="list-style-type: none"> <li>Establish research positions based within BMDH</li> <li>Increase academic appointments with WSU and University of Sydney</li> </ul> <ul style="list-style-type: none"> <li>Build capacity with protected time, with back-fill employment, connected to grant success (Strategy 3)</li> <li>4.0FTE additional research-focused personnel across each clinical division of BMDH</li> </ul>	BMDH Executive  REN  Clinical School Dean (WSU)  Director of Medical Services (BMDH) Divisional Medical and Nursing Directors (BMDH)
	<b>2.4 Support people with multi-institutional academic support (e.g. supervision of hospital staff by university academics)</b>	2.4.1 Increase student involvement in research (e.g. honours projects and MD program)	<ul style="list-style-type: none"> <li>50% increase in the supervisor pool (primary and associate) of HDR students.</li> <li>Establish HDR contact lists</li> <li>HDR Research Student Association/ peer support group formed.</li> <li>Track student involvement in research activities based at BMDH</li> </ul>	Academics Prof Medicine Prof Surgery Prof Nursing Prof Allied Health

# 3



Mt Druitt Hospital Expansion Project (Picture: Kane Construction).

## 3. Funding

### Attraction of funding and resources

#### **Centre of Health Research Excellence | Increased grant success | Research Fellows**

Health and medical research doesn't 'just happen'. It takes careful thought and great energy, time and resources. Since many of our researchers are busy clinicians, additional resources (workforce and supplies) are needed to undertake research projects.

The ability to attract funding for our research is essential to the success of our research teams, to enable them to answer important health and health service questions. BMDH aspires to being competitive for research funding at local, state, national and international levels. Highly competitive research grant schemes are a principal source of research funding, and provide necessary research staff, equipment and materials required for research. They are, however, very hard won.

While these high-level grants (e.g. NHMRC and Australian Research Council) are a principal metric of

research activity and success, in practical terms, other sources of research funding must be found as well, such as philanthropic donations, and collaborations with industry (especially pharmaceutical trials), non-government agencies, such as the Heart Foundation and Cancer Council and community groups such as Lions and Rotary.

### Funding story

In Blacktown Hospital's busy obstetric service, more than 500 women each year develop the pregnancy complication of gestational diabetes (GD). Fortunately, with appropriate treatment, a healthy baby and mother result in nearly every case. A specialised clinic provides approximately 80 consultations every week and these patients have been willing participants in several landmark clinical trials, including the Australian Carbohydrate Intolerance Study and Metformin in Gestational Diabetes Trial, which were published in the prestigious *New England Journal of Medicine* and have had a major impact on modern pregnancy care.



Planning image – Blacktown Expansion Stage 2, Acute Services Block.

Currently the GD clinic is participating in three international multi-centre trials of diabetes management in pregnancy. This is supported through grants from NHMRC (Australia), the Canadian Institutes for Health Research and from Novo Nordisk Pharmaceuticals. This allows the employment of two research midwives who work directly in the Blacktown Hospital Antenatal Clinic to keep the projects moving, and also contribute to patient care and staff education.

Additional projects in the GD clinic have recently been funded by Diabetes Australia, REN and local philanthropic donors. This busy clinical service integrates research with clinical care, with our patients being the direct beneficiaries. It also creates a story to open doors to funding opportunities.

### 3. FUNDING – key areas of strategy and activity

KEY AREA	OBJECTIVE	ACTIVITY/STRATEGY	TARGET MEASURES	SPONSOR/CHAMPION
<b>3. FUNDING</b> <b>Attraction of funding and resources</b>	<b>3.1 Identify research funding sources, and generate new ones</b>	3.1.1 Integration with the Better Foundation in fundraising activities	<ul style="list-style-type: none"> <li>Participate with Better Foundation in Quarterly community and interest group research meetings and presentations</li> </ul>	Better Foundation REN Researchers, Academic units
		3.1.2 Promote and foster consumer and community engagement with BMDH research	<ul style="list-style-type: none"> <li>Outreach meetings and presentations by researchers in community setting outside BMDH (at clubs and community centres)</li> <li>BMDH research website with fresh research stories</li> <li>Involve consumer groups in research planning</li> </ul>	BMDH Research Committee BMDH corporate communications Researchers Better Foundation
		3.1.3 Identify and develop relationships with Philanthropic funders and trusts	<ul style="list-style-type: none"> <li>Identify sources of potential philanthropic funding</li> <li>Facilitate at least 5 applications per year to various funding sources for specific projects</li> </ul>	BMDH corporate communications Better Foundation Researchers
		3.1.4 Develop industry partnership to support collaborative research groups	<ul style="list-style-type: none"> <li>Develop new strategic partnerships with commercial research organizations and key industry groups</li> </ul>	REN Researchers
	<b>3.2 Each division to have one Category 1 or 2 grant in the next 5 years</b>	3.2.1 Support active research groups to obtain research funding	<ul style="list-style-type: none"> <li>Identify top 5 research groups, teams, departments</li> <li>Actively match research projects to funding opportunities and donors</li> <li>Teach grant-writing skills</li> </ul>	BMDH Research Committee Better Foundation REN
		3.2.2 Build partnerships with strong WSU health research groups by providing access to patients.	<ul style="list-style-type: none"> <li>Identify WSU research groups with interests similar to BMDH research groups</li> <li>See also Information (4.3.1) and Collaboration (5.1.2)</li> </ul>	BMDH Research Committee Academics
	<b>3.3 Increase grant and clinical trials funding</b>	3.3.1 Identify and promote grant funding opportunities	<ul style="list-style-type: none"> <li>Advertise grant availability through email newsletters</li> </ul>	REN BMDH Research Committee Better Foundation
		3.3.2 Develop relationships with research-active pharmaceutical companies and clinical research organisations	<ul style="list-style-type: none"> <li>50% increase in clinical trials by BMDH departments by 2024</li> </ul>	REN Clinical Trials Manager Researchers
		3.3.3 Excess funds from pharma-sponsored trials to be directed to investigator-driven research	<ul style="list-style-type: none"> <li>5 investigator-initiated projects funded from pharma-generated income</li> </ul>	Researchers



## 4. Information

### Dissemination of information and research outcomes

#### Share success | Public and peers awareness | Research impact

Research aims to generate knowledge, but knowledge is only valuable if it can be shared and implemented. Our research plan addresses the dissemination of the learning gained from research, and communication of our work to our most important audience, the population of our region and local community.

Dissemination of research information can occur locally, or to the wider clinical and scientific community through national and international conferences and peer-reviewed scientific journal publication. Importantly, locally derived research outcomes are often directly translated into improvements in clinical care for our patients at BMDH.

BMDH will develop strategies for communication of research activity and outcomes which will include staff meetings, seminars, electronic and print communication and public dissemination of our work. Results of our work will be communicated to peers and consumers through scientific publications, conference communications and changes in local policy and practice.

It is vital that our patients and local community become more aware of the impact our research has on the treatment we deliver, and how it ultimately improves the lives of our patients. We will communicate our research to our local community through public seminars; print, electronic and social media; and a BMDH research website. Consumer engagement throughout the process will be encouraged for all clinical research.

## Information story

### Liver Research Group – Prof. Golo Ahlenstiel and Dr Scott Read

Chronic liver inflammation (hepatitis) is caused through viral infection and fatty liver disease, and can result in liver cirrhosis, liver failure and liver cancer. We have identified and published, in the prestigious scientific journal *Nature Genetics*, research showing that certain genetic variations in the gene of interferon lambda 3 can affect the clearance of hepatitis C virus from the body. We also found that once chronic hepatitis has been established, these same genetic variants can drive chronic inflammation and progression to cirrhosis. This research was published in *Nature Communications*.

Our findings led us to file a patent for the diagnostic identification of these genetic variants of the interferon lambda 3 gene and to develop a diagnostic scoring system (FibroGENE) that predicts a patient's risk of progressive liver damage in chronic hepatitis, research also published in one of the top international liver journals.

Recently we published significant work identifying zinc as a natural inhibitor of interferon lambda 3 described above and showing that zinc also has direct antiviral action. These findings were recently summarised in an international review article.



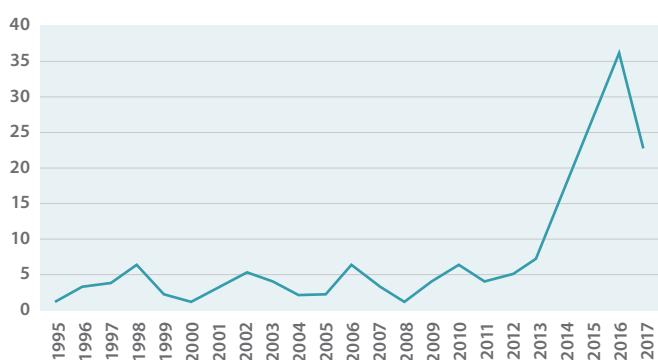
Allison Sigmund (clinical trials co-ordinator), Susan Hendon and Anna Bubb (research midwives), and Dr Anna Duke (Endocrinologist) – Diabetes in Pregnancy research team.

Our group continues to study the role of interferons in chronic liver inflammation and what role the gut microbes might play in liver disease. Dr Scott Read is leading the development of a 'gut organoid model' at Blacktown Hospital to study the interplay between the gut and the liver and understand why some patients have faster disease progression or poorer treatment responses.

### Information story – BMDH research publications

An effective way to ensure that the outcomes of research are dispersed widely among the research and clinical community is to publish the results in peer-reviewed medical and scientific journals. Since the development of the new clinical school at Blacktown Hospital in 2011 and the increased academic activity of WSU on site, there has been a seven-fold increase in the publication output of BMDH (see graph below).

### BMDH publications



Many of these publications have been in international, peer-reviewed journals of a high standard, and our publication output has been across a wide variety of medical disciplines: anaesthesia and intensive care, cardiology, cancer and oncology, diabetes and endocrinology, forensic medicine and pathology, gastroenterology, geriatrics, infectious diseases, neurology and neurosciences, orthopaedics, pharmacology, paediatrics, psychiatry, radiology and medical physics, and surgery. The output reflects the wide range of our research activities. We intend BMDH research to continue on this upward trajectory as research is embedded into the culture of this rapidly expanding hospital precinct.

## 4. INFORMATION – key areas of strategy and activity

KEY AREA	OBJECTIVE	ACTIVITY/STRATEGY	TARGET MEASURES	SPONSOR/CHAMPION
<b>4. INFORMATION</b> Dissemination of information and research results	<b>4.1 Develop research metrics for BMDH</b>	4.1.1 Create a register of active projects	<ul style="list-style-type: none"> <li>Establish and maintain database of research activities, including projects, publications, presentations, conference abstracts, HDR enrolment and completion</li> <li>Establish a database of BMDH research publications</li> </ul>	BMDH Research Committee REN Library  Librarian
	<b>4.2 Increase awareness of BMDH research</b>	4.2.1 External <ul style="list-style-type: none"> <li>Create a BMDH research brand internally and externally</li> <li>Workshops, seminars, information evenings with community, GPs, pharmaceutical industry, WSU, Westmead Research Hub partners on new BMDH/WSU grounds</li> </ul>	<ul style="list-style-type: none"> <li>Develop a BMDH research website</li> <li>Develop a BMDH 'research centre' space within BMDH facilities</li> <li>Develop BMDH research social media strategy (LinkedIn, ResearchGate, Facebook, Twitter)</li> <li>Quarterly community and interest group research and diseases-specific presentations by researchers at BMDH</li> </ul>	BMDH Research Committee  BMDH Research Committee/REN  Corporate Communications REN  Academics Researchers Better Foundation
		4.2.2 Internal <ul style="list-style-type: none"> <li>Organisational awareness: BMDH research stories to have a higher profile through the use of diverse media</li> <li>Better integration with WSU School of Medicine, THRI and facilities such as Health Sciences, IT etc</li> <li>Workshops/seminars/information evenings with hospital staff</li> </ul>	<ul style="list-style-type: none"> <li>Install TV displays featuring research and other good news stories</li> <li>Submit regular BMDH research stories in <i>The Pulse</i></li> <li>See also Collaboration (5.3.1)</li> <li>Establish a research grand rounds or research seminar series</li> </ul>	BMDH Executive Better Foundation  REN  Academics BMDH Research Committee
		4.2.3 Establish a local 'translation academy' where research findings are targeted for local and LHD implementation	Disseminate local research findings to relevant clinical departments to inform policy and procedures	BMDH Research Committee



## 5. Collaboration

### Fostering research collaborations in WSLHD, WSU and beyond

#### Multi-disciplinary research | Multi-organisational research collaboration | Academic partnership

Research is increasingly multi-disciplinary, cross-organisational and international. BMDH will develop strategies to enhance the research activity of our multi-disciplinary clinical teams locally and expand our research partnerships and multi-centre collaborative projects across WSLHD.

We will continue to promote collaborative research with our existing academic partners, universities and their affiliated research institutes, Sydney Health Partners, SPHERE and the Westmead Research Hub, while expanding our collaborations, including those with industry and pharmaceutical companies.

Our research collaborations will provide access to the latest research technologies and expertise, assist

us to upskill our research staff, and provide access to additional research funding and research students. This will enable us to train the next generation of health and medical researchers.

We will develop a fertile environment for research collaboration through regular local research meetings, our research grand rounds, seminars and cross-disciplinary conferences. These will include speakers from our local research community and research and academic partners.

#### Collaboration story

Dr Vita Birzniece is a Senior Lecturer in Endocrinology and Metabolism at WSU, a fellow of the WSU THRI and a clinical researcher at the Garvan Institute of Medical Research with a conjoint Senior Lecturership at UNSW.



Staff in the newly expanded operating theatres at Mt Druitt Hospital.

Dr Birzniece heads a metabolic research group at the Blacktown Clinical School and is establishing a network of collaborative research projects within WSLHD in endocrine, metabolic and cancer research. She has a particular interest in the hormonal control of metabolism and cancer development. She brings endocrinology, oncology and other specialties together and is a partner in a range of multi-centre clinical trials implementing exercise and diabetes drugs to suppress cancer progression. She is also a principal coordinating investigator in the multi-disciplinary research program that surrounds the bariatric surgery and lifestyle management service at Blacktown Hospital.

Dr Birzniece's collaborations range from those with local clinicians and researchers at Blacktown and Westmead Hospitals, through the University of Sydney, Western Sydney University, UNSW and University of Western Australia to the University of Surrey (UK) and Aarhus University in Denmark. Through these and many other research collaborations by Blacktown-based researchers, we are able to answer important questions and have international influence and impact.

Blacktown Hospital Molecular Research Laboratory has been established in the WSU Clinical School with a variety of laboratory techniques available for support of clinical research. Dr Haleh Shahidipour has capabilities in genomic analysis, cell culture, immunoassay and chromatography methods. The staff aim to undertake research in collaboration with BMDH clinical departments.

Examples of their projects include work with the mental health team to identify genetic determinants of side effects in anti-psychotic drug treatments, collaboration with the toxicology and emergency departments on adverse drug reactions, a study of genetic predisposition to diabetes and obesity, and collaboration with intensive care to establish innovative real-time monitoring of antibiotic drug levels.

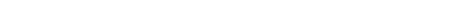
The scientists' positions are funded by WSLHD, and the laboratory is housed in the WSU building providing laboratory and clinical research infrastructure. The projects are proposed by clinician collaborators – a picture of true collaboration to establish research excellence at BMDH. Collaboration also occurs with the genomic analysis facilities at the Westmead Research Hub, the National Measurement Institute and other external bodies. The laboratory welcomes approaches from clinical teams at BMDH to develop new collaborative projects.



Dr Haleh Shahidipour.

## 5. COLLABORATION – key areas of strategy and activity

KEY AREA	OBJECTIVE	ACTIVITY/STRATEGY	TARGET MEASURES	SPONSOR/CHAMPION
<b>5. COLLABORATION</b> <i>Fostering research collaborations in WSLHD, WSU and beyond</i>	<b>5.1 Build strong research partnerships</b>	5.1.1 Build contributions to co-funding of projects, positions, scholarships, etc	• 50% increase in collaborative externally funded projects	Academics BMDH Research Committee REN
		5.1.2 Target WSU research groups to partner with	• Identify WSU research groups with common research interests to BMDH • 50% increase in WSU partnered projects (including joint PhD projects)	WSU Academics
		5.1.3 Conduct regular (e.g. bi-annual) research meetings between WSLHD and academic institutions (WSU, USyd), with invited speakers from two organisations e.g. journal clubs, workshops	• Establish twice-yearly research meetings with university partners • Establish medical, nursing, allied health and multi-discipline journal clubs. • Establish a BMDH ‘Hospital Week’	BMDH Research Committee Researchers
		5.1.4 Facilitate BMDH researchers to register for postgraduate degree programs at Universities (WSU) – for professional development	See also People Support (2.2)	Academics
		5.1.5 Facilitate the networking opportunities between BMDH researchers and clinicians	• Run quarterly researcher networking functions e.g. organise wine & cheese nights, student BBQ	BMDH Research Committee
	<b>5.2 Develop WSLHD-wide research projects</b>	5.2.1 Network research activities with Medical, Nursing and Midwifery and Allied Health staff of Westmead and Auburn Hospitals.	• 50% increase in multi discipline research projects	Academics BMDH Research Committee
		5.3.1 Nominate Medical, Nursing and Midwifery and Allied Health representatives to relevant interdisciplinary research committees of PHNs	• Establish a BMDH ‘Research Leads’ list • Run annual ‘Research Leads’ meeting (in conjunction with research forums)	BMDH Research Committee
	<b>5.3 Build research relationship with Primary Health Network (PHNs)</b>	5.3.2 Invite PHN to present research	• Establish twice-yearly research meetings with PHN research partners	
		5.4.1 Facilitate collaborations with industry and pharmaceutical partners to develop multi-disciplinary collaborative research project with BMDH researchers	• Establish twice-yearly research meetings with Industry and pharmaceutical partners • BMDH departments develop at least one HDR project that can be advertised and seek funding through external sources	BMDH Research Committee BMDH Departments Academics REN
		5.4.2 Facilitate BMDH staff to organise in-house research activities/training in industries and pharma companies.	• Conduct investigator training by clinical research organisations and pharma training • Training in good clinical practice and intellectual property	REN WSU



## Our vision for the future

### Research infrastructure – a new research institute

BMDH is currently in its infancy as an academic medical institution. Other emerging teaching hospitals have found that a critical enabler of growth in research activity is the establishment of a research institute. Initially this might exist as a virtual institute – a functional collaboration of research teams who share knowledge and resources.

Our longer-term goal will be the construction of a dedicated research building on the BMDH hospital campuses. This would be the hub for all health-related research activity within BMDH and our surrounding community. This building would house important infrastructure such as laboratories, computer facilities and staff accommodation. Additionally, it would be a home for experts in disciplines such as epidemiology, public health, biostatistics and health informatics. These disciplines will greatly enhance the capabilities

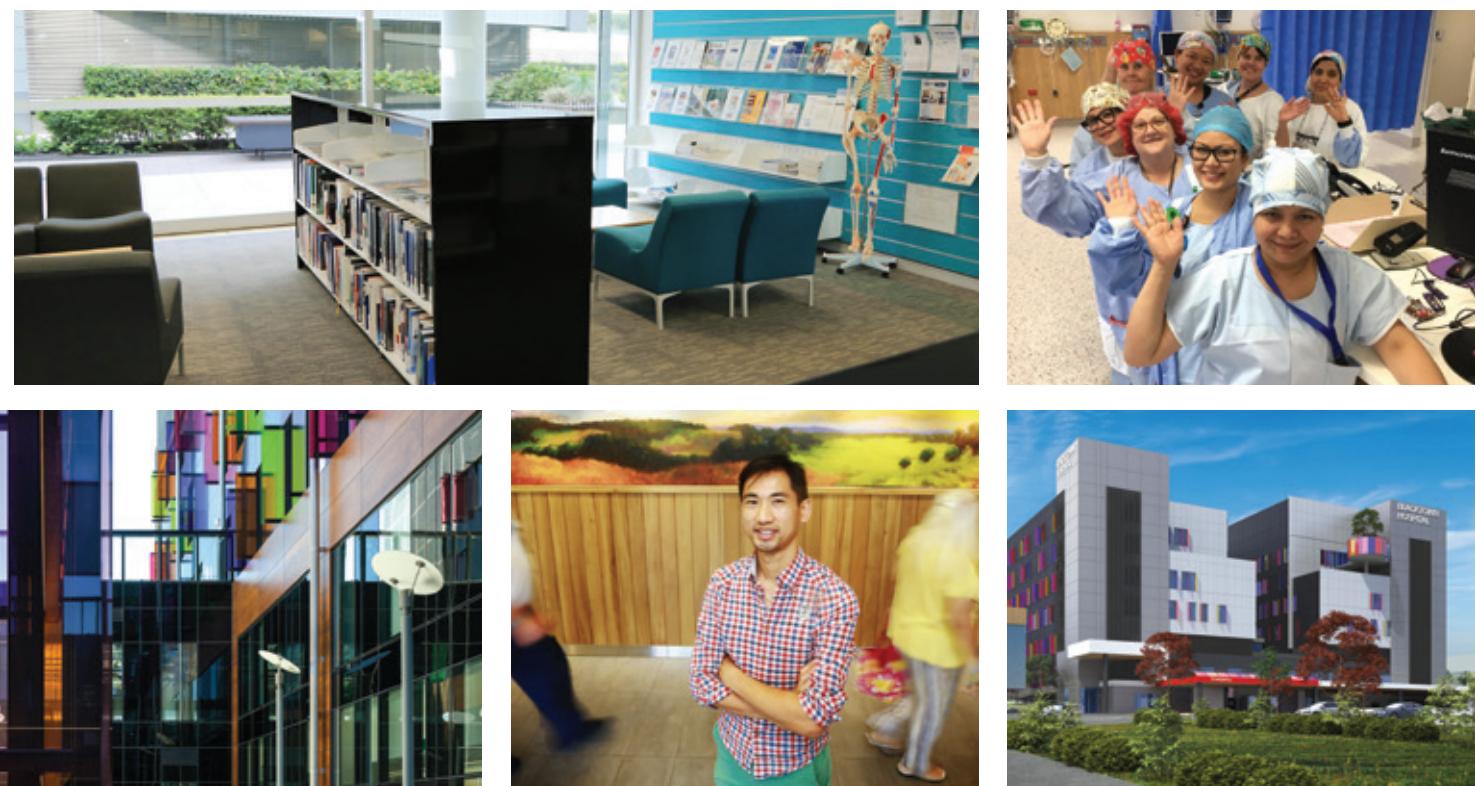
of all research teams at BMDH. We envisage a BMDH Research Institute being a hub for BMDH and an important part of a network of research facilities across Western Sydney.

BMDH Research Institute will serve a critical function of connecting a range of scientists and clinicians to collaborate on innovative research work. BMDH will provide our Institute with direct access to clinicians, patients and the community. Furthermore, a Research Institute building will be a visible physical embodiment of the importance of research in modern health care.

Realisation of the goal to build a Research Institute will likely be a decade-long project, and will require substantial resources. However, the first step in such a journey is to envisage the objective. This is now underway.

### Development of academic units

At this stage in our history we are transitioning from being a clinical service institution to becoming an academic health care facility. This process will be



accelerated by development of lead academic units that have a critical mass of clinical activity, research productivity and education and training capability. Academic units typically embed staff who are research and/or teaching-focused within a strong clinical team, and develop special interests that are relevant to the health needs of their community. Once established, academic units are key enablers of research activity. Their expertise will ideally spread to other teams through collaboration and partnership. Academic units are also the focus for development of training positions and attract education and training accreditation by specialist colleges and universities.

An academic unit requires resources and funding beyond that of a standard clinical service. Sources of funding include WSLHD, universities, government bodies such as the NHMRC, non-governmental organisations and foundations, industry and private philanthropy. BMDH will develop resources and partnerships that enable development of key academic units over the lifetime of this strategic plan.

### **Our research visible to all, influencing clinical practice**

BMDH will develop a communication plan which will make our research work visible to all staff, our partners and our community. A fundamental part of this will be an electronic communication platform – including a website and social media presence. We will develop a profile in traditional media (print and electronic), and we will continue to grow the volume and impact of publication by our researchers in the scientific literature. An important aspect of this visibility will be branding of work as having originated at our hospitals. It is important that all researchers identify themselves as having an affiliation with BMDH, in addition to any other institutional alignments (e.g. a university).

The ultimate value of health research lies in its ability to improve the care of patients, and the health of our community. BMDH will showcase the outcomes of its research activity, and will close the knowledge loop by bringing research advances back to patient care. Clinical leaders will constantly strive to incorporate research evidence into care plans and service protocols.

# Appendices

## Key research leaders at BMDH

**Dr Penny Abbott**, General Practice, WSU ([p.abbott@westernsydney.edu.au](mailto:p.abbott@westernsydney.edu.au))

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## Table of Abbreviations

<b>BMDH</b>	Blacktown Mount Druitt Hospitals
<b>DEXA</b>	Dual Energy X-ray Absorptiometry
<b>GD</b>	Gestational diabetes
<b>HDR</b>	Higher Degree Research
<b>HREC</b>	Human Research Ethics Committee
<b>MDT</b>	Multi Discipline Teams
<b>PHN</b>	Primary Health Networks
<b>REN</b>	Research and Education Network
<b>RGO</b>	Research Governance Office
<b>THRI</b>	Translational Health Research Institute
<b>WSLHD</b>	Western Sydney Local Health District
<b>WSNMRC</b>	Western Sydney Nursing & Midwifery Research Centre
<b>WSU</b>	Western Sydney University



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