THE WOMEN'S RESEARCH REPORT

Improving the lives of this generation, and the next

2019

the women's
the royal women's hospital

CONTENTS

2019 HIGHLIGHTS

228
PUBLICATIONS

10
RESEARCH CENTRES

76
CLINICAL TRIALS

3,289
PATIENTS RECRUITED

104
RESEARCH STUDENTS

$26.7M
GRANTS HELD
(Including $14.9m NHMRC/MRFF grants)

$9.3M
GRANTS SPENT
(Including $3.8m NHMRC/MRFF grants spent)

THANKS AND ACKNOWLEDGEMENTS

ACKNOWLEDGEMENT OF TRADITIONAL OWNERS

The Royal Women's Hospital acknowledges and pays respect to the peoples of the Kulin Nations, the traditional owners of the country on which our sites at Parkville and Sandringham stand and we pay our respects to their Elders past, present and emerging.

The Women's is committed to improving health equity for Aboriginal and Torres Strait Islander women, children and families and we recognise the fundamental significance of cultural traditions, beliefs and connection to country for the health and wellbeing of Aboriginal and Torres Strait Islander peoples.

We acknowledge the importance of kinship and family structures as a cohesive force that binds Aboriginal and Torres Strait Islander peoples and we recognise their cultures, community connection, and self-determination as critical protective factors for wellbeing.

THANKS TO OUR SUPPORTERS

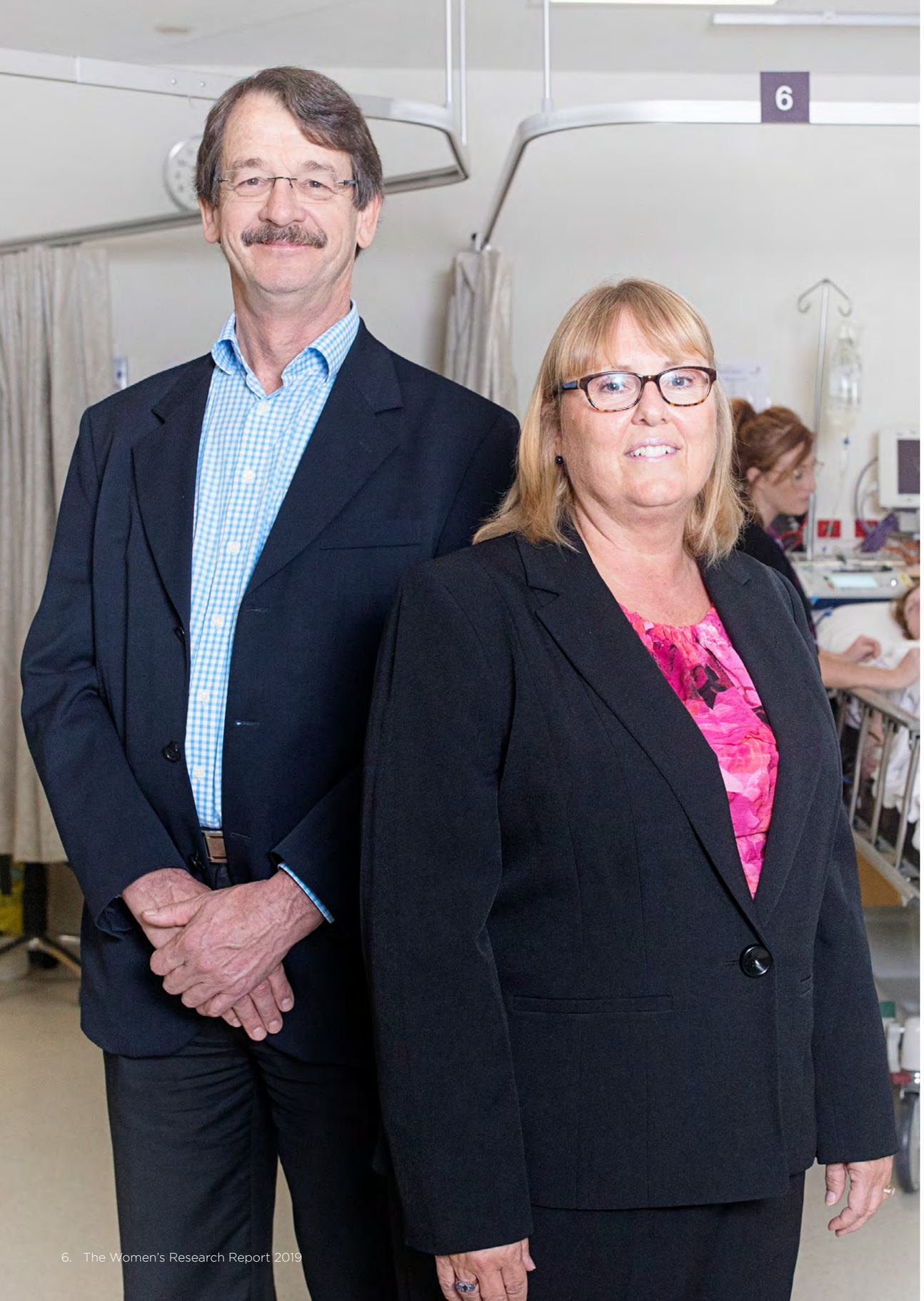
As a public hospital, the Women's relies on the generous support of donors to fund vital clinical research, including many of the initiatives highlighted in this report.

We offer heartfelt thanks to our community of supporters, donors, charitable trusts and patients past and present. Their generosity helps ensure women and babies – of this generation and the next – can receive world-leading, evidence-based care.

If you would like to support our research efforts, please contact our Foundation on (03) 8345 2954 or foundation@thewomens.org.au

THANKS TO OUR CONTRIBUTORS

We would like to sincerely thank all those who contribute to our research efforts – from the many different funding agencies; our research staff, collaborators, and supporters; to our dedicated Human Research and Ethics Committee members. Most importantly, we extend our gratitude to the patients and families who participate in our research. Your contributions make progress, hope and change possible.



FOREWORD

We're pleased to report that research at the Royal Women's Hospital continued to go from strength to strength in 2019 – with more trials, more funding and more students and researchers involved than ever before.

With our 10 Research Centres exploring the full spectrum of women's and newborn health, our researchers continued to make new discoveries and translate their findings to improve clinical care.

At the heart of their efforts are the women and babies requiring our specialist maternity, neonatal, gynaecology, oncology, mental health, reproductive and sexual health, allied health and social support services.

We are incredibly proud of our research teams for their commitment to improving the lives of this generation of women and newborns, and the next.

IN 2019, THE WOMEN'S 10 RESEARCH CENTRES WERE COLLECTIVELY AWARDED MORE THAN $26 MILLION IN COMPETITIVE GRANTS. WE PUBLISHED 228 PEER-REVIEWED MEDICAL PAPERS, SUPERVISED 104 STUDENTS AND CONDUCTED 76 CLINICAL TRIALS INVOLVING MORE THAN 3,200 PARTICIPANTS.

While our research leads the way in many areas, it also aligns with and supports larger national and international goals – such as the global push by the World Health Organization to eliminate cervical cancer and the Australian Government focus on finding better treatments for endometriosis and ovarian cancer.

Under the leadership of globally-admired clinicians, academics and experts, our research centres are well placed to continue leading discoveries and translating their findings to a range of settings – from consult rooms and patient bedsides to public health policy and national and international prevention programs.

The Women's attracts funds for research activities from a range of government and non-government sources, including academic and philanthropic grants. We are incredibly thankful to all those who made our research possible in 2019, including many donors and philanthropic organisations.

With commercialisation a key driver of innovation, we were also excited to explore commercialisation opportunities for a number of medical devices and diagnostic technologies in 2019. These opportunities, if realised, can help fund more clinical trials, fast track the translation of lifesaving treatments and impact clinical care on a global scale.

The rollout in 2020 of an electronic medical record system across the Women's, Royal Melbourne Hospital, Peter MacCallum Cancer Centre and the Royal Children's Hospital also has the potential to transform our research output. In addition to delivering better patient outcomes, the high-quality data available will deliver new insights and open up new areas for exploration and collaboration.

This report is a snapshot of some of the highlights from 2019. As the impact of our research continues to grow, we are pleased to look back and celebrate the year that was.

To everyone working hard to improve the lives and futures of women and newborns through research – thank you – we celebrate your tremendous efforts and commitment.

Dr. Sue Matthews
Chief Executive, The Women's

Professor Peter Rogers
Director of Research

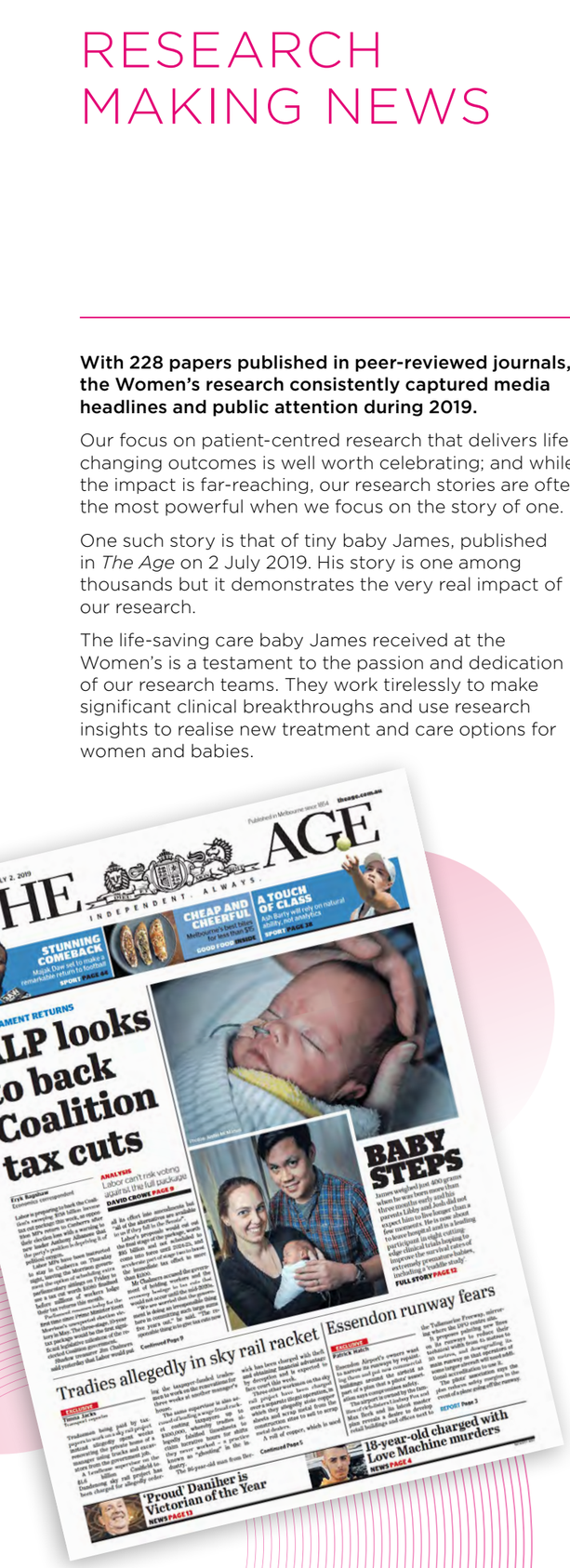
RESEARCH MAKING NEWS

With 228 papers published in peer-reviewed journals, the Women's research consistently captured media headlines and public attention during 2019.

Our focus on patient-centred research that delivers life-changing outcomes is well worth celebrating; and while the impact is far-reaching, our research stories are often the most powerful when we focus on the story of one.

One such story is that of tiny baby James, published in *The Age* on 2 July 2019. His story is one among thousands but it demonstrates the very real impact of our research.

The life-saving care baby James received at the Women's is a testament to the passion and dedication of our research teams. They work tirelessly to make significant clinical breakthroughs and use research insights to realise new treatment and care options for women and babies.



JAMES DEFIES ODDS AFTER BEING BORN THE SIZE OF 22-WEEK-OLD BABY

By Melissa Cunningham, *The Age*

When James was born, he was so tiny he could fit into the palm of his father's hand.

Weighing a little over 400 grams - the size of a 22-week-old fetus - he came into the world on April 4 this year, more than three months earlier than expected, at just 26 weeks.

"The odds he would survive for the first 24 hours were incredibly thin," his mother, Libby Ward, 32, said. "It was devastating when we found out how tiny and vulnerable he would be."

James is among the smallest babies born at the Royal Women's Hospital in Melbourne, but research is showing the chances of survival for premature babies like him are steadily improving with the right care.

Every year about 300,000 babies are born in Australia and of those just 0.4 per cent weigh less than one kilogram at birth. Half of babies born at 23 weeks will die very quickly. In the late 1970s, only one in four babies born under one kilogram survived, but this has risen to about 75 per cent.

During Libby's routine 20-week scan, the obstetrician found that her placenta had stopped growing.

Libby and her husband Josh had to decide if they would allow doctors to resuscitate their son - who was likely to be born unable to breathe on his own.

"We were told the chances of James being born with severe disability or dying shortly after birth were significant and we were initially firm that we didn't want to proceed with CPR or intensive care," Josh said. "We decided that when James was born, we would wrap him in a blanket and hold him. For the brief moment he was alive he would know love."

But the results of recent study at the hospital led the couple to have a change of heart.

The study of more than 750 extremely premature babies found that while babies born before 28 weeks are at much greater risk of death or long-term disability than those born at full term, most can survive if they are given intensive care.

It also found a premature baby's likelihood of survival improved each day and most profoundly in the first week of their life. Their chances of growing up healthy were good: 83 per cent of premature babies that went home with their parents recorded no major long-term disability, compared to 97 per cent of children born full-term.

"The results of the study gave us hope in a really hopeless situation and we saw that James had a slim but fighting chance," Libby said.

James was born flushed and red.

When doctors did an Apgar score on James, which is used to measure the health of a newborn, he scored one out of 10.

"It was terrifying because he didn't look like a baby," Josh said. "He looked more like a picture of a fetus. I thought there was no way that he could survive this."

He would spend almost the next two months in an incubator. Despite immense odds, he thrived.

He now weighs almost two and half kilograms and it is hoped he will go home at the end of the week.

Due to the complexity of his case, James is a leading participant in eight cutting-edge clinical trials into babies like him, including a "cuddle study", which examines whether health outcomes can improve for premature babies who are given skin to skin contact with their parents each day.

Parents are often left distressed following extremely premature births and this also potentially affects the child's development, neonatologist Jeanie Cheong said.

"It sounds simple, but it's pretty profound in terms of the experience for both the babies and their parents during such a vulnerable time," Associate Professor Cheong said.

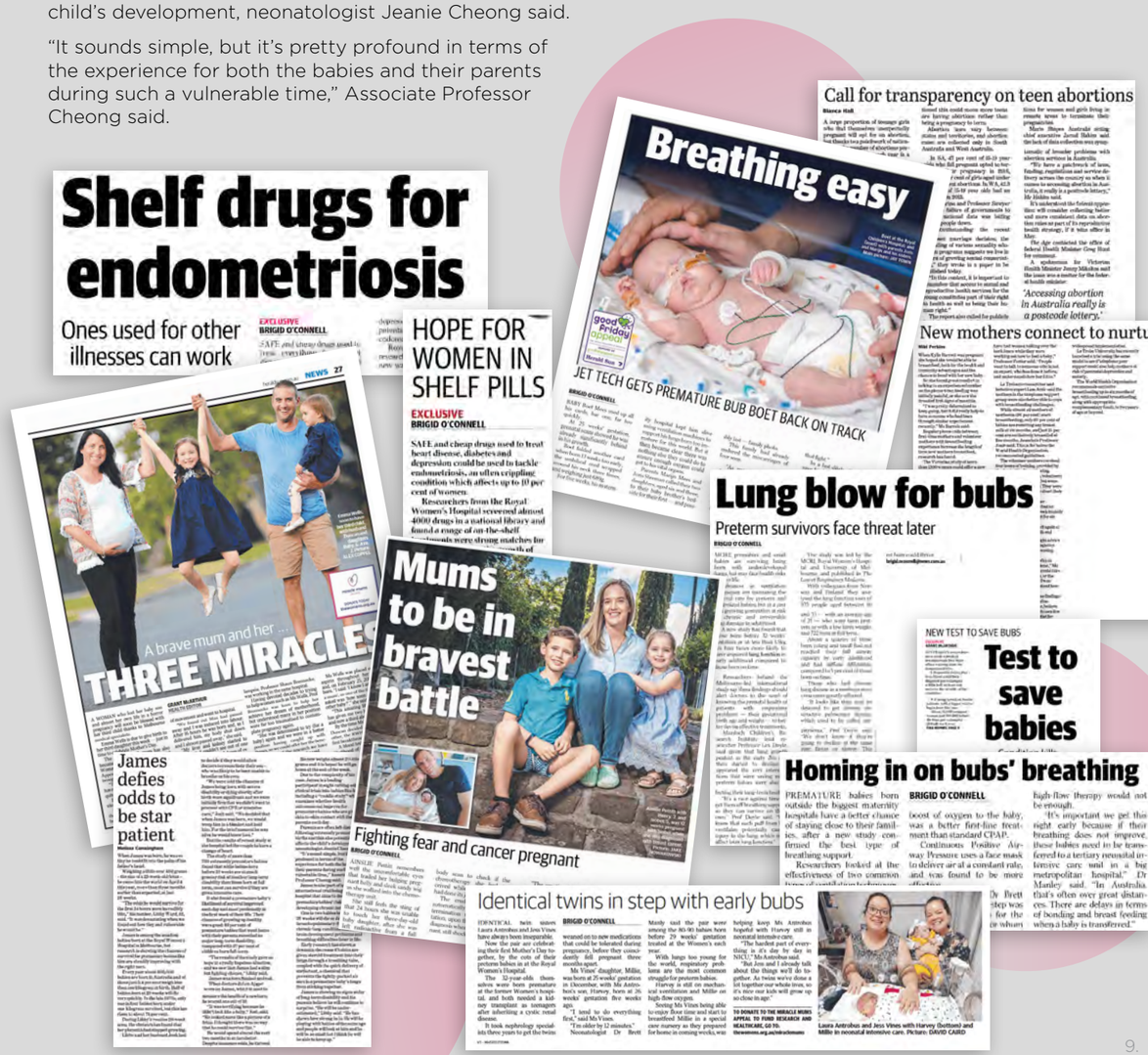
James is also part of an international trial being led by the hospital that aims to decrease premature babies' risks of developing chronic lung disease.

One in two babies born before 28 weeks will die or develop bronchopulmonary dysplasia, a chronic lung condition, associated with brain development problems and breathing difficulties later in life.

Early research has shown a dramatic decrease if babies are given steroid treatment into their lungs through a breathing tube, coupled with the quick delivery of surfactant, a chemical that prevents the tightly-packed air sacs in a premature baby's lungs from sticking together.

James is showing no signs so far of long-term disability and his parents believe he will continue to surprise people.

"He will be underestimated," Libby said. "He has shown how strong he is. He will be playing with babies of the same age and people will look at him and he will be so small but I think he will be able to keep up."



COMMERCIALISATION, PARTNERSHIPS AND INDUSTRY ENGAGEMENT ACCELERATING TRANSLATIONAL RESEARCH

Researchers at the Royal Women's Hospital are recognised as national and international leaders in their fields. With this recognition comes requests and opportunities to work with industry partners to translate and commercialise our research findings.

We continue to strengthen our capabilities in commercialisation and increase engagement between researchers and industry with the goal of increasing partnerships with biotech, pharma and investment industries to accelerate our innovative research.

The objective of this strategic direction is to increase research translation, culminating in improved health outcomes and better productivity.

The Commonwealth Government's Medical Research Future Fund (MRFF) provides an important new avenue for attracting further research investment from commercial partners, and a number of Women's researchers have already been successful with MRFF funded applications.

The Women's provides an environment where health professionals and scientists work side by side, allowing discovery, translational and clinical research to be components of the same research project.

Commercialisation, partnerships and industry engagement have gained momentum over recent years, with Women's researchers working on numerous projects with industry partners.

A SNAPSHOT OF PARTNERSHIP PROJECTS

PROJECT	AIM	PARTNERS	LED BY
Neonav device	Help medical staff more accurately place catheters in the veins of extremely premature and ill term babies	Navi Medical Technologies via Australian Government Department of Industry, Innovation and Science; Victorian Medical Research Acceleration Fund	Associate Professor Christiane Theda, Neonatologist, Newborn Research Centre
Respiratory monitoring device	Improve monitoring of oxygen levels in babies on non-invasive respiratory support	Ventora Medical	Associate Professor Christiane Theda, Neonatologist, Newborn Research Centre
Diagnostic tests for sexually transmitted infections (STIs)	Improve/develop new testing for STIs *Mycoplasma genitalium* and *Neisseria gonorrhoeae*	SpeeDx via the Victorian Medical Research Acceleration Fund	Professor Suzanne Garland (Director) and Dr Gerald Murray (Senior Scientist), Centre for Women's Infectious diseases
Treatment of bacterial vaginosis	Develop a novel treatment for bacterial vaginosis using a locally manufactured product derived from bovine milk	Metradora Therapeutics and Melbourne Sex Health Centre	Professor Suzanne Garland (Director) and Dr Gerald Murray (Senior Scientist), Centre for Women's Infectious diseases
Monitoring cervical cancer	Monitor the effectiveness of the Australian cervical cancer vaccine programme, including human papillomavirus (HPV) vaccination coverage and factors associated with vaccination uptake	Merck Sharp & Dohme	Professor Suzanne Garland (Director) and Dr Gerald Murray (Senior Scientist), Centre for Women's Infectious diseases
Prognostic test for preterm labour	Develop a mid-gestation prognostic test to help prevent preterm labour	Carmentix and University of Melbourne	Associate Professor Harry Georgiou, Principal Research Fellow, and professor Shaun Brennecke AO (Director) Pregnancy Research Centre
Treatment of menopause symptoms following breast cancer	Investigate pharmaceutical treatments of vasomotor symptoms (hot flushes) following breast cancer	QUE Oncology Pty Ltd	Professor Martha Hickey, Director, Gynaecology Research Centre
Treatment of vaginal dryness in post-menopausal women	Investigate the use of a non-hormonal medical device as a treatment of vaginal dryness in post-menopausal women	Madorra Pty Ltd	Professor Martha Hickey, Director, Gynaecology Research Centre

Other industry partnerships include Professor Clare Scott and Associate Professor Orla McNally from our Women's Cancer Research Centre with a range of pharma partnerships for clinical trials in women's cancers; Professor Eva Dimitriadis from the Women's Gynaecology Research Centre with a pharma group investigating a point-of-care microfluidic device for detection of biomarkers for female infertility and pregnancy disorders; and Professor Peter Rogers, Director of Research at the Women's, with a target discovery contract with Bayer AG.

NEWBORN RESEARCH CENTRE

THE MOTTO OF THE WOMEN'S NEWBORN RESEARCH CENTRE IS "MAKING THE BABIES BETTER". TO ACHIEVE THIS, THE TEAM AT THE CENTRE IS WORKING HARD TO GIVE ALL BABIES, IRRESPECTIVE OF THEIR SIZE AND MATURITY AT BIRTH, THE BEST CHANCE OF GROWING INTO HEALTHY ADULTS.

Research in the delivery room is a difficult task due to the often chaotic and stressful environment but the centre has demonstrated that it is possible to do high-quality studies and discover new ways of monitoring and treating newborn babies.

The centre conducts research into the care given to babies immediately after birth, throughout their time in hospital and during their first years at home. The centre is also working towards a better understanding of the long-term outcomes for tiny babies beyond the nursery, including into adulthood.

Professor Peter Davis
Director

Dr. Marta Thio
Deputy Director

23
CLINICAL TRIALS

$5.8M
GRANTS HELD

$1.4M
GRANTS SPENT

85
PUBLICATIONS

PRETERM BABIES BREATHING EASIER CLOSER TO HOME

Lead Researchers:
Dr Brett Manley, Dr Louise Owen and Professor Peter Davis

Babies born at 31 weeks' gestation or later could be breathing easier closer to home, thanks to a study that highlighted the most effective methods of respiratory support available in non-tertiary hospitals.

Led by the Women's, the HUNTER trial involved more than 750 preterm babies in special care nurseries at nine non-tertiary hospitals across Victoria and New South Wales.

The use of 'nasal high-flow therapy' – a gentle breathing support where small prongs are placed in the baby's nose and attached to their cheeks – was assessed as a first-line treatment for babies in their first 24 hours of life. The more well-established breathing support of nasal Continuous Positive Airway Pressure (CPAP) uses larger prongs fitted into the baby's nose, and tubing strapped to a special hat that the baby must wear.

In cases where treatment with high-flow was unsuccessful during the first 24 hours, babies were changed to the standard CPAP treatment.

One of the Lead Researchers, Dr Brett Manley said comparing the two breathing supports as first-line treatments had highlighted how clinicians could optimise care for babies in non-tertiary hospitals.

"While the HUNTER trial showed that CPAP was still the better respiratory support for some newborn infants, in about 80 per cent of babies high-flow worked well and they didn't need any other breathing intervention," he said.

"In the babies that had to move onto CPAP after starting with high-flow, their outcomes were the same as if they'd been on CPAP from the beginning, so we now know that there is the option to start some babies on the more gentle breathing support if hospitals wish to do so."

Dr Louise Owen, another Lead Researcher said as well as being more comfortable for babies, nasal high-flow is much easier for health professionals to apply and maintain. The research was published in the prestigious *New England Journal of Medicine*, and will help inform Victorian guidelines for how to provide respiratory support to newborn infants in non-tertiary hospitals.

RISK OF HEART DISEASE LATER IN LIFE FOR PREMATURE BABIES

Lead Researcher:
Dr Anjali Haikerwal

A study led by researchers at the Women's shows that young adults born extremely premature are susceptible to high blood pressure, putting them at higher risk of heart disease in later life.

More than 200 adults born in 1991 and 1992 have been tracked throughout their lives as part of the Victorian Infant Collaborative Study. When recruited soon after birth, they were either born at less than 28 weeks' gestation, had a birthweight under 1000 grams, or were full term and normal birthweight (>2499 grams).

Now aged in their twenties, study participants who were born extremely premature/extremely low birthweight were found to be almost twice as likely to have high blood pressure compared with those born at normal birthweight. Importantly, the difference in blood pressure between extremely premature/extremely low birthweight and full term participants was greater at 25 years compared with the difference at 18 years.

Lead Researcher Dr Anjali Haikerwal said this is an important insight into people born pre-term, particularly the approximately 300 babies born in Victoria before 28 weeks' or below 1000 grams who survive every year.

"High blood pressure is the leading contributor to the global burden of heart disease. The findings of this study have important clinical implications for health professionals, the families of premature babies, and for the individuals born pre-term themselves as they enter adulthood," said Dr Haikerwal.

"High blood pressure is something that can be managed if it is detected in a timely manner. Health check-ups for adults born premature should include blood pressure measurements and healthy lifestyle guidance."

Dr Haikerwal said thanks to significant steps forward in newborn medicine and technology, survival rates of pre-term babies in Victoria had gone from 10 per cent in the 1970s to 75 per cent in the late 1990s. As a consequence more extremely preterm/extremely low birthweight infants are reaching adulthood.

"It is increasingly important to understand the long-term health outcomes into adulthood in this rapidly growing at-risk population."

GYNAECOLOGY RESEARCH CENTRE

THE WOMEN'S GYNAECOLOGY RESEARCH CENTRE BRINGS TOGETHER CLINICAL, PSYCHOSOCIAL AND LABORATORY EXPERTISE TO INVESTIGATE COMMON CONDITIONS AFFECTING WOMEN OF ALL AGES.

The centre's research has directly improved patient care through prevention, diagnosis and management of a wide range of conditions affecting women's health.

Professor
Martha Hickey
Co-Director

Professor
Eva Dimitriadis
Co-Director

Professor
Peter Rogers
Deputy Director

13
CLINICAL TRIALS

$5.5M
GRANTS HELD

$3.1M
GRANTS SPENT

42
PUBLICATIONS

A NEW APPROACH TO PREDICT IVF OUTCOMES

Lead Researchers:
Dr Wei Zhou and Professor Eva Dimitriadis

Failure of embryo implantation is a significant issue for IVF treatment. It has been estimated that nearly 70 per cent of embryos fail to implant during IVF treatment.

Embryo implantation requires a receptive endometrium (lining of the uterus) so it can attach and invade into the uterus to establish a healthy pregnancy.

"Recent studies have suggested that IVF cultured embryos that failed implantation may secrete a distinct profile of factors that impairs the functional competency of the endometrium," said Dr Wei Zhou, one of the Lead Researchers looking into endometrial receptivity to try and improve the efficiency of IVF treatment.

"We set out to look at gene regulation in the endometrium, to discover what genes and proteins may affect embryo implantation."

The research compared cells from the endometrium that had been incubated in media from embryos that implanted versus non-implanted. It found that specific long non-protein coding RNAs were altered in the human endometrial cells after incubating with embryo culture media with failed implantation outcome.

"These changed long non-protein coding RNAs negatively affect the expression of other important factors such as small non-protein coding RNAs and proteins – and eventually affect the endometrial preparation for an embryo to implant," Dr Zhou said.

Professor Eva Dimitriadis, also a Lead Researcher, said the data suggested that embryo-derived factors were able to change the endometrial function.

"Such findings bring us closer to a molecular understanding of the regulation of receptive endometrium with potential implications of using embryo culture media to predict the IVF outcomes," she said.

CONVERSATIONS 'ESSENTIAL' WHEN IT COMES TO YOUNG CANCER PATIENTS' FERTILITY

Lead Researchers:
Dr Yasmin Jayasinghe, Dr Sadunee Jayasuriya, Lara McDonald

A longitudinal study of child and adolescent cancer patients and their families is showing the importance of fertility counselling ahead of cancer treatment – which can cause irreversible damage to fertility.

The first-of-its-kind study revealed that well-timed and meaningful discussions led to lower levels of regret and higher levels of satisfaction in families who made a decision to pursue or forego fertility preservation.

Lead Researcher, Dr Yasmin Jayasinghe said with more than 80 per cent of paediatric and adolescent cancer patients surviving into adulthood, their future fertility needs to be seen as an important quality-of-life issue.

"Having a family in the future isn't something many of our child or teenage patients have given thought to but we know becomes very important later on. We can extract and freeze eggs or sperm or reproductive tissue for future use, before cancer treatment begins," she said.

"Fertility preservation measures are standard in adults but investigational in children, and only offered with careful checks and balances. Parents play a big role in the decision-making and, irrespective of the outcome, timely fertility counselling to discuss options and expectations about parenthood is a valued component of their care."

A total of 175 families are being followed over time – the first study in the world to examine decision regret in both patients and their parents concurrently. Overall levels of regret in the study population are low, with factors associated with quality, timely discussion, access to fertility preservation procedures and coordinated care being predictors of low regret.

"It's important that we listen to patients and are able to adapt to their needs, especially when it comes to these relatively new procedures. This means providing good governance around how fertility preservation care is provided," Dr Jayasinghe said.

The Women's and The Royal Children's Hospital, who jointly led the study, have both appointed oncofertility co-ordinators and implemented tools and guidance to help clinicians have these conversations in the right way, at the right time.

CENTRE FOR WOMEN'S INFECTIOUS DISEASES

THE CENTRE FOR WOMEN'S INFECTIOUS DISEASES CONDUCTS CLINICAL RESEARCH, CUTTING-EDGE MOLECULAR DIAGNOSTICS AND GENO-SURVEILLANCE IN THE FIELDS OF NEONATAL AND INFECTIOUS DISEASES RESEARCH, INCLUDING REPRODUCTIVE AND SEXUAL HEALTH.

Key research areas include cervical and anal cancer, and sexual health and mother-to-baby infections, with emphasis on providing evidence for changes that may translate into clinical practice to support improved patient health.

Professor
Suzanne Garland AO
Director

Dr Gerald Murray
Senior Scientist

$5.4M
GRANTS HELD

$1.4M
GRANTS SPENT

33
PUBLICATIONS

RESEARCH SHOWS NEW CERVICAL SCREENING TEST IS MORE EFFECTIVE

Lead Researcher:
Dr Dorothy Machalek

The National Cervical Screening Program was overhauled at the end of 2017, when Pap testing which looks for potentially cancerous cell changes on the cervix, was replaced with testing for human papillomavirus or HPV, the virus that causes these changes.

An award-winning study led by researchers from the Women's has shown that the shift in screening tests is resulting in earlier detection of potentially cancer-causing HPV infections.

Working with a diagnostic pathology laboratory in Sydney and University of Melbourne researchers, Dr Dorothy Machalek led the review of 195,600 samples submitted for testing during the first six months of the Cervical Screening Program. The study looked at key program outcomes, including HPV DNA test positivity and management recommendations in the new program.

"While the Pap test used to look for cell changes in the cervix, the new Cervical Screening Test looks for HPV – the virus that causes these changes – which can develop into cervical cancer," said Dr Machalek.

The study found that 91.9 per cent of women having their first HPV-based screening tested negative for HPV, meaning they did not need to be tested for another five years. Of the 8.1 per cent who tested positive for HPV, 5.4 per cent were recommended for repeat testing after 12-months, allowing monitoring by the healthcare provider. The remaining women (2.6 per cent) were referred directly for a colposcopy because their risk of having underlying high-grade disease was higher. This was more than three times as many referrals than those based on Pap testing, because the HPV test is more sensitive.

"The HPV test is more effective than the Pap test at detecting underlying high-grade disease and cancer, and in the longer term the new program is expected to lead to reductions in the incidence and mortality from cervical cancer," Dr Machalek said.

"The community can feel reassured that Australia has a world class cervical cancer screening program that is based on up-to-date scientific evidence and best practice."

The study received the prestigious MJA/MDA National Prize for Excellence in Medical Research, awarded to the best research article published in the *Medical Journal of Australia* in 2019.

TECHNOLOGY FACILITATED SEXUAL VIOLENCE IS COMMON

Lead Researchers:
Professor Suzanne Garland AO, medical student Jordan Crawford and Professor John Wark

Technology-facilitated sexual violence (TFSV) has emerged as a key aspect of dating violence and violence against women.

TFSV includes a wide range of behaviours where digital technologies – including social media and online dating apps – are used to facilitate sexual harm towards others, particularly towards young women.

"Dating violence, and the emergence of TFSV, are negatively impacting women in Australia. However, at present there is a lack of empirical evidence, consistent measures or validated scales used for the measurement of TFSV," Lead Researcher Professor Suzanne Garland said.

"This means that the burden of technology-facilitated sexual violence in young women is likely under-reported."

As a sub-study of the Young Female Health Initiative (YFHI) Study – a collaboration with the Women's and the Royal Melbourne Hospital – 300 Victorian women aged 19 to 32 were surveyed about different negative behaviours from intimate partners online in the preceding 12 months. Respondents were also asked whether they reported these behaviours.

The study showed almost one-third of the women experienced TFSV in their intimate relationship in the preceding 12 months. These women were also more likely to experience offline forms of intimate partner violence. Most young women said they had not reported or discussed their experiences.

Professor Kelsey Hegarty, Director of the Centre for Family Violence Prevention who advised on the study, said more research was needed into forms of dating violence.

"Our results also highlight the need for education programs to support health practitioners to ask about abuse and violence, including through the use of technology," she said.

PREGNANCY RESEARCH CENTRE

THE FOCUS OF THE WOMEN'S PREGNANCY RESEARCH CENTRE IS TO BETTER UNDERSTAND THE CAUSES OF PREGNANCY DISORDERS THAT COMPROMISE THE HEALTH OF MOTHERS AND THEIR BABIES. COMMON PREGNANCY COMPLICATIONS INCLUDE MISCARRIAGE, PRE-ECLAMPSIA, FETAL GROWTH RESTRICTION, GESTATIONAL DIABETES AND PRETERM LABOUR.

The centre's work on pregnancy and its disorders ranges from basic biomedical laboratory research through to clinical studies, treatment trials and public health initiatives, all designed to support evidence based clinical practice.

The mission of the centre is to apply contemporary research techniques to the investigation of clinically important problems in maternal and fetal medicine and related fields.

Professor
Shaun Brennecke AO
Director

Dr. Bill Kalionis
Deputy Head,
Laboratory Research

7
CLINICAL TRIALS

$2.6M
GRANTS HELD

$1.0M
GRANTS SPENT

45
PUBLICATIONS

INTERNATIONAL TRIAL TO HELP UNBORN BABIES' RACING HEARTS

Lead Researchers:
Dr Darren Hutchinson and
Associate Professor Ricardo Palma-Dias

The Women's has joined an international trial investigating the best way to slow the dangerously racing hearts of sick unborn babies without compromising the care of their mothers.

The FAST Therapy Trial will assess the benefits and side-effects of three drugs – Sotalol, Flecainide and Digoxin – commonly used to treat fetal atrial flutter and supraventricular tachycardia (fast heart rhythm).

About 20 Victorian fetuses will be treated each year for racing hearts up to 250 beats per minute, which can be fatal within days if not treated.

One of the Lead Researchers, Dr Darren Hutchinson said he hoped the five-year trial would provide definitive evidence of what treatment was best.

"The treatments on offer are ones that we use all the time. It's a matter of which drug is given first and which combination," he said.

Associate Professor Ricardo Palma-Dias explained that the drugs for the fetus are given to the mother, which comes with a level of risk, complications, and side-effects.

"In fetal medicine, we treat the fetus as our primary patient, but this is a conundrum where, to treat the fetus, we have to treat the mother. It's a fine balance between fixing the baby, while also inflicting the least possible range of complications on the mother," he said.

"This trial will give families confidence that the treatment we're providing is based on strong internationally recognised data."

THESIS PUTS GESTATIONAL DIABETES CRITERIA IN THE SPOTLIGHT

Lead Researcher:
Dr Tom Cade

In 2014, Australia became one of the only major Western countries to introduce universal screening for gestational diabetes using new criteria from the International Association of Diabetes in Pregnancy Study Group.

A thesis on the implications of the criteria change at the Women's was published in the *British Medical Journal* and became one of the top research outputs globally in 2019, according to research impact tracker Altmetric.

To identify effects on health outcomes and analyse costs of care associated with the new criteria, Lead Researcher Dr Tom Cade compared data before and after the change was implemented at the Women's.

"We saw an increase in annual incidence of gestational diabetes of 74 per cent – without overall improvements in primary health outcomes," Dr Cade said.

The change also incurred a net cost increase of more than $500,000, due to more women meeting the lower threshold for diagnosis.

"While the overall costs are seemingly not redeemed in the short term, there needs to be further research into longer term health outcomes of women and babies affected by gestational diabetes," said Dr Cade.

"It's also important to investigate more economic ways of managing women with gestational diabetes, particularly in the lower risk group."

Dr Cade's thesis was also awarded the Arthur Nyulasy Prize – awarded annually by the University of Melbourne to research that has made the most significant contribution to obstetrics and gynaecology.

Director of the Pregnancy Research Centre, Professor Shaun Brennecke AO said the thesis had generated worldwide interest as other countries grappled with whether to adopt the new diagnosis criteria.

"Greater uniformity of diagnosis that lead to better outcomes for women with gestational diabetes is highly desirable. Many countries have been cautious about adopting the new criteria so Dr Cade's findings may assist in decision-making regarding public health policy," he said.

WOMEN'S CANCER RESEARCH CENTRE

BEHIND THE WORK IN THE WOMEN'S CANCER RESEARCH CENTRE IS THE PHILOSOPHY THAT EVERY WOMAN SHOULD BE GIVEN THE OPPORTUNITY TO TAKE PART IN RESEARCH AT EVERY STAGE OF HER CARE JOURNEY.

As a multidisciplinary team, research at the centre considers the different gynaecological cancers: uterine; ovarian/fallopian tube; cervical; and vulval.

Translational research (laboratory and clinical) into rare cancers occurs across a range of clinical trials.

Researchers and clinicians also focus on the conditions which may lead to these cancers, as well as the genetic variations which put women at increased risk of gynaecological cancers. With this in mind, women are recruited where possible to clinical trials at the Women's, and collaboratively through the Victorian Comprehensive Cancer Centre (VCCC) Parkville Clinical Trials Unit, exploring all aspects of the clinical journey.

Associate Professor Orla McNally
Director Gynaecology Tumour Stream, Victorian Comprehensive Cancer Centre (VCCC)

17 CLINICAL TRIALS

$3.2M
GRANTS HELD

$500,000
GRANTS SPENT

11 PUBLICATIONS

ON THE PATH TO ELIMINATING CERVICAL CANCER

Women's Lead Researchers:
Mr David Wrede and Dr Jeff Tan

By the end of 2019, more than 76,000 women had been recruited to Compass – the largest randomised clinical trial ever seen in Australia.

Compass is comparing 2.5-yearly cytology-based cervical screening with 5-yearly human papillomavirus (HPV) screening in Australian women aged 25-69. In a world first, the trial is also comparing screening in women who have been vaccinated against HPV and those who haven't.

The Women's is a leading contributor to this multicentre trial led by Professor Karen Canfell and Associate Professor Marion Saville from Cancer Council NSW and VCS Foundation, respectively.

Associate Investigator Mr David Wrede said the 2017 pilot study involving 5000 Victorian women had proven ground-breaking.

"It showed a tenfold increase in detection rate for high-grade precancerous cells in HPV-screened women compared to cytology-screened women," Mr Wrede said.

"This larger study will provide definitive population-based evidence on the effectiveness of the HPV-screening test to detect cervical cancer and will also enable us to assess a population of women with high uptake of HPV vaccination."

Compass trial participants will be followed up for five years from the time of recruitment, with cervical cancer detection the primary outcome. The results will help further inform the National Cervical Screening Program, which replaced traditional Pap smear tests with primary HPV testing for cervical screening at the end of 2017.

In 2018, the World Health Organization (WHO) announced a global call to action towards the elimination of cervical cancer, underscoring renewed political will to make elimination a reality. WHO will develop a global strategy to put to the World Health Assembly for approval in 2020.

"Australia is leading the world with its national HPV vaccination program and Compass will provide unequivocal evidence about the best test for screening as we work towards the goal of effectively eliminating cervical cancer," Mr Wrede said.

NEW IMMUNOTHERAPY FOR OVARIAN CANCER PATIENTS

Lead Researcher:
Professor Clare Scott

Comparing the effectiveness of three combinations of ovarian cancer treatment will hopefully shed light on the potential of immunotherapy for patients fighting relapse.

The SOLACE2 trial is recruiting 114 women from across Australia whose ovarian cancer has returned.

Lead Researcher Professor Clare Scott said once blood markers start to rise in patients – indicating relapse – observation was the usual path taken.

"This trial has been designed to specifically tease out how to harness the immune system and make it work better to kill the ovarian cancer cells – all before a second round of chemotherapy is required," she said.

"This is a powerful option for a woman, because it provides a treatment when the ovarian cancer begins to relapse for the first time, while she is still well and best able to respond to immunotherapy-based treatment."

SOLACE2 is comparing the PARP inhibitor tablet, olaparib, given by itself; or olaparib alone, then given with an immunotherapy antibody (durvalumab); or olaparib given first with low dose cyclophosphamide chemotherapy, then with durvalumab.

Ovarian cancer continues to be one of the most difficult cancers to diagnose and treat. In 2019, 1510 women were diagnosed with ovarian cancer in Australia. The five year survival rate is 45.7%.

"Treatment of women in the SOLACE2 trial has been well tolerated. Through special trial blood tests we are able to assess the immune cells and study the way the immune system is triggered by these combination treatments to respond to the individual cancers," Professor Scott said.

"This trial is a great opportunity for our patients because they are being offered this PARPi-based immune treatment, which they can't otherwise access, at the first sign of relapse."

CENTRE FOR FAMILY VIOLENCE PREVENTION

THE CENTRE FOR FAMILY VIOLENCE PREVENTION FOCUSES ON IMPROVING THE SAFETY, HEALTH AND WELLBEING OF WOMEN AND THEIR FAMILIES. WE KNOW THAT MANY WOMEN ATTENDING HOSPITAL EXPERIENCE ABUSE AND VIOLENCE AND FEEL AFRAID OF THEIR PARTNER OR FAMILY.

To make women and their children feel safer, the Women's is assisting health services to step up to the challenge of preventing the harm caused by family violence.

The centre conducts practical research, working with women who have lived experience, as well as practitioners, to test health interventions (including the use of technologies) for identification, early intervention and response for women of all ages and backgrounds.

The centre also supports hospital staff in their clinical work by providing evaluation of effective, evidence-based models of care within the context of family violence.

Professor
Kelsey Hegarty
Director

Dr Laura Tarzia
Deputy Director

$2.4M
GRANTS HELD

$900,000
GRANTS SPENT

11
PUBLICATIONS

AUDITING HOSPITAL RESPONSES TO FAMILY VIOLENCE

Lead Researcher:
Professor Kelsey Hegarty

Since Australia's first Royal Commission into Family Violence was completed in 2015, more than 150 of the Victorian commission's 227 recommendations have been implemented.

With the Women's successfully leading the rollout of one of the recommendations – developing and implementing a whole-of-hospital model for responding to family violence – it has now commenced The SAFE project (System Audit for Family violencE) to help evaluate the initiative.

"It's fantastic that 88 Victorian hospitals have implemented the Strengthening Hospital Responses to Family Violence (SHRFV) initiative," said Professor Kelsey Hegarty, Director of the Centre for Family Violence Prevention and Lead Researcher on the SAFE project.

"We're now keen to understand what hospital responses most effectively assist women and their children to live a life free from violence."

The SAFE project is using a System Audit Tool to build the evidence base for how health services are effectively implementing system change.

"We will use the audit findings to ensure patient, staff and organisational practice and systems are enhanced to effectively identify and respond to victim survivors of family violence," said Elly Taylor, co-researcher and SAFE Project Manager.

Findings at the Women's will inform the rollout of the System Audit Tool across the 17 other Victorian hospital and health services that are participating in the SAFE project.

"Ultimately, we want to reduce the burden of ill health for patients and hospital staff who experience family violence by improving practice through feedback," said Professor Hegarty.

RELATIONSHIPS KEY TO ANTENATAL SCREENING PROGRAM

Lead Researcher:
Professor Kelsey Hegarty

Pregnancy can be a risk factor for the onset and escalation of family violence, which is why routine screening in healthcare settings is important.

Over the course of an eight-week trial in 2019, six per cent of pregnant women disclosed family violence experience during their antenatal appointments at the Women's.

Lead Researcher and Director of the Centre for Family Violence Prevention, Professor Kelsey Hegarty said wider research drawing on the experiences of women and practitioners in six antenatal hospital clinics across Victoria and New South Wales provides an evidence base for ways to improve practices to identify – and respond – to family violence in complex healthcare settings.

"Routine screening provides a crucial opportunity for early engagement with women to improve safety and wellbeing and it is critical that we ensure effective screening and response for family violence," she said.

"The research is showing how we relate to and build relationships with women is the key. If we expect women to tell us sensitive information, we need to be open with them and show kindness and empathy in our responses."

'Sustainability of identification and response to domestic violence in antenatal care: The SUSTAIN Study' will publish its findings in 2020. It will include an evidence-based framework and screening model that can be used in all health settings to better implement sustainable family violence practices into their antenatal services.

The project has also produced practical guidelines offering scripts for midwives, obstetricians, social workers and GPs who are providing services to pregnant women.

MIDWIFERY AND MATERNITY SERVICES RESEARCH UNIT

THE MIDWIFERY AND MATERNITY SERVICES RESEARCH UNIT IS COMMITTED TO MAKING SURE THE CARE PROVIDED TO WOMEN IN PREGNANCY AND CHILDBIRTH IS EVIDENCE-BASED AND OF THE HIGHEST POSSIBLE QUALITY.

The main focus is on exploring how care is provided so the best possible outcomes are achieved for mothers and babies. This includes work on midwife-led models of care, breastfeeding, and perinatal mental health.

Integral to the work is actively exploring the views and experiences of women, as well as those of the midwives who care for them. The unit also works to build research capacity among midwives and nurses.

Professor
Della Forster
Director

6
CLINICAL TRIALS

$1.3M
GRANTS HELD

$400,000
GRANTS SPENT

12
PUBLICATIONS

MUM-TO-MUM PHONE SUPPORT BOOSTS BREASTFEEDING RATES

Lead Researchers:
Professor Della Forster and Professor Lisa Amir

Regular phone calls between first-time mothers and women with previous breastfeeding experience may be the key to boosting national breastfeeding rates.

The Ringing Up about Breastfeeding Early (RUBY) trial involved more than 1000 new mothers from the Women's, Monash and Sunshine hospitals, and 230 women with personal breastfeeding experience who volunteered to become telephone support peers.

Half of the first-time mothers in the study received the usual maternal health care provided to mothers when they left hospital following birth, while the other half also received scheduled, regular phone calls from an assigned peer.

One of the Lead Researchers, Professor Della Forster said the two groups of mothers were surveyed about their feeding practices when their babies reached six months.

"At the end of the two-year trial we found mother-to-mother proactive telephone support was an effective way to increase breastfeeding among first-time mothers," Professor Forster said.

Seventy-five per cent of the mothers who received telephone support were giving their babies some breast milk at six months of age, compared with 69 per cent of those in the usual care group.

"If applied to Australia's annual birth rate, this level of increase would result in many more infants being breastfed to at least six months each year."

Lead Researcher Professor Lisa Amir said Australia had a high breastfeeding initiation rate of 96 per cent. However, only 60 per cent of babies receive any breast milk at six months, and just 15 per cent are exclusively breastfed at five months.

"This is far below the recommended guidelines, and we need to find ways to improve this," Professor Amir said.

"We believe the RUBY model has potential for widespread implementation and complements the work of health professionals in promoting and supporting breastfeeding."

SUPPORTING MUMS TO BREASTFEED IN PUBLIC

Lead Researcher:
Professor Lisa Amir

Breastfeeding is recognised as important for infant health yet most Australian mothers do not exclusively breastfeed their babies.

One of the challenges is breastfeeding in public, including perceptions around lack of public support for breastfeeding, and the need to find breastfeeding-friendly spaces.

In order to better understand attitudes towards breastfeeding in public, including that of mothers, life-size cut-outs of breastfeeding women were placed in public areas around the Women's.

Using Hoddinott's Seeing Breastfeeding Scale to measure attitudes, 425 people were surveyed (144 staff and 281 patients and visitors to the hospital) over a two-week period.

Lead Researcher, Professor Lisa Amir said the majority of those surveyed (51 per cent) were strongly supportive of breastfeeding in public, while 38 per cent were weakly supportive or indifferent. Only 5 per cent were not supportive.

"Younger people and people born in Australia were more likely to be supportive," Professor Amir said.

"Clinical staff were more likely to be supportive than non-clinical staff. Having children or seeing breastfeeding frequently were not correlated with higher support."

As part of the research, interviews and focus groups were also conducted with 28 women about their experiences of breastfeeding in public – both in the hospital and beyond.

"Some women said they would never breastfeed in public while others said they would breastfeed anywhere," Professor Amir said.

"Many women said they sought semi-private spaces where they could have some privacy without being hidden away. These included 'nooks' and 'quiet corners' behind partial barriers."

The focus groups revealed that furniture was important when looking for a place to breastfeed. Women wanted wide chairs with arm rests, a high back and cushions to make breastfeeding more comfortable. Some requested better signage to breastfeeding spaces.

"It was encouraging to see the majority of people were supportive of breastfeeding in public," Professor Amir said of the findings.

"The information from mothers can also be used to help design places that are more supportive of breastfeeding in public."

CENTRE FOR WOMEN'S MENTAL HEALTH

THE CENTRE FOR WOMEN'S MENTAL HEALTH PROVIDES CLINICAL SERVICES, UNDERTAKES RESEARCH AND PROVIDES EDUCATION AND TRAINING ACROSS THE HOSPITAL. THE CENTRE'S RESEARCH FOCUSES ON THE PSYCHOLOGICAL ASPECTS OF PHYSICAL HEALTH ISSUES, PREGNANCY AND EARLY PARENTING.

Specific areas of interest include support for women with a cancer diagnosis, promotion of healthy ageing and psychological interventions for women impacted by trauma. Programs in early parenting and postnatal mood disorder and anxiety are also being evaluated.

The centre offers support where social factors such as family violence, substance misuse and refugee status impact wellbeing and psychological health.

Professor
Louise Newman AM
Director

CLINICAL TRIALS **5**

$400,000
GRANTS HELD

$400,000
GRANTS SPENT

PUBLICATIONS **8**

HELPING PARENTS WITH CANCER COMMUNICATE WITH THEIR CHILDREN

Lead Researcher:
Associate Professor Lesley Stafford

A parent being diagnosed with cancer can understandably cause high levels of distress and their children may experience adverse psychosocial outcomes.

A new clinical tool aims to support positive communication in families through their cancer journey.

"Many parents worry about meeting their children's needs while managing the demands of their cancer treatment," said Lead Researcher, Associate Professor Lesley Stafford.

"We identified a need for practical and evidence-based resources to help parents talk with their young children about everything from diagnosis and treatment to fears about the future."

Enhancing Parenting in Cancer (EPIC) is a psycho-educational intervention to support adults with cancer who are parenting children aged 3 to 12 years.

The EPIC study trialled a series of online videos and a question prompt list via pre-and post- intervention questionnaires, a follow-up telephone call and evaluation interview with study participants.

Early evaluation of EPIC with health professionals (n=16), parents who had completed cancer treatment (n=13), parents who were undergoing treatment (n=12) and/or their co-parents (n=5) found the resources to be relevant, reassuring and useful.

Parents undergoing treatment reported improved confidence in communicating with their children about their cancer and providing them with emotional support.

"This novel intervention is a sustainable resource that addresses an unmet clinical need, and is well suited for adoption into routine care," A/Prof Stafford said.

UNDERSTANDING THE IMPACT OF OVARIAN CANCER ON BODY IMAGE AND SEXUAL HEALTH

Lead Researcher:
Associate Professor Lesley Stafford

The Women's has joined forces with Ovarian Cancer Australia for a study that aims to improve understanding of women's psychological and sexual needs during and after ovarian cancer treatment.

Lead Researcher, Associate Professor Lesley Stafford said it was one of the first studies to specifically explore sexual and body image issues among women with ovarian cancer.

"With the vague symptoms that come with ovarian cancer, it is often diagnosed late in the cancer's development and the prognosis is poor. Traditionally, the emphasis has been on controlling the disease rather than necessarily optimising the quality of life and, as a result, research in this area has been neglected," she said.

The study will recruit 130 women affected by ovarian cancer and ask them about their personal experiences of sexuality, body image, sexual function, femininity and mental health.

"After treatment, sexual issues are a common concern for cancer patients, but information and advice are often not provided in the course of diagnosis and treatment. This unmet need during cancer rehabilitation could have a serious impact on a woman's quality of life," A/Prof Stafford said.

"This study will help develop appropriate information resources for women affected by ovarian cancer and their partners, and allow health professionals to develop better psychological supports for sexuality and body image problems that occur after ovarian cancer."

ANAESTHETICS RESEARCH CENTRE

THE GOAL OF THE ANAESTHETICS RESEARCH CENTRE IS TO REDUCE MATERNAL SUFFERING AND DEATH BY ACHIEVING OPTIMAL MATERNAL HEALTH BEFORE, DURING AND AFTER BIRTH.

The centre's work addresses the problems of high blood pressure, obstetric critical illness, and improving anaesthesia and analgesia for pregnant women, especially in the perioperative period.

Research at the centre also aims to increase understanding of heart function and structure in pregnant women and the cause of preeclampsia.

Associate Professor
Alicia Dennis
Director

5

CLINICAL TRIALS

$300,000

GRANTS HELD

$50,000

GRANTS SPENT

6

PUBLICATIONS

IMPROVING GENERAL ANAESTHESIA FOR PREGNANT WOMEN

Lead Researcher:
Dr Patrick Tan

A technique being trialled to improve the safety of general anaesthesia in pregnant women could prove globally significant.

Low oxygen levels – hypoxia – in pregnant women undergoing general anaesthesia can have serious adverse effects on the health of both mothers and unborn babies.

"Hypoxia most commonly occurs during the start of a general anaesthetic but it's something anaesthetists can usually prevent. However, on rare occasions prevention strategies fail and the effects can be catastrophic," Lead Researcher, Dr Patrick Tan said.

"There is a constant focus on improving anaesthetists' skills and practices around airway management of pregnant women."

Dr Tan has been leading a study into the use of high flow humidified nasal oxygen (HFNO) during the induction of general anaesthetics for pregnant women.

"High flow humidified nasal oxygen has already been shown to prolong the safe period before hypoxia occurs in non-pregnant adults. This effect can be quite dramatic in certain cases and would be hugely advantageous if the same can occur in pregnant women," he said.

Approximately one pregnant woman receives a general anaesthetic every day at the Women's.

"The big question around HFNO is how it compares to our existing technique of providing oxygen using an anaesthetic face mask," Dr Tan said.

Up to 100 women will be recruited to the study which will measure and compare oxygen levels of the two methods.

"This research will provide clinical evidence on whether this promising technique is effective at improving general anaesthesia in pregnant women," Dr Tan said.

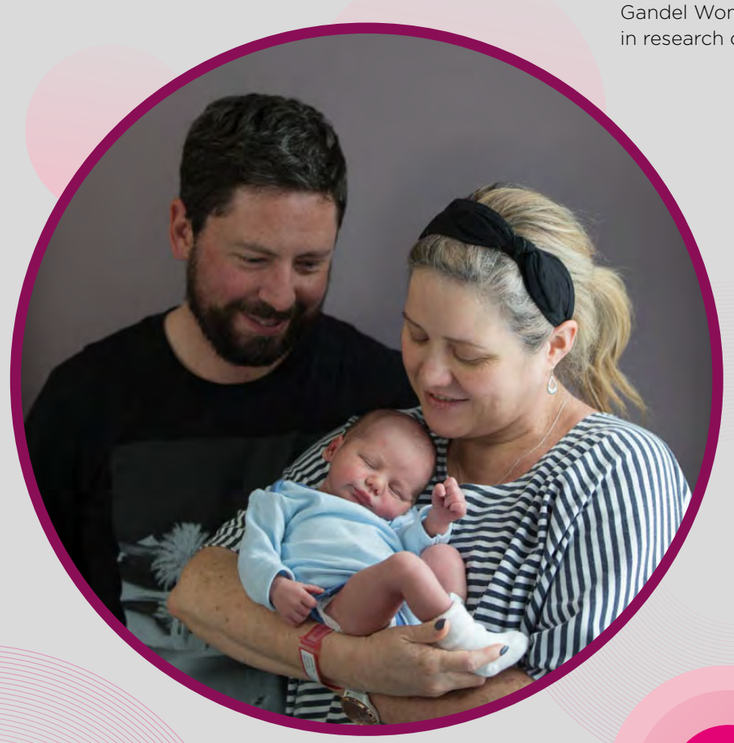
"Its outcomes could be significant for how pregnant women undergoing general anaesthesia are cared for both in Australia and internationally."

ALLIED HEALTH RESEARCH

ALLIED HEALTH AND CLINICAL SUPPORT SERVICES RESEARCH INVOLVES WORK RELATING TO SINGLE ALLIED HEALTH DISCIPLINES AS WELL AS COLLABORATION WITH OTHER WOMEN'S RESEARCH CENTRES AND SERVICES.

There are four major departments that contribute to allied health research: pharmacy; nutrition and dietetics; social work; and physiotherapy. Each of these areas is concerned with exploring various clinical conditions and participates in clinical research to determine evidence-based interventions and treatment for the women and babies in our care.

The Women's pharmacy department and the Pauline Gandel Women's Imaging Centre also play a pivotal role in research conducted by other services.



Sandra Gates
Director

11
CLINICAL TRIALS SUPPORTED

$0M
GRANTS HELD

$2,000
GRANTS SPENT

17
PUBLICATIONS

STUDY CAPTURES REASONS BEHIND PARENTAL REFUSAL ON IMMUNISATION

Lead Researcher:
Christine Gilmartin

Some new parents are declining their baby's Hepatitis B virus birth-dose immunisation due to misconceptions around safety, a study shows.

Of the 1574 eligible infants born at the Women's during the study period, under 9 per cent did not receive their Hepatitis B virus birth-dose immunisation due to refusal by their parents.

The most common reasons cited by parents included:

- having a preference for immunisation of Hepatitis B only at two, four and six months of age (57 per cent)
- feeling their baby was 'too young' (56 per cent)
- perceiving a low risk of contracting Hepatitis B (45 per cent)
- fear of 'overloading' the baby's immune system (43 per cent)
- concern about risk of a serious side-effect (35 per cent).

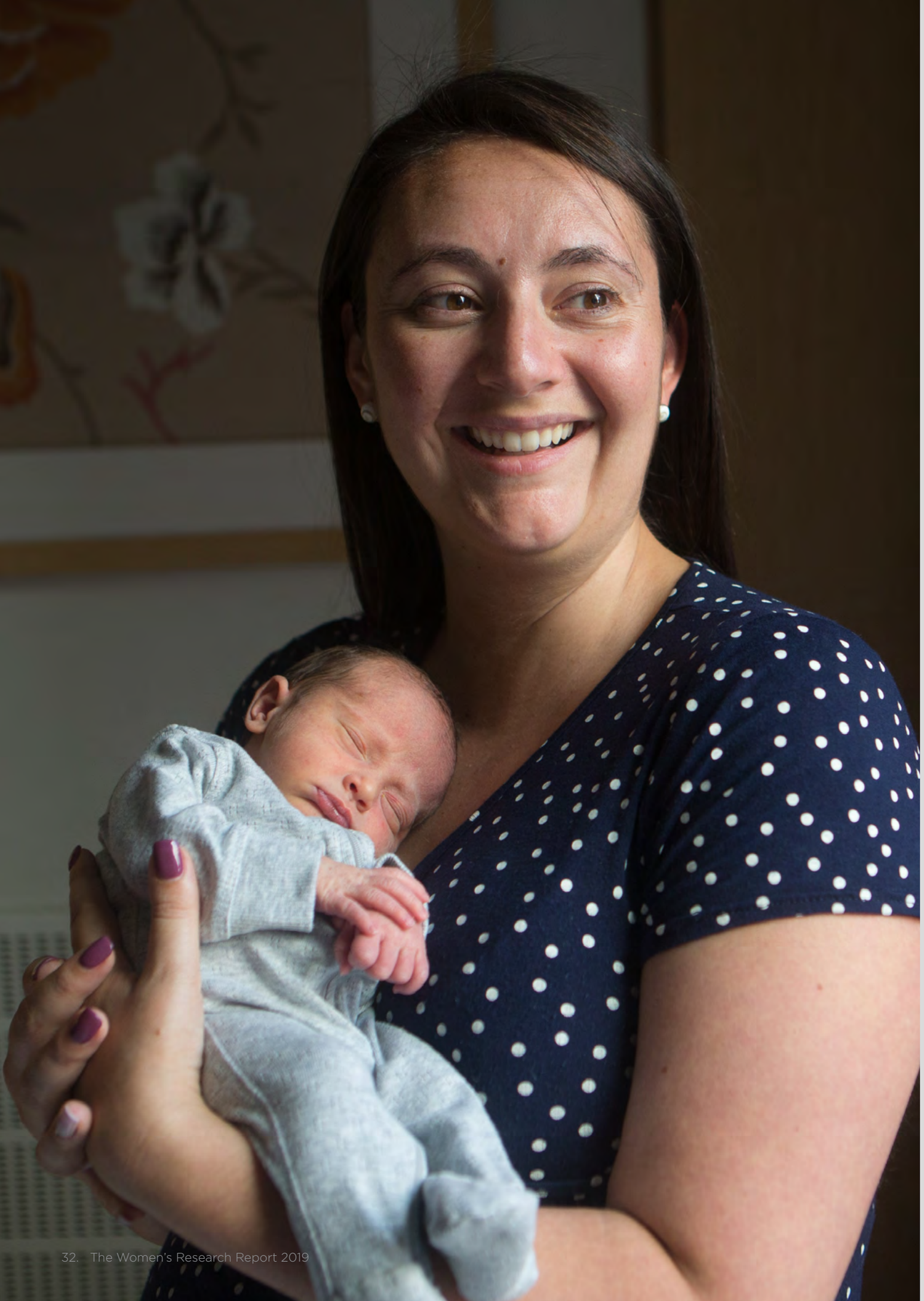
Research Pharmacist Christine Gilmartin said the birth-dose is critical to protecting infants from Hepatitis B at this vulnerable period in their lives – from birth to two months, when the next immunisation is due.

"The vast majority of us know that immunisations are hugely important health interventions, particularly when it comes to protecting the health of babies and children, who are most vulnerable. But we also know that misinformation can persist," she said.

The study revealed that parents consulted multiple information sources before making their decision. The predominant information sources consulted were general practitioners or nurses/midwives (43 per cent), the internet/media (34 per cent) and family and friends (27 per cent).

"While we are pleased to see that health professionals were reported as the predominant source of information for immunisation advice, the results also show that over a quarter of parents declining the birth-dose had sought information from family or friends, and over a third had consulted the internet or media," Ms Gilmartin said.

"The good news is that from this research we know more about the specific fears parents have about this particular early life immunisation and we can work towards addressing them."



ORGANISATIONAL CHART

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Board Director and Committee Chair

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Committee member (retired June 2019)

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Committee member

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Committee member

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CENTRE FOR FAMILY VIOLENCE PREVENTION
Professor Kelsey Hegarty

MIDWIFERY AND MATERNITY SERVICES RESEARCH UNIT
Professor Della Forster

CENTRE FOR WOMEN'S MENTAL HEALTH
Professor Louise Newman AM

ANAESTHETICS RESEARCH CENTRE
Associate Professor Alicia Dennis

ALLIED HEALTH RESEARCH
Sandra Gates

STUDENT COMPLETIONS

DOCTOR OF MEDICAL SCIENCE

Cade T. DMedSci, Uni Melb. *Comparison of new and old diagnostic criteria for gestational diabetes.* Supervisor: Brennecke S.

DOCTOR OF PHILOSOPHY (PhD)

Blank D. PhD, Monash Uni. *Cord clamping and perinatal asphyxia.* Supervisors: Kamlin O, Davis P.

Cramer R. PhD, La Trobe Uni. *SILC - supporting breastfeeding in the community - a cluster randomised trial.* Supervisors: McLachlan H, Forster D, Shafiei T.

Khanabdali R. PhD, Uni Melb. *Rejuvenating aging stem cells to increase their therapeutic potential in regenerative medicine.* Supervisors: Kalionis B, Georgiou H, Brennecke S, Heath D.

McGrory L. PhD, Uni Dundee. *Humidification of gases used in neonatal resuscitation.* Supervisors: Dawson J, Owen L, Davis P.

O'Currain E. PhD, Uni College Dublin. *Respiratory function monitoring for resuscitation training.* Supervisors: Thio M, Davis P.

Prentice T. PhD, Uni Melb. *Moral distress in NICU.* Supervisors: Gillam L, Davis P.

Shakouri A. PhD, Uni Melb. *Improving ex-vivoexpansion of Mesenchymal Stem Cell.* Supervisors: Kalionis B, Heath D, O'Connor A.

Smyth L. PhD, Uni Melb. *Synchrotron radiotherapy for the treatment of cancer.* Supervisors: Rogers P, Crosbie J.

Ventura J. PhD, Uni Melb. *γ-H2AX biodosimetry as a means to validate treatment planning and gain novel biological information on the response of normal and malignant tissues to MRT radiation.* Supervisors: Rogers P, Martin O, Crosbie J.

MASTERS

Bendavid J. MPsych/PhD, Uni Melb. *Psychological adjustment after pregnancy loss.* Supervisors: Bryant C, Judd F.

Black C. MSc, Uni Melb. *Midpregnancy prediction of preeclampsia.* Supervisor: Brennecke S.

Leung V. Mpsych, Uni Melb. *Psychological aspects of cancer diagnosed during pregnancy.* Supervisors: Stafford L, Bryant C.

Li Shan Tang S, Mpsych, Uni Melb. *Subjective experience of participating in PWF program.* Supervisors: Stafford L, Bryant C.

O'Connor G. MC-MHSC (Infant), Uni Melb. *Infants and Contact Visits.* Supervisors: Newman L, Paul C.

Reynolds Z. Masters (Study Abroad Programme), Uni College London, UK. *Repair of Fetal Membrane Rupture with Extracellular Matrix-Derived Bilge.* Supervisors: Kalionis B, Heath D, O'Connor A.

BACHELOR (HONOURS)

Bert C. BSc(Hons), Uni Melb. *Screening in antenatal care.* Supervisors: Hegarty K, Kyei-Onanjiri M.

Grbac E. BSc(Hons), Uni Melb. *Unexplained recurrent miscarriage and effects of prednisolone in early pregnancy.* Supervisors: Menkhorst E, Dimitriadis E.

Haibuan A. BMedSci(Hons), Uni Melb. *Postpartum haemorrage management in developing countries.* Supervisor: Brennecke S.

Ling C. BSc(Hons), Uni Melb. *Role of miR-124 in receptivity.* Supervisor: Dimitriadis E.

Ngugen P. BSc(Hons), Uni Melb. *IL-11s placentation and Inflammasomes in preeclampsia.* Supervisor: Dimitriadis E.

Oeum M. BSc(Hons), Uni Melb. *Vitamin D in breast milk.* Supervisors: Rajapaksa A, Wark J, Garland S, Mulholland K.

Olalekan Z. BSc(Hons), Uni Melb. C*redentialling in paediatric gynaecology.* Supervisor: Jayasinghe Y.

O'Shea E. BSc(Hons), Uni Melb. *Safety and efficacy of fertility preservation in children with cancer.* Supervisor: Jayasinghe Y.

Pasvanis M. BSc(Hons), Uni Melb. *Identifying the current and emerging needs of women with ovarian cancer, their carers, and families.* Supervisors: Marino J, Peate M.

Perara C. BSc(Hons), Uni Melb. *The Expression and Role of Endoglin in Decidual Mesenchymal Stem Cells.* Supervisors: Kalionis B, Kokkinos M, Georgiou H, Brennecke S.

Seychell S. BSc(Hons), Uni Melb. *Exploring the unmet needs of women living with endometriosis being treated in a tertiary setting: a qualitative study.* Supervisors: Peate M, Marino J, Girling J.

Zheng S. BSc(Hons), Uni Melb. *The Effect of Extracellular Vesicles on Damaged Endothelial Cells: Modelling Preeclampsia.* Supervisors: Kalionis B, Kokkinos M, Georgiou H, Ye L, Brennecke S.

MEDICAL DEGREE RESEARCH PROJECT (MDRP)

Chen V. MDRP, Uni Melb. *Outpatient management of Cooks catheter for induction of labour.* Supervisor: Sheehan P.

Crawford J. MDRP, Uni Melb. *Young women's experiences of technology-facilitated sexual violence and intimate partner violence.* Supervisors: Garland S, Wark J.

Jun BK. MDRP, Uni Melb. *The use of NSAIDs for pain in endometriosis.* Supervisors: Rogers P, Holdsworth-Carson S.

O'Grady E. MDRP, Uni Melb. *Streamlining Research for Patients Diagnosed with Rare Cancer.* Supervisor: Scott C.

Slater A. MDRP, Uni Melb. *Elective oocyte cryopreservation: GP knowledge, attitudes and resource requirements.* Supervisors: Lew R, Peate M.

Srinivasan S. MDRP, Uni Melb. *Australian women's experiences of reproductive coercion and their expectations of health professionals.* Supervisors: Tarzia L, Marino J.

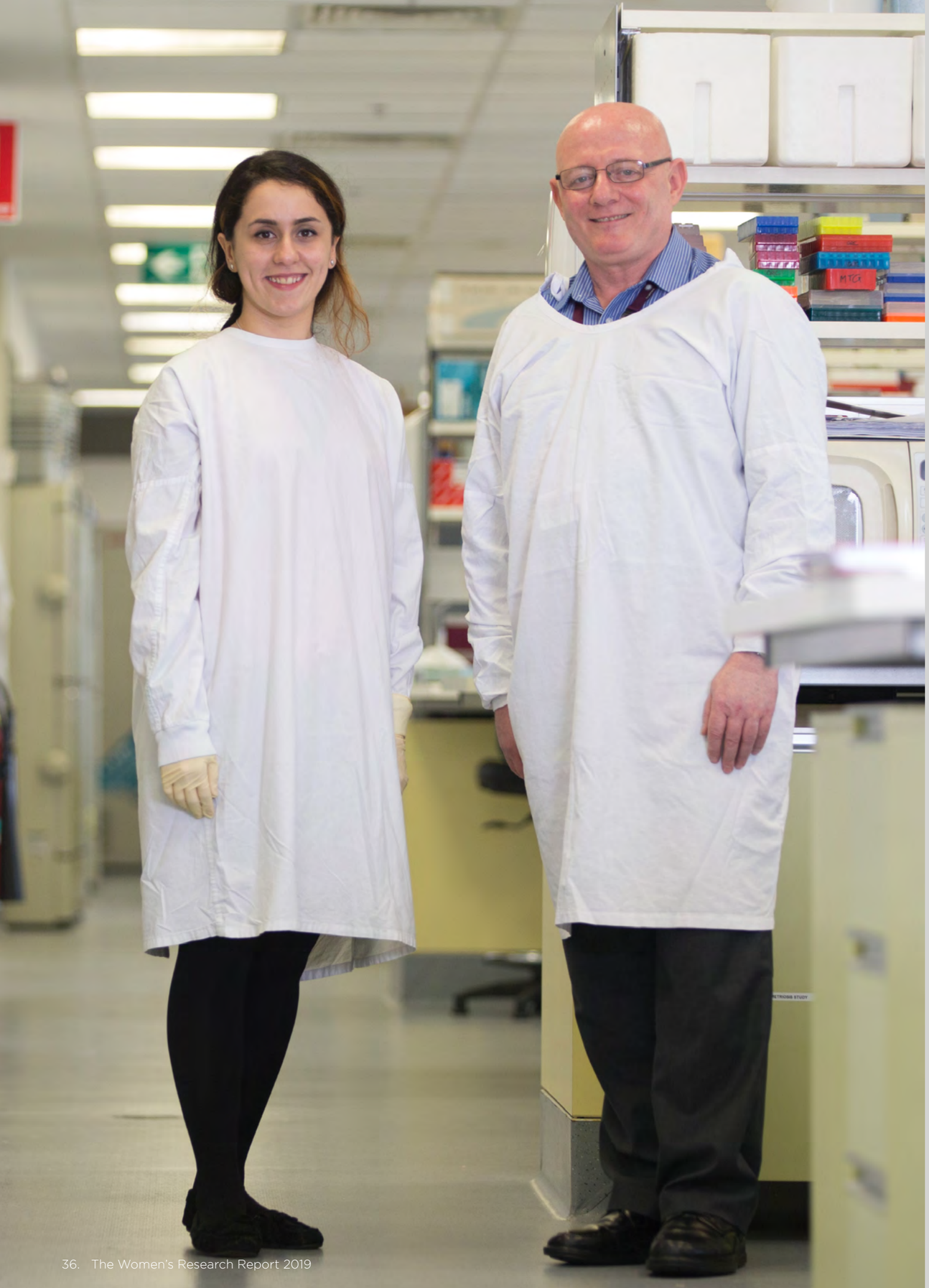
Tsai M. MDRP, Uni Melb. *Randomised control trial of ropivacaine and lignocaine use in the repair of perineal trauma following vaginal birth.* Supervisor: Cole S.

Twomey S. MDRP, Uni Melb. *A Comparison of Higher and Lower Models of Care on the Clinical Outcomes of Women with Gestational Diabetes Mellitus.* Supervisor: Cade T.

Van Elst T. Medical Degree (Research), Leiden Uni Med Centre. *Conservatively managed Endometrial Atypical Hyperplasia and grade 1 endometrioid endometrial cancer in women under 40.* Supervisor: McNally O.

Wilkinson S. MDRP, Uni Melb. *The Mechanism of Action of Low Dose Aspirin on Preeclamptic Decidual Stem Cells.* Supervisor: Kalionis B.

Yew F. MDRP, Uni Melb. *Predictors of macrosomia in gestational diabetes & diabetes mellitus in pregnancy.* Supervisor: Cade T.



PUBLICATIONS 2019

A total of 228 papers were published in peer reviewed medical journals by the Women's in 2019.

The publications below have been selected to highlight the quality of our research at a national and international level. The papers have been selected based on the quality of the journal in which they are published. The journals selected are in the top two per cent of journals, as is indicated by an 'impact factor' greater than 10. Impact factor (as determined by InCites Journal Citation Reports) is a measure of the frequency with which the 'average article' in a journal has been cited in a particular year or period.

A full list of 2019 publications is available for each research centre on the Women's website at thewomens.org.au/research

Badurdeen S, Marshall A, Daish H, Hatherill M, Berkley JA. *Safety and Immunogenicity of Early Bacillus Calmette-Guerin Vaccination in Infants Who Are Preterm and/or Have Low Birth Weights: A Systematic Review and Meta-analysis.* **JAMA Pediatrics.** 2019;173(1):75-85.

Barker HE, Scott CL. *Preclinical rare cancer research to inform clinical trial design.* **Nat Rev Cancer.** 2019;19(9):481-2.

Blagden SP, Hamilton AL, Mileshkin L, Wong S, Michael A, Hall M, et al. *Phase IB Dose Escalation and Expansion Study of AKT Inhibitor Afuresertib with Carboplatin and Paclitaxel in Recurrent Platinum-resistant Ovarian Cancer.* **Clin Cancer Res.** 2019;25(5):1472-8.

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Tingay DG, Pereira-Fantini PM, Oakley R, McCall KE, Perkins EJ, Miedema M, Davis PG, et al. *Gradual Aeration at Birth Is More Lung Protective Than a Sustained Inflation in Preterm Lambs.* **American Journal of Respiratory and Critical Care Medicine.** 2019;200(5):608-16.

AUSTRALIAN GOVERNMENT GRANTS 2019

AUSTRALIAN RESEARCH COUNCIL (ARC)

Tarzia L, Forbes-Mewett H, Tran L, Hegarty K, Segrave M, Humphreys C. ARC Discovery. *International student's sexual and intimate partner violence experiences study (INVEST).* $356,916; 2019-2022

Ussher J, Perz J, Hickey M, Chambers S, Dowsett G, Robinson K, Boydell K, Davis I, Parton C, Anazodo A, McDonald F. ARC Linkage. *Out with Cancer: LGBTI experiences of cancer survivorship and care.* $369,960; 2018-2022.

Tarzia L. ARC Discovery Early Career Researcher Award. *Beyond Silence: Web-based help-seeking for intimate partner sexual violence.* $363,000; 2017-2021

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL (NHMRC)

Centre for Clinical Research Excellence

Canfell K, Brotherton J, Saville M, Castle P, Kaldor J, Garland S, Kelaher M, Guy R, Valley A, Simms K. *Centre for Research Excellence in Cervical Cancer Control (C4).* $2,486,382; 2018-2022

Cheong J, Doyle L, Davis P, Anderson A, Spittle A, Hunt R, Thompson D, Lee K, Manley B, Owen L. *Centre for Research Excellence in Newborn Medicine.* $2,496,997; 2019-2023

Hegarty K, Brown S, Humphreys C, Taft A, Arabena K, Sanci L, MacMillan H, Feder G, Glover K, Anderson P. *Centre for Research Excellence to promote Safer Families: tailoring early identification and novel interventions for intimate partner violence.* $2,497,801; Dec 2016-2021

Mishra G, Hickey M, Dobson A, Gannon B, Doust J, Fisher J, Cicuttini F, Huxley R, Tooth L, Brown H. *Centre of Research Excellence on Women and Non-communicable Disease (CRE WaND): Prevention and Detection.* $2,495,848; 2018-2023

Partnership Grants

McLachlan H, Forster D, Kildea S, Freemantle C, Browne J, Jacobs S, Oats J, Donath S, Newton M, Chamberlain C. *Improving the health of Aboriginal mothers and babies through continuity of midwife care.* $1,496,531; Dec 2015-2020

Taft A, Shiell A, Hegarty K, Feder G, Mazza D, Yelland J. *HARMONY: a cluster randomised controlled trial of a whole of general practice intervention to prevent and reduce domestic violence among migrant and refugee communities.* $595,288; 2018-2021

Spittle A, Novak I, Boyd R, Morgan C, Doyle L, Dale R, Scuffham P, Whittingham K, Colditz P, Pannek K. *Early diagnosis and early intervention for infants with cerebral palsy: implementation of international evidence-based guidelines into practice.* $1,196,361; 2018-2023

Program Grants

Hooper S, Davis P, Wallace E. *Improving perinatal outcomes.* $6,115,355; 2017-2021

Kaldor J, Garland SM, Fairley C, Law M, Grulich A. *Discovery & translation of interventions to control sexually transmitted infections and their consequences.* $10,000,000; 2015-2019

Project grants

Anderson P, Halliday J, Elliott E, Penington A, Thompson D, Muggli E, Spittle A, Forster D, Lewis S, Hearps S. *Long-term effect on offspring of low to moderate or binge drinking during pregnancy.* $1,665,672; 2018-2021

Cheong J, Anderson P, Thompson D, Ranganathan S, Spittle A, Doyle L, Clark R, Burnett A. *Long-term impact of moderate and late preterm birth: effects on neurodevelopment, brain development and respiratory health at school age.* $1,467,294; 2019-2022

Craig J, Seal M, Silk T, Burnett A, Theda C, Scurrah K. *Quantifying the role of epigenetic factors in neurocognitive outcomes: a twin study.* $1,495,848; 2018-2021

Dimitriadis E, Gantier M, Menkhorst E, Rombauts L. *Critical regulators of endometrial receptivity.* $768,699; 2016-2019

Dimitriadis E, Menkhorst E, Koga K. *Critical regulators of placentation.* $907,092; 2016-2019

Dimitriadis E, Rombauts L. *Facilitating endometrial receptivity to improve pregnancy outcomes.* $734,252; 2017-2020

Forster D, McLachlan H, Dennis CL, Nicholson J, Shafiei T, Shiell A, Nguyen C, Nguyen T. *Preventing postnatal depression in new mothers using telephone peer support: a randomised controlled trial.* $850,069; 2018-2021

Grzeskowiak L, Amir L, Smithers L, Jacobs S, Ingman W, Grivell R, Knight E. *OPTimising Mothers' Own Milk supply in the neonatal unit – enhancing breast milk supply with Domperidone in mothers of preterm infants (OPTIMOM-D).* $980,000; 2019-2021

Hickey M, Peate M, Norman R, Hart R. *Eggsurance? A randomised controlled trial of a novel Decision Aid for women considering egg freezing.* $593,043: 2019-2021

Hooper S, Davis P, TePas A, Kitchen M. *Optimising non-invasive ventilation at birth for preterm infants.* $735,912; 2016-2019

Hyett J, Tarnow-Mordi W, Tong S, Morris J, Hannan N, Dekker G, Brennecke S, Walker S, da Silva Costa F, Poon C. *Can esomeprazole improve outcomes in women at high risk of pre-eclampsia? A Phase II placebo-controlled randomised, multi-centre clinical trial.* $1,597,124; 2018-2020

Kaldor K, Machalek D, Delany-Moretlwe S, Rees H, Chikandiwa A, Brotherton J, Petoumenos K, Cornall A, Vallely A. *Impact of 2-dose and 1-dose human papillomavirus (HPV) vaccination schedules on community level HPV prevalence in South African adolescent girls (The HOPE study).* $1,482,052; 2019-2023

Manley B, Buckmaster A, Davis P, Wright I, Owen L, Arnolda G. *Improving breathing support for newborn infants in non-tertiary centres: The HUNTER Trial.* $1,203,844; 2016-2019

Manley B, Kamlin CO, Davis P, Doyle L, McKinlay C, Schmolzer G, Jacobs S, Cheong J, Dargaville P, Donath S. *Intratracheal budesonide mixed with surfactant to reduce bronchopulmonary dysplasia in extremely preterm infants - the PLUSS Study.* $2,113,820; 2019-2023

Mol B, Askie L, Thangaratinam S, Brennecke S, Wang R, Hyett J, Gibson R, Stark M, Espinoza D. *Prediction and prevention of spontaneous preterm birth: an individual participant data meta-analysis comprising of prognostic and therapeutic data.* $1,103,273; 2018-2020

Nold C, Theda C, Nold M, King S. *Interleukin 37 – a Novel Cytokine Therapy for Necrotizing Enterocolitis in the Preterm.* $748,848; 2018-2020

Novak I, Morgan C, Badawi N, Boyd R, Spittle S, Dale R, Kirby A, Hunt R, Whittingham K, Pannek K. *Harnessing Neuroplasticity to Improve Motor Performance in Infants with Cerebral Palsy: a Pragmatic Randomized Controlled Trial.* $2,736,340; 2017-2021

Parkington H, Brennecke S. *Failure-to-progress in human labour results from a profound electrical negativity of the uterine cells: targeting the ion channels involved.* $564,540; 2017-2019

Phillips K, Friedlander M, Oza A, Brand A, Stewart C, Scott C. *STICs and STONes: a randomised, phase II, double-blind, placebo-controlled trial of Aspirin in chemoprevention of ovarian cancer in women with BRCA1 and BRCA2 Mutations.* $653,892; 2017-2021

Rogers P, Montgomery G, Girling J. *Identification and function of genes that increase risk for endometriosis.* $1,180,912; 2016-2019

Scott C, Wakefield M, Drapkin R. *Engineering MYCN models of high-grade serous ovarian cancer (HGSC).* $797,477; 2016-2019

Simmer K, Jacobs S, Strunk T, Tarnow-Mordi W, Patole S, Anderson P, Hague W, Inder T, Doherty D, Marlow N, Barrington K. *Can Pentoxifylline improve long-term outcomes in preterm infants with late-onset sepsis or necrotizing enterocolitis? A pragmatic, randomized, placebo controlled trial.* $2,972,803; 2016-2020

Skinner S, Marino J, Lymer S, Doherty D, Steinbeck K, Straker L, Kang M, Tait R. *The health, social and economic implications of risk-taking in adolescence over the life-course: a data linkage study of the Raine cohort.* $1,061,014; 2019-2023

Spittle A, Anderson P, Doyle L, McGinley J, Clark R, Thompson D, Lee K, Cheong J. *Motor trajectories of children born <30 weeks' gestation from birth to 5 years: early predictors and functional implications.* $668,387; 2016-2019

Valley A, Castle P, Saville M, Brotherton J, Mola G, Lavu E, Kariwiga G, Kelly A, Cornall A, Simms K. *Point-of-care HPV-DNA testing for cervical cancer screening in high-burden, low-resource settings.* $891,184; 2016-2019

Personal support

Davis PG. Practitioner Fellowship. *Generating and applying clinical research to improve the outcomes of neonatal intensive care.* $585,270; 2019-2023

Dennis A. Early Career Fellowship. *Myocardial structure and function in pre-eclampsia using cardiac magnetic resonance and echocardiography.* $187,322; 2016-2019

Dimitriadis E. Senior Research Fellow. *Mechanistic and translational studies in female reproductive health.* $631,370; 2017-2021

Owen L. Career Development Fellowship. *Protecting premature lungs for life: supporting the first breath and every breath.* $305,924; 2019-2022

Spittle AJ. Career Development Fellowship. *Early detection and early intervention for infants born at high risk of neurodevelopmental impairments.* $483,404; 2019-2022

Spittle AJ. Career Development Fellowship. *Early detection and intervention for infants at high risk of motor impairments.* $419,180; 2016-2019

Thio M. Career Development Fellowship. *Improving respiratory transition and outcomes of newborn infants.* $262,251; 2016-2019

Targeted call for Research

Kelaher M, Paradies Y, Ritte R, Nicholson J, Brown S, Hegarty K, Armstrong G, Water L. *Responding to Aboriginal and Torres Strait Islander family aspirations to foster self determination and social and emotional wellbeing.* $1,924,345; 2018-2022

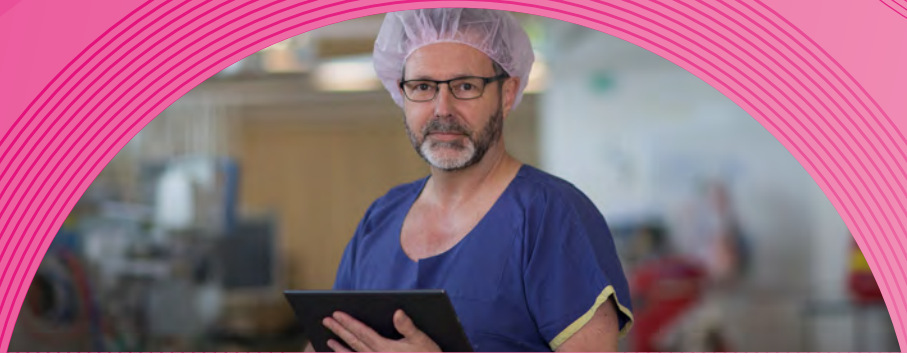
MEDICAL RESEARCH FUTURE FUND (MRFF)

Abbott J, Rogers P, Montgomery G, Mishra G. *To establish the national endometriosis clinical and scientific trials network.* $2,500,000; 2018-2021

Personal support

Cheong J. Next Generation Clinical Researcher. *Improving the health and development of high risk preterm newborns.* $333,709; 2018-2021

Manley B. Next Generation Clinical Researcher. *Optimising Respiratory Therapies to Improve Outcomes for Preterm Infants.* $306,000; 2019-2022



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