



Mercy Health

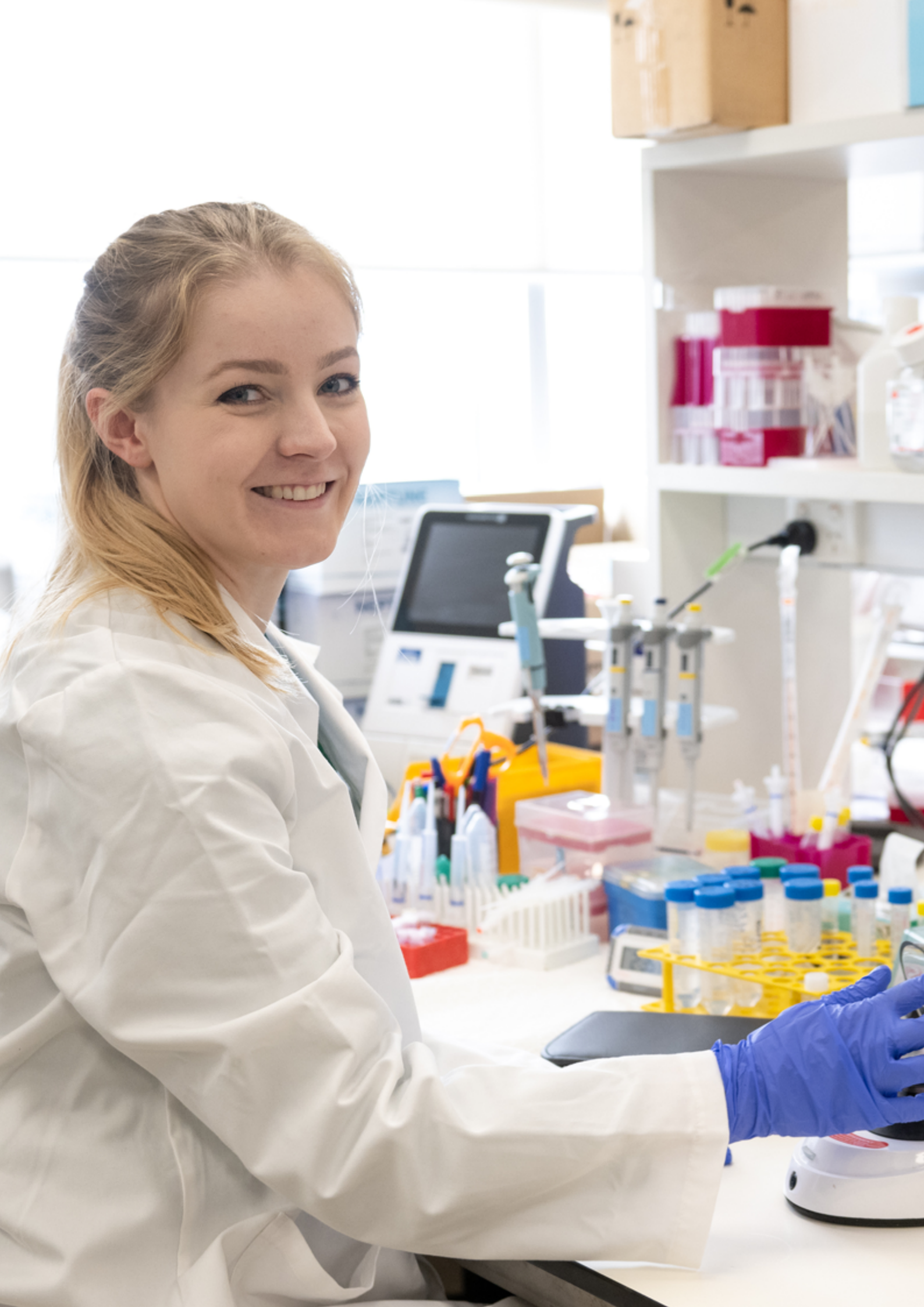
*Care first*

Mercy Health

# Research Report

2024





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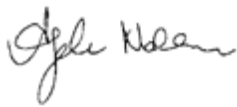
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Mercy Health acknowledges Aboriginal and Torres Strait Islander Peoples as the first Australians. We acknowledge the diversity of Indigenous Australia. We respectfully recognise Elders past and present. This report was produced on Wurundjeri Country.

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## Message from the Group CEO



Angela Nolan

Group Chief Executive  
Officer, Mercy Health

At Mercy Health, research is the engine that drives innovation, improves health outcomes and ensures that the care we provide is grounded in both evidence and compassion. Our commitment to research is a commitment to our patients and clients, their families and the communities we serve. It is how we honour our mission to provide the best possible care, not just today, but into the future.

In 2024, our research community continued to push boundaries and ask bold questions. Across our hospitals and healthy ageing settings, clinicians, researchers and scientists are working together to solve some of healthcare's most complex challenges, from the earliest moments of life to the later stages of ageing.

Dr Kristin Ferguson's work in neonatal care is a powerful example of this. Her research into gas flow and lung injury in premature babies featured in this report is breaking new ground in our understanding of bronchopulmonary dysplasia. With two clinical trials set to launch, Kristin's work has the potential to transform how we support the tiniest and most vulnerable patients in our care.

In the field of obstetrics, Dr Debjyoti Karmakar is harnessing the power of artificial intelligence and big data to tackle fetal asphyxia, a rare but devastating complication of childbirth. His team's algorithm, trained on more than two billion data points, has shown remarkable accuracy in predicting distress during labour. This work has the potential to not only save lives but also reduce unnecessary interventions, offering a more precise and personalised approach to maternity care.

Our research also extends to the other end of the life spectrum. Associate Professor Peter Lange's audit of delirium screening across multiple Mercy Health sites has revealed both strengths and opportunities in how we detect and respond to this serious condition. His work is a timely reminder that research is not just about discovery, it's also about translation and ensuring that what we know is reflected in what we do.

An integral part of clinical research is finding patients who are willing to take part. Our Clinical Trial Coordinator, Yvonne Roodenburg, shares the challenges and altruism she has discovered when inviting women into clinical trials.

As we look to the future, we do so with optimism and ambition. Mercy Health is home to some of the brightest minds in healthcare, and we are proud to support their work. We know that the challenges ahead, from rising complexity in care to the integration of new technologies, will require fresh thinking and strong partnerships. Research will be an important compass.

Thank you to all our researchers, collaborators and supporters. Your work is shaping a healthier, more equitable future for all.



## Message from the Chief Medical Officer and Director of Research

We are pleased to unveil the 2024 Mercy Health Research Report. It was another stellar year for Mercy Health, with strong research activity across our health and healthy ageing services.

This report features compelling case studies of researchers from diverse disciplines. We showcase a clinical trials midwife who is recruiting patients into research, and a clinician exploring ways to exploit artificial intelligence to lift the accuracy of diagnostic tests. We profile researchers caring for those at extremes of the life spectrum – a neonatologist finding better ways to support breathing of vulnerable newborns, and an academic geriatrician searching for better ways to improve care of the elderly.

We are proud to report that Mercy Perinatal leads pregnancy research in the nation, with the most academics of any institution engaged in pregnancy research. Among our ranks are six Professors, two Associate Professors and six senior Lecturers – all of whom are running large research teams. Research coming out of Mercy Perinatal is highly varied. We are chasing a blood test for stillbirth, using big data to inform clinical decisions, exploring the use of nanoparticles to precisely target drugs to the placenta, and we are co-leading clinical trials around the world. What unites the research at Mercy Perinatal is the focus on improving health outcomes for mothers and their babies.

In 2024, we were excited to announce the appointment of Professor Brett Manley who joined us as Director of Neonatal Research. An eminent neonatologist and well known around the globe, he has led numerous clinical trials published in *The New England Journal of Medicine* that informed practice. We are excited to welcome him to the Mercy Perinatal family and watch him expand neonatal research in coming years.

We are pleased to see research activity growing at Werribee Mercy Hospital. There, leaders have committed to putting in resources to support and mentor researchers across many specialties and professional groups, from medical, to nursing, to allied health. We are also pleased to see research activities within our residential aged care homes where projects that aim to improve health outcomes for older Australians are taking place.

In late 2024, Mercy Health's Human Research Ethics Committee (HREC) and governance successfully transitioned to St Vincent's HREC. Mercy Health has representation on the St Vincent's HREC by staff from several clinical areas.

We thank our many funding bodies, donors, supporters, partners and collaborators. We also recognise the significant and active support of the Mercy Health Group Chief Executive Officer, Angela Nolan and the entire Executive team. Finally, our thanks goes to two others who form the research directorate along with us: our tireless Research Manager, Associate Professor Roxanne Hastie and Grace Wijnen, our Research Governance and Support Officer.

We hope you enjoy reading this report.



*J. G. Kirwan*

Adjunct Professor  
Jeffrey Kirwan  
Chief Medical Officer



*Stephen Tong*

Professor  
Stephen Tong  
Director of Research

## About Mercy Health

Mercy Health offers acute and subacute hospital care, aged care, mental health programs, specialist women's healthcare, early parenting services, palliative care, home and community care, and training and development for our staff. We are pioneering research across a range of clinical areas and taking a lead in education activities, to improve the way we deliver care and support for people in need.

Our values of **compassion, hospitality, respect, innovation, stewardship** and **teamwork** guide us in all that we do. They reflect the key behaviours that guide our interactions with each other and everyone we serve.

The modern story of Mercy Health began with the founding of the Order of the Sisters of Mercy in Dublin in 1831 by Catherine McAuley, who dedicated her life to serving people in need.

The Sisters of Mercy went on to found convents, schools and hospitals around the world. They arrived in Australia in 1846, led by Mother Ursula Frayne. The Australian congregation grew and established schools and convents around the country and opened their first hospitals in Brisbane and Sydney.

Following a devastating influenza pandemic, the Sisters of Mercy opened their first Victorian hospital — St Benedict's in Malvern — in 1920. They established a reputation for excellence in care and hospitality that has grown in strength to this day. The success of St Benedict's allowed the Sisters to open Mercy Private Hospital in East Melbourne in 1934, Mercy Maternity Hospital (later renamed Mercy Hospital for Women) in 1971, and Werribee Mercy Hospital in 1994.

Today, Mercy Health is a dynamic, growing organisation, caring for people through all stages of life. In addition to acute and subacute hospital care, we provide aged care, mental health programs, maternity and specialist women's and newborns' health services, early parenting services, home care services, and health worker training and development.

*Mercy Private Hospital and Mercy Maternity Hospital (later, Mercy Hospital for Women) side by side in East Melbourne, circa 1980*



## Research at Mercy Health

Research at Mercy Health promotes research throughout the organisation, supporting innovative projects and trials in areas including obstetrics, gynaecology, mental health, paediatrics, reproductive medicine, aged care, midwifery and palliative care.

The extent and diversity of research undertaken reflects a high level of interest and commitment to research and improvement in the delivery of care.

There has been exceptional achievement across our research program.

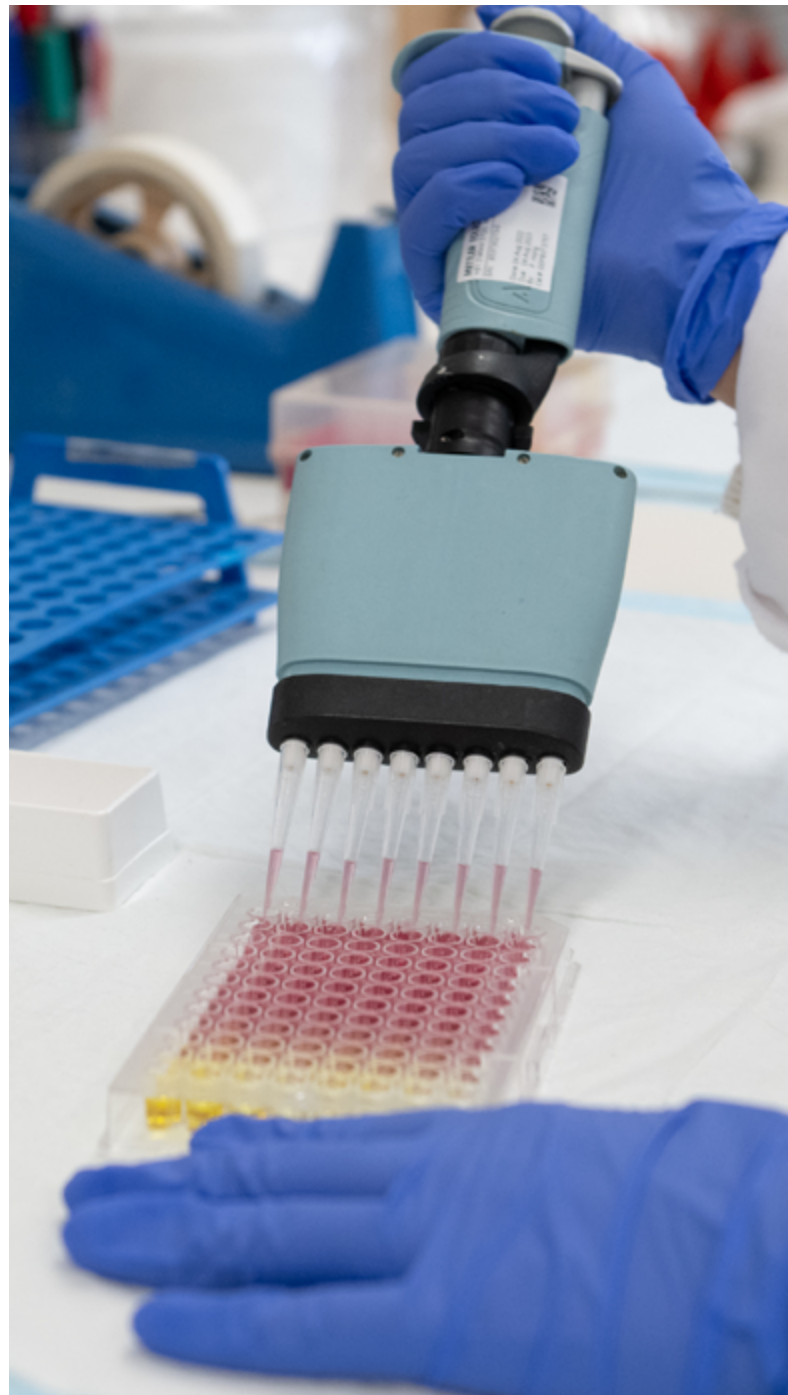
Several long-term studies within our University of Melbourne Department are yielding results of global significance, and many other areas in our hospitals are regularly publishing in peer-reviewed journals. Research in other areas such as allied health and aged care continues to evolve.

Mercy Health launched Mercy Perinatal in 2016. Perinatal aspires to become a leading international perinatal centre of excellence uniting the three pillars of education, clinical care and research.

Mercy Perinatal has taken a lead in education initiatives and is one of the leading centres of maternal fetal medicine in Australia with many specialty clinics.

Research teams under the Mercy Perinatal banner have already taken therapeutic and diagnostic concepts from initial discovery in the laboratory to major international trials in the United Kingdom, South Africa, New Zealand and Australia.

The five strategic commitments in The Mercy Health Strategic Framework 2023-2027, highlight our focus on innovation, research and excellence.





# 2024 HIGHLIGHTS

**Professor Brett Manley**, eminent academic neonatologist, commenced as **Director of Neonatal Research**.

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**Professor Stephen Tong** was elected as a **Fellow of the Australian Academy of Health and Medical Sciences (AAHMS)**.

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**Professor Sue Walker and Dr Lucy Bartho** were awarded an **NHMRC Ideas Grant** to search for new diagnostics for **preeclampsia** (\$1.1 million).

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**Dr Lenore Ellett**, endosurgeon, received a grant from the **Australia Gynaecological Endoscopy & Surgery (AGES)** to investigate **umbilical adhesions following abdominal and pelvic surgery**.

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**Associate Professor Dr Peter Lange**, academic physician in Werribee, published a randomised trial that found that unfortunately **melatonin does not reduce delirium severity in hospitalised older adults**.

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**Senior Mercy Perinatal Professors** visited **Charité Universitätsmedizin** in Berlin to **participate in a joint conference**.

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**Associate Professor Roxanne Hastie and Dr Anthea Lindquist** (Mercy Perinatal) hosted the second **Australian Perinatal Epidemiology Update**. This scientific meeting **brought together the nation's premier perinatal epidemiologists**.

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**Lisa Hui** was awarded an **MRFF grant in the 2024** to examine ways of improving **access and community trust in perinatal genomics** (\$968,000).

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**Aurora Ciminelli** presented on **community palliative care** at the **Oceanic Palliative Care Conference (Brisbane)**.

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**Early career scientist Dr Natasha de Alwis** was awarded a **Heart Foundation Postdoctoral Fellowship** to research **preeclampsia**.

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**Dr Brooke Henshall**, midwife academic, published research in **Midwifery** that found worrying variations in how **healthcare professionals** interpreted the simple term ‘**physiological birth**’.

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**Drs Gordon, Hastie and Lindquist** wrote an **invited commentary on paternal metformin use and congenital malformations** in the **prestigious *British Medical Journal***.

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**Alex Roddy-Mitchell**, PhD student, received a **New Investigator Award for epidemiology** at the **Perinatal Society of Australia and New Zealand (PSANZ)**.

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**Professor Helena Frawley** received a grant from the **Victorian Cancer Agency** to explore whether **encouraging exercise through telehealth can improve continence after gynaecological cancer treatment**.

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**Dr Monica McGauran**, Gynaecology oncologist, PhD scholar, received a **major research scholarship** from **Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG)** worth **\$120,000**.

## Breathing life into neonatal care

### Mercy Health's mission to protect tiny lungs

Kristin Ferguson is a Neonatal Fellow at Mercy Health, driven by a deep commitment to improving outcomes for some of the most vulnerable patients in the healthcare system – those who take their first breaths far too early.

“I want to leave neonatal medicine better than how I found it. And so for me it just makes sense that research is how I can do that.”

Kristin's journey into neonatology began with a clear sense of purpose. “I've always felt that you could have a really big impact on someone's life if you could intervene as early as possible,” she explains.

Her particular focus is on how respiratory support, which is essential for survival, can also cause harm. “I'm really passionate about how we can support babies' lungs without damaging them,” she says. “The respiratory support that we provide them definitely saves their lives, but it can also cause harm to their lungs.”

Kristin Ferguson

*Neonatal Fellow*







## The issue:

### **Bronchopulmonary Dysplasia**

Kristin's PhD centres on bronchopulmonary dysplasia (BPD), a chronic lung disease that affects premature infants who require prolonged respiratory support. "We know that babies who have been in the neonatal intensive care unit (NICU) go on to have poorer respiratory outcomes as children and adults, we're starting to see it has lifelong consequences."

Despite decades of research and interventions including steroids, surfactant and caffeine, the rates of BPD are increasing. "We know that the rates of bronchopulmonary dysplasia are increasing. So, despite the fact that we've learnt so much about these babies, they are still leaving the neonatal intensive care unit with higher rates of lung disease."

Kristin believes the reasons are complex. "It's probably multifactorial. We are having more babies born younger and we're also able to support sicker babies. The definition of what is bronchopulmonary dysplasia has changed as well."

The issue isn't confined to Australia. "It's a global phenomenon," Kristin says. In "low-income countries, babies often lack access to respiratory support and are more likely to die. In higher-income countries, more babies are surviving but with chronic lung disease."

## The research:

### Gas flow and lung injury

Kristin's PhD explores a previously overlooked aspect of respiratory support: gas flow.

"Gas flow underlies every sort of respiratory support that we give to babies," she explains. "It hasn't really been studied in a lot of detail up until now."

While oxygen and pressure have been extensively researched, gas flow – the speed at which gases are delivered to the lungs – may also contribute to lung injury. "If you open up the lung really quickly, it doesn't have a chance to adapt, so it's more likely that the lung will be injured."

"It's all about getting the balance just right."

Preclinical studies at the Murdoch Children's Research Institute have shown that lower gas flows reduce inflammation and damage in the lungs, and small clinical trials with babies have taken place in New Zealand and the United Kingdom.

"There's good evidence that this works. The New Zealand study and the UK study show that it didn't impact the baby's abilities to get oxygen into their body and clear their carbon dioxide. We're going to do a larger study to confirm that."

Two clinical trials are planned: FLOW-VENT, which will test lower gas flows in ventilated babies, and a second trial, FLOW-CPAP, focusing on babies receiving Continuous Positive Airway Pressure (CPAP). "It's about finding that really delicate balance of what's the best gas flow for the babies, that they're not working too hard, but we're also not causing damage."

Recruitment for the first trial is expected to begin in the last few months of 2025. "Mothers who are expecting to deliver prematurely will be approached and if a baby is on the ventilator then we will approach them after the baby's born."

Kristin is deeply aware of the emotional toll on families. "It can be quite tumultuous and it's really quite a roller coaster... it's often a lot of two steps forward, one step back."

"Some babies do go home on oxygen and for a family that is quite life-changing."

Her research is supported by a multidisciplinary team including Professor Brett Manley, Professor Peter Davis, Dr Kate Hodgson and Professor David Tingay, with trials running across Mercy Health for Women hospital, Royal Women's Hospital and Joan Kirner Women's and Children's Hospital.

## The long road ahead

“Ultimately my research goal is to see babies leave the NICU without ongoing respiratory health problems,” says Kristin.

She knows it will take time, and collaboration. “It’s going to be a career-long journey... but if we can start reversing that trend, I think that’s what success is for me.”

“I want these babies to go out and be able to live a normal life without thinking ‘my lung function is going to deteriorate earlier.’ I want to take that worry off their minds.”





# Can big data and Artificial Intelligence help prevent fetal asphyxia?

Dr Debjyoti (Deb) Karmakar is a specialist obstetrician gynaecologist with subspecialty training in urogynaecology and advanced laparoscopy.

Having worked in India, the UK, New Zealand and Australia, and after nearly a decade of specialist clinical practice, he made the decision to pursue a PhD in artificial intelligence (AI) and complex data analysis.

“I’ve always had interest in biostatistics,” he said. “Through my PhD I developed skills in epidemiology and artificial intelligence techniques, specifically data driven statistical methods such as machine learning and deep learning.”

His goal? To tackle one of the most devastating complications in childbirth: fetal asphyxia.

## What is fetal asphyxia?

Fetal asphyxia is when a baby experiences oxygen deprivation during labour. Each year in Australia, this occurs in two to four babies of every 100 births. In countries such as India and Nepal it can occur in 10-15 babies in every 100 births, and in parts of Africa, it can be as high as 20.

While rare, the consequences can be devastating. Families can be faced with stillbirth, cerebral palsy, cognitive impairment and extended stays in neonatal intensive care.

“It is quite devastating, especially if there is a stillbirth or neuro-disability where they are disabled for the rest of their life,” Deb said. “It also has a significant impact on the health economics of the society.”

Fetal asphyxia is the second highest area of medical litigation globally. Despite advances in obstetric care, the burden of poor neonatal outcomes remains stubbornly high.

## The current fetal monitoring landscape

To determine whether a baby is experiencing low oxygen during labour, clinicians rely on cardiotocography (CTG) which is a fetal monitor that’s been in use for over 60 years. It displays three lines: fetal heart rate, maternal heart rate and uterine contractions. Based on how the heart rate dips in relation to contractions, clinicians apply heuristic rules (simple decision-making strategies or ‘rules of thumb’) to assess how the baby is doing.

“The problem with the rules is that often clinicians use confirmation bias and pattern recognition,” Deb explained. “These rules are only up to 50% accurate.”

Globally, computerised artificial intelligence leveraging algorithms such as the Oxford K2 (UK) and PeriGen (US) have been developed to assist clinicians. However, randomised controlled trials have shown that these tools do not reduce the burden of poor neonatal outcomes.



Dr Debjyoti (Deb) Karmakar

*Obstetrician Gynaecologist and Pelvic Floor Surgeon*

## **‘Noisy’ data and its role in conventional monitoring**

A limitation of existing algorithms is their treatment of noisy data, which is information that appears messy or inconsistent due to signal dropouts or interference.

In conventional monitoring, proprietary algorithms smooth out the data to make it easier to read but this process can miss a shift happening in the baby's physiology.

“You can't tell with the naked eye because the algorithm has smoothed it over,” Deb said.

“When you're trying to predict which babies are getting sick, but you are discarding a lot of the real-life information – that noisy information – it's counterintuitive.”

To address this, Deb and the Obstetric Diagnostics and Therapeutics Group at the University of Melbourne, led by Mercy Health's

Associate Professor Fiona Brownfoot, conducted a causal inference study. They analysed metrics such as signal dropout and confusion between maternal and fetal heart rates.

“We used this robust statistical method called causal inference, where we try to exclude all possible confounders very robustly,” he said. “We found a very strong link between poor signal quality and babies becoming unwell.”

This study was the first of its kind and was published in *Nature Portfolio Journal Digital Medicine* in 2025, a high impact peer-reviewed open-access medical journal covering all aspects of digital medicine which is currently ranked number one in the world in Health Care Sciences and Systems domain.

## Building and testing a new algorithm using big data

The next step was to use the knowledge gain to build an algorithm stored on a cloud server that could detect if a baby is deprived of oxygen in real time. Unlike other models, the Mercy Health and University of Melbourne team's algorithm retains all noisy data in its native form. The team used machine learning and deep learning techniques to analyse over two billion data points from 35,000 Mercy Hospital for Women patients – which falls into the category of big data.

“No statistical technique can handle two billion data points,” Deb said. “The only statistical method that will work is artificial intelligence.”

The algorithm updates every 30 seconds and delivers predictions in milliseconds, making it suitable for real-time clinical use. “If the model takes a long time to make predictions, it's not useful,” he said. “We were able to keep the computational load fairly light.”

The data is stored on a secure, high performance computational platform provided by the University of Melbourne.

## The results: A leap in accuracy

The team found that where clinicians typically detect asphyxia with 35% accuracy in the data set, the algorithm achieved 90% sensitivity without increasing false positives.

“For a reasonable specificity, we were getting 90% sensitivity compared to 35% in our data set,” Deb said. “That was great. This has real potential also in reducing unnecessary interventions in labour by pushing up the accuracy.”

Once trained on historical data, the team then tested it on external datasets, including over 15,000 episodes from Werribee Mercy Hospital and around 550 from a European cohort from the Czech Technical University and University Hospital of Brno.

“We found it's still very accurate,” he said. “It gives a sense of generalisability – not just across geography and diversity of patients, but also against diversity of hardware from which the signals are coming.” This work is currently under review in a top tier journal.

## What is big data?

Big data is defined by three characteristics: it is large, multidimensional and dynamic. Deb's research is a clear example of big data in medicine.

“In our case, the data comes from multiple sources – ultrasound probes, ECG probes and patients' clinical data from their medical charts,” he said. “It's multidimensional because it's plotted into a two-dimensional screen, and

it's dynamic because when the baby moves there is a sudden spike in signals.”

Traditional statistical methods are not equipped to handle this complexity. AI, on the other hand, can find hidden relationships and patterns that humans and conventional tools miss.





## The future of AI in Australian medicine

Deb is optimistic about the future of AI in healthcare in Australia. “The Therapeutic Goods Administration (TGA) is proactive when it comes to new technology,” he said.

Whilst progress in the research space is slower, the Obstetric Diagnostics and Therapeutics Group at the University of Melbourne is leading the way.

“When it comes to actual translational research being done, particularly in fetal monitoring, we are the only lab in Australia and New Zealand using AI.”

The team has plans to expand the research to more external data sets, with hopes for collaborations with the Royal Women’s Hospital and Monash network and hospitals in the US.

## The ultimate goal

For Deb, he sees a future where these algorithms are housed in secure, cloud-based servers which will link seamlessly with monitors and provide real time, critical decision support to clinicians.

“It’s not going to replace the clinicians. It’s going to be a decision-support and this work will need ongoing consumer engagement.”

Deb is set to submit his PhD thesis by the end of 2025. Two papers from his current research have been published with three more under review. The team is confident that by late 2026, their predictive algorithm will be ready for clinical integration.

In October 2025, Deb was also awarded the prestigious Norman Beischer Medical Research Foundation three-year Fellowship (2026–2028). This three-year Fellowship, valued at \$660,000, will support Deb’s pioneering work in maternal-fetal health – developing and testing REALM™ (Real-time Evaluation and Alerting using Longitudinal Modelling), an AI-enabled fetal monitoring decision support tool.

# Diagnosing the invisible

## Improving delirium diagnosis in hospitals

Delirium is a medical emergency that often goes unnoticed. It can strike suddenly, causing confusion, hallucinations or extreme drowsiness. Whilst it can occur at any age, including in childhood, it is most common among older patients in hospital.

“Delirium is when often, but not exclusively, an older person will become suddenly confused or hallucinate and it can be very distressing,” explains Mercy Health geriatrician Associate Professor Peter Lange. “Or they can appear very sleepy and drowsy. It’s an extremely distressing condition and very common.”

Despite its prevalence – it affects around one in five older hospital patients – delirium remains underdiagnosed. The consequences can be severe, with some patients developing post-traumatic stress disorder (PTSD) or long-term cognitive impairment. “Sometimes it’s so bad that people get PTSD afterwards,” says A/Prof Lange. “We don’t have a pill or a potion that will fix it.”

A/Prof Lange’s interest in delirium is personal. “My mother had delirium after a stroke and that led to some recurrent bouts... and my father had a delirium when he was much younger... he struggled for about six months in his work until that actually resolved.” These experiences have helped to shape his commitment to improving diagnosis and care for patients experiencing delirium.

A geriatrician by training, A/Prof Lange later completed general physician training and a

mid-career PhD focused on delirium. “I have been searching for a treatment for delirium, but also I’m very interested in all aspects of hospital delirium and particularly in diagnosis and reducing the rate of undiagnosed delirium, so it can be treated appropriately.”

In Australia, clinical care standards require that Aboriginal and Torres Strait Islander patients over 55 and all other patients over 65 be screened for delirium at admission. However, subsequent screening during the hospital stay is not mandated.

In March 2024, A/Prof Lange and a team of geriatricians, clinical nurse educators and Werribee Mercy Hospital’s Director of Nursing undertook research aimed at answering a critical question: Has mandating delirium screening at hospital admission improved detection and has that led to better care?

To investigate the effectiveness of screening at admission on delirium diagnosis, A/Prof Lange and his colleagues conducted a multi-site audit on World Delirium Awareness Day, 14 March 2024. “We decided to do an activity where we’d check and see if our screening was working,” he says.



Associate Professor Peter Lange  
*Specialist Geriatrician and Physician*

## What is delirium?

Delirium is a sudden and serious disturbance in mental function, often seen in older adults during hospital stays. It can cause confusion, hallucinations, disorientation or extreme drowsiness. Patients may appear quiet and withdrawn or agitated and fearful, experiencing vivid and deeply distressing delusions, such as ants crawling on walls or thinking that people are trying to kill them. The condition is typically triggered by underlying medical issues such as infection, pain, surgery or medication imbalances.

For families, delirium can be frightening and confusing. Loved ones may witness dramatic changes in personality or behaviour, often without understanding what's happening. Many families report previous episodes that went undiagnosed, leaving them feeling helpless and uninformed.

Clinicians respond by identifying the underlying cause and treating it, whether it's an infection, medication issue or another medical condition. Currently, there is no specific treatment that cures delirium. Supportive care, reassurance and reorientation are essential to calm the patient and reduce their distress.



The study took place across four Mercy Health sites: Young and Albury in New South Wales, and Heidelberg and Werribee in Victoria. Nurses and nurse educators screened 186 patients using rapid tools like the 4AT in Victoria and the Confusion Assessment Method (CAM) in NSW. “The 4AT is just a couple of questions that only takes a few minutes and doesn’t really need any training,” explains A/Prof Lange. Questions include: “What is your date of birth? How old are you? What year is this? What’s the name of this place?” followed by a test of attention which involves reciting the months of the year backwards from December.

Patients who screened positive were assessed by geriatricians, which is the ‘gold standard’ for diagnosis. To ensure accuracy, the team also assessed two negative-screen patients for every positive case. “We went to every patient who was positive on the screen, we went to see two patients on the same ward, roughly the same age who were negative screens, just to make sure that we weren’t missing patients with the screening process.”

The findings were both reassuring and surprising. “Full credit to the nursing staff, the screening was done very, very consistently,” says A/Prof Lange. “Pretty much all of the patients were screened in admission, and correctly identified when potentially they had a delirium.” Only one patient had a negative screen who was later found to have delirium, confirming the effectiveness of the screening tools.

However, the study uncovered a gap: positive screens were not always followed by clinical action. “We had a certain number of patients who had screened at admission and then they screened subsequently as having a delirium, but that had not been taken up by the medical staff and they had not had a diagnosis or actions around that delirium.”

This disconnect between screening and diagnosis is critical. “Delirium is a medical emergency,” A/Prof Lange emphasises. “It may be as vital a symptom as somebody having chest pain, for example, that something is going wrong, that really needs to be treated and fixed.”

The research team included Geriatricians Peter Lange, Alfredo Obieta, Jun Dai, Supriya Rama Krishnana and Chengetai Dunduru; Clinical Nurse Educators Angelique Galeran and Natalie Hackett; and Werribee Mercy Hospital's Director of Nursing Natalie Stevens. The research paper will be published in *Delirium Communications*, the official publication of the international delirium societies.

“We plan to repeat this or a similar audit next World Delirium Awareness Day,” says A/Prof Lange. The team also hopes to expand the study to more sites. “We want to bring this out to more sites so we can make it more generalisable and help to make some recommendations about interventions, about how you then translate that positive screen into action.”

A/Prof Lange's and the team's work is a powerful reminder that screening is only the first step. His research calls for a renewed focus on translational science, ensuring that effective screening leads to timely diagnosis and treatment.

As Australia continues to lead the world in mandated delirium screening, these findings

offer a roadmap for improving care. "We do lead the world on this," he says. "But what I wanted to say was great, we're doing this, but is that leading to diagnosis? Is that leading to better management? And that remains to be answered."



## Elevating Mercy Health's culture of research into women's health, one patient at a time

Yvonne (Von) Roodenburg hadn't planned to step into the world of research. A midwife for 12 years, she was working in fetal monitoring at Mercy Perinatal when the team approached her about a newly created role at Mercy Health: the Clinical Trial Coordinator.

Professor Sue Walker, who founded the Perinatal Medicine Department at Mercy Hospital for Women in 2005, had seen a need to better support Mercy Health's growing involvement in national and international research. Sue advocated for the role as a means of advancing women's health through research.

Von's leap of faith two years ago in taking on the Clinical Trial Coordinator role has since transformed her career, and the dedicated support that she provides in recruiting patients into clinical trials has helped to elevate Mercy Health's growing research culture. Von strongly believes that research is essential to improving care. "We need to do better for the women we look after and their babies."

### Mercy Health's role as a valuable research partner

Mercy Health is increasingly being recognised as a valuable research partner in the field of women's health, and Mercy Hospital for Women often becomes a satellite recruitment site for larger trials. Although there hasn't been a large clinical trials presence in obstetrics in the past "we have a huge cohort of very high-acuity women" says Von.

Von coordinates recruitment for several trials, including the C\*STEROID trial with the related PRECeDe trial, and the PROTECT Me trial.



Yvonne (Von) Roodenburg  
*Clinical Trial Coordinator*



## C\*STEROID and PROTECT Me trials

Corticosteroid injections are a standard treatment administered to pregnant women to help prevent breathing issues in babies born before 34 weeks. However, there is limited evidence about their effectiveness for treating these issues later in pregnancy.

The C\*STEROID trial, being led by Liggins Institute in New Zealand and Joan Kirner Women's and Children's Hospital in Australia, is for women with a planned caesarean section at 35 weeks to 39 weeks and six days into their pregnancy. Participants receive two injections – either betamethasone or a placebo – 24 hours apart, complete questionnaires, and have their babies' blood sugar monitored. PRECeDe is a recently added parallel trial for women with diabetes, previously excluded due to blood sugar concerns.

Recruitment began in 2021 with a goal to recruit approximately 2,700 women across Australia and New Zealand. The trial currently has had approximately 1,600 patients participate.

The PROTECT Me trial, run by Monash University, is investigating whether melatonin supplementation during pregnancy can help protect the brains of babies affected by Fetal Growth Restriction (FGR). FGR occurs when a baby is significantly smaller than expected due to factors such as poor placental function, infection or genetic conditions. This can lead to serious long-term outcomes including developmental delays, learning difficulties and cerebral palsy.

Pregnant women who have been diagnosed with FGR, and are at 23 weeks to 39 weeks and six days into their pregnancy, are invited to take melatonin three times a day. Researchers are aiming to determine whether the melatonin, which crosses the placenta to reach the baby's brain, can reduce inflammation and improve neurodevelopmental outcomes.

Recruitment began in 2019 and concluded in June 2025, with 338 women enrolled across Australia. Mercy Health contributed 20 participants and continues to support long-term follow-up.



## **Walking a delicate line: finding patients willing to participate in trials**

Recruitment is an emotionally complex and often time-consuming process that requires clear communication skills and an empathetic manner. In the early days, Von felt uneasy about approaching patients as she was concerned that she was imposing on people.

But a colleague helped her to see the work in a different way by reframing it for her. “They said to me, ‘You’re not asking people to do something for you. You’re asking them to do it for themselves’.” Her colleague reminded her of the benefits that come from being involved in a trial and Von has since seen firsthand the continuity of care that patients receive through trial participation.

One part of the recruitment process that involves a lot of careful explaining is the concept of placebos, which is when a patient is given a substance or treatment that has no therapeutic effect. A placebo is used in medical research to help evaluate the effectiveness of new treatments.

“The hardest thing is if someone doesn’t know what a placebo is. It’s very hard to explain to someone who’s lacking health literacy but it’s also really important that those people are included in trials,” says Von.

It’s also critical to respect every decision, including when a woman declines to participate. “I tell myself it’s really good that she felt safe to say no.”

## **Marvelling at the strength of trial participants**

Von has recruited dozens of participants in the last two years. The experience of one patient from the PROTECT Me trial remains a source of inspiration to her.

“We had one patient whose baby lived for eight months. I went to her baby’s funeral. It was incredibly heartbreaking,” explains Von.

“The family was told at about 20 weeks that this baby was unlikely to survive the pregnancy. One of the maternal-fetal medicine consultants rang me and said the mother wants to know if there’s something she can do to help her baby. They asked me if I could talk to her about the PROTECT Me trial.”

“When I spoke to the mother, she said that she knew she might get the placebo, but she wants to feel like she’s doing something. And if it’s not going to help her baby, at least it will help other babies.”

“She stayed pregnant until 31 weeks and had an emergency caesarean section. The baby didn’t look like he was going to survive, but he met his milestones. It was really a privilege for me. When I went to the funeral, she mentioned this trial she was in, and how it meant something to her, to feel like she did something.”

“I used to hesitate to approach women who’d had traumatic experiences,” says Von. “But I’ve been humbled by how altruistic they are. Often it’s the women who’ve gone through the hardest stuff who are most interested in being in trials.”



## The future of clinical trials at Mercy Health

Mercy Health recently moved all human research ethics and governance services for new Mercy Health research projects to St Vincent's Hospital Melbourne. "St Vincent's has values that align with Mercy Health," says Von. This change occurred to create a more streamlined approvals process and a faster path to recruiting for trials.

Von is excited about a new trial starting in 2026. "It's for women who've ruptured their membranes early. Clinicians aren't sure which antibiotic is best. It'll be an adaptive trial so we'll be able to change it as we go rather than waiting years for data."

Looking ahead, Von is optimistic that research will continue to become even more embedded in clinical culture and is doing everything she can to make that easier for clinicians. "Research should not be something on the periphery. It should be something that inspires people, not burdens them."



# Women's and children's

## Translational Obstetrics Group

Co-led by Professors Tu'uhevaha Kaitu'u-Lino (Science Lead) and Stephen Tong (Clinical Lead), the Translational Obstetrics Group (TOG) is focussed on finding new diagnostics and therapeutics to treat major conditions of pregnancy. One of the research teams within Mercy Perinatal, that consists of 11 members, are based at the research laboratories of Mercy Hospital for Women in Heidelberg. Strongly affiliated with TOG is Professor Sue Walker. TOG currently runs two long horizon research programs, both multi-million dollar research programs with global connections. The first is to find a blood test of placental health – a test that can also prevent stillbirth. The second is to find novel drugs to treat preeclampsia – a perilous condition of pregnancy that can claim the lives of both mother and baby. In addition, they are undertaking basic science research to generate new insights into major conditions that arise from placental disease such as preeclampsia and fetal growth restriction.

### Research team

Prof Stephen Tong	Georgia Wong
Prof Tu'uhevaha Kaitu'u-Lino	Ciara Murphy
Dr Lucy Bartho	Manju Kandel
Vi Nguyen	Stefan Botha
Ping Cannon	Sunhild Hartmann



## Grants

Year	Funder	Project Title	Investigators	Amount
2020–2024	NHMRC Synergy Grant	Developing new diagnostics to prevent stillbirth	Stephen Tong, Tu'uhevaha Kaitu'u-Lino, Sue Walker, Roger Smith, Marimuthi Palaniswami, Fiona Brownfoot	\$5,000,000
2024	Mercy Perinatal Research Foundation	Validation of an aptamer-based screening test for fetal growth restriction	Tu'uhevaha Kaitu'u-Lino, Lucy Bartho	\$150,000
2023–2027	Australian Research Council	Exploring protease inhibitors in placental development and maturation	Tu'uhevaha Kaitu'u-Lino	\$1,110,415
2022–2024	Australian Research Council	Is SPINT1 a key regulator of placental development?	Tu'uhevaha Kaitu'u-Lino, Natalie Hannan, David Simmons, Beth Allison	\$536,000
2023–2024	University of Melbourne (Early Researcher Grant)	CircRNAs to predict risk of fetal growth restriction or preeclampsia	Lucy Bartho	\$37,828
2023–2024	Trevor Basil Kilvington Bequest Foundation	Novel methods to identify preeclampsia risk	Lucy Bartho and Stephen Tong	\$49,950
2023–2024	Stillbirth Foundation CRE grant	Validating an aptamer-based blood test to identify poor fetal growth and reduce stillbirth at term	Tu'uhevaha Kaitu'u-Lino, Stephen Tong and Lucy Bartho	\$30,000
2024–2025	McInerney Medical Project Grant (Royal Australian and New Zealand College of Obstetricians and Gynaecologists)	A Novel Blood Test for Stillbirth	Lucy Bartho	\$50,000
2024–2025	Trevor Basil Kilvington Bequest Foundation	Ingenol Mebutate - a new treatment option for preeclampsia	Lucy Bartho and Manju Kandel	\$43,000
2024	SRB travel grant to the ASM	Activin A in Trophoblast Differentiation	Sunhild Hartmann	\$200
2024	Elsevier New Investigator Travel Award; International Federation of Placenta Associations (IFPA)	Neuronal cell adhesion molecule (NrCAM) is reduced in pregnancies complicated by fetal growth restriction	Lucy Bartho	\$1,000 USD
2024	Henry and Rachael Ackman Grant	Elucidating the function of Sialic acid-binding immunoglobulin-like lectin6 (SIGLEC6) in preeclampsia	Manju Kandel	\$5,000
2024	Henry and Rachael Ackman Grant	Investigating the function of Activin A in trophoblast differentiation	Sunhild Hartmann	\$2,350
2024–2025	Trevor Basil Kilvington Bequest Foundation	P300 – a critical player in preeclampsia pathogenesis?	Tu'uhevaha Kaitu'u-Lino and Sunhild Hartmann	\$46,000

Year	Funder	Project Title	Investigators	Amount
2023–2027	NHMRC Fellowship (Leadership level 2)	Developing new diagnostics to prevent stillbirth	Stephen Tong	\$2,500,000
2020–2024	NHMRC Synergy Grant	Developing new diagnostics to prevent stillbirth	Stephen Tong, Tu'uhevaha Kaitu'u-Lino, Sue Walker, Roger Smith, Marimuthi Palaniswami, Fiona Brownfoot	\$5,000,000

## Publications

- » Camm, EJ., Wong G., Pan, Y., Wang, JZ., Goldstein, JA., Arcot, A., Murphy, C., Hansji, H., Mangwiro, YT., Saffery, R., Wlodek, ME., Wyrwoll, CS., Gernand, AD., Kaitu'u-Lino TJ. Assessment of an AI-based tool for population-wide collection of placenta morphological data. *European Journal of Obstetrics and Gynaecology*, 2024. Aug; 299:110-117.
- » Bartho, LA., McKeating, DR., Walker, SP., Nijagal, B., MacDonald, TM., Pritchard, N., Hannan, NJ., Tong, S., Perkins, AV., Kaitu'u-Lino, TJ. Plasma metabolites are altered before and after diagnosis of preeclampsia or fetal growth restriction. *Scientific Reports*, 2024; 14 (15829).
- » Wong, GP., Hartmann, S., Simmons, DG., Ellis, S., Nonn, O., Cannon P., Nguyen, TV., Nguyen, A., Bartho, LA., Tong, S, Hannan, NJ., Kaitu'u-Lino, TJ. Trophoblast side-population markers are dysregulated in preeclampsia and fetal growth restriction. *Stem Cell Rev Rep*, Oct; 20(7) 1954-1970; 2024.
- » Cluver, CA., Bergman, L., Imberg, H., Mol, BW., Hall, D., Bekker, A., Gordon, A., Brownfoot, F., Kaitu'u-Lino, TJ., Walker, SP., Tong, S. Does Metformin prolong pregnancy in preterm pre-eclampsia? A Study protocol for a South African, hospital-based double-blind, randomized, placebo-controlled trial. *BMJ Open* 2024 Jun 18; 14 (6): e082880.
- » Bartho, LA., Walker, SP., Cannon, P., Nguyen, TV., Nguyen, A., Botha, SM., Hannan, NJ., Tong, S., Kaitu'u-Lino, TJ., Leukocyte-associated immunoglobulin-like receptor 1 (LAIR1) is reduced with preeclampsia and small for gestational aged fetuses. 2024. *Placenta* Oct; 156: 10-13.
- » Fato BR., de Alwis, N, Beard, S., Binder, NK., Pritchard, N., Kaitu'u-Lino, TJ., Bubb., KJ., Hannan, NJ. Exploring the therapeutic potential of C-type natriuretic peptide for preeclampsia. *Hypertension* 2024 Sep; 81 (9): 1883-1894.
- » Olivia Nonn,\* Olivia Debnath,\* Daniela S. Valdes,\* Katja Sallinger, Ali Kerim Secener, Cornelius Fischer, Sebastian Tiesmeyer, Jose Nimo, Thomas Kuenzer, Juliane Ulrich, Theresa Maxian, Martin Knöfler, Philipp Karau, Hendrik Bartolomaeus, Thomas Kroneis, Alina Frolova, Lena Neuper, Nadine Haase, Alexander Malt, Niklas Müller-Böttcher, Kristin Kräker, Sarah Kedziora, Désirée Forstner, Roland Eils, Ruth Schmidt-Ullrich, Sandra Haider, Stefan Verlohren, Christina Stern, Meryam Sugulle, Stuart Jones, Basky Thilaganathan, Tu'uhevaha J. Kaitu'u-Lino, Stephen Tong, Berthold Huppertz, Amin El-Heliebi, Anne Cathrine Staff, Fabian Coscia, Dominik N. Müller, Ralf Dechend, Martin Gauster, Naveed Ishaque, Florian Herse. Senescent syntiotrophoblast secretin during early onset preeclampsia. *Hypertension*; epub Oct 23 2024.
- » Wong, GP., Hartmann S., Nonn, O., Cannon P., Nguyen TV., Kandel, M., de Alwis, N., Murphy, CN., Pritchard, N., Dechend R., Hannan, NJ, Tong, S., Simmons, DG., Kaitu'u-Lino, TJ. Stem Cell Markers LGR5, LGR4 and their immediate signalling partners are dysregulated in preeclampsia. *Stem Cell Rev Rep* 2024 Dec 17.
- » Tong S, Benhalima K, Muglia L, Ozanne S. [Invited Commentary] Novel insights from our special issue on maternal factors during pregnancy that influence maternal, fetal and childhood outcomes *BMC Medicine*;22(1):79;2024.
- » Cluver CA, Bergman L, Imberg H, Mol BW, Bekker A, Gordon A, Brownfoot F, Kaitu'u-Lino T, Walker SP, Tong S. Does metformin prolong pregnancy in preterm preeclampsia? A study protocol for a South African, hospital-based double blind, randomised, placebo-controlled trial. *BMJ Open* 2024; e082880.



## Presentations

Presenter	Event	Title	Location
T. Kaitu'u-Lino	UoM Honors Program	How big is my baby? Why fetal size in pregnancy matters	Melbourne, Australia
T.Kaitu'u-Lino	Society for Reproductive Biology	SPINTS; similarities and differences across species	Adelaide, Australia
T. Kaitu'u-Lino	Scientists in Reproductive Technology	SPINT1 to predict placental insufficiency	Melbourne, Australia
T.Kaitu'u-Lino	Translational Approaches in Trophoblast Stem Cell Research and Pregnancy Health	Predicting Fetal Growth Restriction	Berlin, Germany
T.Kaitu'u-Lino	Society for Reproductive Investigation	Low circulating SPINT1 at 36 weeks gestation strongly predicts fetal growth restriction and adverse neonatal outcomes	Vancouver, Canada
T.Kaitu'u-Lino	Society for maternal fetal medicine	A novel aptamer-based screening test to predict fetal growth restriction	Rome, Italy
S. Botha	Congress of the International Federation of Placental Associations (IFPA)	"Poster - CST6 and LGMN: potential mediators of preeclampsia pathogenesis"	Montreal, Canada
S. Botha	Translational Approaches in Trophoblast Stem Cell Research and Pregnancy Health	Cystatin 6 and Legumain in preeclampsia: potential biomarkers for disease prediction	Berlin, Germany
S. Botha	BioSphera online seminar	Empowering African Science & Embracing Collaboration	Online event, Worldwide
S. Botha	Rotterdam Series	A global approach to advancing prediction & understanding of placental insufficiency	Rotterdam, Netherlands and Melbourne, Australia (Online)
G. Wong	Translational Approaches in Trophoblast Stem Cell Research and Pregnancy Health	Mapping the Wnt pathway in mouse placental development	Berlin, Germany
S. Hartmann	Translational Approaches in Trophoblast Stem Cell Research and Pregnancy Health	Trophoblast organoid snRNA-seq models	Berlin, Germany
G. Wong	International Society for Stem Cell Research (ISSCR) Annual Meeting	Poster - LGR5 and its ligands are reduced in placentas from pregnancies complicated by preeclampsia	Hamburg, Germany
S. Hartmann	American Heart Association - Hypertension Congress	Metabolic effects of GDF15 and Activin A on trophoblasts	Chicago, United States
S. Hartmann	Congress of the International Federation of Placental Associations (IFPA)	A global approach to advancing prediction & understanding of preeclampsia pathogenesis	Montreal, Canada
S. Hartmann	Society for Reproductive Biology	Activin A in Trophoblast Differentiation	Adelaide, Australia
S. Hartmann	Australian New Zealand Placental Research Association (ANZPRA)	Investigating the Contribution of P300 to Preeclamptic Senescence	Adelaide, Australia
M. Kandel	Congress of the International Federation of Placental Associations (IFPA)	Elucidating the function of Sialic acid-binding immunoglobulin-like lectin6 (SIGLEC6) in preeclampsia	Montreal, Canada

Presenter	Event	Title	Location
L. Bartho	Invited - SomaLogic webinar - Access on the SomaLogic Website	Predicting Pregnancy Complications with High-Plex Proteomics	International Webinar
L. Bartho	Invited - Department of Obstetrics & Gynaecology	Update from Translational Obstetrics Group - Novel aptamer-based screening tests to predict pregnancy pathologies	Mount Sinai, Toronto
L. Bartho	Australian Reproductive Update (ARU)	A novel aptamer-based screening test to predict fetal growth restriction	Melbourne, Australia
L. Bartho	Society for Reproductive Biology	Neuronal molecule, NrCAM, is highly dysregulated in pregnancies complicated by fetal growth restriction	Adelaide, Australia
L. Bartho	Congress of the International Federation of Placental Associations (IFPA)	Neuronal cell adhesion molecule (NrCAM) is reduced in pregnancies complicated by fetal growth restriction	Montreal, Canada
S. Tong	Robinson Research Institute Frontiers Symposium	Creating an environment for translational research	Adelaide, Australia
S. Tong	Australian Diabetes in Pregnancy Society (ADIPS) annual conference	Preventing preeclampsia in women with diabetes	Perth, Australia
S. Tong	Translational Approaches in Trophoblast Stem Cell Research and Pregnancy Health	Clinical Trials evaluating drugs to treat preeclampsia: moving beyond small molecules	Berlin, Germany
S. Tong	Werribee Mercy Grand Round	7 rules to write well and engage the reader	Werribee, Australia
S. Tong	Department Obstetrics/Gynae/ Newborn health, University of Melbourne	Landing on your feet: The first five years	Melbourne, Australia
S. Tong	Department Obstetrics/Gynae/ Newborn health, University of Melbourne	7 rules to write well and engage the reader	Melbourne, Australia
S. Tong	Melbourne Medical School, University of Melbourne	The life of an obstetric academic	Melbourne, Australia
S. Tong	Mercy Hospital Grand Round	Finding and trialing next generation drugs to stop preeclampsia	Melbourne, Australia

## Achievements

- » Georgia Wong received the Harold Mitchell Postgraduate Travelling Fellowship (2024)
- » Lucy Bartho received the Society for Reproductive Biology (SRB) Career Development Award (\$4,750, awarded 2024 to begin in 2025)
- » Lucy Bartho and Amy Wooldridge received the SRB Collaborative Research Travel Grant (\$2,000 awarded 2024 to begin in 2025)
- » Lucy Bartho (CIB) was awarded an NHMRC Ideas Grant (CIB) - Novel methods to identify women at risk of preeclampsia late in pregnancy - \$1,093,678.80. CIA Prof. Sue Walker.
- » Lucy Bartho was awarded GenScript Life Science Research grant (\$10,000 USD) - CIB Tu'uhevaha Kaitu'u-Lino (awarded 2024 to begin in 2025)
- » Lucy Bartho was awarded Stillbirth CRE Discovery Scientist Fellowship \$40,000 (awarded 2024 to begin in 2025)
- » Lucy Bartho was promoted to Level B academic in 2024.
- » Stephen Tong was accepted as a Fellow of the Australian Academy of Health and Medical Sciences (AAHMS)



# Perinatal Epidemiology Group

The Perinatal Epidemiology Group, co-led by Associate Professor Roxanne Hastie and Dr Anthea Lindquist, is a multidisciplinary team of scientists, clinician-researchers and students. With diverse skills, the team aims to investigate which events, illnesses, or exposures during pregnancy pose risks or benefits to the health and future wellbeing of mothers and their children. Their research uses large, population-wide datasets ('big data'), linking pregnancy data with health, development and educational outcome information. The goal of this research is to produce high-quality evidence to guide clinicians and expectant parents in making informed decisions about pregnancy care.

The team partners closely with the Translational Obstetrics Group, as well as a growing network of local and international research collaborations across Australia, Scotland, Sweden, the Solomon Islands, South Africa, Pakistan, India and Egypt.

## Research team

A/Prof Roxanne Hastie

Dr Richard Hiscock

Dr Anthea Lindquist

Anna Forsythe

Prof Stephen Tong

Jessica Atkinson

Dr Amber Kennedy

Dr Hannah Gordon

Dr Manarangi (Rangi) De Silva

Alexandra Roddy-Mitchell

Danica Idzes

Dr Natasha Pritchard



## Grants

Year	Funder	Project Title	Investigators	Amount
2024	NBMRF Innovation Grant	Development of an obstetric centile calculator	Natasha Pritchard, Sue Walker, Emerson Keenan, Stephen Tong, Anthea Lindquist, Richard Hiscock	\$51,125
2024	Trevor B Kilvington Bequest	Investigating the long-term impact of antihypertensive medications used to manage preeclampsia	Anthea Lindquist, Roxanne Hastie, Jessica Atkinson, Parinaz Mehdipour	\$50,000
2024-2028	NHMRC Emerging Leader-1 Fellowship	N/A	Anthea Lindquist	\$497,439
2024	Glyn White Research Fellowship	Short term outcomes for children conceived via Assisted Reproductive Techniques (ART) in Victoria.	Natasha Pritchard, Anthea Lindquist	\$25,000

## Publications

- » Gordon H, Salim N, Tong S, Walker S, De Silva M, Cluver C, Mehdipour P, Hiscock R, Sutherland L, Doust A, Bergman L, Wikström AK, Lindquist A, Hesselman S, Hastie R. Metformin use and preeclampsia risk in women with diabetes: A two-country cohort analysis. BMC Medicine, 2024;22(1):418.
- » Bergman L, Hannsberger D, Schell S, Imberg H, Langenegger E, Moodley A, Pitcher R, Griffith-Richards S, Herrock O, Hastie R, Walker SP. Cerebral infarcts, edema, hypoperfusion, and vasospasm in preeclampsia and eclampsia. American Journal of Obstetrics and Gynecology, 2024 Oct 30.
- » Gordon H, Atkinson J, Tong S, Mehdipour P, Cluver C, Walker SP, Lindquist A, Hastie R. Metformin in pregnancy and childhood neurodevelopmental outcomes: A systematic review and meta-analysis. American Journal of Obstetrics and Gynecology, 2024;231(3):308-314.
- » McDougall A, Nguyen R, Nguyen PY, Allan C, Cheang S, Makama M, Mills K, Hastie R, Ammerdorffer A, Gulmezoglu AM, Vogel JP. The effects of probiotics administration during pregnancy on preeclampsia and associated maternal, fetal and newborn outcomes: a systematic review and meta-analysis. American Journal of Obstetrics and Gynecology MFM, 2024 Mar 4:101322.
- » Bucher V, Mitchell AR, Gudmundsson P, Atkinson J, Wallin N, Asp J, Sennström M, Hildén K, Edvinsson C, Ek J, Hastie R. Prediction of adverse maternal and perinatal outcomes associated with pre-eclampsia and hypertensive disorders of pregnancy: A systematic review and meta-analysis. EClinicalMedicine, 2024(1);76.
- » Goldsack A, Marzan M, Rolnik D, Lindquist A, Said J, Palmer K, Sheehan P, Potenza S, Pritchard N, Whitehead C, Ford J, Mol B, Walker S, Hui S. Trends in maternal body mass index, macrosomia and caesarean section in first-time mothers during the pandemic: a multicentre retrospective cohort study of 12 Melbourne public hospitals. BMC Pregnancy & Childbirth, 2024 Oct 28;24(1):706.
- » Palm K, Cluver C, Langenegger E, Tong S, Walker S, Imberg H, Hastie R, Bergman L. Circulating concentrations of pro-inflammatory cytokines in preeclampsia with varying disease severity. Pregnancy Hypertension, 2024 Dec 1;38:101168.
- » Gordon H, Hastie R, Lindquist A. Paternal metformin use and congenital malformations in offspring. BMJ, 2024 Oct 16:386:q1792.
- » Mills K, McDougall AR, Tan A, Makama M, Nguyen PY, Armari E, Bradfield Z, Hastie R, Ammerdorffer A, Gülmezoglu AM, Vogel JP. The effects of proton pump inhibitors during pregnancy on treatment of preeclampsia and related outcomes: a systematic review and meta-analysis. American Journal of Obstetrics and Gynecology MFM, 2024 Oct 1;6(10):101478.
- » Francis A, Gordon H, Mooney S. Reducing the postpartum length of stay: Implications for Emergency Department presentations at a tertiary women's hospital. Australian and New Zealand Journal of Obstetrics and Gynaecology; 2024 Jun 14:10.1111/ajo.13849/

- » Gordon H, Shub A, Stewart M, Kane S, Cheong J, Roberts C, Holberton J, Boland R. In-utero transfer, survival-focused care and survival to 28 days at 22-24 weeks' gestation pre- and post- implementation of an extreme prematurity management guideline in Victoria, Australia. *BMJ Paediatrics Open*; 2024 Oct 21:10.1136/bmjpo-2023-002462/

## Presentations

Presenter	Event	Title	Location
H Gordon	Northern Health Research Week	Maternal diabetes, birthweight and stillbirth risk in pregnancy: A Victorian population-based cohort	Melbourne, Australia
H Gordon	Society of Maternal Fetal Medicine Global Congress	In-utero transfer, survival-focused care and survival to 28 days at 22-24 weeks' gestation pre- and post- implementation of an extreme prematurity management guideline in Victoria, Australia	Rome, Italy
H Gordon	RANZCOG Symposium	The long-term safety of metformin use in pregnancy: a systematic review and meta-analysis of childhood neurodevelopmental outcomes	Sunshine Coast, Australia
H Gordon	Perinatal Society of Australia and New Zealand Congress	The long-term safety of metformin use in pregnancy: a systematic review and meta-analysis of childhood neurodevelopmental outcomes	Christchurch, New Zealand
H Gordon	Perinatal Society of Australia and New Zealand Congress	In-utero transfer, active management and 28-day survival rates in extremely preterm inborn infants in Victoria, Australia	Christchurch, New Zealand
H Gordon	Australian Perinatal Epidemiology Update	The impact of diabetes in pregnancy on childhood development: A population-based Victorian cohort study	Melbourne, Australia
H Gordon	Australasian Epidemiological Association Paediatric & Perinatal Epidemiology Special Interest Group Research Showcase	Metformin use and pre-eclampsia risk in women with diabetes: A two-country cohort analysis	Sydney, Australia
H Gordon	Mercy Hospital for Women Grand Round	Metformin and the risk of pre-eclampsia among women with diabetes: A two-country cohort analysis	Melbourne, Australia
H Gordon	Australian Society for Psychosocial Obstetrics and Gynaecology Congress	From Stata to the bedside: Life as a clinician researcher	Melbourne, Australia
R Hastie	Global Obstetrics Journal Club	Hot off the Press Papers	Melbourne, Australia
R Hastie	Global Obstetric Update	Journal Club on the Run	Melbourne, Australia
A Lindquist	Global Obstetrics Journal Club	Hot off the Press Papers	Melbourne, Australia



Presenter	Event	Title	Location
A Lindquist	Global Obstetric Update	Journal Club on the Run	Melbourne, Australia
A Lindquist	Global Obstetric Update	Folate: Safe, useful or dangerous?	Melbourne, Australia
J Atkinson	Australian Perinatal Epidemiology Update	Comparing the safety and efficacy of common antihypertensives for the management of hypertensive disorders of pregnancy	Melbourne, Australia
J Atkinson	RANZCOG Symposium	Hypertensive disorders of pregnancy and childhood neurodevelopment	Sunshine Coast, Australia
J Atkinson	Society of Maternal Fetal Medicine Global Congress	Hypertensive disorders of pregnancy and childhood neurodevelopment: A systematic review and meta-analysis of 27 million children	Rome, Italy
J Atkinson	Gynaecology & Obstetrics Seminar Series	The lasting impact of in utero exposure to hypertension and antihypertensive drugs	Melbourne, Australia
J Atkinson	Mercy Hospital for Women Grand Round	Long-term impacts of hypertension in pregnancy and new resources for Mercy patients	Melbourne, Australia
J Atkinson	Perinatal Society of Australia and New Zealand Congress	Hypertensive disorders of pregnancy and childhood neurodevelopment: A systematic review and meta-analysis of 27 million children	Christchurch, New Zealand
N Pritchard	RANZCOG ASM	An optimized Australian fetal and birthweight centile standard can improve identification of small infants at risk of stillbirth	Wellington, New Zealand
N Pritchard	Perinatal Society of Australia and New Zealand Congress	An optimized Australian fetal and birthweight centile standard can improve identification of small infants at risk of stillbirth	Christchurch, New Zealand

## Achievements

- » Hannah Gordon received the best presentation award at the RANZCOG Regional Symposium.
- » Hannah Gordon received the best presentation award at the Australasian Epidemiological Association Paediatric & Perinatal Epidemiology Special Interest Group Research Showcase.
- » Jessica Atkinson and Hannah Gordon were both awarded the Henry and Rachel Ackman Travelling Scholarship for 2024.
- » The Perinatal Epidemiology Group hosted the second Australian Perinatal Epidemiology Update. Convened by Roxanne Hastie and Anthea Lindquist, this event sold out and brought together perinatal epidemiology experts from across the world.

# Obstetrics Diagnostics and Therapeutics Group

We are a diverse team of clinicians, researchers, engineers and midwives working together to make a real difference in women's health. Our passion is developing practical, consumer-focused solutions that blend clinical expertise with the power of data science and artificial intelligence. By bringing different skills and perspectives to the table, we explore problems that matter most to women — whether it's improving fetal monitoring, supporting maternal well-being, or creating tools that predict outcomes and guide care. We believe technology should be both innovative and approachable, so we design solutions that are accurate, easy to use, and meaningful in everyday practice. At the heart of our work is a shared commitment to collaboration and evidence-based care, with the goal of helping women and their babies achieve better health, safer pregnancies and more personalised support.

## Research team

Fiona Brownfoot

Erica Spessot

Debjyoti Karmakar

Emerson Keenan



## Grants

Year	Funder	Project Title	Investigators	Amount
2023–2026	NHMRC Post graduate Scholarship	Exploring Novel AI for Improving Diagnosis in Obstetrics and Gynaecology	Debjyoti Karmakar, Fiona Brownfoot, Marimuthu Palaniswami, Emerson Keenan, Stephen Tong	\$97,835
2024	Norman Beischer Medical Research Foundation Innovation Grants	An initial Simulation Study on Developing Novel Deep Learning AI Methods to Better Detect Pelvic Endometriosis-the Endometriosis AI Study	Debjyoti Karmakar, Fiona Brownfoot	\$69,180
2025	Norman Beischer Medical Research Foundation Innovation Grants	Evaluating Discarded Metrics in Cardiotocography: Signal artifact and its association with perinatal asphyxia	Debjyoti Karmakar, Fiona Brownfoot	\$69,500
2025	AEA Catalyst Grant	A novel device to improve detection of fetal asphyxia in labour	Fiona Brownfoot, Marimuthu Palaniswami, Abu Ul Hassan Rana	\$499,000
2025	CRC-P	Kali Healthcare	Fiona Brownfoot, Emerson Keenan, Marimuthu Palaniswami	\$2,650,000

## Publications

- » Mendis L, Karmakar D, Palaniswami M, Brownfoot F, Keenan E. Cross-Database Evaluation of Deep Learning Methods for Intrapartum Cardiotocography Classification IEEE J Transl Eng Health Med.2025 Mar 5;13:123-135.PMID: 40657532
- » Binder NK, de Alwis N, Fato BR, Beard S, Mangwiro YTM, Kadife E, Brownfoot F, Hannan NJ. Investigating the Impact of Maternal Obesity on Disease Severity in a Mouse Model of Preeclampsia Nutrients. 2025 May 5;17(9):1586.PMID: 4036289
- » Karmakar D, Mendis L, Keenan E, Palaniswami M, Hastie R, Makalic E, Brownfoot F. Impact of missing electronic fetal monitoring signals on perinatal asphyxia: a multicohort analysis. NPJ Digit Med. 2025 May 1;8(1):233. PMID: 40312524
- » Karmakar D, Paul T, Keenan E, Palaniswami M, Constable K, Spessot E, Brownfoot F. Consumer insights from a feasibility study on remote and extended use of a novel non-invasive wearable fetal electrocardiogram monitor. NPJ Digit Med. 2025 Apr 21;8(1):216. PMID: 40259059
- » Keenan E, Georgieva A, Brownfoot FC. Deep learning to predict fetal acidemia. Am J Obstet Gynecol.2025. Epub 2024 Jul 30. PMID: 39084497
- » Cluver CA, Bergman L, Imberg H, Mol BW, Hall D, Bekker A, Gordon A, Brownfoot F, Kaitu'u-Lino TJ, Walker SP, Tong S. Does metformin prolong pregnancy in preterm pre-eclampsia? A study protocol for a South African, hospital-based double-blind, randomised, placebo-controlled trial. BMJ Open. 2024 Jun 18;14(6):e082880. PMID: 38890136
- » Lakhno IV, Reyes-Lagos JJ, Adam I, Brownfoot FC. Editorial: The repercussions of maternal inflammation in pre-eclampsia on fetal health and neurodevelopment. Front Immunol. 2024 May 29;15:1434260. PMID: 38868765
- » Mendis L, Palaniswami M, Keenan E, Brownfoot F. Rapid detection of fetal compromise using input length invariant deep learning on fetal heart rate signals. Sci Rep. 2024 Jun 1;14(1):12615. PMID: 38824217
- » Brownfoot F, Rolnik DL. Prevention of preeclampsia. Best Pract Res Clin Obstet Gynaecol. 2024 Mar;93:102481. PMID: 38373378

## Presentations

Presenter	Event	Title	Location
Debjyoti Karmakar	University of Melbourne	Using high performance computing for sensitive clinical big data	Melbourne, Australia
Elif Kadife et al	Society for Reproductive Biology (SRB)	YAP activation can improve placental vascularisation to treat fetal growth restriction	Adelaide, Australia
Yih Hsuan Ho, Elif Kadife et al	Australian Reproduction Update (ARU)	YAP activation can improve placental vascularisation to treat fetal growth restriction	Adelaide, Australia
Yih-Hsuan Ho, et al. Elif Kadife	Austin Research Week	YAP activation can improve placental vascularisation to treat fetal growth restriction	Melbourne, Australia
Fiona Brownfoot	Monash Institute of Medical Engineering MIME	Key note address	Melbourne, Australia
Fiona Brownfoot	Masters Biodesign 'obstetric innovation and AI' 2025	Obstetric Innovation and AI	Melbourne, Australia
Fiona Brownfoot	CICA 'How they did it' March 2025	How they did it	Melbourne, Australia
Fiona Brownfoot	Presentations to Key opinion leaders in New York at New York Presbyterian, Mount Siani, Northwell Health	Fetal monitoring wearable	New York, USA
Fiona Brownfoot	Laborie, Manufacturing and Distribution facility, Global Business Strategy	Fetal monitoring wearable	Salt Lake City, US
Fiona Brownfoot	RANZOCG ASM	Advances in fetal monitoring	Wellington, New Zealand
Fiona Brownfoot	Society of Reproductive Biology	Innovations, including AI for biomed applications	Adelaide, Australia
Fiona Brownfoot	CICA, Accelerating Clinician Innovation	The importance of commercialization	Melbourne, Australia
Fiona Brownfoot	Neonatal Conference	Cool Topics	Melbourne, Australia
Fiona Brownfoot	Australian Reproductive Update	Novel devices to improve obstetric outcomes	Melbourne, Australia
Fiona Brownfoot	Creative Career's in Medicine	A medical device start-up	Sydney, Australia
Fiona Brownfoot	Society of Reproductive Investigation	A novel device to detect fetal asphyxia	Vancouver Canada
Fiona Brownfoot	NHMRC Ideas Grant Presentation	NHMRC Ideas grant tips	Melbourne, Australia
Fiona Brownfoot	Safer Care Victoria	Novel medical devices	Melbourne, Australia

## Achievements

- » Two papers in Nature Portfolio Journal Digital Medicine included in special themed issues PMIDs-40259059 and 40312524.
- » iAward Victoria for Best technology.
- » Webby Award, People's Voice winner for apps and software – experimental and innovation.
- » Anthem awards gold for Community Voice Award.
- » Anthem awards silver award for Health: Best Use of Technology.

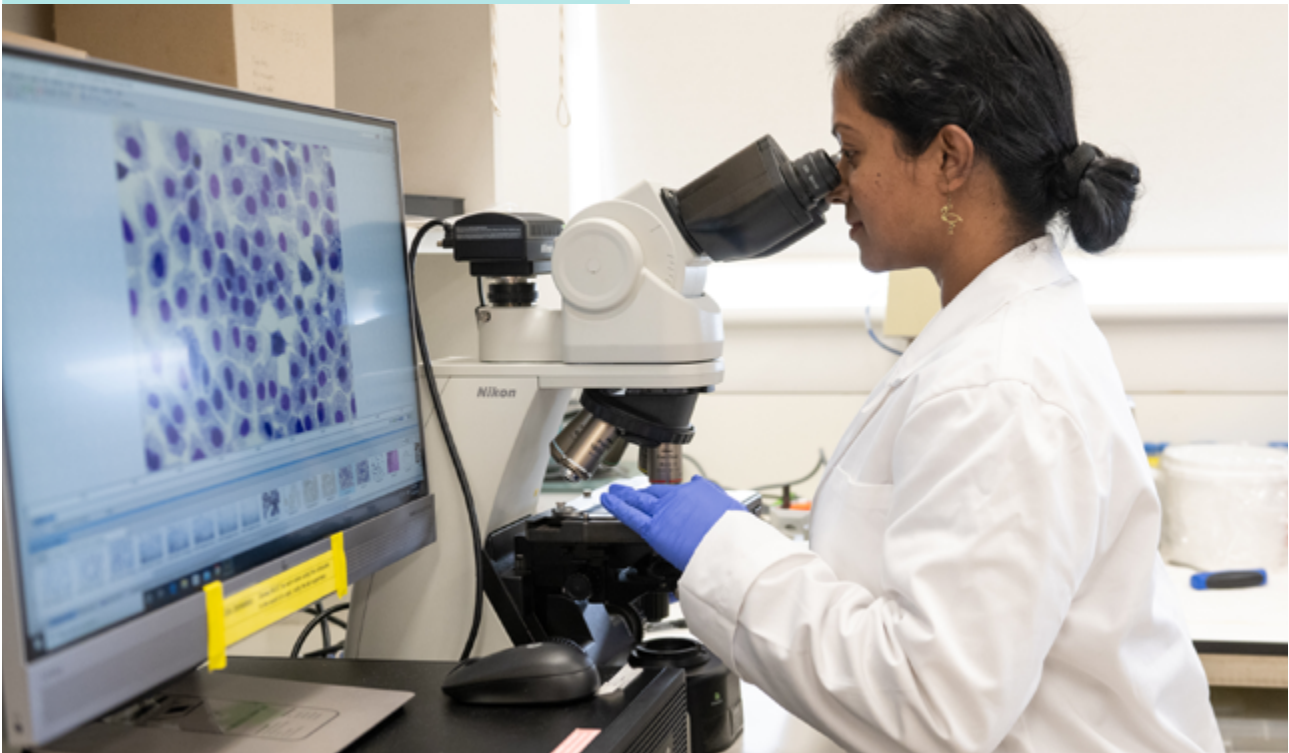


# Hui Perinatal Research Group

Professor Lisa Hui leads several multidisciplinary teams of researchers working to improve health outcomes for mothers and babies. Her teams are located across the Department of Obstetrics and Gynaecology based at the Mercy Hospital for Women, the Northern Centre for Health Education Research, and the Reproductive Epidemiology group at the Murdoch Children’s Research Institute. The major research themes at the Mercy Hospital for Women include perinatal outcomes during the pandemic, congenital Cytomegalovirus (CMV), prenatal diagnosis of fetal genetic conditions, and exploring the biology of amniotic fluid.

## Research team

- |                  |                 |
|------------------|-----------------|
| Lisa Hui         | Tany Tripathi   |
| Ishara Atukorala | Jo Watson       |
| Melvin Marzan    | Cecilia Pynaker |
| Willem Gheysen   | Natalia Rode    |



## Grants

Year	Funder	Project Title	Investigators	Amount
2023–2027	University of Melbourne Dame Kate Campbell Fellowship	Research Salary Support	Lisa Hui	\$183,000
2022–2024	Norman Beischer Medical Research Foundation Clinical Research Fellowship	Education, Serology and Evaluation to prevent congenital cytomegalovirus infection	Lisa Hui	\$600,000
2021–2025	Medical Research Futures Fund Investigator fellowship Emerging Leader 2	Closing the critical knowledge gaps in perinatal genomics	Lisa Hui	1,281,125
2020–2025	National Health and Medical Research Council Cohort Study Grant	Childhood Outcomes of fetal genomic variants: The PrenatAL Microarray (PALM) cohort study	CIA Lisa Hui, Jane Halliday, David Amor, Sharon Lewis, Sue Walker	727,858
2019–2024	Northern Health	Northern Centre for Health Education and Research Reproductive Health Biobank	Lisa Hui, Natalie Hannan	\$408,730
2024	Norman Beischer Medical Research Foundation	Predicting unplanned mother and newborn's hospital admissions in the first year of life: a big data and machine learning partnership with Safer Care Victoria	Melvin Marzan, Lisa Hui, Prof Andrew Wilson, Karrie Long, Prof Mark Umstad, Dr Jake Valentine	\$69,080
2023–24	Norman Beischer Medical Research Foundation	Fetal exome sequencing in Victoria: Are we achieving 'better care, better health, and better access' in perinatal genomics?	Dr Willem Gheysen, Ms Melissa Graetz, Prof David Amor, Prof Michael Fahey, Dr Calder Hamill Monash, Ms Yael Prawer, A/Prof Kirsten Palmer, Ms Nikki Gelfand, Ms Susan Fawcett, Dr Anand Vasudevan, Ms Tenielle Davis, Dr Stefan Kane, A/Prof Joanne Said, Ms Kate Riley, Ms Samantha Dayman	\$39,686
2023–24	Norman Beischer Medical Research Foundation	Enhancing the value of the Collaborative Maternity and Newborn Dashboard for the COVID-19 pandemic: epidemiological and geospatial analyses of perinatal datasets	Melvin Barrientos Marzan, Lisa Hui, Daniel L. Rolnik, Stephanie Potenza, Natasha Pritchard, Joanne M. Said, Kirsten R Palmer, Clare L. Whitehead, Penelope M. Sheehan, Jolyon Ford, Ben W. Mol, Susan P. Walker	\$65,000

## Publications

- » Ishara A, Natalie JH, Lisa H. Immersed in a reservoir of potential: amniotic fluid-derived extracellular vesicles *Journal of Translational Medicine*, 22, 348 (2024)
- » Marzan MB, Callinan S, Livingston M, Jiang H. Modelling the impacts of volumetric and minimum unit pricing for alcohol on social harms in Australia. *Int J Drug Policy*. 2024 Jul;129:104502. doi: 10.1016/j.drugpo.2024.104502. Epub 2024 Jun 28. PMID: 38943908.
- » Goldsack AJ, Marzan MB, Rolnik DL, Lindquist AC, Said JM, Palmer KR, Sheehan PM, Potenza S, Pritchard N, Whitehead CL, Ford J, Mol BW, Walker SP, Hui L. Trends in maternal body mass index, macrosomia and caesarean section in first-time mothers during the pandemic: a multicentre retrospective cohort study of 12 Melbourne public hospitals. *BMC Pregnancy Childbirth*. 2024 Oct 28;24(1):706. doi: 10.1186/s12884-024-06908-y. PMID: 39468519; PMCID: PMC11514852.
- » Tripathi T, Watson J, Skrzypek H, Stump H, Lewis S, Hui L. "The anxiety coming up to every scan-It destroyed me": A qualitative study of the lived experience of cytomegalovirus infection during pregnancy *Prenat Diagn*. 2024 May;44(5):623-634. doi: 10.1002/pd.6564. Epub 2024 Apr 5. PMID: 38578535.
- » Wade CA, Atkinson N, Holmes NE, Hui L. Clinical utility of maternal TORCH screening in fetal growth restriction: A retrospective two-centre study. *Aust N Z J Obstet Gynaecol*. 2024 Aug;64(4):354-360. doi: 10.1111/ajo.13802.
- » Johnston M, Hui L, Bowman-Smart H, Taylor-Sands M, Pertile MD, Mills C. Disparities in integrating non-invasive prenatal testing into antenatal healthcare in Australia: a survey of healthcare professionals. *BMC Pregnancy Childbirth*. 2024 May 14;24(1):355. doi: 10.1186/s12884-024-06565-1.
- » Chandrasekaran P, Lee HS, Hui L, Schleiss MR, Sung V. Prenatal and postnatal antiviral therapies for the prevention and treatment of congenital cytomegalovirus infections. *Curr Opin Infect Dis*. 2024 Dec 1;37(6):494-505. doi: 10.1097/QCO.0000000000001067.
- » Pynaker C, McCoy J, Halliday J, Lewis S, Amor DJ, Walker SP, Hui L; PALM cohort study group. Perinatal outcomes after a prenatal diagnosis of a fetal copy number variant: a retrospective population-based cohort study. *BMC Pediatr*. 2024 Aug 22;24(1):536. doi: 10.1186/s12887-024-05012-6. PMID: 39174956; PMCID: PMC11340052.
- » Barrese M, Marzan MB, Hui L. Association Between COVID-19 Pandemic Phases and the Risk of Maternal Intensive Care Unit Admission: A Retrospective Analysis of 215,363 Victorian Hospital Admissions. *Aust N Z J Obstet Gynaecol*. 2025 Jan 2. doi: 10.1111/ajo.13931.
- » Poulton A, Menezes M, Hardy T, Lewis S, Hui L. Clinical outcomes following preimplantation genetic testing for monogenic conditions: a systematic review of observational studies. *Am J Obstet Gynecol*. 2025 Feb;232(2):150-163. doi: 10.1016/j.ajog.2024.09.114.

## Presentations

Presenter	Event	Title	Location
Ishara Atukorala	International Society for Extracellular Vesicles	Amniotic fluid extracellular vesicle proteome vary in a gestation dependent manner	Melbourne, Australia
Ishara Atukorala	Society for Reproductive Biology	Amniotic fluid extracellular vesicle properties vary in a gestation-dependent manner	Adelaide, Australia
Ishara Atukorala	Australasian Brain Club	Amniotic fluid extracellular vesicles carry biological information from cytomegalovirus infected fetuses	Melbourne, Australia
Ishara Atukorala	Australian Reproduction Update	Amniotic fluid extracellular vesicle properties vary in a gestation-dependent manner	Melbourne, Australia
Ishara Atukorala	Neonatal Cell Therapies	Amniotic fluid extracellular vesicle proteome vary in a gestation dependent manner	Sydney, Australia
Melvin Marzan	Perinatal Society of Australia and New Zealand	Geospatial Determinants of Maternal Overweight, Gestational Diabetes and Large for Gestational Age Birthweight in Melbourne During and After COVID-19 Lockdowns	Christchurch, New Zealand
Melvin Marzan	Perinatal Society of Australia and New Zealand	Impact of the Australian Preterm Birth Prevention Alliance and the COVID-19 Pandemic on preterm births rates in Victoria: An interrupted time-series analysis of 789,000 singleton births from 2012 to 2022	Christchurch, New Zealand
Melvin Marzan	Perinatal Society of Australia and New Zealand	The Effect Of Treatment Targets On Perinatal Outcomes In Pregnancies Affected By Gestational Diabetes; A Multi-centre Retrospective Cohort Study	Christchurch, New Zealand
Lisa Hui	Perinatal Society of Australia and New Zealand	Increase in Stillbirths Associated With Organizational Factors and Barriers to Engaging Care During the Pandemic: A Retrospective Analysis of CCOPMM Stillbirth Classifications, 2018–2022	Christchurch, New Zealand
Lisa Hui	College of O&G Singapore ISUOG approved course on Genetics and Genomics:	Other Directions in NIPT: cell based NIPT, non-invasive fetal genome sequencing & NIPT for viral infections	Singapore
Lisa Hui	College of O&G Singapore ISUOG approved course on Genetics and Genomics:	NIPT Screening: Perspectives from the Australian Experience	Singapore
Lisa Hui	International Society of Obstetric Medicine (ISOM) and Society of Obstetric Medicine of Australia and New Zealand (SOMANZ)	Maternal implications of advances in reproductive genetics	Sydney, Australia
Lisa Hui	New Zealand Maternal Fetal Medicine Network day	Congenital CMV - time for routine screening?	Wellington, New Zealand



Presenter	Event	Title	Location
Lisa Hui	New Zealand Maternal Fetal Medicine Network day	Introducing mitochondrial donation- the MitoHOPE study	Wellington, New Zealand
Lisa Hui	International society for Prenatal Diagnosis Virtual Education Series	Congenital CMV - what should we be doing now?	Online webinar
Lisa Hui	Annual National Stillbirth Forum / QLD Maternal Fetal Medicine Symposium	Time to start routine screening for CMV in pregnancy?	Queensland, Australia
Lisa Hui	Annual National Stillbirth Forum / QLD Maternal Fetal Medicine Symposium	Impact of the pandemic on maternity care and perinatal outcomes	Queensland, Australia
Lisa Hui	RANZCOG Maternal fetal medicine colloquium	Is it time for a national prenatal CMV registry?	Sydney, Australia
Lisa Hui	RANZCOG Webinar	Reproductive Carrier screening - are we ready?	Online webinar
Lisa Hui	Mercy Perinatal Fetal Medicine at Twilight seminar	NIPT - what is the current standard of care?	Online webinar

## Achievements

- » Ishara Atukorala received Henry and Rachael Ackman Travelling Scholarship (\$5,000) and MDHS ECA Conference Support Scheme (\$1,500) in travel funding.
- » Lisa Hui was awarded an MRFF grant in the 2024 Genomic Health Futures Mission scheme for her project "Improving Access and Community Trust in Perinatal Genomics (ImpACT-PG) study" (\$968,000).
- » Ishara Atukorala received a University of Melbourne MDHS EMCR Project Catalyst Grant for her project "Can novel anti-viral medications treat cytomegalovirus infection in human placenta?" Ishara Atukorala, Natasha de Alwis, Natalie Hannan, Lisa Hui (\$39,700).

# Therapeutics Discovery and Vascular Function in Pregnancy Group

The Therapeutics Discovery and Vascular Function in Pregnancy Group is dedicated to improving women’s health by tackling serious pregnancy complications such as preeclampsia and preterm birth. Our work focuses on how the placenta develops and functions and how problems with the placenta can lead to health risks for both mother and baby.

A key area of our research is understanding how placental dysfunction contributes to poor blood vessel health in the mother. In preeclampsia, for example, the placenta releases harmful factors that can damage the mother’s blood vessels and organs. We study these processes using real human placental and blood vessel tissues, collected through Mercy Hospital for Women.

We have also developed a unique human tissue screening system to test potential new treatments. By using cells, vessels and blood samples from pregnant women, we can better understand disease pathways and accelerate the discovery of safer, more effective therapies.

## Research team

Natalie Hannan	Rose Freemantle
Natalie Binder	Maya Robertson
Natasha de Alwis	Anjali Garg
Bianca Fato	Lydia Baird
Bridget Arman	



## Grants

Year	Funder	Project Title	Investigators	Amount
2024-2028	NHMRC Ideas Grant	A mother's risk of future cardiovascular disease following preeclampsia: is early detection and prevention possible?	Natalie Hannan, Amanda Henry, Natasha de Alwis, Lynne Roberts	\$1,129,806
2021-2025	NHMRC Ideas Grant	Improving the pipeline for translation of therapies for serious complications of pregnancy	Natalie Hannan, Natalie Binder, Lisa Hui, Sally Beard	\$965,934
2024-2025	University of Melbourne Trevor B Kilvington Grant	For research in preeclampsia	Natasha de Alwis, Natalie Hannan, Natalie Binder	\$49,225
2024	Norman Beischer Medical Research Foundation Innovation Grant	Tumor necrosis factor inhibition: a new frontier in preeclampsia therapeutics	Natasha de Alwis, Natalie Hannan, Natalie Binder, Alina Roman	\$69,963
2024	University of Melbourne Early Career Researcher Grant	Development of placentoids: next generation placenta models for drug discovery	Natasha de Alwis	\$39,934
2024	Society of Obstetric Medicine Australia and New Zealand Research Grant	Investigating the potential of complement blockade to treat preeclampsia-induced vascular dysfunction	Natasha de Alwis	\$10,000
2024	Department of Obstetrics, Gynaecology and Newborn Health Fellowship	Biologic therapeutics for the prevention of preterm birth	Natalie Binder	\$149,038
2023-2024	University of Melbourne Trevor B Kilvington Grant	Selective endothelin-1 receptor inhibition: novel strategies to treat preeclampsia	Natalie Binder, Natalie Hannan, Natasha de Alwis	\$49,584
2024	Austin Medical Research Foundation Grant-in-aid of Medical Research	Biological therapeutics, Infliximab and Eculizumab, for the prevention and treatment of preterm birth	Natalie Binder, Natalie Hannan, Natasha de Alwis	\$10,000
2024	Melbourne Medical School Minor Equipment Grant	Zeiss dissecting microscope	Natalie Hannan	\$11,690

## Publications

- » Fato BR, de Alwis N, Beard S, Binder NK, Pritchard N, Kaitu'u-Lino TJ, Bubb KJ, Hannan NJ Exploring the Therapeutic Potential of C-Type Natriuretic Peptide for Preeclampsia. Hypertension, 2024 Sep;81(9):1883-1894.
- » Arman BM, Binder NK, de Alwis N, Beard S, Garg A, Kaitu'u-Lino TJ, Hannan NJ Investigating ticagrelor in a preclinical pipeline as a novel therapeutic to prevent preterm birth. Reproduction, 2024 Feb 2;167(3):e230404.

## Presentations

Presenter	Event	Title	Location
Natalie Hannan	International Federation of Placenta Associations	Novel strategies to tackle preeclampsia: Placental targeted RNAi therapeutics delivery	Montreal, Canada
Natalie Binder	International Federation of Placenta Associations	Investigation of Japanese traditional medicines, Kampo, for the treatment of preeclampsia	Montreal, Canada
Natalie Binder	Society for Reproductive Biology	Targeting the vasoconstrictor, endothelin-1, to improve understanding of preeclampsia and investigate potential treatments	Adelaide, Australia
Natasha de Alwis	Australian Reproduction Update	Immune complement C5 inhibition does not alter inflammatory or anti-angiogenic pathways in the preeclamptic placenta	Melbourne, Australia
Natasha de Alwis	Austin Medical Research Foundation, ResearchFEST	New generation antiplatelet drugs for prevention of preeclampsia: novel roles in mitigating maternal vasoconstriction in human models of disease	Melbourne, Australia
Natasha de Alwis	Falling Walls	Breaking the wall of therapies in pregnancy	Berlin, Germany
Natasha de Alwis	International Federation of Placenta Associations	New generation antiplatelet agents for the prevention of preeclampsia: enhancing antioxidant pathways in first trimester placenta	Montreal, Canada
Natasha de Alwis	The International Society for the Study of Hypertension in Pregnancy	Phosphoglutamase-5 is dysregulated in pathological placenta and in models of placental dysfunction	Virtual
Natasha de Alwis	Society of Obstetrics Medicine of Australia and New Zealand	Immune complement C5 inhibition does not alter inflammatory or anti-angiogenic pathways in the preeclamptic placenta	Sydney, Australia
Natasha de Alwis	Society for Reproductive Biology	ALOX15 expression is elevated in the first trimester placenta and downregulated in term cytotrophoblast under hypoxia	Adelaide, Australia
Natasha de Alwis	Society for Reproductive Biology	Placental complement component C5 levels are elevated in term preeclampsia - its inhibition does not mitigate placental dysfunction	Adelaide, Australia
Bridget Arman	Society for Reproductive Investigation	Preclinical assessment of pantoprazole in models or preterm birth for tocolytic repurposing	Vancouver, Canada
Bianca Fato	Australian and New Zealand Placental Research Association	High glucose availability alters the proteomic profile of small placental extracellular vesicles and their ability to induce endothelial dysfunction	Adelaide, Australia



Presenter	Event	Title	Location
Bianca Fato	Austin Medical Research Foundation, ResearchFEST	Placental high glucose exposure alters the proteome of released extracellular vesicles and their ability to induce endothelial dysfunction	Melbourne, Australia
Bianca Fato	International Federation of Placenta Associations	High glucose availability alters the proteomic profile of small placental extracellular vesicles and their ability to induce endothelial dysfunction	Montreal, Canada
Bianca Fato	Society for Reproductive Biology	Hypoxia alters the proteome of small placental extracellular vesicles and their effect on endothelial dysfunction	Adelaide, Australia
Bianca Fato	Society for Reproductive Investigation	The proteomic profile of small placental extracellular vesicles is altered by exposure to hypoxia and high glucose	Vancouver, Canada
Rose Freemantle	International Federation of Placenta Associations	Purinergic signalling in the human placenta and functional analysis of purinoceptor P2Y6 in placental development	Montreal, Canada
Rose Freemantle	Society for Reproductive Biology	Do adenosine receptors play a role in placentation and placenta dysfunction?	Adelaide, Australia
Maya Robertson	Society for Reproductive Biology	Targeted lipid nanoparticle delivery of short interfering RNA to treat preeclampsia	Adelaide, Australia

## Achievements

- » Natasha de Alwis was awarded a Heart Foundation Postdoctoral Fellowship (for funding in 2025-2026).
- » Maya Robertson was a finalist for the SRB-ANZPRA New Investigator Award.
- » Rose Freemantle was a finalist for the SRB-ANZPRA New Investigator Award.
- » Bridget Arman completed her PhD.

# Walker Perinatal Research Group

The Walker Perinatal Research Group is led by Professor Sue Walker. It includes clinicians contributing to research in Maternal Fetal Medicine as well as researchers with a particular focus on stillbirth, medical disorders in pregnancy, fetal diagnosis and therapy. The Perinatal Research Group works closely with other teams including Perinatal Epidemiology, Translational Obstetric Group and others, as well as providing leadership in perinatal clinical trials at Mercy Hospital for Women.

## Research team

Sue Walker	Melanie Moir
Lisa Hui	Kaitlin Constable
Alison Fung	Von Brown
Alexis Shub	Natalia Wysocki
Elizabeth McCarthy	Alex Roddy-Mitchell
Hannah Skyrpek	Simon Meagher
Teresa MacDonald	Lil Downie



## Grants

Year	Funder	Project Title	Investigators	Amount
2025–27	NHMRC CIA Grant	Novel methods to identify women at risk of preeclampsia late in pregnancy	CIA - Prof Sue Walker CIB - Dr Lucy Bartho CIC - Dr Shihui Wen	\$1,047, 000
2024–2028	NHMRC Investigator Grant	Checkpoints of placental health during pregnancy to minimise stillbirth risk	CIA Teresa MacDonald	\$497,224
2020–2024	NHMRC Synergy Grant	Developing new diagnostics to prevent stillbirth	Stephen Tong, Tu'uhevaha Kaitu'u-Lino, Sue Walker, Roger Smith, Marimuthi Palaniswami, Fiona Brownfoot	\$5,000,000
2021–2026	NHMRC CRE	Centre for Research Excellence in Stillbirth	CIH- Walker	\$2,500,000
2022–2024	MRFF - Improving the Health and Wellbeing of Indigenous Mothers and Babies	Replanting the Birthing Trees to Support First Nations Parents and Babies	CI Walker	\$4,999,095
2024–2026	Norman Beischer Medical Research Foundation Fellowship	Checkpoints of placental health during pregnancy to minimise stillbirth risk	CIA MacDonald	\$660,000
2024–2025	Arthur Wilson Fellowship	Checkpoints of placental health during pregnancy to minimise stillbirth risk	CIA MacDonald	\$60,000
2024	Women Health Research Translaiton Network	Checkpoints of placental health during pregnancy to minimise stillbirth risk	CIA MacDonald	\$10,000
2021–2024	NHMRC	Developing a Screening Test to Identify Women at Risk of Preeclampsia	CIA Kaitu'u-Lino, CIB Walker	\$1,119,284
2020–2024	MRFF: Rare Cancers, Rare Disease and Unmet Needs	Can intrapartum SildEnafil safely Avert the Risks of Contraction-induced Hypoxia in labour? iSEARCH – a pragmatic Phase 3 Randomised Controlled Trial	CIA Kumar, CI Walker	\$3,418,152

## Publications

- » Bartho LA, McKeating DR, Walker SP, Nijagal B, MacDonald TM, Pritchard N, ... Kaitu'u-Lino TJ. Plasma metabolites are altered before and after diagnosis of preeclampsia or fetal growth restriction. *Scientific Reports* 2024, 14(1), 15829.
- » Bartho LA, Walker SP, Cannon P, Nguyen TV, Nguyen A, Botha SM, ... Kaitu'u-Lino TJ. Leukocyte-associated immunoglobulin-like receptor 1 (LAIR1) is reduced with preeclampsia and small for gestational aged fetuses. *Placenta* 2024, 156, pp. 10–13.
- » Booker LA, Howard ME, Walker SP & Wilson DL. Correction: Validation of a sleep-disordered breathing screening questionnaire during pregnancy and comparison between mothers and bedpartners prediction of risk. *BMC Pregnancy and Childbirth* 2024, 24(1), 602.
- » Booker LA, Howard ME, Walker SP & Wilson DL. Validation of a sleep-disordered breathing screening questionnaire during pregnancy and comparison between mothers and bedpartners prediction of risk. *BMC Pregnancy Childbirth*, 2024 24(1), 565.
- » Cluver CA, Bergman L, Imberg H, Mol BW, Hall D, Bekker A, Gordon A, Brownfoot F, Kaitu'u-Lino TJ, Walker SP, & Tong S. Does metformin prolong pregnancy in preterm pre-eclampsia? A study protocol for a South African, hospital-based double-blind, randomised, placebo-controlled trial. *BMJ Open*, 2024, 14(6), e082880.
- » Goldsack AJ, Marzan MB, Rolnik DL, Lindquist AC, Said JM, Palmer KR, Sheehan PM, Potenza S, Pritchard N, Whitehead CL, Ford J, Mol BW, Walker SP & Hui L. Trends in maternal body mass index, macrosomia and caesarean section in first-time mothers during the pandemic: a multicentre retrospective cohort study of 12 Melbourne public hospitals. *BMC Pregnancy Childbirth*, 2024, 24(1), 706.
- » Gordon HG, Atkinson JA, Tong S, Mehdi-pour P, Cluver C, Walker SP, ... Hastie RM. Metformin in pregnancy and childhood neurodevelopmental outcomes: a systematic review and meta-analysis. *Am J Obstet Gynecol.* 2024 231(3), pp. 308–314.e6.
- » Kumar S, Tarnow-Mordi W, Mol BW, Flenady V, Liley H, Badawi N, Walker SP Hyett J, Seidler L, Callander E & O'Connell R. The iSEARCH randomised controlled trial protocol: a pragmatic Australian phase III clinical trial of intrapartum sildenafil citrate to improve outcomes potentially related to intrapartum hypoxia. *BMJ Open*, 2024, 14(9), e082943.
- » Pynaker C, McCoy J, Halliday J, Lewis S, Amor DJ, Walker SP & Hui L. Perinatal outcomes after a prenatal diagnosis of a fetal copy number variant: a retrospective population-based cohort study *BMC Pediatr*, 2024, 24(1), 536.
- » Wilson DL, Whenn C, Barnes M, Walker SP & Howard ME. A Position Modification Device for the Prevention of Supine Sleep During Pregnancy: A Randomised Crossover Trial. *Bjog.* doi:10.1111/1471-0528.17952.
- » Palm K, Cluver C, Langenegger E, Tong S, Walker SP, Imberg H, Hastie R & Bergman L. Circulating concentrations of pro-inflammatory cytokines in preeclampsia with varying disease severity. *Pregnancy Hypertension*, 2024, 38, 101168.
- » Kirk EP, Delatycki MB, Archibald AD, Tutty E, Caruana J, ... Walker SP, Theodorou T, Catchpool T, Clinch T, Roscioli T, Hardy T, Zhu Y, Fehlberg Z, Boughtwood TF & Laing NG. Nationwide, Couple-Based Genetic Carrier Screening. *Mackenzie's Mission Investigators.* *N Engl J Med.* 2024: 391(20):1877-1889.
- » Bergman L, Hannsberger D, Schell S, Imberg H, Langenegger E, Moodley A, Pitcher R, Griffith-Richards S, Herrock O, Hastie R, Walker SP, Tong S, Wikström J & Cluver C. Cerebral infarcts, edema, hypoperfusion, and vasospasm in preeclampsia and eclampsia. *Am J Obstet Gynecol.* S0002-9378(24)01106-2. doi: 10.1016/j.ajog.2024.10.034.
- » Gordon HG, Shub A, Stewart MJ, Kane SC, Cheong JL, Roberts CT, Holberton J, Boland RA. In-utero transfer, survival-focused care and survival to 28-days at 22-24 weeks' gestation pre- and post- implementation of an extreme prematurity management guideline in Victoria, Australia. *BMJ Paediatr Open.* 2024 Oct 21;8(1):e002462. doi: 10.1136/bmjpo-2023-002462.
- » Widyaputri F, Khong EWC, Rogers SL, Nankervis AJ, Conn JJ, Sasongko MB, Shub A, Fagan XJ, Guest D, Symons RCA, Lim LL. Progression of diabetic retinopathy in women with pregestational diabetes during pregnancy and postpartum. *Clin Exp Ophthalmol.* 2024 Sep-Oct;52(7):761-773. doi: 10.1111/ceo.14410. Epub 2024 Jun 19.
- » Bradford BF, Hayes DJL, Damhuis S, Shub A, Akselsson A, Radestad I, Heazell AEP, Flenady V, Gordijn SJ. Decreased fetal movements: Report from the International Stillbirth Alliance conference workshop. *Int J Gynaecol Obstet.* 2024 May;165(2):579-585. doi: 10.1002/ijgo.15242. Epub 2023 Dec 8.



- » D L Rolnik, Y Raymond, T Lee, J Ramkrishna, F da Silva Costa, M Menezes & S Meagher. Uterine fibroids and non-informative cell-free DNA screening results. *Ultrasound Obstet Gynecol* 2024 Oct;64(4):463-469. doi: 10.1002/uog.29098. Epub 2024 Aug 23.
- » Gordon H, Salim N, Tong S, Walker S, De Silva M, Cluver C, Mehdipour P, Hiscock R, Sutherland L, Doust A, Bergman L, Wikström AK, Lindquist A, Hesselman S, Hastie R. Metformin use and preeclampsia risk in women with diabetes: a two-country cohort analysis. *BMC Med.* 2024 Sep 27;22(1):418.



# Neonatal

The Mercy Hospital Newborn Research group consists of consultant neonatologists, nurses and allied health clinicians, as well as undergraduate and postgraduate students. There is one research nurse in the team, which we hope to expand in 2025/6. Brett Manley joined as Professor/Director of Newborn Research in November 2024.

## Research team

Brett Manley	Neonatal Consultants
Shiraz Badurdeen	Neonatal Fellows
Corinne Poulter	Neonatal Nurses
Kristin Ferguson	Neonatal Allied Health Clinicians
Lucy Loft	



## Grants

Year	Funder	Project Title	Investigators	Amount
2024–28	MACH-Track	MACH Track fellowship	Kristin Ferguson	Salary
2024–28	NHMRC CTCS	PROMOAT	Brett Manley	\$4,500,000
2024–28	MRFF	The PLATIPUS adaptive platform trial	Brett Manley	\$3,900,000
2024–28	MRFF	HUM-Te trial	Brett Manley	\$150,0000
2024–29	NHMRC	EPIC: Extremely preterm infant CRE	Brett Manley	\$3,100,000

## Publications

- » Gordon HG, Shub A, Stewart MJ, Kane SC, Cheong JL, Roberts CT, Holberton J, Boland RA. In-utero transfer, survival-focused care and survival to 28-days at 22-24 weeks' gestation pre- and post- implementation of an extreme prematurity management guideline in Victoria, Australia. *BMJ Paediatr Open*. 2024 Oct 21;8(1):e002462
- » Duffy N, Hickey L, Treyvaud K, Delany C. A study of the infant's lived experience of neonatal intensive care. *Early Hum Dev*. 2025 Jun; 205: 106254.
- » Nisa EL, Davies K, Pellicano A, Duffy N. A Single Centre's Experience of Non-Iatrogenic Neonatal Bilateral Vocal Cord Paralysis. *J Paediatr Child Health*. 2025 Jul;61(7):1039-1048.
- » Duffy N, Hickey L, Treyvaud K, Delany C. 360-degree phenomenology: A qualitative approach to exploring the infant experience of hospitalisation in neonatal intensive care. *Early Hum Dev*. 2024 Mar; 190: 105963.
- » Manley BJ, Badurdeen S. *Arch Dis Child Fetal Neonatal Ed*. 2025 May 22:fetalneonatal-2025-328493. doi: 10.1136/archdischild-2025-328493. Online ahead of print.PMID: 40404345 No abstract available. Hole in one: factors associated with successful neonatal endotracheal intubation.
- » Subhi R, McLeod L, Ayede AI, Dedeké IO, Risikat Q, Akanbi AR, Fasasi AB, Bakare AA, Adeniyi OH, Akinrinoye O, Adeigbe O, Dargaville GF, Walker P, Grobler AC, Mosebolatan O, Badurdeen S, Gale TJ, Falade AG, Dargaville PA, Graham HR. *Lancet Glob Health*. 2025 Feb;13(2):e246-e255. doi: 10.1016/S2214-109X(24)00458-3.PMID: 39890225 Free article. Clinical Trial. Automated oxygen control for preterm infants receiving continuous positive airway pressure in southwest Nigeria: an open-label, randomised, crossover trial.
- » Badurdeen S, Galinsky R, Roberts CT, Crossley KJ, Zahra VA, Thiel A, Pham Y, Davis PG, Hooper SB, Polglase GR, Camm EJ. *J Cereb Blood Flow Metab*. 2025 Apr;45(4):630-642. doi: 10.1177/0271678X241302738. Epub 2024 Nov 22.PMID: 39576879 Free PMC article. Rapid oxygen titration following cardiopulmonary resuscitation mitigates cerebral overperfusion and striatal mitochondrial dysfunction in asphyxiated newborn lambs.
- » Davies IM, Crossley KJ, McGillick EV, Nitsos I, Rodgers K, Thiel A, Zahra VA, Badurdeen S, Te Pas AB, Hooper SB. *Front Pediatr*. 2024 Apr 16;12:1336154. doi: 10.3389/fped.2024.1336154. eCollection 2024. PMID: 38690521 Free PMC article. Adverse respiratory patterns in near-term spontaneously breathing newborn lambs with elevated airway liquid volumes at birth.
- » Badurdeen S, Blank DA, Hoq M, Wong FY, Roberts CT, Hooper SB, Polglase GR, Davis PG. *Pediatr Res*. 2024 Jul;96(1):124-131. doi: 10.1038/s41390-024-03131-5. Epub 2024 Apr 26.PMID: 38671085 Free PMC article. Clinical Trial. Blood pressure and cerebral oxygenation with physiologically-based cord clamping: sub-study of the BabyDUCC trial.
- » Badurdeen S. *Pediatr Res*. 2024 Jul;96(1):4. doi: 10.1038/s41390-024-03218-z. Epub 2024 Apr 24.PMID: 38658661 No abstract available. ECI biocommentary: Shiraz Badurdeen.
- » Polglase GR, Brian Y, Tantanis D, Blank DA, Badurdeen S, Crossley KJ, Kluckow M, Gill AW, Camm E, Galinsky R, Thomas Songstad N, Klingenberg C, Hooper SB, Roberts CT. *Resuscitation*. 2024 May;198:110191. doi: 10.1016/j.resuscitation.2024.110191. Epub 2024 Mar 22.PMID: 38522732 Free article. Endotracheal epinephrine at standard versus high dose for resuscitation of asystolic newborn lambs.

- » Badurdeen S, Cheong JLY, Donath S, Graham H, Hooper SB, Polglase GR, Jacobs S, Davis PG. *J Pediatr.* 2024 Apr;267:113902. doi: 10.1016/j.jpeds.2024.113902. Epub 2024 Jan 5. PMID: 38185204 Free article. Early Hyperoxemia and 2-year Outcomes in Infants with Hypoxic-ischemic Encephalopathy: A Secondary Analysis of the Infant Cooling Evaluation Trial.
- » Polglase GR, Hwang C, Blank DA, Badurdeen S, Crossley KJ, Kluckow M, Gill AW, Camm E, Galinsky R, Brian Y, Hooper SB, Roberts CT. *Arch Dis Child Fetal Neonatal Ed.* 2024 Jun 19;109(4):405-411. doi: 10.1136/archdischild-2023-326047. PMID: 38123977 Free PMC article. Assessing the influence of abdominal compression on time to return of circulation during resuscitation of asphyxiated newborn lambs: a randomised preclinical study.
- » Sett A, Foo GWC, Tingay DG, Badurdeen S. *Pediatr Res.* 2024 Mar;95(4):877-879. doi: 10.1038/s41390-023-02910-w. Epub 2023 Nov 17. PMID: 37978316 No abstract available. The best of both worlds: Refining respiratory phenotypes through combined non-invasive lung monitoring.
- » Loft L, Ferguson KN, Tingay DG. *EBNEO Commentary: De-MIST-ifying the 2-year outcomes of non-invasive surfactant therapy.* *Acta Paediatr.* 2024;113(5):1121.
- » Selman CJ, Lee KJ, Ferguson KN, Whitehead CL, Manley BJ, Mahar RK. Statistical analyses of ordinal outcomes in randomised controlled trials: a scoping review. *Trials.* 2024;25(1):241.
- » Manley BJ, Kamlin COF, Donath SM, Francis KL, Cheong JLY, Dargaville PA, Dawson JA, Jacobs SE, Birch P, Resnick SM, Schmörlzer GM, Law B, Bhatia R, Bach KP, de Waal K, Travadi JN, Koorts PJ, Berry MJ, Lui K, Rajadurai VS, Chandran S, Kluckow M, Cloete E, Broom MM, Stark MJ, Gordon A, Kodur V, Doyle LW, Davis PG, McKinlay CJD; PLUSS Trial Investigators. *JAMA.* 2024 Dec 10;332(22):1889-1899. doi: 10.1001/jama.2024.17380. PMID: 39527075 Free PMC article. Clinical Trial. Intratracheal Budesonide Mixed With Surfactant for Extremely Preterm Infants: The PLUSS Randomized Clinical Trial.
- » Manley BJ, Cripps E, Dargaville PA. *Semin Perinatol.* 2024 Mar;48(2):151885. doi: 10.1016/j.semperi.2024.151885. Epub 2024 Mar 23. PMID: 38570268 Free article. Review. Non-invasive versus invasive respiratory support in preterm infants.
- » Campbell AJ, Anpalagan K, Best EJ, Britton PN, Gwee A, Hatcher J, Manley BJ, Marsh J, Webb RH, Davis JS, Mahar RK, McGlothlin A, McMullan B, Meyer M, Mora J, Murthy S, Nourse C, Papenburg J, Schwartz KL, Scheuerman O, Snelling T, Strunk T, Stark M, Voss L, Tong SYC, Bowen AC; Staphylococcus aureus Network Adaptive Platform Paediatric and Youth (SNAP-PY) working group. *SNAP Global Trial Steering Committee. JAMA Pediatr.* 2024 Oct 1;178(10):1066-1071. doi: 10.1001/jamapediatrics.2024.2697. PMID: 39158898
- » Pereira-Fantini PM, Byars SG, Kamlin COF, Manley BJ, Davis PG, Tingay DG. *Am J Respir Cell Mol Biol.* 2024 Dec;71(6):677-687. doi: 10.1165/rcmb.2024-0034OC. PMID: 39051934 Plasma Proteome Profiles Associated with Early Development of Lung Injury in Extremely Preterm Infants.
- » Sett A, Foo G, Ngeow A, Thomas N, Kee PPL, Zayegh A, Hodgson KA, Donath SM, Tingay DG, Davis PG, Manley BJ, Rogerson SR. *Arch Dis Child Fetal Neonatal Ed.* 2025 Feb 21;110(2):185-190. doi: 10.1136/archdischild-2024-327172. PMID: 39160076 Predicting extubation failure in preterm infants using lung ultrasound: a diagnostic accuracy study.
- » Peart S, Kahvo M, Alarcon-Martinez T, Hodgson K, Eger HS, Donath S, Owen LS, Davis PG, Roehr CC, Manley BJ. *J Pediatr.* 2025 Mar;278:114423. doi: 10.1016/j.jpeds.2024.114423. Epub 2024 Nov 28. PMID: 39613140 Review. Clinical Guidelines for Management of Infants Born before 25 Weeks of Gestation: How Representative Is the Current Evidence?
- » Selman CJ, Lee KJ, Ferguson KN, Whitehead CL, Manley BJ, Mahar RK. *Trials.* 2024 Apr 6;25(1):241. doi: 10.1186/s13063-024-08072-2. PMID: 38582924 Free PMC article. Statistical analyses of ordinal outcomes in randomised controlled trials: a scoping review.
- » Manley BJ, McKinlay CJD, Lee KJ, Groom KM, Whitehead CL. *Lancet Child Adolesc Health.* 2025 Feb;9(2):131-137. doi: 10.1016/S2352-4642(24)00328-6. PMID: 39855752 Review. Adapt to survive and thrive: the time is now for adaptive platform trials for preterm birth.
- » Manley BJ, Kamlin COF, McKinlay CJD. *JAMA.* 2025 Jun 10;333(22):2024-2025. doi: 10.1001/jama.2025.2880. PMID: 40338604 No abstract available. Intratracheal Budesonide and Bronchopulmonary Dysplasia in Extremely Preterm Infants-Reply.



- » Alarcon Martinez T, Hodgson KA, Baker E, Whitehead C, McKinlay CJD, Davis PG, Manley BJ; Australian and New Zealand Neonatal network (ANZNN).Arch Dis Child Fetal Neonatal Ed. 2024 Oct 18;109(6):681-682. doi: 10.1136/archdischild-2024-326874.PMID: 38641418 No abstract available. Caffeine therapy for very preterm infants in Australia and New Zealand: a bi-national survey.
- » Kwok TC, Manley BJ, Roehr CC, Sett A.Pediatr Res. 2025 Apr;97(5):1420-1421. doi: 10.1038/s41390-024-03682-7. Epub 2024 Nov 7.PMID: 39511440 No abstract available. Can pathophysiological lung function markers guide the use of postnatal corticosteroids for bronchopulmonary dysplasia?
- » Hodgson KA, Selvakumaran S, Francis KL, Owen LS, Newman SE, Kamlin COF, Donath S, Roberts CT, Davis PG, Manley BJ.Arch Dis Child Fetal Neonatal Ed. 2024 Dec 20;110(1):75-78. doi: 10.1136/archdischild-2024-327081.PMID: 38969493 Predictors of successful neonatal intubation in inexperienced operators: a secondary, non-randomised analysis of the SHINE trial.
- » Peart S, Ray O, Galletta L, Bates A, Boland RA, Davis PG, Gale C, Johnson S, Kinsella S, Knight M, Owen LS, Pallot L, Prentice TM, Santhanadass P, Stanbury K, Tingay D, Whitehead CL, Manley BJ, Roehr CC, Hardy P; Steering Group.Arch Dis Child Fetal Neonatal Ed. 2025 Mar 26:fetalneonatal-2024-328133. doi: 10.1136/archdischild-2024-328133. Online ahead of print.PMID: 39988355 Research priorities for the most premature babies born <25 weeks' gestation: results of an international priority setting partnership.

## Presentations

Presenter	Event	Title	Location
Jim Holberton	Melbourne BPD Symposium	Why CLD is like Rock Climbing	Melbourne, Australia
Natalie Duffy	Cool Topics in Neonatology	The Infant's Lived experience of Neonatal Intensive Care	Melbourne, Australia
Natalie Duffy	What are Infants telling Us: From Neonatal Nursery Care to Supporting Optimal Infant Development Webinar, Emerging Minds in conjunction with Mental Health Professionals' Network	The Infant's Lived experience of Neonatal Intensive Care	Melbourne, Australia
Natalie Duffy	Emerging Minds Podcast	The Infant's Lived experience of Neonatal Intensive Care	Melbourne, Australia
Natalie Duffy	Optimising Outcomes for Neonates, Infants and their Families Symposium	The Experience Study: Exploring the Infant's Early Lived Experiences in Neonatal Intensive Care	Sydney, Australia
Natalie Duffy	Care Out Loud Podcast	Unveiling the Human Side of Neonatal Care: A Journey with Dr. Natalie Duffy	Boston, United States of America
Natalie Duffy	Mercy Hospital for Women Neonatal Grand Rounds	The Infant's Lived experience of Neonatal Intensive Care	Melbourne, Australia
Natalie Duffy	Queensland Perinatal and Infant Mental Health Symposium	The Infant's Lived Experience of Relationships in NICU	Gold Coast, Australia
Natalie Duffy	Childbirth and Parenting Educators of Australia Conference	A Study of the Infant's Lived Experience of Neonatal Intensive Care	Newcastle, Australia
Gemma Nesbitt	Perinatal and Infant Mental Health Conference	How does an infant's experience of neonatal intensive care impact the connection and relationships they can form with significant others?	Melbourne, Australia
Gemma Nesbitt	Australian Association of Infant Mental Health Congress	Exploring the Early Life Experiences of Infants Hospitalised in Neonatal Intensive Care	Sydney, Australia
Gemma Nesbitt	Australasian Brain Club Congress	Exploring the Early Lived Experiences of Infants Hospitalised in Neonatal Intensive Care	Melbourne, Australia
Gemma Nesbitt	International Symposium Paediatric Pain	Using 360-degree Phenomenology to Explore the Early Life Experiences of Infants Hospitalised in Neonatal Intensive Care (poster)	Glasgow, Scotland
Gemma Nesbitt	Perinatal Societies of Australia and New Zealand Congress	Using 360-degree Phenomenology to Explore the Early Life Experiences of Infants Hospitalised in Neonatal Intensive Care (poster)	Brisbane, Australia
Gemma Nesbitt	Science and Soul Conference	It's keeping him alive, but do they have to keep him alive like this? Exploring the Infant's Experience of Hospitalisation in NICU (poster)	Boston, United States of America
Gemma Nesbitt	International Forum on Quality and Safety in Healthcare	Creating a steady ship in an ever changing environment: The introduction of a QI committee. Nesbitt G, Crowle A (poster)	Brisbane, Australia

Presenter	Event	Title	Location
Brett Manley	Werribee Mercy Hospital Research Day	Research in non-tertiary SCNs	Melbourne, Australia
Brett Manley	JKB Retrieval conference	The PLUSS trial	Sydney, Australia
Brett Manley	Melbourne University	How to Make your talk exciting	Melbourne, Australia
Brett Manley	Global Obstetric Update 2024	The flat baby in delivery suite	Melbourne, Australia
Brett Manley	Global Obstetric Update 2024	The changing landscape of neonatal intensive care	Melbourne, Australia
Reka Korbely	Pediatric Academy Societies Meeting	Care Of Neonates Following In-utero Growth Restriction: A Prospective Cohort Study Exploring Neonatal Morbidity (poster)	Honolulu, USA

## Achievements

- » 2025–28 NHMRC development grant Automated titration of low-flow oxygen therapy in infants and young children Shiraz Badurdeen \$1,200,000.
- » 2025 RACP Research Establishment Fellowship, Royal Australasian College of Physicians. Shiraz Badurdeen \$50,000.
- » 2025–27 NHMRC Postgraduate Scholarship NHMRC postgraduate scholarship. Kristin Ferguson \$157,250.
- » 2025–26 Zoll Foundation ZOLL Foundation Grant Kristin Ferguson. \$150,000.
- » 2025–29 NHMRC CTCS The BabyCCINO Trial Brett Manley. \$3,000,000.
- » 2025–29 MRFF Data infrastructure The Australian Perinatal Data Linkage Platform Alex Waddell; Patrick Olivier; Sue Walker; Lyle Gurrin; Lisa Nucifora; Della Forster; Brett Manley; Anthea Lindquist, Roxanne Hastie, Stephen Tong. \$2,500,000
- » 2025–29 MRFF Cost effectiveness of adaptive platform trials Brett Manley. \$1,000,000.

# Endosurgery

The Endosurgery department specialises in providing advanced laparoscopic surgery to women. The team's research focus includes pelvic pain, endometriosis, abnormal uterine bleeding and improving surgical techniques.

## Research team

Associate Professor Emma Readman	Michal Zelcer
Dr Lenore Ellett	Dr Pinar Cingiloglu
Dr Samantha Mooney	Dr Lucy Richards
Dr Kate Stone	Dr Evangeline Shalou
Dr Natalie Yang	Dr Madeleine Smith
Dr Charlotte Reddington	Dr Samantha Sloss
Dr Lauren Hicks	Dr Emma McLaughlain
Dr Helen McNamara	Dr Alaina Francis
Dr Avelyn Wong	Dr Tariani Paul
	Dr Michelle Steele





## Grants

Year	Funder	Project Title	Investigators
2024	AGES Research Grant	What lies beneath: umbilical adhesions following abdomino-pelvic surgery	L Ellett
2024	Hologic	Outpatient hysteroscopy prediction tool	L Hicks
2024	Mercy Health Academic Research and Development Committee Small Grants	Vaginal Diazepam following Mirena IUD insertion	M Smith
2024	AGES Research Grant	Assessing uterosacral thickness on ultrasound as a soft marker for peritoneal endometriosis	K Stone
2024	AGES Research Grant	Hysteroscopic morcellation vs bipolar resection for retained products of conception: a pilot randomised controlled trial	P Cingiloglu, S Mooney
2024	Mercy Health Academic Research and Development Committee Small Grants	A randomised controlled trial evaluating the use of a multimedia video to improve consent in patients undergoing total laparoscopic hysterectomy	A Wong
2024	NBMRF	Single-use hysteroscopy using LiNA OperaScope: an evaluation and cost minimisation study	E Readman, L Ellett, L Richards

## Publications

- » July 2024 P. Cingiloglu, S Mooney, H McNamara, A Wong, L Hicks, L Ellett, E Readman Pain Experience with outpatient hysteroscopy: A prospective cohort study European Journal of Obstetrics and Gynaecology (EJOG).
- » Fang QY, Campbell N, Mooney SS, Holdsworth-Carson SJ, Tyson K. Evidence for the role of multidisciplinary team care in people with pelvic pain and endometriosis: A systematic review. Aust N Z J Obstet Gynaecol. 2023.
- » Avelyn Wong, Taylor Hodge, Helen C McNamara, Emma Readman, Debjyoti Karmakar, Stephanie Potenza, Lenore Ellett A randomized controlled trial evaluating the use of a multimedia video to improve consent in patients undergoing total laparoscopic hysterectomy J Minim Invasive Gynecol 2025 May 31.

## Presentations

Presenter	Event	Title	Location
Charlotte Reddington	AGES ASM 2025 Perth	Intra-Operative Intravenous Tranexamic Acid During Laparoscopic Surgery for Severe Endometriosis and a Double-Blinded Randomized Placebo Controlled Trial	Perth, Australia
Pinar Cingiloglu	AGES ASM 2025 Perth	Pelvic Floor Muscle Tenderness in Women Undergoing Surgery for Endometriosis: A Reliability Study	Perth, Australia
Samantha Mooney	AGES ASM 2025 Perth	The Endometriosis Longitudinal Fertility Study (ELFS): 36 Month's Experience with The ELFS App for Longitudinal Fertility Data Collection	Perth, Australia
Samantha Mooney	AGES ASM 2025 Perth	Ultrasound Assessment of The Uterosacral Ligaments and Diagnostic Accuracy for Peritoneal Endometriosis: A Pilot Single-Centre Prospective Study	Perth, Australia
Avelyn Wong	AGES ASM 2024 Hobart	Seeing is Believing: Empowering Patients through Video Education. A randomised controlled trial evaluating a multimedia video for patients undergoing TLH	Hobart, Australia
Avelyn Wong	AGES ASM 2024 Hobart	Laparoscopic Resection of a 15 week Pregnancy in a Rudimentary Horn	Hobart, Australia
Alaina Francis	AGES ASM 2025 Perth	The Persistent Pelvic Pain Study: A nested RCT comparing long-term pain and QoL outcomes for patients with PPP managed in 2 clinics	Perth, Australia

# Paediatrics Werribee Mercy Hospital

Research within the Paediatric department at Werribee Mercy Hospital is continuing to grow as is the demand for clinical services in the catchment population. The research has a focus on models of care in the community particularly Neonatal Hospital In The Home (HITH).

## Research team

Kathy McMahon

Amy Howell

Jye Gard

Claudia Boubeta

Indu Babu

Hannah Corcoran

Sharnee Lowry

Sam Padari

Ena Husaric



# Grants

Year	Funder	Project Title	Investigators	AMOUNT
2024–2025	Wyndham Vale Foundation	Home grown: Comparing the growth velocity of newborns receiving in-hospital and Neonatal Hospital-In-The-Home cares	Jye Gard	\$3,000
2024–2025	Wyndham Vale Foundation	Ready, steady, home! The impact of a Paediatric Hospital-In-The-Home service on wait times in an Emergency Department	Jye Gard	\$3,000

# Publications

- » Gard J, Howell A, Boubeta C, Corcoran H, McMahon K. australasian HITH Paediatric Practie Study. Clinical Case Reports, <https://doi.org/10.1002/ccr3.8800>.
- » In progress: Gard J, Lowry S, Babu I. Home grown: Comparing the growth velocity of newborns receiving in-hospital and Neonatal Hospital-In-The-Home cares. Manuscript yet to be submitted.
- » In progress: Gard J, Lowry S. Home grown: Factors to promote tailored care of newborns receiving Neonatal Hospital-In-The-Home cares Data collection.
- » In progress: Padari S, Gard J. Mycoplasma pneumoniae and prolonged hyperinflammatory states. Manuscript in progress.
- » In progress: Gard J, Kayiwa L, McMahon K, Lowry S. Hospital-In-The-Home: Comparing transcutaneous, point-of-case and serum bilirubin testing for neonates. Ethics submitted.
- » In progress Gard J. Australasian HITH Paediatric Practie Study. 1/19 Satellite sites - local ethics gained, data collection August.

# Presentations

Presenter	Event	Title	Location
Indu Babu, Sharnee Lowry, Jye Gard	Australasian Hospital In The Home Conference	Home grown: Comparing the growth velocity of newborns receiving in-hospital and Neonatal Hospital-In-The-Home cares- A retrospective audit	Sydney, Australia
Ena Husaric, Jye Gard	Australasian Hospital In The Home Conference	Home grown: Comparing care of newborns receiving in-hospital and Neonatal Hospital-In-The-Home service	Sydney, Australia



# Nursing and Midwifery Research

The Nursing and Midwifery Professoriate is a joint venture between Mercy Health and La Trobe University, to promote research and evidence-based practice. It is part of the La Trobe University / Mercy Health Academic Research Collaboratives in Health (ARCH).

## Research team

Christine East	Andy Ackerly
Deborah Pidd	Lisa Nikolettseas
Brooke Henshall	Maggie Pliszka
Therese Hungerford-Morgan	Stephanie Hellard
Michelle White	Lisa Regnier
Georgie Costa	Natalie Roberg
	Hannah Scoberg



## Grants

Year	Funder	Project Title	Investigators	AMOUNT
2022–2024	Safer Care Victoria	Exploring 10 years of Consultative Council on Obstetric Paediatric Mortality and Morbidity recommendations	Christine East	\$98,000

## Publications

- » Henshall BI, Grimes HA, Davis J, East CE. What is 'Physiological Birth'? A Scoping Review of the Perspectives of Women and Care Providers. *Midwifery*, 2024;132: doi: <https://doi.org/10.1016/j.midw.2024.103964>.
- » Henshall BI, Grimes HA, Davis J, East CE. The PRIMROSE Project: What is 'physiological birth'? A quantitative approach to the perceptions of the Australian population. *Midwifery*. 2025 Jun;145:104375. doi: 10.1016/j.midw.2025.104375. Epub 2025 Mar 12. PMID: 40112609.
- » Raghunathan K, East C, Poudel K. Barriers and enablers for implementation of clinical practice guidelines in maternity and neonatal settings: A rapid review. *PLoS One*. 2024;19(12):e0315588. doi: 10.1371/journal.pone.0315588.
- » Shifman J, Jones LE, Davey M-A, East CE, Whitburn LY. Novel grouping of planned coping strategies for managing the intensity of labour: A survey study of Australian nulliparous women. *Midwifery*. 2024. 104116. <https://doi.org/10.1016/j.midw.2024.104116>.
- » Hashim S, Griffiths D, East CE. Understanding Knowledge and Attitudes Regarding Hypertensive Disorders of Pregnancy among Expectant Women in Brunei Darussalam: A Nationwide Study. *Midwifery*. 2024. 104116. <https://doi.org/10.1016/j.midw.2024.104116>.
- » Xu V, Mogren I, Bergstrom C, Edvardsson K, Small R, Flood M, Holmlund S, Aldrich R, Brennecke SP, McDonald S, McEvoy M, Said JM, Shembre M, Yuen N, East CE. Health professionals' experiences and views on obstetric ultrasound in Australia: a cross-sectional study. *ANZJOG*, 2024. DOI: 10.1111/ajo.13879.
- » Martin CV, Joyce Mc-Coach J, Peddle M, East CE. Sleep deprivation and medication administration errors in Registered Nurses – a scoping review. *J Clin Nurs*. 2024. 33(3):859-73. DOI: 10.1111/jocn.16912.
- » Willey SM, Gibson ME, Blackmore R, Goonetillek L, McBride J, Highet N, Ball N, Gray KM, Melvin G, Boyd LM, East CE, Boyle JA. Perinatal mental health screening for women of refugee background: addressing a major gap in pregnancy care. *Birth* 2024. 51(1): 229-41 DOI: 10.1111/birt.12782.

## Presentations

Presenter	Event	Title	Location
B Henshall, H Grimes, J Davis, C East	Perinatal Society of Australia & New Zealand	The PRIMROSE Project: What is 'Physiological Birth'? A Quantitative Approach to the Perceptions of the Australian Population	Christchurch, New Zealand
D Pidd, M Newton, I Wilson, C Adams, C East	Perinatal Society of Australia & New Zealand	Developing An Evidence-Based, Woman-Centred Support Maternity Care Pathway For Women Who Have Experienced Birth Trauma For Their Subsequent Pregnancy: A Modified Delphi Study	Christchurch, New Zealand
M Flood, C East, S McDonald, W Pollock, M-A Davey	Perinatal Society of Australia & New Zealand	Possible Contributors To Stabilised PPH Rates In Australian Jurisdictions In 2021	Christchurch, New Zealand
K Raghunathan, K Poudel, CE East	Perinatal Society of Australia & New Zealand	Barriers and Enablers for Implementation of Clinical Practice Guidelines in Maternity and Neonatal Settings: A Rapid Review	Christchurch, New Zealand
CE East, L Regnier, M Pliszka, S Hellard, M Flood	Perinatal Society of Australia & New Zealand	The Potential Association of Routinely Weighing/ Measuring Blood Loss Following Vaginal Birth on Blood Loss Volume Ascertainment at Two Victorian Hospitals	Christchurch, New Zealand
LY Whitburn, M-A Davey, C East, LE Jones	Perinatal Society of Australia & New Zealand	Shifting States of Mind Associated with Primiparous Women's Experiences of Labour Pain	Christchurch, New Zealand
LY Whitburn, E Newhnam, LE Jones, C East, K Dawson	Perinatal Society of Australia & New Zealand	Midwives' Views and Experiences of the Impact of Verbal and Non-verbal communication during childbirth	Christchurch, New Zealand
R Hyde, RP Matthews, DA Forster, S Kane, A Dodd, E Callander, T Shafiei, C East, L Hui, H McLachlan, J Cheong, S Walker	Perinatal Society of Australia & New Zealand	Exploring the Feasibility of Testing Telehealth as Part of Routine Pregnancy Care in Randomised Controlled Trial: A Pilot Study	Christchurch, New Zealand
M Buultjens, J Fielding, A Dawes, J Love, S Bennetts, M White, T Hungerford-Morgan, G Costa, A Ackerly, C East	Australian College of Midwives	Development of a Shared and Informed Decision-Making Tool for the "Induction of Labour Project"	Melbourne, Australia
T Hungerford-Morgan, M White, L Nikolettseas, D Pidd, C East, S Bennetts	Australian College of Midwives	Experiences of Using a Shared Decision Making Tool to Enhance Woman Centred Care During Labour and Birth	Melbourne, Australia
D Pidd, M Newton, I Wilson, C Adams, C East	Australian College of Midwives	Enhancing Woman-Centred Care in a Subsequent Pregnancy after a Previous Psychological Traumatic Birth: A Modified Delphi Study	Melbourne, Australia
B Henshall, H Grimes, J Davis, C East	Australian College of Midwives	The PRIMROSE Project: What is 'Physiological Birth'? A Qualitative Approach to the Perceptions of the Australian Population using Interpretive Hermeneutic Phenomenology	Melbourne, Australia
Deb Pidd	PSANZ	Enhancing Woman-Centred Care in a Subsequent Pregnancy after a Previous Psychologically Traumatic Birth: A Modified Delphi Study	Christchurch, New Zealand

Presenter	Event	Title	Location
Deb Pidd	Australian Society for Psychosocial Obstetrics and Gynaecology (ASPOG)	Psychological Birth Trauma: What is the Evidence and What Do Women Want in a Subsequent Maternity Care Experience.	Melbourne, Australia
Deb Pidd	Australian college of Midwives (ACM)	Developing a woman-centred support maternity care pathway for women, who have experienced birth trauma, for their subsequent pregnancy. A modified Delphi study	Melbourne, Australia
Brooke Henshall	Australian College of Midwives, National Conference 'Moving Midwifery Forward'	The PRIMROSE Project: What is 'physiological birth'? A qualitative approach to the perceptions of the Australian population using interpretive hermeneutic phenomenology	Melbourne, Australia
Brooke Henshall	School of Nursing and Midwifery 3MT Competition	What is 'physiological birth'?	Melbourne, Australia
Brooke Henshall	Grand Round, Mercy Hospital for Women	What is 'physiological birth'? Findings from the PRIMROSE Project	Melbourne, Australia
Brooke Henshall	Birthing Skills, Mercy Hospital for Women	What is 'physiological birth'? Findings from the PRIMROSE Project	Melbourne, Australia

## Achievements

- » Numerous nursing and midwifery research posters were displayed during the Mercy Hospital for Women's celebrations of International Day of the Midwife and International Nurses' Day.
- » Second place in the Three Minute Thesis (3MT), cash prize \$125.

# Mercy Geriatrics Research

Lead by A/Prof Peter Lange, this informal group of medical, allied health and nursing researchers facilitate colleagues' projects.

## Publications

- » Moore C, Williams E, Dyas R, Halman A, Stenta T, Khatri D, Elliott DA, Lange PW, Caudle KE, Conyers R. CYP2D6 genotype and associated 5-HT3 receptor antagonist outcomes: A systematic review and meta-analysis. *Clinical and Translational Science*. 2025 Feb;18(2):e70108. doi: 10.1111/cts.70108. PMID: 39899439; PMCID: PMC11789932.
- » Lange PW, Turbić A, Soh CH, Clayton-Chubb D, Lim WK, Conyers R, Watson R, Maier AB. M. *J Am Geriatr Soc*. 2024 Jun;72(6):1802-1809. doi: 10.1111/jgs.18825. Epub 2024 Mar 4. PMID: 38438279. Melatonin does not reduce delirium severity in hospitalized older adults: Results of a randomized placebo-controlled trial. *Journal of the American Geriatrics Society*. 2024 Jun;72(6):1802-1809. doi: 10.1111/jgs.18825. Epub 2024 Mar 4. PMID: 38438279.





# Healthy Ageing Research

Several research programs have commenced or continued within Mercy Health's aged care settings in 2024. Each aims to improve health outcomes for older Australians and has been possible through collaborations with Australian universities and state government.

## Dementia Model of Care

In Australia, over 400,000 people are estimated to be living with dementia and this number is projected to more than double by the year 2058. Mercy Health has long recognised the increase in prevalence of, and challenges for, people living with dementia in residential care homes.

In 2024, Mercy Health partnered with Monash University to plan a program of research to effectively develop a best practice, person-centred Dementia Model of Care. The purpose of the research is to establish the key principles, strategies and an evaluation framework that provides clear guidance on how Mercy Health can provide residents with the highest level of dementia care.

The 2025 research will involve interviews conducted by Monash University researchers with aged care residents – some living with dementia – their family members, staff and volunteers. Views, opinions and suggestions for improving dementia care will be gathered to evaluate Mercy Health's level of dementia friendliness, and identify improvements to residents' personal choices, independence and quality of life.

In 2025/26, the Mercy Health Dementia Model of Care Advisory Group will oversee the development, rollout and evaluation of the model based on these research findings.

## Research team

Dr Marta Woolford, Research Fellow, Monash University

## ELUCIDAR

The Victorian Department of Health is exploring strategies to reduce the transmission of respiratory viruses in residential aged care facilities, such as COVID-19 and influenza.

The 'Effectiveness of germicidal ultraviolet Light in an Upper room Configuration In Decreasing COVID-19 in Aged-care Residential facilities (ELUCIDAR)' study is being conducted by the department in collaboration with the Burnet Institute for Research. The trial will see if germicidal ultraviolet light can reduce the level of COVID-19 in an aged care setting.

The study began in November 2024 and includes 60 residential aged care homes within Melbourne and Greater Geelong. One group has germicidal ultraviolet lighting installed in the ceilings which is kept on for 24 hours a day and the other group (a control site) has no germicidal ultraviolet lighting installed.

Mercy Health is taking part in the research, with nine of our homes completing infection control surveys monthly throughout the 12-month period.

## iGEN

iGEN is an intergenerational program connecting Mercy Health Aged Care and Seniors Living residents with Year 10 and 11 students from Mercy Education (and affiliated schools). It brings together students and residents to engage in mutually beneficial activities, projects and events – fostering purpose, helpfulness, motivation and fulfilment.

The program began in Bendigo in 2020 as a collaboration between Mercy Health, Catherine McAuley College and Australian Catholic University (ACU) and it has been steadily expanding. In the early years, ACU conducted a Delphi study to assist in program development, a qualitative study and a perpetual grant study. In 2023, the ACU GrandSchools team, based in Brisbane, began collecting data on iGEN to meet a clear need for research into intergenerational programs with teenagers and older people.

In 2024, this research work continued, with Mercy Health collaborating with ACU on ethics submissions and data collection from residents, students, staff and families in Bendigo during July and November.

Further data collection is planned for 2025, including with Mercy Place Ballarat residents and Damascus College students, which will go towards research papers to be submitted for publication. The Program Coordinators will present findings at multiple conferences in 2025.

## Research team

Ellen Francis, iGEN Coordinator, Mercy Health

Colin Hogan, iGEN Director, Catherine McAuley College Bendigo

Suzanne Kuys, Researcher, ACU

Rosamund Harrington, Researcher, ACU

Hannah Forbes, Researcher, ACU



# Allied Health Research

Allied Health Research at Mercy Health is dedicated to building research capability, generating high-quality research that informs clinical practice, and translating evidence into improved health outcomes. We are committed to embedding research into clinical practice and fostering a culture of inquiry, innovation and collaboration. Our focus is on enhancing the safety, quality and wellbeing of our patients and their families through evidence-based, patient-centred care. The diversity of Allied Health Professions — spanning disciplines such as physiotherapy, social work, psychology, occupational therapy, dietetics, speech pathology, spiritual care and pharmacy — enriches our ability to address complex health challenges from a multidisciplinary perspective. Allied Health professionals at Mercy Health play a vital role in integrating research across various clinical settings, ensuring that the most current evidence informs every aspect of care.

## Research team

Helena Frawley

Anne Harrison



## Grants

Year	Funder	Project Title	Investigators	AMOUNT
2021–2026	Victorian Cancer Agency Mid-Career Research Fellowship	TELE-CONNECT: TELehealth Exercise for CONTinence after GyNaEcological Cancer Treatment	Helena Frawley	\$600,000
2020–2025	NHMRC MRFF EPCDR Endometriosis	Improving diagnosis and treatment of endometriosis	ClIs: Peter Rogers, Martin Healey, Sarah Holdsworth- Carson, Jacqueline Donoghue, Helena Frawley, Claudia Cheng; Als: Charlotte Reddington, Emma Readman, Kate Stern, Keryn Harlow, Michal Amir, Samantha Mooney	\$3,929,234
2022–2025	MRFF Clinician Researchers - Nurses, Midwives and Allied Health	Implementing univerSal Tele- prehabilitation into cAnceR caRe pathwayS: STARRS trial	Linda Denehy, Ianthe Boden, Bernhard Riedel, Lara Edbrooke, Catherine Granger, Tim Spelman, Helena Frawley, Hilmy Ismail, Erin Laing, Alexander Heriott, Catherine Sinton, Claire Hackett	\$1,244,761
2023–2025	Epworth Gynaecological Research Grant	Assessment of the Persistent Pelvic Pain Patient: A Practical Examination Tool for Doctors Working in Gynaecology	Shamitha Kathurusinghe, Shan Morrison, Megan Eddy, Kirana Arambage, Helena Frawley	\$23,950
2024–2025	Mercy Small Research Grant	Exploration of perceptions of admitted patients and families about the inpatient escalation process	Anne Harrison	\$2,300
2024–2025	Mercy Foundation - Bank First Scholarship	Certification of Occupational Therapy team members to become certified in completing the Montreal Cognitive Assessment (MoCA)	Leesa Mussara	\$3,000
2023–2024	Mercy Foundation - Allied Health Smart Salary Scholarship	The expansion of inpatient and outpatient Physiotherapy services for babies born very preterm (28- 32 weeks) and very low birthweight (<1500grams) to meet recent published best practice preterm follow up guidelines	Simone Maher, Bena Hu	\$2,699
2024–2025	Mercy Foundation - Allied Health Smart Salary Scholarship	An end to waiting in pain: improving access and flow in an outpatient Physiotherapy Department for women with persistent pelvic pain	Jen Vardy, Angela Ravi, Veronica Thompson	\$2,300
2024–2025	Mercy Foundation - Allied Health Smart Salary Scholarship	Improving the management of closed fractures in the Emergency Department	Monica Lobo	\$2,300

## Publications

- » Starzec-Proserpio M, Frawley H, Bo K, Morin M. Multimodal physiotherapy for chronic pelvic pain in women – a systematic review and meta-analysis. *The Journal of Sexual Medicine*, 2024, 21:6:qdae161.116.
- » Brennen R, Lin KY, Denehy L, Soh SE, Jobling T, McNally OM, Hyde S, Frawley H. Natural history of pelvic floor disorders before and after hysterectomy for gynaecological cancer. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2024 Issue 11 Pages 1545-1554.
- » Frawley HC, Bennell K, Nelligan RK, Ravi A, Susanto N, Hyde S, McNally O, Yao SE, Lamb KE, Li P, Denehy L. Telehealth exercise for continence after gynaecological cancer treatment (TELE-CONNECT): a protocol for a co-designed pragmatic randomised controlled trial. *BMC Women's Health*. 2024 Sep 27;24(1):529.
- » Mitchell AM, Rajapakse D, Peate M, Chalmers KJ, Kamper SJ, Frawley H, Cheng C, Healey M, Lensen S. The “most bothersome symptom” construct: A qualitative study of Australians living with endometriosis. *Acta Obstetrica et Gynecologica Scandinavica*. 2024 Issue 8 Pages 1625-1633.
- » Mitchell AM, Lensen S, Kamper SJ, Frawley H, Cheng C, Healey M, Chalmers KJ. The most impactful endometriosis symptom: An international, cross-sectional, two-round survey study. *Acta Obstetrica et Gynecologica Scandinavica*. 2024 Sep;103(9):1736-44.
- » Cyr MP, Jones T, Brennen R, Colombage U, Frawley HC. Effectiveness of pelvic floor muscle and education-based therapies on bladder, bowel, vaginal, sexual, psychological function, quality of life, and pelvic floor muscle function in females treated for gynecological cancer: a systematic review. *Current Oncology Reports*. 2024 Aug 23:1-28.
- » Kadah S, Lever F, Soh SE, Lin KY, Frawley H. Measuring Superficial Pelvic Floor Muscle Properties Using Transperineal Grayscale and Sonographic Elastography: A Feasibility Study. *Journal of Diagnostic Medical Sonography*. 2024 Oct 23: 41 (2).
- » Hay-Smith EJC, Starzec-Proserpio M, Moller B, Aldabe D, Cacciari L, Pitangui ACR, Vesentini G, Woodley SJ, Dumoulin C, Frawley HC, Jorge CH, Morin M, Wallace SA, Weatherall M. Comparisons of approaches to pelvic floor muscle training for urinary incontinence in women. *Cochrane Database Syst Rev*. 2024 Dec 20;12(12):CD009508. doi: 10.1002/14651858.CD009508.pub2.
- » MacArthur C, Bick D, Salmon V, Jones E, Hay-Smith J, Bishop J, Gkini E, Hemming K, Webb S, Pearson M, Coleman T, Terry R, Edwards L, Frawley H, Oborn E, Dean S. Midwifery-led antenatal pelvic floor muscle exercise intervention to reduce postnatal urinary incontinence: APPEAL research programme including a feasibility and pilot cluster RCT. Southampton (UK). National Institute for Health and Care Research; 2024 Nov. PMID: 39561246.
- » Frawley, H. C., & Morin, M. Chronic pelvic floor pain. In K. Bø, L. C. Berghmans, M. van Kampen, & S. Morkved (Eds.), *Evidence based physical therapy for the pelvic floor: bridging science and clinical practice 2024* (3rd ed.).
- » Frawley, H. C., & Brennen, R. Gynaecological cancer and pelvic floor dysfunction. In K. Bø, L. C. Berghmans, M. van Kampen, & S. Morkved (Eds.), *Evidence based physical therapy for the pelvic floor: bridging science and clinical practice 2024* (3rd ed.).
- » Bø, K., & Frawley, H. Pelvic floor muscle training in prevention and treatment of pelvic organ prolapse. In K. Bø, L. C. Berghmans, M. van Kampen, & S. Morkved (Eds.), *Evidence based physical therapy for the pelvic floor: bridging science and clinical practice 2024* (3rd ed.).
- » Vardy, J., Chan, E., Hart M., Dallin R., Wise E., Karantanis E. & Beales D. Australian healthcare professionals' beliefs and practice behaviours in management of chronic pelvic pain: a cross-sectional survey. *Australian Journal of Primary Health*. 2024 Sept. 30. doi.org/10.1071/PY24046.
- » Rawnsley KL, Doyle LW, Anderson PJ, Olsen JE, Kwong AKL, Mainzer RM, Josev EK, Roberts EK, Spittle AJ, Cheong JLY. Parent screening questionnaires to detect cognitive and language delay at 2 years in high-risk infants: an analysis from the Victorian Infant Collaborative Study 2016–2017 cohort. *Archives of Disease in Childhood - Fetal and Neonatal Edition*. 2024;109:652-656.
- » Annesley S, Missailidis D, Heng, B, Josev EK\*, Armstrong CW (\*joint senior author). Unravelling shared mechanisms: insights from recent ME/CFS research to illuminate long COVID pathologies. *Trends in Molecular Medicine*, Volume 30, Issue 5, 443 - 458.
- » Krishnadas N, Chew M, Sutherland A, Christensen M, Rogers KA, Kyndt C, Islam F, Darby DG, Brodtmann A. Frontotemporal Dementia Differential Diagnosis in Clinical Practice: A Single-Center Retrospective Review of Frontal Behavioral Referrals. *Neurol Clin Pract*. 2025 Feb;15(1):e200360. Epub 2024 Oct 8.



## Presentations

Presenter	Event	Title	Location
Helena Frawley	International Continence Society Annual Scientific Meeting	Cancer Treatment and Pelvic Floor Function	Madrid, Spain
Helena Frawley	International Continence Society Annual Scientific Meeting	Endometriosis-associated pelvic pain: evidence for treatment	Madrid, Spain
Helena Frawley	International Continence Society Annual Scientific Meeting	Shared Decision-Making: Patient Experience and Priorities in Urology and Pelvic Pain Management	Madrid, Spain
Helena Frawley	International Continence Society Annual Scientific Meeting	Assessment, planning and progressing of pelvic floor muscle exercise prescriptions in clinical and non-clinical settings	Madrid, Spain
Helena Frawley	International Symposium on Genito-Pelvic Pain	Conservative therapies for endometriosis-associated pain	Melbourne, Australia
Helena Frawley	Simpósio Internacional em Fisioterapia do Assoalho Pélvico	Conservative therapies for Persistent Pelvic Pain	Singapore
Helena Frawley	World Prehabilitation and Perioperative Medicine Conference	Pelvic dysfunction following major surgery: evidence for prehab or rehab?	online
Helena Frawley	International Urogynecological Association Annual Scientific Meeting	Update of Conservative Therapies for Treatment of Persistent (Chronic) Pelvic Pain	Melbourne, Australia
Helena Frawley	International Urogynecological Association International Symposium on Global Pelvic Health	Pelvic floor physiotherapy for pelvic organ prolapse	Melbourne, Australia
Helena Frawley	Pelvic Pain Victoria	Chronic Pelvic Pain	Melbourne, Australia
Helena Frawley	Pelvic Pain Victoria	Overactive Pelvic Floor	Melbourne, Australia
Helena Frawley	National Conference on Incontinence	Pelvic pain and endometriosis	Brisbane, Australia
Helena Frawley	National Conference on Incontinence	Pelvic floor dysfunction following breast and gynaecological cancers	Brisbane, Australia
Anne Harrison	Austin Research Fest	Exploration of perceptions of admitted patients and families about the inpatient escalation process	Melbourne, Australia

Presenter	Event	Title	Location
Bronwyn Rivers	International Quality & Safety in Healthcare conference	Loneliness in Older Age	Brisbane, Australia
Leesa Musarra	Austin Research Fest	Implementing the Specific Timely Assessment and Triage model into a Community OT service: Achievements and Challenges	Melbourne, Australia
Christine Oosthuizen	Austin Research Fest	Mercy Palliative Care Bereavement Risk Screening	Melbourne, Australia
Ben Taylor	Austin Research Fest	Urgent Need Identification Team Evaluation (UNITE) at Mercy Palliative Care	Melbourne, Australia

## Achievements

- » Helena Frawley: promoted to full professor, School of Health Sciences, The University of Melbourne

# Mercy Palliative Care Service

The Mercy Palliative Care Research Group is dedicated to advancing evidence-based, patient-centred care through innovation and collaboration. Embedded within Mercy Palliative Care's integrated service, which spans both inpatient and community settings, our research focuses on improving the quality, safety and experience of care for people living with life-limiting illnesses.

Our multidisciplinary team brings together clinicians, nurses, allied health professionals, and researchers to address complex challenges in palliative care. By leveraging diverse expertise, we explore innovative models of care, symptom management strategies, telehealth and quality improvement initiatives that reflect the realities of contemporary palliative practice.

We are committed to translating research into practice, ensuring our findings directly inform care delivery and enhance outcomes for patients and families. Through strong partnerships with academic institutions and health services, we foster a culture of enquiry and continuous improvement that supports compassionate, holistic and integrated palliative care.

## Research team

Dr Fan-en (Annie) Chiu	Arlene Miller
Deanne Layton	Aurora Ciminelli
Dr Catherine Oliver	Dr Than Than Aye
Dr Andrew Ng	Dr Frances Squires
Dr Jia Tay	Kirsten Kopelke
Dr Maria Pisasale	Kathleen Alleaume-Ross
Jennifer Zerafa	Jane Koren
Mark Arnold	Chris Oosthuizen
Cathy Dow	Gemma Bishop
Kellie Sandral	Jim Creaner
Kirsten Mitchener	Laura Carter
Val Crane	



## Presentations

Presenter	Event	Title	Location
Aurora Ciminelli	OPCC - Oceanic Palliative Care Conference	Transforming community palliative care; the path from novice to proficient health professionals	Brisbane, Australia
Poster (Authors: Dr Annie Chiu, Val Crane, Deanne Layton, Arlene Miller, Kirsten Mitchener, Jenni Zerafa)	OPCC - Oceanic Palliative Care Conference	UNITE - Urgent Need Identification and Team Evaluation	Brisbane, Australia
Poster (Authors: Dr Annie Chiu, Val Crane, Deanne Layton, John Stafford)	OPCC - Oceanic Palliative Care Conference	Aged Care Residential In-Reach Collaboration at Mercy Palliative Care	Brisbane, Australia
Poster (Authors: Dr Annie Chiu, Cathy Dow, Kirsten Kopelke, Deanne Layton, Jenni Zerafa)	OPCC - Oceanic Palliative Care Conference	Multidisciplinary approach to reviewing falls in community palliative care: Falls Huddle	Brisbane, Australia
Poster (Authors: Kellie Sandral & Jim Creaner)	OPCC - Oceanic Palliative Care Conference	Strengthening Palliative Care through Volunteer Training and Cross Sector Collaboration	Brisbane, Australia
Poster (Authors: Kathleen Alleaume-Ross & Jane Koren)	OPCC - Oceanic Palliative Care Conference	Future directions in specialist psychospiritual support in Residential Aged Care Facilities	Brisbane, Australia
Chris Oosthuizen & Gemma Bishop	OPCC - Oceanic Palliative Care Conference	Snippets of Grief	Brisbane, Australia
Poster (Authors: Dr Annie Chiu, Mark Arnold, Laura Carter)	OPCC - Oceanic Palliative Care Conference	Partnering with the Bereaved Family: Funeral Service Direct Pick-up Program	Brisbane, Australia

# Mercy Gynaec oncology

The Department of Gynaec oncology is a quaternary referral service, providing comprehensive holistic and patient centred gynaecological cancer care in a multidisciplinary setting. The team conducts research in gynaecological cancers and premalignant disease.

## Research team

Monica McGauran

Simon Hyde

Rachel Delahunty

Julie Lamont

Adam Pendlebury

Antonia Jones

Sara Yeoh

Rosemary McBain

Prachi Bhawe

Carla Starmans

Fiona Wu

Janiece Williams

Rebecca Elder

Lubel Antony

Georgina Mitchell

Yael Naaman

Taylor Hodge





# Grants

Year	Funder	Project Title	Investigators	AMOUNT
2022–2025	Mercy Health HSRC	Ki67 and Cytokeratin with Chemotherapy Response Score at Interval Debulking Surgery for HGSOC	Monica McGauran, Sarah Banting, Marsali Newman, Simon Hyde	\$4,000
2024–2025	Australian Society of Colposcopy and Cervical Pathology	Performance of Colposcopy without Liquid Based Cytology	Monica McGauran, Taylor Hodge, Simon Hyde	\$6,000

# Presentations

Presenter	Event	Title	Location
Monica McGauran	Australian Society of Gynaecological Oncology	Perioperative outcomes of women who undergo primary and interval cytoreduction in advanced epithelial ovarian cancer: A National Gynaecologic Oncology Registry Study	Hobart, Australia
Georgina Mitchell	Australian Society of Gynaecological Oncology	Ureteric identification with ICG Dye for Complex Minimally Invasive Surgery	Hobart, Australia

# Achievements

- » Monica McGauran received the Mary Elizabeth Courier Research Scholarship for the SINATRA Study (\$120,000 over 3 years) from the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG).
- » Monica McGauran received the Innovation Grant for the PRESERVATION Study (\$26,550) from the Australian Society for Gynaecological Oncologists (ASGO).

# Our supporters, partners and collaborators

We acknowledge and celebrate the partnerships we have forged in 2024 and our shared vision for a better future through research and education.

## MAJOR PARTNERS

Austin Health

La Trobe University

Mercy Health Foundation

Mercy Perinatal

Northern Health

University of Melbourne

## OTHER VALUED PARTNERS

Australasian Gynaecological Endoscopy and Surgery

Australia New Zealand Gynaecological Oncology Group

Australian Catholic University

Australian Research Council

Australian Society for Colposcopy and Cervical Pathology

Canadian Institutes of Health Research

Clovis Oncology

Department of Premier and Cabinet (Victoria)

Epworth HealthCare

Ferring COVID-19 Investigational Grants

HealthWest Partnership

Hologic

Hume City Council Maternal and Child Health Service

Medical Research Future Fund, Department of Health (Australian Government)

Melbourne Academic Centre for Health

Mercy Health Academic Research and Development Committee Small Grants

Monash Health

Monash Medical Centre

Monash University

Murdoch Children's Research Institute

National Health and Medical Research Council

Norman Beischer Medical Research Foundation

North West Melbourne Primary Health Network

Northern Health Foundation

Perpetual Trustee

Peter MacCallum Cancer Centre

Physiotherapy Research Foundation

Royal Australian College of Obstetricians and Gynaecologists

Royal Children's Hospital

Royal Women's Hospital

Stellenbosch University

University of Cambridge

University of Manchester

University of Newcastle

University of Notre Dame (Australia)

University of Sydney

University of the Andes

VicSEG New Futures

Victorian Clinical Genetics Services

Victorian Collaborative Healthcare Recovery Initiative

Victorian Fetal Therapy Service

Victorian Foundation for Survivors of Torture: Foundation House

World Health Organisation

Wyndham Council Maternal and Child Health Service

Wyndham Health Foundation



Mercy Health

*Care first*