



Mercy Health

Care first



2022

RESEARCH REPORT



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.



Title: wabung-ngetel

Call of Country
Gunnai Language

Artist

Dixon Patten
Bayila Creative
Gunnai and Yorta Yorta





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A MESSAGE FROM THE GROUP CHIEF EXECUTIVE OFFICER ANGELA NOLAN

In the realm of perinatal health, the terms ‘preterm birth’ and ‘stillbirth’ carry an immense weight of uncertainty, pain, and loss, affecting millions worldwide. Despite advances in medical science, the riddles of preventing these outcomes remain largely unsolved. Globally, preterm birth remains a leading cause of childhood mortality and morbidity.

Underpinned by the values established by the Sisters of Mercy more than a century ago, Mercy Health stands as a beacon in the global endeavour to tackle these persistent challenges in perinatal health. Our focus also extends to critical conditions affecting maternal health, such as preeclampsia, where our research is making strides on an international scale.

This year’s research report is a testament to the profound impact of our work. It’s not just about our advancements in the lab or our contributions at global conferences. It’s about the tangible difference we make in the lives of women receiving care in our facilities, and the empowerment of our healthcare professionals, from obstetricians to midwives and beyond.

Our research is a journey of sharing and learning. We’re not only advancing healthcare in Australia but also extending hope and positive change to regions where women face significant adversities during pregnancy and childbirth. Our researchers, true pioneers in their field, have made remarkable achievements. Their dedication is evident in their publications, presentations, and the grants they’ve secured, collectively showcasing the breadth of their inquiry into the mysteries of birth and pregnancy.

One phrase, ‘Thinking global, acting local. At the centre of a whole world of research,’ encapsulates our ethos. It’s a reflection of our commitment to making a global impact while remaining grounded in the local needs of our community.

I extend my deepest gratitude to our researchers, whose diligence and perseverance continue to inspire. Their work, supported by our invaluable academic and health service partners and funding, including from the Australian Government, is a cornerstone of our success.



Our acknowledgment also goes to those working behind the scenes, whose contributions, though not always visible, are indispensable. Additionally, our heartfelt thanks to the women and families who participate in our research, often during their most challenging times. Their involvement is pivotal to advancing healthcare for countless others.

While this message highlights our achievements in perinatal research, I am equally proud of the diverse range of research conducted across other clinical areas. Every study, every opportunity for patient involvement in research, brings multiple benefits and advancements in healthcare.

To our entire team, thank you for your exceptional work and dedication to improving lives through research.

Angela Nolan

Group Chief Executive Officer, Mercy Health

MESSAGE FROM THE CHIEF MEDICAL OFFICER AND THE DIRECTOR OF RESEARCH

2022 was the year researchers at Mercy Health emerged from the COVID19 lockdowns to reignite their research programs. The rollcall of achievements described in the following pages attests to the fact our dedicated researchers lost little time shaking off the loss of momentum forced upon them by the pandemic.

We are proud of the impressive output of research findings generated across Mercy Health. That our teams mostly published their discoveries in international scientific journals is testament to the exceptional quality of the research we are generating.

We are also struck by the sheer breadth of research being undertaken across Mercy Health. Publications include laboratory research of the highest calibre (such as detailed molecular studies led by Dr Natasha de Alwis seeking to map how esomeprazole might be an unlikely therapeutic for preeclampsia); many large meta-analyses informing practice and epidemiological studies that used 'big data' to inform clinical practice (studies examining huge datasets containing tens of thousands of births). Led by Associate Professor Lisa Hui, we have also published studies shedding light on the effects of COVID19 on pregnancy.

What is also notable is the deep engagement of our researchers with the world. Numerous papers list co-authors from many countries around the world, including South Africa, Sweden and other European countries; the United Kingdom, New Zealand, Solomon Island among others.

Besides reports from our many successful research teams across Mercy Health, this research report also showcases seven talented researchers. It is evident from these inspiring vignettes that they are all dedicated to making new discoveries that may improve health for future generations. We are lucky to count these inspiring researchers among our ranks.

Finally, we thank all the researchers across the clinical departments for their ongoing commitment to outstanding research. And we thank our academic partners too, notably The University of Melbourne, La Trobe University, The University of Notre Dame and the Melbourne Academic Centre for Health (MACH).

We hope you enjoy the read.



Adj Professor Jeffrey Kirwan
Chief Medical Officer



Professor Stephen Tong
Director of Research



WOMEN'S AND CHILDREN'S SERVICES

Mercy Health is dedicated to improving the lives of women and babies.

UNIVERSITY OF MELBOURNE

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY, MERCY HOSPITAL FOR WOMEN

Perinatal Research Group

The Perinatal Research group, led by Professor Sue Walker, is made up of maternal fetal medicine clinical researchers.

The group partners with the Translational Obstetric Group, University of Melbourne, led by Professor Stephen Tong; the Austin Health Institute for Breathing and Sleep; the Murdoch Children's Research Institute; and other University of Melbourne obstetric research groups.

The group also collaborates with Austin Health, La Trobe University, Deakin University, University of Papua New Guinea, University of Stellenbosch (South Africa), the Royal Women's Hospital and Monash Medical Centre.

Research Team Members

Professor Susan Walker AO

Professor Simon Meagher

Associate Professor Lisa Hui

Associate Professor Alexis Shub

Dr Alison Fung

Dr Elizabeth McCarthy

Dr Hannah Skrzypek

Dr Teresa MacDonald

Dr Danielle Wilson

Ms Alison Abboud

Ms Alexandra Roddy Mitchell

Ms Valerie Kyritsis

Ms Danica Idzes

Dr Melvin Marzan PhD

Dr Tanya Tripathi PhD

Dr Ishara Atukorala PhD

Dr Natalia Rode

Ms Jo Watson

Ms Cecilia Pynaker

Dr Ignatius Rudd

Funding and Research Grants

Prevention of Adverse Child Behavioural Development Following Maternal Depression in Pregnancy S Walker (CIH) Sponsor: NHMRC Project Grant (#1143448) (2018-2022)

Using biomarkers and Ultrasound in late pregnancy to Minimise preventable Stillbirth: the BUMPs study. S Walker (CIA) Sponsor: NHMRC Project Grant (2019 – 2022)

Northern Centre for Health Education and Research Reproductive Health Biobank. L Hui (CIA) N Hannan (CIB) Sponsor: Northern Health (2019-2023)

Childhood outcomes of fetal genomic variants: the PrenatAL Microarray (PALM) cohort study. L Hui (CIA), S Walker (CIE) Sponsor: NHMRC Clinical Trials and Cohort Studies (2020 – 2022)

Single cell RNA sequencing of amniotic fluid: a novel approach to understanding fetal development. L Hui (CIA) N Hannan (CIB) Sponsor: NBMRF scRNAseq (2020-2022)

Pregnancy and childhood outcomes associated with novel medication use in early pregnancy following IVF-assisted conception. S Walker (AI) Sponsor: NHMRC Ideas Grants (2020 – 2022)

Coronavirus Health Outcomes in Pregnancy and Newborns: a national registry for Australia. L Hui Sponsor: Ferring COVID-19 Investigational Grant (2020-2023)

Can intrapartum Sildenafil safely Avert the Risks of Contraction-induced Hypoxia in labour? iSEARCH – a pragmatic Phase 3 Randomised Controlled Trial. S Walker (CI) Sponsor: MRFF: Rare Cancers, Rare Disease and Unmet Needs (2020 – 2024)

Developing new diagnostics to prevent stillbirth. S Walker (CIB) Sponsor: NHMRC Synergy Grant (2020 – 2024)

PROTECT Me: Assessing Antenatal Maternal Melatonin Supplementation in Fetal Growth Restriction to Improve Neurodevelopmental Outcomes. S Walker (AI)

Sponsor: NHMRC Clinical Trials and Cohort Studies (2020 – 2024)

Co-design Family Planning Services at Northern Health
L Hui Sponsor: UoM Dept O&G Innovation Grant (2021-2022)

Strategic Grant for Outstanding Women. L Hui (CIA)
Sponsor: University of Melbourne MDHS (2021-2022)

Glyn White Research Fellowship. D Wilson Sponsor:
RANZCOG Foundation (2021-2022)

Ethical, Social and Regulatory Issues in Advanced Prenatal Testing. L Hui (CIC) Sponsor: ARC Linkage Project (2021-2023)

Prevention of fetal cytomegalovirus infection after maternal infection: developing novel therapeutic approaches using primary trophoblast and placental explant cultures. L Hui (CIA)

Sponsor: UoM Dept O&G Innovation Grant (2021-2023)

Developing a Screening Test to Identify Women at Risk of Preeclampsia. S Walker (CIB), T MacDonald (CIC)
Sponsor: NHMRC Ideas Grant (2021 – 2023)

Closing the critical knowledge gaps in perinatal genomics L Hui Sponsor: NHMRC EL2 fellowship (2021-2025)

Centre for Research Excellence in Stillbirth. S Walker (CIH) Sponsor: NHMRC 2021 Centres of Research Excellence – Clinical Research (2021 – 2026)

A Single Dose of Antenatal Corticosteroids (SNACS) Non-Inferiority Randomized Control Trial for Women at Risk of Preterm Birth. S Walker (AI) Sponsor: Canadian Institutes of Health Research (CIHR) Project Grant (2021 – 2029)

Collaborative Maternity and Newborn Dashboard (CoMaND) for the COVID-19 pandemic. L Hui (CIA)
Sponsor: Norman Beischer Medical Research Foundation (2022)

Dame Kate Campbell Fellowship. L Hui (CIA) Sponsor: University of Melbourne MDHS (2022)

Education, serology and evaluation to prevent congenital cytomegalovirus. L Hui (CIA) Sponsor: Norman Beischer Medical Research Foundation (2022)

Exploring the impact of COVID-19 on maternal and newborn health in Victoria. L Hui (CIA) Sponsor: Safer Care Victoria research fellowship (2022)

A state-wide clinical quality audit of publicly-funded fetal exomes in Victoria, 2018-2022 W Gheysen (CIA) L Hui (CIB) Sponsor: Norman Beischer Medical Research Foundation (2022)

Whole-of-population CRISPR point-of-care testing for congenital cytomegalovirus to prevent hearing and neurodevelopment disabilities through a public health approach. L Hui (CII) Sponsor: NHMRC Cohort Study Grant (2022)

Antiepileptic drug use in pregnancy and the risk of poor fetal growth. S Walker (CIC) Sponsor: Norman Beischer Medical Research Foundation Innovation Grant (2022)

Co-Production Seed Grant, Preconception and Pregnancy Health. S Walker (CIA) Sponsor: Australian Health Research Alliance (AHRA) Women's Health Research Translation Network (WHRTN) (2022)

NONA: Newborn Obstetric Network Australia – A Clinical Quality Registry for women with the most complex pregnancies. S Walker (CIC) Sponsor: Norman Beischer Medical Research Foundation Innovation Grant (2022)

Testing the feasibility of conducting a randomised controlled trial (RCT) comparing standard (face-to-face) antenatal care with a combination of video health and face-to-face visits: a pilot RCT to inform a larger adequately powered study, S Walker (CID) Sponsor: Norman Beischer Medical Research Foundation Innovation Grant (2022)

Validating the Cerebral-placental-uterine ratio (CPUR) in high-risk cohorts to better detect fetal growth restriction.

S Walker (CIB) Sponsor: Norman Beischer Medical Research Foundation Innovation Grant (2022)

High resolution measurement of sleep position during pregnancy and the impact on infant birthweight. D Wilson Sponsor: Metro North Collaborative Research Grant 2022 (CIA). (2022)

Shift work and changes to breast milk composition. D Wilson Sponsor: Norman Beischer Medical Research Foundation Innovation Grant for 2022 (AI). (2022)

Replanting the Birthing Trees to Support First Nations Parents and Babies. S Walker (CI) Sponsor: MRFF

– Improving the Health and Wellbeing of Indigenous Mothers and Babies (2022 – 2023)

The mitoHOPE (Healthy Outcomes Pilot and Evaluation) Program – (CIA Prof John Carroll) L Hui (CI-Y) Sponsor: MRFF Mitochondrial Donation Pilot Program (2022 – 2027)

Evaluating patient and GP knowledge of congenital CMV prevention behaviours before and after the launch of a GP eLearning module – \$48,400 (CIA Dr Hayley Smithers-Sheedy) L Hui (CI-B)
(Dr Hayley Smithers-Sheedy CI-A) (2022-2024)
T MacDonald – Awarded the “2022 Stillbirth CRE Future Leaders Fellowship” – \$50,000 funding for 2023

Publications

- Andres F, Hannan NJ, Walker SP, MacDonald TM, Wong GP, Murphy C, et al. Endothelial protein C receptor is increased in preterm preeclampsia and fetal growth restriction. *FASEB J*. 2022;36(12):e22651. DOI: 10.1096/fj.202201150R
- Andres F, Wong GP, Walker SP, MacDonald TM, Keenan E, Cannon P, et al. A disintegrin and metalloproteinase 12 (ADAM12) is reduced at 36 weeks' gestation in pregnancies destined to deliver small for gestational age infants. *Placenta*. 2022;117:1-4. DOI: 10.1016/j.placenta.2021.11.001
- Banting SA, Dane KM, Charlton JK, Tong S, Hui L, Middleton AL, et al. Estimation of neonatal body fat percentage predicts neonatal hypothermia better than birthweight centile. *J Matern Fetal Neonatal Med*. 2022;1-8. DOI: 10.1080/14767058.2022.2032634.
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- Hui L, Johnson JA, Norton ME. ISPD 2022 debate- When offering a first trimester ultrasound at 11 + 0 to 13 + 6 weeks, a detailed review of fetal anatomy should be included. *Prenat Diagn.* 2022. DOI: 10.1002/pd.6251
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 - Walker S, Manley B. Defer or deliver? Two-year outcomes after late preterm pre-eclampsia. *BJOG*. 2022. DOI: 10.1111/1471-0528.17165
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- ## Presentations
- Hui L. Management of increased nuchal translucency measurement after low risk NIPT. International Society for Ultrasound in Obstetrics and Gynecology First Trimester Symposium. February 2022. [Invited speaker – online]
- Hui L. Positive NIPS result: what next? International society for Prenatal Diagnosis and the National University of Singapore. March 2022. [Invited speaker]
- Hui L. Increase in stillbirths and reduction in medically-indicated preterm birth: adverse impacts of Melbourne lockdown. Northern Health Research Week, Melbourne. March 2022. [Oral presentation]
- Hui L. Congenital CMV: are we making progress? Austin Health Dept of Infectious Diseases Grand Rounds. June 2022. [Invited speaker – online]
- Hui L. Pregnancy and genetic testing: clinical and medicolegal insights. Avant webinar series. June 2022. [Invited speaker – online]
- Hui L. When offering a first trimester ultrasound at 11+0 to 13+6 weeks, a detailed review of fetal anatomy should be included. International Society for Prenatal Diagnosis 26th International Congress on Prenatal Diagnosis and Fetal Therapy, Montreal. June 2022. [Debate moderator]
- Hui L. First trimester ultrasound and NIPT: working hand in hand. International Society for Prenatal Diagnosis 26th International Congress on Prenatal Diagnosis and Fetal Therapy post-conference course on first trimester ultrasound, Montreal. June 2022. [Invited speaker and convenor/co-chair]

Hui L. The debate: exome sequencing is a first-tier test for major fetal malformations. Annual Congress International Society for Ultrasound in Obstetrics and Gynaecology, London. September 2022. [Invited speaker]

Hui L. What is our duty to diagnose in the genomic age? Obstetric Malpractice Conference, Melbourne. September 2022. [Invited speaker]

Hui L. Panel: gender equity in healthcare: from words to actions. RANZCOG Annual Scientific Meeting, Gold Coast. October 2022. [Invited speaker]

Hui L. Plenary session: the COVID-19 pandemic and perinatal outcomes – what happened to stillbirths and preterm births during the Melbourne lockdown? RANZCOG Annual Scientific Meeting, Gold Coast. October 2022. [Invited speaker]

Hui L. Reducing congenital CMV – is screening and valaciclovir the answer? RANZCOG Annual Scientific Meeting, Gold Coast. October 2022. [Invited speaker]

Hui L. COVID-19 vaccination during pregnancy: a multicentre cohort study of vaccine uptake and perinatal outcomes in Melbourne. Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Invited speaker]

Hui L. The ToRCH screen: casting more shadow than light? Global Obstetric Update, Melbourne. November 2022. [Invited speaker]

Hui L. NIPT: Past, present and future perspectives. Swiss Society of Gynaecology and Obstetrics, Geneva. November 2022. [Invited speaker – hybrid]

MacDonald T. Fetal growth velocity – a marker of placental function. Mercy Perinatal's Australian Reproduction Update, Adelaide. March 2022. [Invited speaker]

MacDonald T. Pregnancy and predicting the future. Mercy Perinatal's Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Senior chair]

Meagher S. The value role of the 11–14-week scan 2022. Japanese Society for Ultrasound in Obstetrics and Gynaecology (JSUOG). January 2022. [Invited speaker – online]

Meagher S. Last but not least: scanning the tiny fetus. Society of Maternal Fetal Medicine (USA) 42nd Annual Scientific Meeting. January 2022. [Invited speaker – online]

Meagher S. Jak Up and Go 5 symposium. Indonesia Society of Obstetrics and Gynaecology. February 2022. [Invited speaker – online]

Meagher S. First trimester fetal malformation: high-resolution ultrasound greets high-resolution genetics. International Society for Ultrasound in Obstetrics and Gynaecology Course. February 2022. [Convenor – online]

Meagher S. 1st trimester central nervous system. Society of Maternal Fetal Medicine (USA) 42nd Annual Pregnancy Meeting. February 2022. [Invited speaker – online]

Meagher S. Screening and diagnosis of embryo malformation 6-10 weeks gestation. Kurse für Pränataldiagnostik, Geburtshilfe und Gynäkologie, Sono-Dialog All-Stars. February 2022 [Invited speaker]

Meagher S. Basic training in reproductive medical genetics course. Center for Maternal–Fetal Precision Medicine, University of California, San Francisco. February 2022 [Invited speaker]

Meagher S. Advanced online educational series, industry supported. ASEAN Advanced Series in Obstetrics and Gynaecology. March 2022 [Invited speaker – online]

Meagher S. Early fetal neurosonography. Extempore: one day focus on fetal neurosonography. ISUOG Approved Course. March 2022 [Invited speaker – online]

Meagher S. A practical step-by-step guide – how to perform a normal 12–13-week anatomy scan. The cerebral 4th ventricle at 9-14 weeks – a marker of many things. Ningxia Advanced Course in Obstetrics and Gynaecological Ultrasound. ISUOG Approved Course. March 2022. [Invited speaker – online]

Meagher S. The value of 3-D ultrasound for the diagnosis of ectopic pregnancy. Early Pregnancy Complications: Ectopic Pregnancy and Miscarriages. April 2022. [Invited speaker – online]

Meagher S. First and Second Trimester Cardiac examination. Essentials of ultrasonography in Obstetrics and Gynaecology. ISUOG and Fetal Medicine Foundation (UK). April 2022 [Invited speaker – online]

Meagher S. Evaluation of fetal anatomy and malformation before 11 weeks' gestation. L'échographie du Premier Trimestre, Dianecho, Hirslanded, Clinique

Dec Grangettes Switzerland. April 2022. [Invited speaker – online]

Meagher S. Evaluation of the fetal anatomy between 11-14 weeks gestation. Mongolian National Society for Ultrasound in Obstetrics and Gynaecology (MSUOG). National Centre for Maternal and Child Health. April 2022. [Invited speaker – online]

Meagher S. Detection of fetal anomalies before 11 weeks. 18th ISUOG International Symposium 2022 (Latin America) LATAM. May 2022. [Invited speaker – online]

Meagher S. Scan Academy Meeting. All you need to know on deep infiltrating endometriosis. May 2022. [Convenor – online]

Meagher S. The Pre-NIPT scan 2022: The Monash Ultrasound for Women Experience. Expanded NIPT Global Consortia. May 2022. [Invited speaker – online]

Meagher S. Contemporary management of omphalocele and gastroschisis diagnosis and management of rare anterior abdominal wall defects. ISUOG Fetal Anomalies Course: role of genetics and fetal interventions. May 2022. [Convenor – online]

Meagher S. Evaluation of the endometrium. Marathon for Solidarity. Solidarieta Internazionale CESI. May 2022. [Invited speaker – online]

Meagher S. First trimester ultrasound: What should we be doing? 26th International Society Meeting for Prenatal Diagnosis, Montreal. June 2022. [Invited speaker]

Meagher S. Fetal skeletal anomalies in the first trimester – benefits & limitations. Advanced Course in Obstetric and Gynecological Ultrasound, Beijing. June 2022. [Invited speaker]

Meagher S. Examination of the normal and abnormal fetal brain from 8-14 weeks gestation. Arabic Society of Fetal Medicine and Surgery ASFMS Diploma in Fetal Medicine, location. June 2022. [Invited speaker – online]

Meagher S. A practical guide on how to perform a routine first trimester examination. ASEAN Advanced Series in Obstetrics and Gynaecology – Lecture Series Part II; General Electric-ASEAN Industry Supported. June 2022 [Invited speaker – online]

Meagher S. Prenatal diagnosis of fetal malformation – your questions answered. ISUOG Ask the Expert Series. June 2022 [Convenor – online]

Meagher S. Early cardiac defects: clues to diagnosis. The 14th Philadelphia Prenatal Conference 2022, Philadelphia. June 2022. [Invited speaker – online]

Meagher S. Insignificant findings and minor abnormalities on fetal ECHO: why worry? The very early anatomy scan cephaloceles tips, tricks and traps. The 14th Philadelphia Prenatal Conference 2022, Philadelphia. June 2022. [Invited speaker – online]

Meagher S. Malformation of the fetal face 10-13 weeks. The 14th Philadelphia Prenatal Conference 2022, Philadelphia. June 2022. [Invited speaker – online]

Meagher S. Acrania 7-14 weeks: clues to diagnosis. The 14th Philadelphia Prenatal Conference 2022, Philadelphia. June 2022. [Invited speaker – online]

Meagher S. Holoprosencephaly 8-13 weeks – a practical guide to diagnosis. The 14th Philadelphia Prenatal Conference 2022, Philadelphia. June 2022. [Invited speaker – online]

Meagher S. A practical step-by-step guide – how to perform a normal 12–13-week anatomy. World Perinatal Medicine, location. June 2022. [Invited speaker – online]

Meagher S. CNS abnormalities not to be missed at first trimester scan. Korean Society of Ultrasound in Obstetrics and Gynaecology – KSUOG, location. July 2022. [Invited speaker – online]

Meagher S. State of the art lecture on fetal anomalies first trimester. 12th Fetal Medicine Foundation of Latin – America Annual Congress, location. August 2022. [Invited speaker – online]

Meagher S. A step-by-step guide on how to perform routine first-trimester anatomy scan. Congreso de Ultrasonografía en Medicina y Biología (SOCHUMB 2022), Santiago. August 2022. [Invited speaker]

Meagher S. The role of the first-trimester scan in 2022. Congreso de Ultrasonografía en Medicina y Biología (SOCHUMB 2022), Santiago. August 2022. [Invited speaker]

Meagher S. Screening and diagnosis of CNS anomalies during the first trimester. Congreso de Ultrasonografía en Medicina y Biología (SOCHUMB 2022), Santiago. August 2022. [Invited speaker]

Meagher S. First trimester imaging: the earlier the better. Advanced Course in Obstetric and Gynaecological Ultrasound -ISUOG CONGRESS – CHINA STREAM, Wuhan. September 2022. [Invited speaker]

Meagher S. Mini marathon of cardiac cases 11-13 weeks. ISUOG Congress 2022, Wuhan. September 2022. [Invited speaker]

Meagher S. What should you be able to see on an early pregnancy scan: the power of ultrasound and embryology. ISUOG Congress 2022, Wuhan. September 2022. [Invited speaker]

Meagher S. First trimester brain assessment – anomalies that should not be missed. ISUOG Congress 2022, Wuhan. September 2022. [Invited speaker]

Meagher S. Advanced course in obstetrics and gynaecological ultrasound. Maastricht University Medical Centre, Maastricht. September 2022. [Invited speaker – online]

Meagher S. Advanced course in obstetrics and gynaecological ultrasound. University Hospital Nijmegen, Nijmegen. September 2022. [Invited speaker – online]

Meagher S. First trimester ultrasound: the earlier the better? Timing, approach, and potential of an early anatomical evaluation. World Society of Perinatal Medicine WPM & WFM. September 2022 [Invited speaker – online]

Meagher S. Fetal cardiac assessment: normal and abnormal. Department of Obstetrics and Gynaecology, Cairo University, Annual Scientific Meeting. October 2022. [Invited speaker – online]

Meagher S. Early pregnancy and first trimester ultrasound: normal and abnormal. Department of Obstetrics and Gynaecology, Cairo University, Annual Scientific Meeting. October 2022. [Invited speaker – online]

Meagher S. Early pregnancy and first trimester ultrasound: Normal and abnormal (with practical demo). General Electric Voluson E22 Launch – UK Road Show, location. October 2022. [Invited speaker]

Meagher S. Fetal cardiac assessment: normal and abnormal (with practical demo). General Electric Voluson E22 Launch – UK Road Show, location. October 2022. [Invited speaker]

Meagher S. Borderline cardiac findings: a clinician's guide. 15th Congress of the Asian Federation of Societies for Ultrasound in Medicine & Biology (AFSUMB), Hyderabad. November 2022. [Invited speaker]

Meagher S. Screening in the first trimester: expectations and limitations. Advanced Course in Obstetric and Gynaecological Ultrasound, location. November 2022. [Invited speaker]

Meagher S. Step by step guide on how to perform a routine first-trimester anatomy scan. Advanced Course in Obstetric and Gynaecological Ultrasound, location. November 2022. [Invited speaker]

Meagher S. Evaluation of the fetal heart 11-14 weeks. Advanced Course in Obstetric and Gynaecological Ultrasound, location. November 2022. [Invited speaker]

Meagher S. Open spina bifida at 11-14 weeks: simplifying matters. Advanced Course in Obstetric and Gynaecological Ultrasound, location. November 2022. [Invited speaker]

Meagher S. 2nd round table – tips and tricks to help identify the origin of a pelvic lesion. Marathon for Solidarity, Solidarieta Internazionale CESI. November 2022. [Invited speaker – online]

Meagher S. Evaluation of the fetal brain early in pregnancy – the basics and beyond. RANZCOG MFM Colloquium, Melbourne. November 2022. [Invited speaker]

Meagher S. The value of three-dimensional ultrasound in the diagnosis of interstitial pregnancy. The 19th ISUOG International Symposium, Asia. November 2022. [Invited speaker – online]

Meagher S. The value of 3D ultrasound in the diagnosis of ectopic pregnancy. United Kingdom Association of Early Pregnancy Units Annual Scientific Meeting. November 2022. [Invited speaker – online]

Meagher S. Fetal brain malformations that should not be missed. Eastern European Professional Meetings: Ultrasound in Obstetrics and Gynaecology advances in Medicine: Extempore. December 2022. [Invited speaker – online]

Meagher S. Fetal assessment at 11-14 weeks: through the eyes of the expert. Scrimmage Series of Lectures, location. December 2022. [Invited speaker]

Meagher S. First trimester guidelines – making sense of so many guidelines. The Philippine Society of Ultrasound in Obstetrics and Gynaecology PSUOG Annual Scientific Meeting, location. December 2022. [Invited speaker]

Meagher S. First trimester ultrasound – what does the obstetrician need to know? The Philippine Society of Ultrasound in Obstetrics and Gynaecology PSUOG Annual Scientific Meeting, location. December 2022. [Invited speaker]

Walker S. COVID 2022 in pregnancy at twilight. Mercy Perinatal Fetal Medicine at Twilight. January 2022. [Convenor and chair – online]

Walker S. COVID 22 – a 2022 update on COVID. Mercy Hospital for Women Grand Round, Melbourne. February 2022. [Invited speaker]

Walker S. Medical disorders in pregnancy (MDIP) at twilight. Mercy Perinatal Fetal Medicine at Twilight. February 2022. [Convenor and chair – online]

Walker S. Thinking global, acting local, at the centre of a whole world of research. Austin Health ResearchFest 2021. March 2022. [Plenary speaker – online]

Walker S. Gandel simulation service celebration, Melbourne. March 2022. [Invited speaker]

Walker S. Career presentation. Women's Health Interest Society of Monash (WHISM) Expert Speaker Night. March 2022. [Invited speaker – online]

Walker S. Cleft/lip palate at twilight. Mercy Perinatal Fetal Medicine at Twilight. April 2022. [Convenor and chair – online]

Walker S. Impact of COVID 19 in pregnancy. Australasian Sonographers Association 2022 Conference, Melbourne. May 2022. [Invited speaker]

Walker S. Fetal growth restriction: is consensus possible? Australasian Sonographers Association 2022 Conference, Melbourne. May 2022. [Invited speaker]

Walker S. Interventions to reduce global maternal and perinatal mortality from PE. Australasian Sonographers Association 2022 Conference, Melbourne. May 2022. [Invited speaker]

Walker S. Who's holding your ladder? Conference for Women in Research, Health care and Leadership, Melbourne. May 2022. [Convenor]

Walker S. Preeclampsia. MHW high dependency unit course presentation, Melbourne. May 2022. [Invited speaker]

Walker S. Fetal growth restriction, and infections (TORCH, syphilis). MHW Neonatal Fellow Teaching Day, Melbourne. May 2022. [Invited speaker]

Walker S. High-risk pregnancy/preeclampsia. Perinatal Society of Australia and New Zealand 2022 Annual Congress, Adelaide. May 2022. [Invited speaker]

Walker S. ICU obstetric emergencies. Austin ICU Registrar Obstetric Education, Melbourne. June 2022. [Invited speaker]

Walker S. Controversies in late preterm birth at twilight. Mercy Perinatal Fetal Medicine at Twilight, Melbourne. June 2022. [Convenor and chair – online]

Walker S. Women in academia. UoM MD Student Conference, Melbourne. June 2022. [Invited speaker]

Walker S. Which charts to use in 2022. Australian Association of Obstetrical and Gynaecological Ultrasonologists Conference 2022, Sydney. July 2022. [Invited speaker]

Walker S. Routine 36-week scan: has its time come? Australian Association of Obstetrical and Gynaecological Ultrasonologists Conference 2022, Sydney. July 2022. [Invited speaker]

Walker S. COVID update and self-care in health care. Australian Association of Obstetrical and Gynaecological Ultrasonologists Conference 2022, Sydney. July 2022. [Invited speaker]

Walker S. Climate care is healthcare webinar. July 2022. [Convenor and speaker – online]

Walker S. Late preterm birth at twilight. Mercy Perinatal Fetal Medicine at Twilight, Melbourne. July 2022. [Convenor and chair – online]

Walker S. Fetal growth restriction: preeclampsia. Stellenbosch University, Tygerberg Hospital, Stellenbosch. September 2022. [Invited speaker]

Walker S. Address. 2022 Mercy Hospital Silver Wattle Gala Ball, Melbourne. October 2022. [Invited speaker]

Walker S. Address. Mercy Health Foundation Golf Day, Melbourne. October 2022. [Invited speaker]

Walker S. Trauma at twilight. Mercy Perinatal Fetal Medicine at Twilight, Melbourne. October 2022. [Convenor and chair – online]

Walker S. Gender equity in O and G. RANZCOG 2022 Annual Scientific Meeting, Gold Coast. October 2022. [Invited speaker]

Walker S. Fetal therapy update. RANZCOG 2022 Annual Scientific Meeting, Gold Coast. October 2022. [Invited speaker]

Walker S. Placental insufficiency – opening the black box. Ritchie Centre Colloquium, Melbourne. October 2022. [Invited speaker]

Walker S. Update and address. UoM O&G Spring Carnival, Melbourne. October 2022. [Convenor]

Walker S. Leadership in pregnancy care: lessons learned from COVID. Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Speaker, co-convenor]

Walker S. Sepsis in pregnancy. Global Obstetric Update: GOU goes Sci-F, Melbourne. November 2022. [Speaker, chair, co-convenor]

Walker S. Detection of fetal growth restriction. National Stillbirth Forum, Brisbane. November 2022. [Invited

speaker]

Wilson D. A trial of a position modification device for the prevention of supine sleep in pregnancy. Perinatal Society of Australia and New Zealand Congress 2022, Adelaide. May 2022. [Oral presentation]

Walker S. Address, 2022 Mercy Health Foundation Cocktail Reception, Melbourne. June 2022. [Invited speaker]

Wilson D. Sleep position during pregnancy and recommendations for reducing risk of late stillbirth. Sleep DownUnder 2022 Annual Scientific Meeting 2022, Brisbane. November 2022. [Symposium speaker]

Awards and Other

L Hui: Dame Kate Campbell Fellowship Level D.

L Hui: Norman Beischer Clinical Research Fellowship 2022-2024. L Hui: Northern Health Researcher of the Year 2022.

L Hui: Northern Health Research Week, Best Oral Presentation, 2022.

D Wilson: New Investigator Award for best oral presentation within her discipline.

Perinatal Epidemiology Group

In 2022, the Perinatal Epidemiology team has continued to thrive. Led by Dr Roxanne Hastie, Dr Anthea Lindquist and Professor Stephen Tong, our vision is to use population health data to improve maternal and child health outcomes globally.

Our national and international research relationships have been strengthened through ongoing collaborations. Our research has become global, through partnering with research teams in Sweden, South Africa, Scotland, Egypt, India, Pakistan, and the Solomon Islands. We have active collaborations with Uppsala University, Sweden;

Stellenbosch University, South Africa; The National Referral Hospital, Solomon Islands; The University of Edinburgh, Scotland; Fatima Memorial Hospital, Pakistan; Manipal Academy of Higher Education, India; Assiut University, India; The Murdoch Children's Research Institute; The Burnet Institute; and the Royal Children's Hospital.

This year, we also launched the annual Australian Perinatal Epidemiology Update, convened by Dr Hastie and Dr Lindquist, and supported by Professor Sue Walker and Professor Stephen Tong on behalf of Mercy Perinatal. This event brought together leaders in the perinatal epidemiology field from across Australia to share ideas and foster collaboration. The two-day event at the Park Hyatt in Melbourne was a great success and we look forward to continuing this event in the future.

Our group produced 18 publications during 2022 in leading international journals. Several key publications included our state-wide linkage projects assessing school-age outcomes among IVF-conceived children and children born via elective induction, published in *PLoS Medicine* and *JAMA Pediatrics*; our Swedish-based cohort study assessing the efficacy of aspirin for preventing small-for-gestational age infants, published in *Obstetrics & Gynecology*; and Professor Tong's review on preeclampsia published in *Lancet*. We have continued recruiting for our multinational prospective studies and have been working to commence several new data linkage studies in 2023. Our team conducted 15 presentations national and international conferences and seminars.

Professor Tong also undertook clinical translational research projects. Working with others in the department he continues to co-lead a large program of research to develop biomarkers to help avert the tragedy of stillbirth. He also continues to lead clinical trials in South Africa evaluating potential drug treatments for preeclampsia.

Research Team Members

Professor Stephen Tong
Dr Roxanne Hastie
Dr Anthea Lindquist
Professor Sue Walker
Ms Anna Middleton
Ms Jessica Atkinson
Dr Rangi De Silva
Dr Amber Kennedy
Dr Natasha Pritchard
Ms Alex Roddy Mitchell
Dr Hannah Gordon

Projects and Grants

Translating new therapeutics and diagnostics for major pregnancy complications. S Tong (Sole Investigator) Sponsor: NHMRC Practitioners Fellowship (2018 – 2022)

Pregnancy and childhood outcomes associated with novel medication use in early pregnancy following IVF-assisted conception. A Lindquist (CIA), R Hastie (AI) Sponsor: NHMRC Ideas Grants (2020 – 2022)

Synergising laboratory and epidemiological research to improve maternal and neonatal health. R Hastie (Sole Investigator) Sponsor: NHMRC Emerging Leader-1 Fellowship (2020 – 2024)

Developing new diagnostics to prevent stillbirth. S Tong (CIA), T Kaitu'u-Lino (CID), F Brownfoot (CIF) Sponsor: NHMRC Synergy Grant (2020 – 2024)

Characterising the perinatal, neonatal, and school-age childhood outcomes associated with diabetes in pregnancy. H Gordon Sponsor: NHMRC Postgraduate Scholarship (2023 – 2026)

Publications

- Banting SA, Dane KM, Charlton JK, Tong S, Hui L, et al. Estimation of neonatal body fat percentage predicts neonatal hypothermia better than birthweight centile. *J Matern Fetal Neonatal Med.* 2022; 1-8.
- Bergman L, Hastie R, Bokström-Rees E, Zetterberg H, Schell S, Imberg H, et al. Cerebral biomarkers in neurological complications of preeclampsia. *Am J Obstet Gynecol.* 2022; 227(2):298.e1-298.e10. DOI: 10.1016/j.ajog.2022.02.036
- Chappell LC, Cluver CA, Kingdom J, Tong S. Pre-eclampsia. *Lancet.* 398(10297):341-354.
- Chappell LC, Tong S. Improving knowledge on safety is key to enabling drug access for pregnant and breastfeeding women. *Clin Pharm Therap.* 2021;110(4):866-868.
- Cluver C, Tong S. Revisiting blood pressure thresholds to define hypertension during pregnancy: is 140/90 mmHg too high? *Lancet Glob Health.* 9(8), e0141-e0142.
- Cluver CA, Hiscock R, Decloedt EH, Hall DR, Schell S, Mol BW, et al. Use of Metformin to prolong gestation in preterm pre-eclampsia: randomised, double blind placebo controlled trial. *BMJ.* 2021;374:n2103.
- Davenport MJ, Lindquist A, Brownfoot F, Pritchard N, Tong S, Hastie R. Time to resolution of tubal ectopic pregnancy following methotrexate treatment: a retrospective cohort study. *PLoS One.* 2022;17(5):e0268741. DOI: 10.1371/journal.pone.0268741
- Hastie R, Bergman L, Walker SP, Kaitu'u-Lino TU, Hannan NJ, Brownfoot F, et al. Associations between soluble FMS-like tyrosine kinase-1 and placental growth factor and disease severity among women with preterm eclampsia and preeclampsia. *J Am Heart Assoc.* 2022;11(16):e024395. DOI: 10.1161/JAHA.121.024395
- Hastie R, Tong S, Wikström AK, Walker SP, Lindquist A, Cluver CA, et al. Low-dose aspirin for preventing birth of a small-for-gestational age neonate in a subsequent pregnancy. *Obstet Gynecol.* 2022;139(4):529-535. DOI:10.1097/AOG.0000000000004696
- Kennedy AL, Vollenhoven BJ, Hiscock RJ, Stern CJ, Walker SP, Cheong JLY, et al. School-age outcomes among IVF-conceived children: A population-wide cohort study. *PLoS Med.* 2023 Jan 24;20(1):e1004148.
- Kupka E, Hesselman S, Hastie R, Lomartire R, Wikström AK, Bergman L. Low-dose aspirin use in pregnancy and the risk of preterm birth: a Swedish register-based cohort study. *Am J Obstet Gynecol.* 2022;S0002-9378(22)00728-1. DOI: 10.1016/j.ajog.2022.09.006
- Lindquist A, Hastie R, Kennedy A, Gurrin L, Middleton A, Quach J, et al. Developmental outcomes for children after elective birth at 39 weeks' gestation. *JAMA Pediatr.* 2022;176(7):654-663. DOI:10.1001/jamapediatrics.2022.1165
- McDougall AR, Goldstein M, Tuttle A, Ammerdorffer A, Rushwan S, Hastie R, et al. Innovations in the prevention and treatment of postpartum hemorrhage: analysis of a novel medicines development pipeline database. *International Journal of Gynecology & Obstetrics.* 2022;158:31-9. DOI: 10.1002/ijgo.14200
- McDougall AR, Hastie R, Goldstein M, Tuttle A, Tong S, Ammerdorffer A, et al. (2022). Systematic evaluation of the pre-eclampsia drugs, dietary supplements and biologicals pipeline using target product profiles. *BMC Med.* 2022;20(1):393. DOI: 10.1186/s12916-022-02582-z
- Molony CL, Hiscock R, Kaufman J, Keenan E, Hastie R, Brownfoot FC. Growth trajectory of preterm small-for-gestational-age neonates. *J Matern Fetal Neonatal Med.* 2022;35(25):8400-8406. DOI: 10.1080/14767058.2021.1974835
- Muglia L, Tong S, Ozanne S, Benhalima K. Maternal factors during pregnancy influencing maternal, fetal and childhood outcomes: Meet the guest editors. *BMC Med.* 2022;20(1):1-3.
- Pritchard NL, Tong S, Walker SP, Lindquist AC. Fetal size classified using gestational days rather than weeks improves correlation with stillbirth risk: a statewide population study. *PLoS One.* 2022;17(8):e0271538. DOI: 10.1371/journal.pone.0271538
- Pritchard NL, Walker SP, Roddy Mitchell A, Tong S, Lindquist AC. Adjusting growth standards for fetal sex improves correlation of small babies with stillbirth and adverse perinatal outcomes: A state-wide population study. *PLoS One.* 2022; 17(10):e0274521. DOI: 10.1371/journal.pone.0274521
- Uebergang J, Hiscock R, Hastie R, Middleton A, Pritchard N, Walker S, et al. Risk of obstetric anal sphincter injury among women who birth vaginally after a previous caesarean section: a state-wide cohort study. *BJOG.* 2022;129(8):1325-1332. DOI: 0.1111/1471-0528.17063

Presentations

De Silva M. Journal club on the run. Mercy Perinatal Global Obstetrics Update, Melbourne. November 2022. [Invited speaker – hybrid]

Hastie R. Developmental outcomes for children following elective birth at 39 weeks: causal inference analyses examining the timing and mode of birth. PSANZ 2022, Best of the Best Presentations, Adelaide. May 2022. [Selected from abstract]

Hastie R. Aspirin use in pregnancy. preeclampsia update, Cape Town. May 2022. [Invited speaker – hybrid]

Hastie R. Medications to treat mental illness and pregnancy. Epworth Obstetrics & Gynaecology Symposium, Melbourne. August 2022. [Invited speaker]

Hastie R. Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Co-convenor]

Hastie R. Journal club on the run. Mercy Perinatal Global Obstetrics Update, Melbourne. November 2022. [Invited speaker – hybrid]

Hastie R. Important findings in clinical obstetrics in 2022. RANZCOG Regional Fellows Series. November 2022 [Invited speaker – online]

Kennedy A. School-age outcomes among IVF-conceived children: a causal inference analysis using linked population-wide data. PSANZ 2022, Best of the Best Presentations, Adelaide. May 2022. [Invited speaker]

Kennedy A. Life after the lab: childhood outcomes following IVF conception. Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Invited speaker]

Lindquist A. Women's understanding of their long-term cardiovascular risk following a pregnancy affected by preeclampsia or gestational hypertension. Preeclampsia Update, Cape Town. May 2022. [Invited speaker – hybrid]

Lindquist A. Pregnancy and childhood outcomes associated with unregulated adjunct medication use in IVF. Epworth Obstetrics & Gynaecology Symposium, Melbourne. August 2022. [Invited speaker]

Lindquist A. Perineal birth trauma – who, when, why, and what can we do? Mercy Perinatal Twilight Seminar Series. October 2022. [Invited speaker – online]

Lindquist A. Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Co-convenor]

Lindquist A. Journal club on the run. Mercy Perinatal Global Obstetrics Update, Melbourne. November 2022. [Invited speaker – hybrid]

Roddy-Mitchell A. Perinatal mental health in low- and middle-income countries. Australian Perinatal Epidemiology Update, Melbourne. November 2022. [Invited speaker]

Awards

A Roddy-Mitchell: Harold Mitchell Postgraduate Travelling Scholarship. A Roddy-Mitchell: PSANZ New Investigator Award for Epidemiology.

Translational Obstetrics Group

Headed by Professor Stephen Tong and Professor Tu'uhevaha Kaitu'u-Lino, the Translational Obstetrics Group is a multi-disciplinary team undertaking work with a true translational motivation. In 2022, the team had multiple focuses:

- Developing and testing novel ectopic pregnancy therapies
- Developing and testing novel preeclampsia therapeutics
- Identifying circulating biomarkers for placental insufficiency
- Elucidating the pathogenesis of pregnancy complications preeclampsia and fetal growth restriction

In 2022, the team comprised three research assistants (Ping Cannon, Tuong-Vi Nguyen, Manju Kandel), two PhD students (Ciara Murphy and Georgia Wong), and two honours students (Lydia Baird and Anna Nguyen), and worked closely with three post-doctoral fellows (Emerson Keenan, Lucy Bartho and Teresa MacDonald). In 2022, some of the team's achievements included 23 peer-reviewed publications, H1 honours grades for two honours studies with Lydia Baird being awarded top student within the Dept of O&G and also receiving the prestigious Richard Larkin's prize as the top student in 2022 honours cohort, award of an ARC Discovery Project (led by Prof Kaitu'u-Lino) and a NHMRC Senior Investigator Fellowship for Prof Tong (begins in 2023, worth \$2,500,000).

Research Team Members

Professor Stephen Tong

Professor Tu'uhevaha Kaitu'u-Lino

Dr Lucy Bartho

Ms Ping Cannon

Ms Vi Nguyen

Ms Manju Kandel

Dr Carole-Anne Whigham

Ms Ciara Murphy

Ms Georgia Wong

Ms Anna Nguyen

Ms Lydia Baird

Projects and Grants

S Tong (CIA), T Kaitu'u-Lino (CID) *Developing new diagnostics to prevent stillbirth* Sponsor: NHMRC Synergy Grant (2020 – 2024)

T Kaitu'u-Lino (CIA) *Developing a Screening Test to Identify Women at Risk of Preeclampsia* Sponsor: NHMRC Ideas Grant (2021 – 2023)

T Kaitu'u-Lino (CIA) *PEG10 and its role in preeclampsia pathogenesis* Sponsor: Austin Medical Research Foundation (2022)

T Kaitu'u-Lino (CIA)

G Wong (CIC) *WNT signalling molecules – critical roles in placental development* Sponsor: Trevor Basil Kilvington Bequest Foundation (2022)

T Kaitu'u-Lino (CIA) *Is SPINT1 a key regulator of placental development?* Sponsor: ARC – Discovery Project (2022- 2024)

Publications

- Andres F, Hannan NJ, Walker SP, MacDonald TM, Wong GP, Murphy C, et al. Endothelial protein C receptor is increased in preterm preeclampsia and fetal growth restriction. *FASEB J*. 2022;36(12):e22651. DOI: 10.1096/fj.202201150R
- Andres F, Wong GP, Walker SP, MacDonald TM, Keenan E, Cannon P, et al. A disintegrin and metalloproteinase 12 (ADAM12) is reduced at 36 weeks' gestation in pregnancies destined to deliver small for gestational age infants. *Placenta*. 2022;117:1-4.
- Arman BM, Binder NK, de Alwis N, Kaitu'u-Lino TJ, Hannan NJ. Repurposing existing drugs as a therapeutic approach for the prevention of preterm birth. *Reproduction*. 2022;165(1):R9-R23. DOI: 10.1530/REP-22-0226
- Bartho LA, McKeating DR, Hannan NJ, Kaitu'u-Lino TJ, Perkins AV. Determining the transcriptional profiles of mitochondrial, endoplasmic reticulum and aging markers in placental pathologies. *Mol Hum Reprod*. 2022;29(9):gaac026. DOI: 10.1093/molehr/gaac026
- Binder NK, Mangwiro YTM, Pritchard N, Beard S, Kaitu'u-Lino TJ, Brownfoot F et al. The effect of metformin on cardiovascular markers in female mice consuming a high fat diet. *Obes Res Clin Pract*. 2022;16(6):524-532. DOI: 10.1016/j.orcp.2022.10.006

- Cluver CA, Hiscock R, Decloedt E, Hall DR, Schel, S, Mol BW, et al. Use of metformin to prolong gestation in preterm pre-eclampsia: randomised, double blind, placebo controlled trial. *Obstet Gynecol Surv.* 2022;77(3):143-144.
- De Alwis N, Beard S, Binder NK, Pritchard N, Kaitu'u-Lino TJ, Walker SP, et al. Placental OLAH levels are altered in fetal growth restriction, preeclampsia and models of placental dysfunction. *Antioxidants.* 2022;11(9):1677. DOI: 10.3390/antiox11091677
- De Alwis N, Beard S, Binder NK, Pritchard N, Tong S, Kaitu'u-Lino TJ, et al. Placental DAAM2 does not appear to be associated with pathogenic stages of preeclampsia, but is regulated in cytotrophoblast with preeclampsia therapeutic, proton pump inhibitor treatment. *Pregnancy Hyperten.*
- De Alwis N, Beard S, Binder NK, Pritchard N, Tong S, Kaitu'u-Lino TJ, et al. Placental DAAM2 is unaltered in preeclampsia, but upregulated by treatment with proton pump inhibitors. *Pregnancy Hypertens.* 2022;30:13-20. DOI: 10.1016/j.preghy.2022.07.005
- De Alwis N, Binder NK, Beard S, Mangwiro YT, Kadife E, Cuffe JS, et al. The L-NAME mouse model of preeclampsia and impact to long-term maternal cardiovascular health. *Life Sci Alliance.* 2022;5(12):e202201517. DOI: 10.26508/lsa.202201517
- De Alwis N, Binder NK, Mangwiro YTM, Beard S, Pritchard N, Kadife E, et al. Actions of esomeprazole on the maternal vasculature in lean and obese pregnant mice with impaired nitric oxide synthesis: a model of preeclampsia. *Int J Mol Sci.* 2022;23(15):8185. DOI: 10.3390/ijms23158185
- De Alwis N, Fato BR, Beard S, Binder NK, Kaitu'u-Lino TJ, Onda K, et al. Assessment of the proton pump inhibitor, esomeprazole magnesium hydrate and trihydrate, on pathophysiological markers of preeclampsia in preclinical human models of disease. *Int J Mol Sci.* 2022;23(17):9533. DOI: 10.3390/ijms23179533
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- Murphy C, Cluver C, Walker SP, Keenan E, Hastie R, MacDonald T, et al. Circulating SPINT1 is reduced in a preeclamptic cohort with co-existing fetal growth restriction. *J Clin Med.* 2022;11:901.
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- Wong GP, Andres F, Walker SP, MacDonald TM, Cannon P, Nguyen TV, et al. Circulating activin A is elevated at 36 weeks' gestation preceding a diagnosis of preeclampsia. *Pregnancy Hypertens.* 2022;27:23-26. DOI: 10.1016/j.preghy.2021.11.006

Presentations

Bartho L. “Fishing” for biomarkers to predict disease of pregnancy. Mothers and Babies Research Program, location. August 2022. [Online]

Bartho L. Discovering novel biomarkers to predict disease of pregnancy. Dept of O&G Seminar Series – Grand Round, location. September 2022. [Online]

Bartho L. Circulating chemerin is increased in preeclampsia, preceding diagnosis of preeclampsia, and associated with placenta hypoxia. Australian and New Zealand Placental Research Association, Christchurch. November 2022.

Bartho L. Polar lipidomics to predict pregnancies at risk of fetal growth restriction and preeclampsia. Society for Reproductive Biology, Christchurch. November 2022.

Kaitu’u-Lino T. Predicting diseases of pregnancy – placental biomarkers. Austin Doyle Research in Progress. February 2022. [Online]

Kaitu’u-Lino T. Fetal growth restriction in pregnancy. Uni of Melbourne Honours Program. March 2022. [Online]

Kaitu’u-Lino T. Detecting pregnancies at risk. PSANZ Annual Conference, Adelaide. May 2022.

Kaitu’u-Lino T. Searching for preeclampsia biomarkers. ZOOMing into preeclampsia; worldwide virtual seminar series. May 2022. [Online]

Kaitu’u-Lino T. Ancient and recent biomarkers. International Society for the Study of Hypertension in Pregnancy, Montpellier. August 2022.

Kaitu’u-Lino T (on behalf of F Andres). Poster – EPCR is dysregulated in preeclampsia. International Society for the Study of Hypertension in Pregnancy, Montpellier. August 2022.

Kaitu’u-Lino T. Research at the Mercy Hospital for Women. ONJCRI Northern Bright Stars. August 2022. [Online.]

Kaitu’u-Lino T. Preeclampsia prevention and screening. Australian Preeclampsia Network, Hobart. October 2022.

Kaitu’u-Lino T. Placental biomarkers to predict pregnancy complications. Perth Women’s and Infants Research Foundation – Annual Symposium, Perth.

November 2022.

Kaitu’u-Lino T. Placental biomarkers to predict pregnancy complications. Society for Reproductive Biology, Christchurch. November 2022.

Murphy C. SPINT1 is reduced in the maternal circulation of preeclamptic pregnancies with coincident fetal growth restriction. Australian Reproduction Update, Melbourne. March 2022.

Murphy C. Poster – Circulating SPINT1 is reduced in a preeclamptic cohort with co-existing fetal growth restriction. PSANZ Annual Conference, Adelaide. May 2022.

Murphy C. SPINT1 levels are reduced in the maternal circulation of pregnancies with placental insufficiency, manifesting as concurrent preeclampsia and fetal growth restriction. Australian and New Zealand Placental Research Association, Christchurch. November 2022.

Murphy C. Regulation and function of SPINT1 in human placental trophoblasts. Society for Reproductive Biology, Christchurch. November 2022.

Tong S. Tips on pursuing ‘bench to bedside’ translational research. Hudson Institute of Medical Research, Melbourne. April 2022.

Tong S. Grant writing workshop. Robinson Research Institute, Adelaide. June 2022.

Tong S. Our hunt to find treatments for preeclampsia: an update, and lessons learnt. Centre for Trophoblast research, Cambridge University, Cambridge. September 2022.

Tong S. International panelist to discuss aspirin to prevent preeclampsia. International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) annual conference, London. September 2022.

Tong S. Tips on constructing competitive grants. Department of General Practice, Monash University, Melbourne. November 2022.

Tong S. Grant writing workshop. Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne. November 2022.

Tong S. A refresher on drugs used to treat postpartum bleeding. Global Obstetrics Update (GOU), Melbourne.

November 2022.

Tong S. Grant Writing Workshop. Melbourne Medical School, University of Melbourne, Melbourne. December 2022.

Tong S. Our international 'bench to bedside' search for new drugs to treat preeclampsia. National University of Singapore, Singapore. December 2022. [Online]

Wong G. Elucidating the role of leucine-rich repeat-containing G protein-coupled receptor 5 (LGR5) and its ligands in the preeclamptic placenta. Australian Reproduction Update, Melbourne. March 2022.

Wong G. Leucine-rich repeat-containing g-protein coupled receptor 5 (LGR5) and its ligand expression in preeclampsia, possible functional roles in trophoblasts. International Society for the Study of Hypertension in Pregnancy, Montpellier. August 2022.

Wong G. Leucine-rich repeat-containing G-protein coupled receptor 5 (LGR5) and its ligands in preeclampsia, possible functional roles in progenitor trophoblasts. Australian and New Zealand Placental Research Association, Christchurch. November 2022.

Wong G. Poster – Characterising leucine-rich repeat-containing G protein-coupled receptor 4 in the preeclamptic placenta. Society for Reproductive Biology, Christchurch. November 2022.

Awards and academic achievements

L Baird: RMH Honours – Dept of O&G Award for Top Student L Baird: RMH Honours – Top Student, Richard Larkin's Prize L Baird: ECR Poster Prize Finalist.

L Baird: SRB Travel Award.

L Bartho: ANZPRA ECR Travel Award.

L Bartho: ANZPRA/SRB New Investigator Award – finalist. L Bartho: Austin Medical Research Foundation Grant.

L Bartho: Dept of O&G Professional Development Support Scheme. L Bartho: Henry and Rachel Ackman Travelling Scholarship.

T Kaitu'u-Lino: Mercy Perinatal Mid-Career Women's Health Medal.

C Murphy: ANZPRA/SRB New Investigator Award – finalist. C Murphy: ANZPRA/SRB New Investigator Award – finalist. C Murphy: Henry and Rachel Ackman Travelling Scholarship. C Murphy: IMPACT Mentor Award.

C Murphy: SRB Travel Award. A Nguyen: SRB Travel Award.

G Wong: Henry and Rachel Ackman Travelling Scholarship G Wong: Research Training Program Scholarship Stipend.

G Wong: SRB Travel Award.

FETAL BIOMEDICAL ENGINEERING GROUP

We are a multidisciplinary group focused on developing novel diagnostics and therapies to treat pregnancy complications. The team comprises A/Prof Fiona Brownfoot (clinician scientist), Dr Emerson Keenan (electrical engineer), Dr Elif Kadife (post-doctoral scientist), Ms Alesia Harper (scientist research assistant), Ms Kaitlin Constable (research midwife) and Dr Prathima Chowdary (PhD candidate). We bring a diverse array of skills together to develop innovative solutions for obstetric disease.

Our team is exploring three main research themes including developing novel treatments for preeclampsia and post-partum hemorrhage, a device to better detect fetal asphyxia in pregnancy and a device to measure the stress levels in the baby during labour. In 2022 some of the teams achievements include publication of 12 manuscripts, Dr Keenan won the prize for the top engineering PhD, Dr Kadife was awarded 3 grants, the team have commercialisation funding to translate the fetal ECG to a research grade device to investigate stillbirth.

Research Team Members

Dr Fiona Brownfoot

Dr Emerson Keenan

Dr Elif Kadife

Dr Prathima Chowdary

Ms Alesia Harper

Ms Kaitlin Constable

Projects and Grants

F Brownfoot *Bench to bedside translational studies to develop treatments for preeclampsia* Sponsor: NHMRC Early Career Fellowship (2018-2022)

F Brownfoot *Developing a novel device to accurately assess fetal distress in labour* Sponsor: NHMRC Project Grant (2019-2022)

F Brownfoot (CIF) *Developing new diagnostics to prevent stillbirth* Sponsor: NHMRC Synergy Grant (2020 – 2024)

F Brownfoot *Developing a novel device to reduce stillbirth, Developing a pH sensor to better detect fetal hypoxia in labour, and Developing treatments for preeclampsia* Sponsor: Norman Beischer Medical Research Foundation Research Fellowship (2021 – 2023)

Publications

- Brownfoot F, Binder N, Hastie R, Harper A, Beard S, Tuohy L, et al. Nicotinamide and its effects on endothelial dysfunction and secretion of antiangiogenic factors by primary human placental cells and tissues. *Placenta*. 2021;109:28-31. DOI: 10.1016/j.placenta.2021.04.007
- Brownfoot FC. Uncovering the molecular cause of preeclampsia-the role of glutathionylation of the Na⁺/K⁺ ATPase transporter. *J Clin Endocrinol Metab*. 2021;106(7):e2830-e2832. DOI: 10.1210/clinem/dgab117
- Cluver CA, Hiscock R, Decloedt EH, Hall DR, Schell S, Mol BW et al. Use of metformin to prolong gestation in preterm pre-eclampsia: randomised, double blind, placebo controlled trial. *BMJ*. 2021;374:n2103. DOI: 10.1136/bmj.n2103
- De Alwis N, Binder NK, Beard S, Kaitu'u-Lino TJ, Tong S, Brownfoot F, et al. Novel approaches to combat preeclampsia: from new drugs to innovative delivery. *Placenta*. 2020;102:10-16. DOI: 10.1016/j.placenta.2020.08.022

- Galibert S, Keenan E, Hastie R, Brownfoot FC. Management of late preterm preeclampsia: a comparison of maternal and fetal indications for delivery. *J Matern Fetal Neonatal Med.* 2022;35(25):5431-5437. DOI: 10.1080/14767058.2021.1882980
- Garcha D, Walker SP, MacDonald TM, Hyett J, Jellins J, Myers J, et al. Circulating syndecan-1 is reduced in pregnancies with poor fetal growth and its secretion regulated by matrix metalloproteinases and the mitochondria. *Sci Rep.* 2021;11(1):16595. DOI: 10.1038/s41598-021-96077-1
- Keenan E, Karmakar C, Brownfoot FC, Palaniswami M. Evaluation of mesh and sensor resolution for finite element modeling of non-invasive fetal ECG signals. *Annu Int Conf IEEE Eng Med Biol Soc.* 2021;2021:4134-4138. DOI: 10.1109/EMBC46164.2021.9630164.
- Keenan E, Udhayakumar RK, Karmakar CK, Brownfoot FC, Palaniswami M. Entropy profiling for detection of fetal arrhythmias in short length fetal heart rate recordings. *Annu Int Conf IEEE Eng Med Biol Soc.* 2020;2020:621-624. DOI: 10.1109/EMBC44109.2020.9175892
- Molony CL, Hiscock R, Kaufman J, Keenan E, Hastie R, Brownfoot FC. Growth trajectory of preterm small-for-gestational-age neonates. *J Matern Fetal Neonatal Med.* 2022;35(25):8400-8406. DOI: 10.1080/14767058.2021.1974835
- Whigham CA, Hastie R, Hannan NJ, Brownfoot F, Pritchard N, Cannon P, et al. Placental growth factor is negatively regulated by epidermal growth factor receptor (EGFR) signaling. *Placenta.* 2021;114:22-28. DOI: 10.1016/j.placenta.2021.08.002

THERAPEUTICS DISCOVERY AND VASCULAR FUNCTION GROUP

Therapeutics Discovery and Vascular Function Group is focused on improving Women's health, principally understanding serious pregnancy complications and identifying and developing novel treatment strategies for these conditions, particularly preeclampsia, hypertension in pregnancy, fetal growth restriction and preterm birth. Our research program focuses on understanding placental development and how inappropriate development can lead to dangerous consequences for both the mother and her fetus.

Research Team Members

Professor Natalie Hannan
Dr Natalie Binder
Ms Sally Beard
Ms Natasha de Alwis
Ms Bianca Fato
Ms Bridget Arman
Ms Alison Abboud
Ms Genevieve Christophers
Ms Rachel Murdoch

Projects and Grants

N Hannan (CIA) *Blockade of TNF α to treat Preeclampsia*. Sponsor: Austin Medical Research Foundation Research Grant (2022)

N Hannan (CIA), Prof Walker (CIB), Dr Roman (CIC) *New horizons in the treatment of preeclampsia: Biologics to inhibit TNF α* Sponsor: Norman Beischer Medical Research Foundation (2022)

N Hannan (CIA) *SOMANZ Research Grant*. Sponsor: SOMANZ Research Grant (2022)

Prof Kaitu'u-Lino (CIA), N Hannan (CIB) *Is SPINT1 a key regulator of placental development?* Sponsor: Australian Research Council (ARC) Discovery Project (2022-2025)

N Hannan (CIA), Dr Binder (CIB) *Improving the pipeline for translation of therapies for serious complications of pregnancy*. Sponsor: National Health & Medical Research Council (NHMRC) Ideas Grant (2022-2025)

N Hannan (CIA) *Purinergic signalling in placentation and vascular adaptation in pregnancy*. Sponsor: ARC Future Fellowship (2022-2026)

N Hannan (CIA) ?? Sponsor: ARC University of Melbourne Establishment Grant (2022-2026)

Publications

- Arman BM, Binder NK, de Alwis N, Kaitu'u-Lino TJ, Hannan NJ. Repurposing existing drugs as a therapeutic approach for the prevention of preterm birth. *Reproduction*. 2022;165(1):R9-R23. DOI: 10.1530/REP-22-0226
- Barber C, Yap Y, Hannan NJ, Wallace EM, Marshall SA. Activin A causes endothelial dysfunction of mouse aorta and human aortic cells. *Reproduction*. 2022;163(3):145-155. DOI: 10.1530/REP-21-0368
- Bartho LA, McKeating DR, Hannan NJ, Kaitu'u-Lino TJ, Perkins AV. Transcriptional profiles of genes related to mitochondrial aging in placental pathologies. *Mol Hum Reprod*. 2022:gaac026. DOI: 10.1093/molehr/gaac026
- Binder NK, de Alwis N, Beard S, Kadife E, Harper A, Kaitu'u-Lino TJ, et al. Sulfasalazine for the treatment of preeclampsia in a nitric oxide antagonist mouse model. 2023;132:20-26. DOI: 10.1016/j.placenta.2023.01.001
- Binder NK, Mangwiro YTM, Pritchard N, Beard S, Kaitu'u-Lino TJ, Brownfoot F, et al. The effect of metformin on cardiovascular markers in female mice consuming a high fat diet. *Obesity Research & Clinical Practice*. 2022:S1871-403X(22)00114-4. DOI: 10.1016/j.orcp.2022.10.006
- De Alwis N, Beard S, Binder NK, Pritchard N, Kaitu'u-Lino TJ, Walker SP, et al. Placental OLAH levels are altered in fetal growth restriction, preeclampsia and models of placental dysfunction. *Antioxidants*. 2022;11(9):1677. DOI: 10.3390/antiox11091677. PMID: 36139751
- De Alwis N, Beard S, Binder NK, Pritchard N, Tong S, Kaitu'u-Lino TJ, et al. Placental DAAM2 is unaltered in preeclampsia, but upregulated by treatment with proton pump inhibitors. *Pregnancy Hypertens*. 2022;30:13-20. DOI: 10.1016/j.preghy.2022.07.005

- De Alwis N, Binder NK, Beard S, Mangwiro YT, Kadife E, Cuffe JS, et al. The L-NAME mouse model of preeclampsia and impact to longterm maternal cardiovascular health. *Life Sci Alliance*. 2022;5(12):e202201517. DOI: 10.26508/lsa.202201517
- De Alwis N, Binder NK, Mangwiro YTM, Beard S, Pritchard N, Kadife E, et al. Actions of Esomeprazole on the Maternal Vasculature in Lean and Obese Pregnant Mice with Impaired Nitric Oxide Synthesis: A Model of Preeclampsia. *International journal of molecular sciences*. 2022;23(15). (*joint first author*).
- De Alwis N, Binder NK, Mangwiro YTM, Beard S, Pritchard N, Kadife E, et al. Actions of esomeprazole on the maternal vasculature in lean and obese pregnant mice with impaired nitric oxide synthesis: a model of preeclampsia. *Int J Mol Sci*. 2022;23(15):8185. DOI: 10.3390/ijms23158185
- De Alwis N, Fato BR, Beard S, Binder NK, Kaitu'u-Lino TJ, Onda K, et al. Assessment of the proton pump inhibitor, esomeprazole magnesium hydrate and trihydrate, on pathophysiological markers of preeclampsia in preclinical human models of disease. *Int J Mol Sci*. 2022;23(17):9533. DOI: 10.3390/ijms23179533
- Fato BR, de Alwis N, Beard S, Binder NK, Pritchard N, Tong S, et al. Serum collected from preeclamptic pregnancies drives vasoconstriction of human omental arteries – a novel ex vivo model of preeclampsia for therapeutic development. *Int J Mol Sci*. 2022;23(18):10852. DOI: 10.3390/ijms231810852
- Hannan NJ, Cohen PA, Beard S, Bilic S, Zhang B, Tong S, et al. Transcriptomic analysis of patient plasma reveals circulating miR200c as a potential biomarker for high-grade serous ovarian cancer. *Gynecol Oncol Rep*. 2021;39:100894. DOI: 10.1016/j.gore.2021.100894
- Hastie R, Bergman L, Walker SP, Kaitu'u-Lino T, Hannan NJ, Brownfoot F, et al. Associations between soluble FMS-like tyrosine kinase-1 and placental growth factor and disease severity among women with preterm eclampsia and preeclampsia. *J Am Heart Assoc*. 2022;11(16):e024395. DOI: 10.1161/JAHA.121.024395
- Hui L, De Catte L, Beard S, Maksimovic J, Vora NL, Oshlack A, et al. RNAseq of amniotic fluid cell-free RNA: a discovery phase study of the pathophysiology of congenital cytomegalovirus infection. *Am J Obstet Gynecol*. 2022:S0002-9378(22)00386-6. DOI: 10.1016/j.ajog.2022.05.035
- Kandel M, MacDonald TM, Walker SP, Cluver C, Bergman L, Myers J, et al. PSG7 and 9 (pregnancy-specific β -1 glycoproteins 7 and 9): novel biomarkers for preeclampsia. *J Am Heart Assoc*. 2022;11(7):e024536. DOI: 10.1161/JAHA.121.024536
- Kandel M, Tong S, Walker SP, Cannon P, Nguyen TV, MacDonald TM, et al. Placental galectin-3 is reduced in early-onset preeclampsia. *Front Physiol*. 2022;13:1037597. DOI: 10.3389/fphys.2022.1037597
- MacDonald TM, Walker SP, Hannan NJ, Tong S, Kaitu'u-Lino TJ. Clinical tools and biomarkers to predict preeclampsia. *EBioMedicine*. 2022;75:103780. DOI: 10.1016/j.ebiom.2021.103780
- Murphy CN, Cluver CA, Walker SP, Keenan E, Hastie R, MacDonald TM, et al. Circulating SPINT1 is reduced in a preeclamptic cohort with co-existing fetal growth restriction. *J Clin Med*. 2022;11(4):901. DOI: 10.3390/jcm11040901
- Yap YW, Hannan NJ, Wallace EM, Marshall SA. Silencing of Nrf genes in the human placenta as measured by SDS-PAGE and western blotting techniques. *Placenta*. 2022;118:70-74. DOI: 10.1016/j.placenta.2022.01.007Jan 13

Presentations

Hannan N. New drugs and new delivery: working towards preventing preeclampsia. Erasmus University, Rotterdam. June 2022. [Invited speaker]

Hannan N. New drugs and new delivery: working towards preventing preeclampsia. Oxford University (Nuffield Dept. O&G), Oxford. July 2022. [Invited speaker]

Hannan N. Alliance Française. Australian-French Association for Research and Innovation (AFRAN) Women in Science. Sydney. August 2022. [Invited panellist]

Hannan N. 55th Annual Scientific Meeting, Society for the Study of Reproduction (SSR). Washington DC. August 2022. [SRB–SSR Exchange Lecture]

Awards and academic achievements

B Arman: Best Oral Presentation (Women's and Child's Health). B Arman: Best PhD Presentation.

B Arman: Henry and Rachel Ackman Travelling Scholarship. B Arman: People's Choice Award.

B Arman: People's Favourite Award.

B Arman: Society of Reproductive Biology Travel Award.

N Binder: Henry and Rachael Ackman Travelling Scholarship.

N de Alwis: Best talk (Melbourne Medical School) – Awarded at 2022 MDHS Early Career Academic Network Symposium (University of Melbourne).

N de Alwis: Harold Mitchell Foundation Travel Award 2022 (Postdoctoral Prize).

N de Alwis: Norman Beischer PhD Prize 2022 – Awarded for best PhD in the Department of Obstetrics & Gynaecology at the University of Melbourne.

B Fato: Awarded the Andrew Phippard Memorial Award 2022.

B Fato: Elected as a member of the Student Advisory Council for the Faculty of MDHS, University of Melbourne. B Fato: Elected as the student representative for the Society of Reproductive Biology (SRB) for 2022-2024.

B Fato: Finalist in the Society for Reproductive Biology (SRB) and Australian and New Zealand Placenta Research Association (ANZPRA) New Investigator Award 2022.

B Fato: Henry and Rachel Ackman Travelling Scholarship 2022 Graduate Research Student Travel Scholarship. B Fato: Melbourne Plus Community Engagement Credential 2022.

B Fato: SRB Travel Scholarship 2022.

N Hannan: Appointed as Board Director of the Victorian Endowment Science Knowledge and Innovation (veski). N Hannan: Australian Research Council Future Fellowship (Level 3 (highest); #FT210100193).

N Hannan: Graduated Chancellery Academic Leaders Program.

N Hannan: Graduated from the Australian Institute Company Directors – Company Directors Course (with order of merit).

N Hannan: Society for the Study of Reproduction (SSR) and Society for Reproductive Biology Plenary Exchange Lecture 2022.

N Hannan: University of Melbourne | Deans Award of Excellence: Dame Kate Campbell Fellowship.

Peace of mind for mums who get induced early

An interview with Dr Roxanne Hastie

Choosing to get induced at 39 weeks is safe for babies and has no adverse effects on a child's early development, Mercy Health researchers have found.

A pivotal study of 88,000 births has found bringing birth forward to 39 weeks' gestation makes no difference to the developmental outcomes of children at ages four, five and six.

Mercy Hospital for Women Senior Research Fellow Dr Roxanne Hastie said the research compared children who had been induced at 39 weeks with those who were born at full-term, in five key developmental domains.

Dr Hastie, a Perinatal Epidemiology Group co-lead in the Department of Obstetrics and Gynaecology, said the findings were welcome news to mothers and clinicians, given the rising rates of induction of labour around the world.

"It's really reassuring for women who are deciding when and how to birth their babies," she said.

"It's an important finding from our team that we hope will inform clinical practice. There are lots of different reasons why women decide to have an induction of labour, and this gives them solace in their decision-making."

She said the number of women electing to be induced at 39 weeks has risen following the landmark ARRIVE trial in 2018, which found it was medically safe for mum and baby in the short term.

But she said little was known about the longer-term implications, which sparked her team to probe data on early childhood development. As inducing labour reduces the amount of time the baby spends in the womb, there were lingering concerns about the impact on the child later in life.

"The ARRIVE trial really changed clinical practice and women were more frequently offered or more easily able to access induction at 39 weeks, not just for medical reasons," she said.

In Australia, 41 per cent of labours are induced and Dr Hastie said it was important to determine if women who were electing to have an induction were putting their children in the path of harm.

Big data is helping answer important, lingering questions on inducing babies at 39 weeks

The research, conducted by a group of research scientists, obstetricians, biostatisticians and educators at Mercy, the Royal Women's and the University of Melbourne, was published in JAMA Pediatrics.

"These findings offer reassurance about the long-term impact of elective birth at 39 weeks' gestation and provide information that may assist in shared decision-making with patients when planning birth," the article read.

Dr Hastie said the research analysed Victoria-wide data from the Australian Early Developmental census, which is conducted every three years and assesses five domains – physical health and well-being, social competence, emotional maturity, school-based language and cognitive skills, and communication skills and general knowledge. She said "big data" was helping make improvements for mothers and babies in many different areas.

"Our team is using big health data which is massive amounts of health information collected through electronic medical records, to answer important clinical questions and help improve clinical practice," she said.

"The power of big data is that it's all just sitting there, ready to be used, and we can investigate things immediately.

"We used this new cutting-edge statistical method called causal inference. And this is a new methodology that allows you to mimic a randomized clinical trial, which offer the highest form of evidence."

The team was now taking the research a step further and investigating the academic performance of Year 3 students using NAPLAN data.

Groundbreaking blood tests tipped to cut rates of stillbirth, preeclampsia

An interview with Professor Kaitu'u-Lino

Professor Tu'uhevaha Kaitu'u-Lino has always been passionate about solving mysteries in women's health through research.

Now she's set to help crack two of the biggest — the early warning signs of stillbirth and preeclampsia.

Prof Kaitu'u-Lino, a scientist based at Mercy Hospital for Women, is leading two research projects to develop simple, reliable blood tests that could detect these devastating pregnancy complications.

The research is being undertaken thanks to National Health and Medical Research Council grants totalling \$6.1 million, and could hold the key to safer pregnancies.

Prof Kaitu'u-Lino, co-head of the Translational Obstetrics Group, said a team of researchers was working with peers across the world to analyse blood samples and develop the novel tests.

"The current tools that the doctors rely on perform really poorly in this space," she said.

"If we could have simple blood tests that gave us better information about what was happening with the baby and placenta, the monitoring of women at different stages of their pregnancy could be significantly improved. If we could even stop one or two women going through these tragedies, that would be an amazing breakthrough!"

She said pregnancy complications were often caused by the failure of the placenta to deliver oxygen and nutrients to the baby. This could slow a baby's growth, putting them at higher risk of stillbirth.

"What we're doing with the stillbirth research is looking for proteins released from the placenta into mum's blood that might signal the placenta is failing. We then compare levels between healthy pregnancies and those where the baby is not growing properly," she said.

Stillbirth rates haven't changed in a decade, with one in every 130 Australian pregnancies lost each year.

Now, Mercy Health scientists are providing hope with the development of blood tests aimed at detecting the risk of stillbirth, and another life-threatening pregnancy complication, preeclampsia.

Excitingly, the team have made a promising discovery with the identification of a protein called SPINT1.

"Until now, one of the biggest missing pieces of the puzzle was knowing what to look for in the molecules released from the failing placenta," she said.

"We have measured SPINT1 in samples from pregnant women across the globe, and have found levels are always lower in pregnancies where the baby is destined to be born small. We are now creating a blood test that could be used in clinical settings."

She said a blood test was now being created for use in clinical settings that could signal an at-risk pregnancy to doctors.

This would allow them to closely monitor mum, and intervene by delivering babies earlier if necessary.

The Translational Obstetrics Group was working with researchers across the globe, including South Africa, Chile, England and New Zealand, to develop an effective blood test for all women.



The same team is developing the preeclampsia prediction test, with a similar goal of identifying molecules in the blood that predict women at risk of developing the condition.

Prof Kaitu'u-Lino said preeclampsia caused life-threatening high blood pressure when toxins from a failing placenta were released into a woman's bloodstream, damaging her blood vessels.

There was no cure or treatment, and delivery of the baby and placenta were crucial to saving a mother's life.

"Ultimately, if you don't deliver that placenta, then the mum could die as a result of the damage happening to her blood vessels, especially within the major organs," she said.

"Again our goal is personalised care. Identifying who is at high risk, allowing the clinician to monitor carefully for

the signs and symptoms of preeclampsia. They could hopefully deliver the baby and the placenta before mum gets too sick."

The blood tests could be taken when women have scheduled pregnancy visits, at 28 and 36 weeks.

Prof Kaitu'u-Lino, a Dame Kate Campbell Fellow at the University of Melbourne, said she was relishing the opportunity to work on such important research projects.

"I've always been super keen to do good research that could actually change clinical practice, and working with brilliant clinician scientists Prof Stephen Tong and Prof Sue Walker means a higher chance of taking something from the laboratory to the clinic," she said.

NURSING AND MIDWIFERY PROFESSORIATE

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.

Research team

Prof Christine East

Ms Caroline Carr, Perineal trauma

Dr Lorelle Martin, Long Covid peer support

Ms Mary McCarthy, Obstetric Triage Decision Aid

Adjunct Prof Sue McDonald, Obstetric Triage Decision Aid
Ms Magdalena Pliszka, Postpartum haemorrhage

Dr Wendy Pollock, Honorary, Maternal morbidity
Dr Kritika Poudel, Post-partum haemorrhage

Dr Laura Whitburn, Labour pain

Brooke Henshall, Candidate, Professional Doctorate in Midwifery, La Trobe University
Deb Pidd, Candidate, Professional Doctorate in Midwifery, La Trobe University

Chris Martin, Candidate, Professional Doctorate in Nursing, La Trobe University
Raquel Dumas, Professional Doctorate in Nursing, La Trobe University

Lisa Speedie, Professional Doctorate in Nursing, La Trobe University

Projects and Grants

Exploring 10 years of Consultative Council on Obstetric Paediatric Mortality and Morbidity recommendations.
C East

Funded by Safer Care Victoria. \$49,000 2022-2023

Induction of labour: a shared decision – A pilot project to develop surveys for women before and after their induction of labour.

C East, M Buultjens, J Fielding, A Dawes, B Vollenhoven
Funded by Mercy Health Services Academic Research & Development Committee (ARDC) Small Grants.
\$2,500. 2021-2022

Risk factors for severe perineal trauma during childbirth
C East, M Pliszka, S Hellard, G Costa

Risk factors for postpartum haemorrhage
C East, C Carr, S Hellard, T Culvenor, K Poudel

Antenatal Art Therapy.

T Crane, M Buultjens, P Fenner, C East

Digital capability of the care workforce and technology-enabled healthcare delivery
ME Morris, NK Brusco, J Jones, NF Taylor, CE East, AI Semciw, K Edvardsson, C Thwaites, SL Bourke, UR Khan, S Fowler-Davis.

Factors to consider in an evidence-based “first-time parents’ program”
R Dumas, C East, J Davis, C Adams

Family centred neonatal and paediatric care: scoping review
B Copnell, K Edvardsson, E Greenwood, L Ridgway, S Hokke, C East, L McKenna, C Adams, EM Henderson

Father and non-birth parent engagement and involvement in child, family and community health settings: a systematic review
C Adams, K Edvardsson, C East, A O'Neill, L Hooker, L Ridgway, R Gray

Finding a pathway to reduce maternal anxiety in pregnancy following a previous psychologically traumatic birth.
D Pidd, M Newton, I Wilson, C East

Generation Victoria: cohort of Victorian children born in 2021 & 2022 and their parents.
M Wake on behalf of GenV. Mercy Health: S Walker, C East

DEPARTMENT OF PAEDIATRICS, MERCY HOSPITAL FOR WOMEN

The department conducts research into respiratory management and preventing chronic lung disease, nutrition, brain injury, infection and immunity, and long-term neurodevelopment outcomes.

Over the last year our staff have been active collaborators with both local and interstate colleagues and several new projects have been commenced.

In 2022 we again have enrolled a cohort of extremely preterm, extremely low birth weight infants into the Victorian Infant Collaborative Study. MHW has been contributing to this research group for over 40 years evaluating all aspects of care for these infants and the impact on their long term health and neurodevelopment.

Several of earlier career neonatologists are undertaking PhD's and we look forward to reporting on their research in the future.

Research team

Dr Dan Casalaz
Dr Gillian Opie
Dr Ajit Aiyappan
Dr Maria Guadalupe Alda
Emily Bourke
Dr Tammy Brinsmead
A/Prof Julia Charlton
Dr Noni Davis
Dr Julianne Duff
Dr Natalie Duffy
Dr Phillip Henschke
Dr Jim Holberton
Elisha Josev
Dr Martina Moorkamp
Dr Gemma Nesbitt
Bronwyn Novella
Kerry-Ann O'Connor
Dr Arun Sasi
Dr Anne Turner
Dr Katie Van Schilfgaarde
Dr Andrew Watkins
Dr Melissa Weber

Grants

NHMRC Ideas Grant (\$1.271 million) – Designing novel blood and MRI-based predictive tools to understand disease mechanisms, improve recovery and guide targeted interventions following neonatal arterial ischaemic stroke. Mark Mackay, Julia Charlton, Paul Monagle, Stephen Hearps, Vicki Anderson, Vera Ignjatovic, Mardee Greenham, Rod Hunt, Sue Greaves, Richard Beare, Jeanie Cheong, Deanne Thompson, Chantal Attard, Joseph Yang, Frank Muscara, Angela Morgan, Adam Rozsa, Jesse Shapiro, David Tingay, Christine Imms

MRFF grant (\$1.83 million) – Targeted surveillance of developmental delay and impairments for young children born very preterm. Peter Anderson, Gillian Opie, Julia Charlton, Jeanie Cheong, Alicia Spittle, Rod Hunt, Gehan Roberts, Lex Doyle, Marimuthu Palaniswami, Helena Teede, Amber Bates, Melinda Cruz, Joanne Enticott, Kishor Nandaskishor, Alice Burnett, Xinyang Hua, Rheanna Mainzer, Abraham Niranjani, Kim Dalziel, Felicia Welstead, Leah Hickey, Alice Stewart, Carl Kuschel, Katherine Lee, Kylie Pussell

Australian Government Research Training Program Scholarship 2022-2024. Maria Guadalupe Alda MHW small grants. Maria Guadalupe Alda

Projects in Progress

PROTECT: Can Pentoxifylline improve survival without disability in preterm infants with late-onset sepsis or necrotising enterocolitis – a pragmatic randomised controlled trial. Site Investigator A Sasi

PEBBLES: randomised controlled trial to prevent atopic dermatitis, food allergy and sensitisation in infants with a family history of allergic disease using a skin barrier improvement strategy. Site Investigator A Sasi

VICS 2022: Changing outcomes of infants born extremely preterm or extremely low birth weight. Site investigator. G Opie

Publications

Pittet LF, Messina NL, Gardiner K, Freyne B, Abruzzo V, Francis KL, et al. Discordance between diagnosis tools for assessing eczema in infants: a challenge for intervention trials. *Dermatitis*. 2022;33(3):207-214. DOI: 10.1097/DER.0000000000000842

Pittet LF, Messina NL, Gardiner K, Freyne B, Abruzzo V, Francis KL, et al. Prevention of infant eczema by neonatal Bacille Calmette-Guerin vaccination: The MIS BAIR randomized controlled trial. *Allergy*. 2022;77(3):956-965. DOI: 10.1111/all.15022

Pittet LF, Fritschi N, Tebruegge M, Dutta B, Donath S, Messina NL, et al. Bacillus Calmette-Guérin skin reaction predicts enhanced mycobacteria-specific t-cell responses in infants: a post hoc analysis of a randomized controlled trial. *Am J Respir Crit Care Med*. 2022;205(7):830-841. DOI: 10.1164/rccm.202108-1892OC

Pittet LF, Tebruegge M, Dutta B, Donath S, Messina NL, Casalaz D, et al. Mycobacterium ulcerans-specific immune response after immunisation with bacillus Calmette-Guerin (BCG) vaccine. *Vaccine*. 2021;39(4):652-657. DOI: 10.1016/j.vaccine.2020.11.045

Pittet LF, Cox L, Freyne B, Germano S, Bonnici R, Gardiner K, et al. Hepatitis B vaccine co-administration influences the heterologous effects of neonatal BCG vaccination in a sex-differential manner. *Vaccine*. 2022; 40(9), 133401341. DOI: 10.1016/j.vaccine.2022.01.005

Bujalka H, Cruz M, Ingate V, Cheong J, Duffy N, Eeles A, et al. Be sweet to babies: consumer evaluation of a parent-targeted video aimed at improving pain management strategies in newborn infants undergoing painful procedures. *Adv Neonatal Care*. 2022. DOI: 10.1097/ANC.0000000000001031

Halibullah I, Hammond F, Hodgson K, Duffy N, Stewart M, Sett A. Management of pneumothorax in neonatal retrieval: a retrospective cohort study. *ADC Fetal & Neonatal Ed*. 2022. DOI: 10.1136/archdischild-2022-324352

Malarbi S, Chisholm AK, Gunn-Charlton JK, Burnett AC, Tan TY, Cheng SSW, Pellicano A, Shand J, Heggie A, Hunt RW. Intellectual functioning of children with isolated PRS, PRS-Plus and Syndromic PRS. *Cleft Palate Craniofac J*. 2022. DOI: 10.1177/105566562211559

Banting SA, Dane KM, Charlton JK, Tong S, Hui L, Middleton AL, et al. Estimating of neonatal body fat percentage predicts neonatal hypothermia better than birthweight centile. *J Maternal Fetal Neonatal Med*. 2022; 9342-9349. DOI: 10.1080/14767058.2022.2032634

Gunn-Charlton JK. Impact of comorbid prematurity and congenital anomalies: a review. *Front Physiol*. 2022;13:880891. DOI: 10.3389/fphys.2022.88089

Prasad R, Keir A, Battin M, Holberton J, Chow S, Chambers G, et al. The Australian and New Zealand Neonatal Network: past achievements and future directions. *Pediatr Med*. 2022. DOI: 10.21037/pm-21-93

Gould JF, Makrides M, Gibson RA, Sullivan TR, McPhee AJ, Anderson PJ, et al. Neonatal docosahexaenoic acid in preterm infants and intelligence at 5 years. *N Engl J Med*. 2022;387:179-1588. DOI: 10.1056/NEJMoa2206868

Sett A, Kenna KR, Sutton RJ, Perkins EJ, Sourial M, Chapman JD, et al. Lung ultrasound of the dependent lung detects real-time changes in lung volume in the preterm lamb. *Arch Dis Child Fetal Neonatal Ed*. 2022: 10.1136/archdischild-20220323900

Sibbin K, Crawford TM, Stark M, Battin M, The Australian and New Zealand Neonatal Network. Therapeutic hypothermia for neonatal encephalopathy with sepsis: a retrospective cohort study. *BMJ Paediatr Open*. 2022;6(1): e001420. DOI: 10.1136/bmjpo-2022-001420

Isayama T, Kusuda S, Adams M, Elettra B, Battin M, Helenius K, et al. International variation in the management of patent ductus arteriosus and its association with infant outcomes; a survey and linked cohort study. *J Pediatr*. 2022;244:24-29.e7. DOI: 10.1016/j.jpeds.2021.12.071

Burnett AC, Mainzer RM, Doyle LW, Lee KJ, Anderson PJ, Zannino D, et al. Mental health in young adults born extremely preterm or extremely low birthweight with contemporary neonatal intensive care. *Psychol Med*. 2022;1-8. DOI: 10.1017/S0033291722002276

Zayegh AM, Doyle LW, Boland RA, Mainzer R, Spittle AJ, Roberts G, et al. Trends in survival, perinatal morbidities and two-year neurodevelopmental outcomes in extremely low-birthweight infants over four decades. *Paediatr Perinatal Epidemiol*. 2022;36(5):594-602. DOI: 10.1111/ppe.12879

Presentations:

Ranson N, Yahya Z, Leroi M, Sasi A. Towards the perfect blood culture in neonates – a multi-modality quality improvement initiative to reduce contamination and false positive rates. ANZNN CPI Conference, Sydney. Month 2022. [Oral presentation]

Sett A, Chapman J, Rogerson S, Sasi A et al. Lung ultrasound of the dependent lungs detects real-time changes in lung volume in the preterm lamb. *Pediatric Academic Society*, location. Month 2022.

Midwife leads project to screen for historical birth trauma

An interview with Deborah Pidd

As an antenatal midwife, Deborah Pidd has helped thousands of excited parents prepare for the arrival of their baby. But through the years, she noticed that childbirth has left some mothers with emotional scars.

The former unit manager is now heading up a research project that aims to provide a positive birthing experience, and develop a screening tool for previous birth trauma.

In 2022, she embarked on a scoping review with LaTrobe University, which reported that the incidence of psychological birth trauma could be high as 44 per cent.

Women reported symptoms ranging from anxiety, panic attacks and depression in their subsequent pregnancies. “The catalyst for my research came from a pattern I noticed in the antenatal clinic,” she said.

“I was seeing women who had experienced their previous birth as traumatic or profoundly negative, but it hadn’t been noted by clinical staff.

“Often it was a result of an encounter with a doctor or midwife that would trigger the feelings of disempowerment they had experienced in the traumatising birth. My research is about how we can improve that the next time around.”

Trauma could stem from many circumstances that were perfectly normal to doctors and midwives in the birthing suite, such as the sight of blood.

“It’s not always obvious, clinicians may think ‘That was a good birth, it was nice and quick’,” she said.

“But a woman can feel that it was a terrible experience as they feel a loss of control, and to varying degrees, coming back to hospital can be quite triggering for them.”

In one example of a traumatic birth experience, she said a woman had requested an elective caesarean for her second birth, because she had feared her baby’s head

It’s meant to be one of the happiest times of their lives, but a third of women experience trauma as a result of their birth. Antenatal midwife Deborah Pidd is researching innovative ways to empower women throughout their pregnancy and birth at Mercy Health.

was going to be “pulled off” by the forceps used during her first birth.

“Her notes however described her birth as an easy forceps lift out. In trying to talk her out of having an elective caesarean, no one considered that she had experienced her birth as traumatic and believed her baby was going to die,” she said.

“The solution is often quite simple – compassion, understanding and communication.”

She also recounted the case of a pregnant woman who was terrified as she was rushed to theatre due to haemorrhaging, and pleaded with staff to “Please be careful”.

It was only when the anaesthetist called out: “Is anyone listening to the patient?”, and spoke kindly and gently to her, explaining she would be seeing her baby and partner very soon, that she became less anxious.

The scoping review found, no systematic processes for identifying a previously traumatic birth experience, nor education on its importance for clinicians.

“For women who have experienced a psychologically traumatic birth, being at the centre of their care, in their subsequent pregnancy, is a priority,” the research review stated.

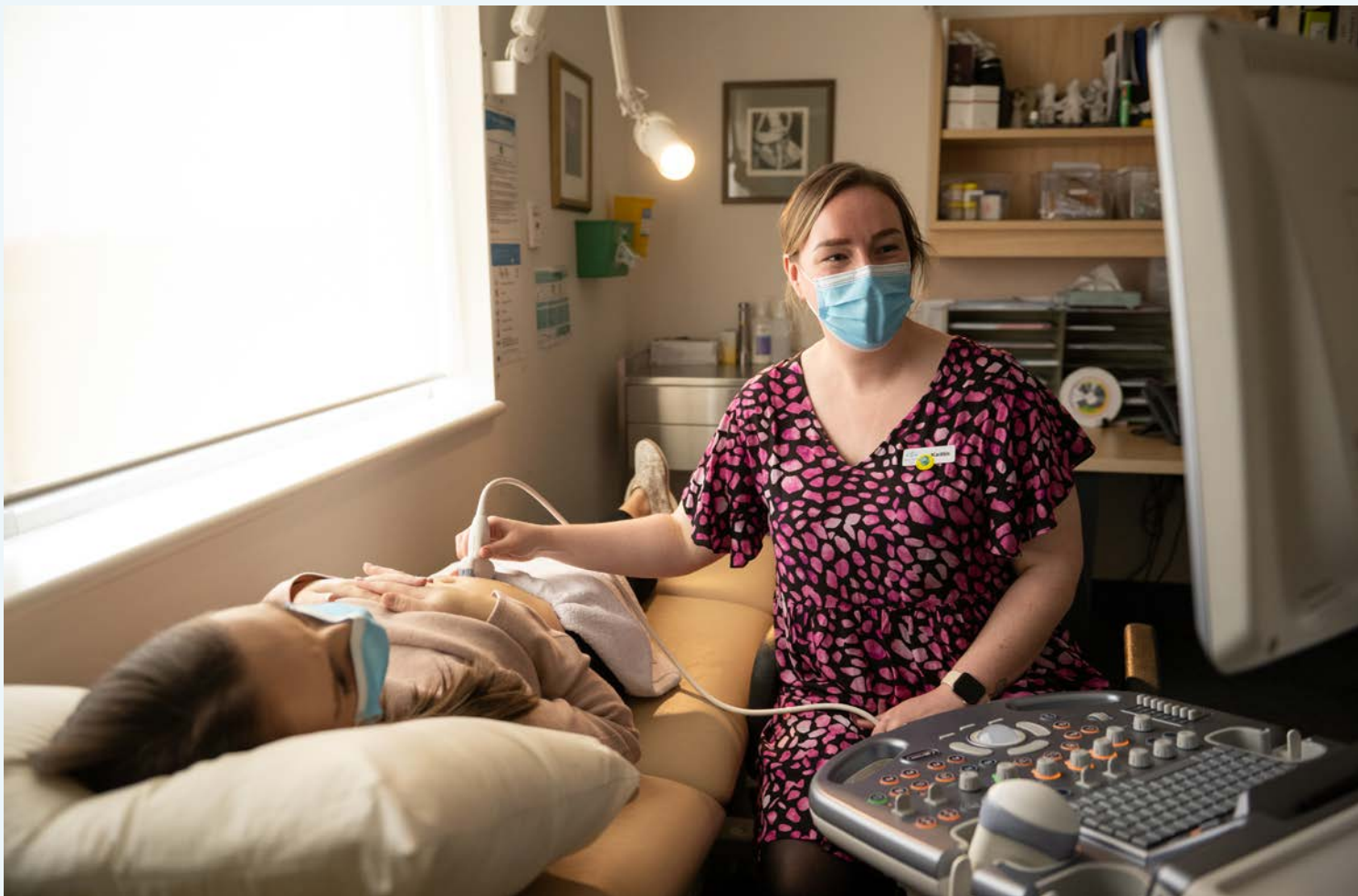
Ms Pidd is undertaking a study involving nine hospital clinicians and nine women to co-design a pathway that empowers mothers throughout her pregnancy and birth, and a tool to screen for previous birth trauma.

“We can’t know what’s right for a woman without asking them, and they want choice and a sense of control,” she said.

Ms Pidd, who has 25 years of experience as a midwife unit manager, said it was fulfilling to be able to channel her clinical experience into research to help patients.

She is passionate about enhancing collaboration between midwives and obstetricians and ensuring continuity of care.

“The next stage of the research will pilot the co-designed screening tool and support pathway in the antenatal clinics.”





AMBULATORY, COMMUNITY AND ALLIED HEALTH SERVICES

The program includes dietetics, occupational therapy, pastoral care, multicultural services, pharmacy, physiotherapy, radiography, social work, sonography and speech pathology.

ALLIED HEALTH SERVICES

Research team

MHW: Associate Professor Helena Frawley, *PhD*,
0.4 FTE, commenced in role 01.06.2021

WMH: Anne Harrison, *Doctor of Physiotherapy*,
0.2 FTE, commenced in role 22.08.2022

Enrolled students in Research by Higher Degree

Jane Middleton, Social Work, PhD enrolment at RMIT University, VIC

Emma Heron, Physiotherapy, PhD enrolment at Curtin University, WA

Dietetics

Projects

- WMH Dietetics – Participation (data collection) in 2022 Victorian Cancer Malnutrition Collaborative Cancer Malnutrition Point Prevalence Study: Investigating Malnutrition in Victorian Cancer Services: Malnutrition point prevalence study 2022

Awards and academic achievements

- The culturally adapted patient information “Healthy Eating for Gestational Diabetes” project was selected as a finalist for the Victorian Public Healthcare awards 2022 in the category of ‘Safer Care Victoria Partnering in healthcare’. This project was led by Multicultural Services and MHW Dietetics (Nelly Moshonas).

Presentations

- Moshonas N. Culturally adapted patient information: a key to achieving equity and inclusion in healthcare. at Safer Care Victoria Giant Steps conference, Melbourne. May 2022. [Oral and poster presentation]
- Moshonas N. Impact of health literacy initiatives on consumers: Has Mercy Health’s Healthy Eating for Gestational Diabetes information sheet helped you? 2022 ResearchFest, Austin Health, location. Month, 2022. [Video presentation]
- Moshonas N. Culturally adapted patient information: a key to achieving equity and inclusion in healthcare. 2022 ResearchFest, Austin Health, location. Month, 2022. [Poster presentation]

Physiotherapy

Projects

- MHW:
 - ‘Pelvic floor muscle tenderness in women having investigative laparoscopy for pelvic pain: a prospective cohort study’. This study is part of the En-DIT research program: Endometriosis: Diagnosis – Investigation – Treatment, funded by an MRFF grant, 2020 – 2025. Principal Investigator for this study: Helena Frawley. Clinician researchers: Angela Ravi and Jessica Kostos
 - ‘TELE-CONNECT: Telehealth exercise for continence after gynaecological cancer treatment: a clinical trial’. Funded by Victorian Cancer Agency Mid-Career Research Fellowship to Helena Frawley (PI). Trial Co-ordinator: Angela Ravi. Clinician researchers: Jemma Williams, Lauren Clarke.
 - ‘Natural history of pelvic floor dysfunction in women with gynaecological cancer’. This study is funded by a Physiotherapy Research Foundation Project Grant. Principal Investigator for this study: Helena Frawley, led by PhD student Robyn Brennen (Honorary researcher, Mercy Health), University of Melbourne; in collaboration with MHW Gynaecological Oncology department.
 - ‘The feasibility of pelvic floor therapies to treat urinary and/or faecal incontinence in women following surgery for gynaecological cancer: a telehealth intervention trial’. This study is funded by a Physiotherapy Research Foundation Seeding Grant. Principal Investigator for this study: Helena Frawley, led by PhD student Robyn Brennen (Honorary researcher, Mercy Health), University of Melbourne; in collaboration with MHW Gynaecological Oncology department.
 - ‘Therapeutic ultrasound treatment for inflammatory conditions of the lactating breast: a randomised controlled trial’. Led by Emma Heron, PhD student Curtin Univ, WA. Funding received from 2022 Mercy Small Grants round.
 - ‘A qualitative exploration of women’s and their partners’ experiences of birth trauma in Australia – utilising critical feminist theory an interview study’. Paige Tsakmakis as part of Masters in Public Health, Univ Melbourne.

- ‘Trans-tibial and sacral nerve stimulation for overactive bladder: pilot study’: this is a joint project between Urogynaecology and Physiotherapy departments (Amy Steventon). Completion expected 2025 from 3-year follow up.
- *WMH*:
 - Melbourne Academic Centre for Health – Health Services Research project:
 - Anne Harrison: ‘Exploration of the awareness and perceived understanding, comfort and confidence of nursing staff about the REACH (Recognise, Engage, Act, Call, Help) inpatient / family-activated escalation process (for communication concerns about patient deterioration).
 - Anne Harrison: ‘Exploration of the awareness and perceptions of admitted patients and families about the REACH (Recognise, Engage, Act, Call, Help) inpatient / family-activated escalation process (for communication concerns about patient deterioration). Completion expected 2024.

Awards and academic achievements (research-related):

- Anne Harrison:
 - Awarded a Melbourne Academic Centre for Health – Health Services Research Future Leaders Fellowship, commenced July 2022
 - Appointed Honorary Fellow, Department of Physiotherapy, The University of Melbourne, 19.9.2022
- Helena Frawley:
 - Awarded ‘Best in Clinical category: Health Services Delivery’ for presentation at International Continence Society, Vienna, Sep 2022. Co-author in paper: “Teaching effective pelvic floor muscle exercises in antenatal care: design and development of a training package for community midwives in the United Kingdom”.

- Helena Frawley: “Teaching effective pelvic floor muscle exercises in antenatal care: design and development of a training package for community midwives in the United Kingdom”. International Continence Society, Vienna, Sep 2022. (Dean S, Salmon V, Terry R, Hay-Smith J, Frawley H,MacArthur C). <https://www.ics.org/2022/abstract/14>
 - Awarded Best in Clinical category: Health Services Delivery

Presentations

- Frawley H. Terminology for pelvic floor muscle assessment. International Urogynecological Association International Symposium, Birth and Beyond. March 2022. [Online]
- Frawley H. Pelvic floor muscle assessment terminology. International Continence Society, 2022. [Podcast – <https://www.ics.org/podcast/14>]
- Vardy J. Australian healthcare professionals’ beliefs and attitudes towards the management of chronic pelvic pain: a cross-sectional survey. International Continence Society, Vienna. Sep 2022. [online presentation]
- Vardy J. Australian healthcare professionals’ beliefs and attitudes towards the management of chronic pelvic pain: a cross-sectional survey. Urogynaecological Society of Australasia Conference, Sydney. September 2022. [Selected abstract presentation]
- Kostos J. Pelvic health and the female athlete. Women in Sport Congress, location. August 2022. [Selected abstract presentation]

Publications

Bick D, Bishop J, Coleman T, Dean S, Edwards E, Frawley H, et al. Antenatal preventative pelvic floor muscle exercise intervention led by midwives to reduce postnatal urinary incontinence (APPEAL): protocol for a feasibility and pilot cluster randomised controlled trial. *Pilot Feasibility Stud.* 2022;8(1):231. DOI: 10.1186/s40814-022-01185-y

Brennen R, Lin K, Denehy L, Soh S, Frawley H. Patient and clinician perspectives of pelvic floor dysfunction after gynaecological cancer. *Gynecol Oncol Rep.* 2022;41:101007.

Brusco N, Morris M, Foster S, Woods J, McCaskie D, Goodman S, et al. Improving stroke clinical guideline adherence in an Australian hospital using a clinician-led implementation process. *Top Stroke Rehabil.* 2022;1-13.

Brusco N, Alafaci A, Tuckerman J, Frawley H, Pratt J, Daley A, et al. The 2018 annual cost burden for children under five years of age hospitalised with respiratory syncytial virus in Australia. *Commun Dis Intell* 2022;(2018):46. DOI: 10.33321/cdi.2022.46.5

Colombage U, Lin K, Soh S, Brennen R, Frawley H. Experiences of pelvic floor dysfunction and treatment in women with breast cancer: a qualitative study. *Support Care Cancer.* 2022;30(10):8139-8149.

Colombage U, Soh S, Lin K, White M, Vincent A, Fox J, et al. Occurrence and impact of pelvic floor dysfunction in women with and without breast cancer: a cross-sectional study. *Braz J Phys Ther.* 2022;26(6):100455. DOI: 10.1016/j.bjpt.2022.100455.

Colombage U, Soh S, Lin K, Vincent A, White M, Fox J, et al. Factors associated with pelvic floor dysfunction in women with breast cancer. *Continence.* 2022;2:100494.

Colombage U, Soh S, Lin K, Vincent A, White M, Fox J, et al. Prevalence and severity of sexual dysfunction in women experiencing urinary incontinence with and without breast cancer: A matched control study. *Continence Reports.* 2022;3:100012. <https://doi.org/10.1016/j.contre.2022.100012>

Dakic J, Cook J, Hay-Smith J, Lin K, Ekegren C, Frawley H. Pelvic floor symptoms are an overlooked barrier to exercise participation: a cross-sectional online survey of 4556 women who are symptomatic. *Phys Ther.* 2022;102(3).

Frawley H, Peterson K. Physiotherapy for endometriosis. In A Horne & L Whitaker (Eds.), *The Continuous Textbook of Women's Medicine Series – Gynecology Module, Volume 3.* 2022.

Huggins C, Hanna L, Furness K, Silvers M, Savva J, Frawley H, et al. Effect of early and intensive telephone or electronic nutrition counselling delivered to people with upper gastrointestinal cancer on quality of life: a three-arm randomised controlled trial. *Nutrients.* 2022;14(15). DOI: 10.3390/nu14153234

Mastwyk S, McClelland J, Cooper M, Frawley H. Pelvic floor muscle function in the standing position in women with pelvic floor dysfunction. *Int Urogynecol J.* 2022;33(9):2435-2444.

Skaug K, Engh M, Frawley H, Bø K. Prevalence of pelvic floor dysfunction, bother, and risk factors and knowledge of the pelvic floor muscles in Norwegian male and female powerlifters and Olympic weightlifters. *J Strength Cond Res.* 2022;36(10):2800-2807.

Skaug K, Engh M, Frawley H, Bø K. Urinary and anal incontinence among female gymnasts and cheerleaders – bother and associated factors. A cross-sectional study. *Int Urogynecol J.* 2022;33(4):955-964. DOI: 10.1007/s00192-021-04696-z

Psychology

Projects

- Projects: Dr Elisha Josev, in her role with the Growth and Development Clinic, participated in the Victorian Infant Collaborative Study Group projects.

Publications

- Zayegh AM, Doyle LW, Boland RA, Mainzer R, Spittle AJ, Roberts G, et al. Trends in survival, perinatal morbidities and two-year neurodevelopmental outcomes in extremely low-birthweight infants over four decades. *Paediatr Perinat Epidemiol.* 2022;36(5):594-602. DOI: 10.1111/ppe.12879
- Olsen JE, Lee KJ, Spittle AJ, Anderson PJ, Doyle LW, Cheong JLY, et al. The causal effect of being born extremely preterm or extremely low birthweight on neurodevelopment and social-emotional development at 2 years. *Acta Paediatr.* 2022;111(1):107-114. DOI: 10.1111/apa.16098

Social Work

Projects

- Jane Middleton: member of working group of the International Students' Sexual Health Network, which made a submission to a Senate Inquiry into Universal Access to Reproductive Healthcare. The Inquiry report is titled: 'Ending the postcode lottery: addressing barriers to sexual, maternity and reproductive healthcare in Australia', and the government is currently considering its recommendations.
- Jane Middleton and Cath Grelli: contributed to a 'Mapping of the patient journey of child protection involved pregnant women across different sites of care' project led by Uni Melb A/Prof Sarah Wise.

Awards and academic achievements

- Jane Middleton, awarded PhD, from RMIT University, 31/08/2022 for her thesis: Pregnant, parenting and a long way from home: International students accessing pregnancy-related care in Victoria.

Presentations

- Clea Haaburger and Olivia Kerr presented to the Department of Families, Fairness and Housing, North East Child Protection Investigation and Response Teams relating to collaborative practice and SW role within a tertiary maternity setting.

Engaging with consumers to improve care

An interview with Dr Anne Harrison

Patients and their family members are often the first to pick up subtle signs that their condition is deteriorating.

But while a formal process has been established at Mercy Health for consumers to alert staff to any concerns and get help, engagement levels from patients and families has been low.

Dr Anne Harrison, Physiotherapy Manager at Werribee Mercy Hospital, was awarded a fellowship through the Melbourne Academic Centre for Health Services Research (MacHSR) Future Leader Fellowship program in 2022, and is leading a project aiming to identify opportunities for improvement in this process. One aspect of her research explores ways to empower patients and families to use the inpatient clinical escalation process, commonly called 'REACH' (Recognise, Engage, Act, Call, Help).

Dr Harrison explained the REACH patient and family clinical escalation process, which links to the National Safety and Quality Health Service Standards, has been in place across Mercy Health for several years. "This escalation process is important because research suggests that empowering patients, families and carers to engage and partner with health professionals may help in earlier identification of deterioration, and improve outcomes."

But a review by Mercy Health's Deteriorating Patient Committee found a low uptake of the process, despite posters in rooms, and information in high traffic areas. So it is important to look at ways to improve patient and family engagement with the process.

She said the research, which has been consumer co-designed, was exploring how the health service could improve understanding of the system, and ascertain any barriers and enablers, in a bid to boost uptake.

"That's what this project is all about. It's about identifying gaps in that process and what we can do to address them."

Dr Harrison, said she was grateful to be given the opportunity to make improvements in patient care through evidence-based solutions.

Physiotherapy Manager Dr Anne Harrison was awarded a 2022 Melbourne Academic Centre for Health Services Research, Future Leader Fellowship, to explore patient and family engagement with the current inpatient escalation process.

She said the fellowship was beneficial in further developing her knowledge and experience in Health Services Research, and in sharing her learnings with Mercy Health colleagues.

"The fellowship is an amazing opportunity to build skills and experience and be able to share that with others" she said.

"I am very grateful to MacHSR for the opportunity to undertake the fellowship, and to Mercy Health for supporting me in this. I also want to acknowledge, Associate Professor Helena Frawley who has been a great support. My research has also been supported by the acting Directors of Allied Health who are eager to see Allied Health research gain greater prominence. At the end of the day, Health Services Research is ultimately all about improving patient care and outcomes."

Dr Harrison has recently been appointed to a new Allied Health Research Lead position at Werribee Mercy Hospital and said she was enjoying taking on a mentorship role with staff, including future fellows.

MULTICULTURAL SERVICES

Overview

Multicultural Services Unit:

- assists culturally and linguistically diverse (CALD) consumers to overcome barriers in accessing health services
- supports staff to provide culturally responsive care
- leads CALD service improvement initiatives.

Research team

Ms Natalija Nesvadba

Projects and grants

Is there equity in telehealth?: Experience of telehealth services by patients with limited or no English proficiency

Research team: N Nesvadba, M Pliszka, C East

A walk through health: Program evaluation

Research team: B McCann, E Poyner (Centre for Family Research and Evaluation), N Nesvadba
Funding: Commonwealth Department of Health

Presentations

Nesvadba N. Culturally adapted information – a key to achieving equity and inclusion in healthcare. Safer Care Victoria Giant Steps Conference, location. May 2022. [Oral presentation & poster]

Nesvadba N. Culturally adapted information – a key to achieving equity and inclusion in healthcare. Mercy & Austin Health Research Fest, location. October 2022. [Oral presentation & poster]

Awards

Finalist in the Victorian Public Health Awards 2022 relating to the study *Has Mercy Health's Healthy Eating for Gestational Diabetes Information Sheets helped you?* (Multicultural Services & MHW Dietetics department)



SURGICAL AND SPECIALIST SERVICES

The program involves general surgical and surgical sub-specialist services, including anaesthetic services.

DEPARTMENT OF ANAESTHESIA, MERCY HOSPITAL FOR WOMEN AND WERRIBEE MERCY HOSPITAL

Overview

2022 remained a difficult period to perform research, with ongoing limitations in healthcare as a result of the COVID pandemic. Despite this, useful research continued to be produced.

Werribee Mercy Anaesthetic Department joined a multicentre analysis of theatre sharps container usage, organised through the TRA2SH group, demonstrating that this expensive waste modality was often incorrectly employed to dispose of inappropriate waste.

Mercy Heidelberg audited the use of IV and oral paracetamol, demonstrating a change in practice with cost savings since a previous educational campaign. Audits involving general anaesthetic for caesarean section and the ongoing efficacy of the ERAS program, continued to produce useful information.

Research Team Members (Mercy Hospital for Women and Werribee Mercy Hospital)

Dr Jonathan Au
Dr Arshad Barmare
Dr Yusuf Bharmal
Dr Eoin Casey
Dr Joe Clair
Dr Jarron Dodds
Dr Richard Hiscock
Dr Sajidah Ilyas
Dr Ian Letson
Dr Heather Loane
Dr James McGuire
Dr Stephen Murphy
Dr Andrew Robinson
Dr Angus Thomson
Dr Victor Yi
Mrs Angela Cook
Ms Melissa Bowkett-Hall
Ms Jacklyn DeGabriele
Ms Meagan Harding
Ms Milena Macdonald
Ms Karolina Sutton

Projects

General anaesthesia for caesarean section at Mercy Hospital for Women (Period 2011-2015) Follow on research from R07-31 and 16/15– Low risk

Dr Ian Letson, Dr James McGuire, Dr Jonathan Au, Dr Victor Yi

General Anaesthesia for Caesarean Section at MHW – a 20 year review (follow on research R07-31 and R16-15) into the indications and complications of general anaesthesia for caesarean section at Mercy Hospital for Women, a review of patient records from 31/7/2019 to 30/6/2022 inclusive – approximately 300 patient records to be reviewed.

Audit is in its final stage. Researchers are currently gathering data for the final three years of the twenty year audit.

TRA2SH Sharps Bin Audit– Low risk Dr Stephen Murphy, Dr Jarron Dodds

Project aims to analyse the contents of the sharps bins in the operating theatre department over a period of time. It is hypothesized that sharps bins often contain materials that would be more appropriately disposed of in other waste streams, or even recycled. As sharps bins are often more costly and environmentally damaging to dispose of, if inappropriate usage is demonstrated it would identify an area for improvement. This may ultimately lead to cost savings and reduction in the carbon footprint of the department.

This project would form a part of a larger multicentre data collection organised by the Trainee-led Research and Audit in Anaesthesia for Sustainable Healthcare (TRA2SH) group.

The initial audit has been completed. Data has been submitted to the TRA2SH team that are coordinating the data from multiple sites nationally. Essentially the project demonstrated that a significant proportion of the items seen in sharps bins were incorrectly deposited there, hence there is a potential to improve this, with outcomes aimed at reduced waste costs and environmental impacts.

Education and systems are being put into action within our department to improve things. A re-audit is planned, with the same methodology, within the next month.

New Perioperative Paracetamol Audit– Low risk

Dr Andrew Robinson, Dr Heather Loane, Dr Richard Hiscock, Dr Angus Thomson

Oral paracetamol before elective surgery is as effective, cheaper and better for the environment than intravenous paracetamol given during or after surgery.

To compare change in use of oral and intravenous paracetamol in the perioperative period following a quality improvement initiative begun in June 2020.

Project is now complete and the process embedded into clinical practice. Results were shared within the department.

Tranexamic acid to Reduce Infection after Gastrointestinal Surgery: the TRIGS Trial – Multi-centre – More than low risk

Dr Eoin Casey, Ms Jacklyn De Gabriele, Dr Stephen Murphy

Tranexamic acid is a lysine analogue that acts by blocking the lysine-dependent production of plasmin and resultant fibrinolysis. Plasmin has direct effects on immune function and inflammation, and we have compelling laboratory and clinical evidence demonstrating tranexamic acid may reduce infection risk in surgery.

This multicentre, pragmatic, double-blind, randomised clinical trial will compare the incidence of surgical site infection and red cell transfusion requirements after IV tranexamic acid and placebo in patients undergoing gastrointestinal surgery.

Aim is to conduct a large, multicentre clinical trial of tranexamic acid (TxA), an antifibrinolytic drug routinely used to reduce bleeding in cardiac and some orthopaedic surgery, in 3,300 patients undergoing major gastrointestinal (GI) surgery.

Project remains on hold after being suspended in 2022, due to a potential contamination of the study drug with *Pseudomonas Aeruginosa*.

No adverse patient affects have been reported. New trial drug has been sourced and tested.

The trial has been deemed safe and appropriate to continue.

Application to recommence the trial at Werribee will be submitted to HREC.

Australian and New Zealand Hip Fracture Registry (ANZHFR) – Multi-centre – More than low risk Dr Arshad Barmare, Mrs Angela Cook, Dr Joe Clair, Ms Melissa Bowkett-Hall,

Dr Yusuf Bharmal, Ms Meagan Harding, Ms Milena Macdonald, Ms Karolina Sutton

The Australian and New Zealand Hip Fracture Clinical Care Standard released in September 2016, provides guidance to health services to ensure consistent, effective and efficient care is delivered for people with a hip fracture. To provide hospitals with the ability to audit the quality of care being delivered against national trends and to improve overall patient outcomes, the Australian and New Zealand Hip Fracture Registry (ANZHFR) collects data pertaining to patients admitted for a hip fracture. Excitingly in 2021, the Werribee Mercy Orthopaedic Unit was successful in their ethics application to work with the ANZHFR.

Werribee Mercy Hospital continues to submit the required data to the ANZHFR Registry. Following the roll-out of the Fractured Neck of Femur Clinical (NOF) Pathway Form, the Fractured NOF Working group has continued to audit and review improvement opportunities in patient care delivery with the collaboration of the Orthopaedic/Surgical and Geriatric Specialist Teams.

DEPARTMENT OF ENDOSURGERY MERCY HOSPITAL FOR WOMEN

The department specialises in providing advanced laparoscopic surgery to women. The research focuses of the team include pelvic pain, endometriosis, abnormal uterine bleeding and improving surgical techniques.

Research team

Associate Professor Emma Readman Dr Lenore Ellett

Dr Samantha Mooney

Dr Charlotte Reddington

Dr Lauren Hicks

Dr Keryn Harlow

Dr Helen McNamara

Dr Avelyn Wong

Dr Kate Stone

Dr Natalie Yang

Michal Zelcer

Dr Pinar Cingiloglu

Dr Hannah Gordon

Dr Evangeline Shalou

Dr Madeleine Smith

Dr Samantha Sloss

Dr Emma McLaughlin

Projects and Grants

What lies beneath: umbilical adhesions following abdomino-pelvic surgery

L Ellett

Funded by Australasian Gynaecological Endoscopy and Surgery Society Research Grant

Pelvic floor muscle tenderness in women undergoing surgery for endometriosis: a reliability study

K Harlow

Funded by NHMRC Medical Research Future Fund grant for endometriosis research

Outpatient hysteroscopy prediction tool

L Hicks

Funded by Hologic

Vaginal Diazepam following Mirena intra-uterine device insertion

M Smith

Funded by Mercy Health Academic Research and Development Committee Small Grants

Assessing uterosacral thickness on ultrasound as a soft marker for peritoneal endometriosis

K Stone

Funded by Australasian Gynaecological Endoscopy and Surgery Society Research Grant

Structured guidance in the management of secondary post-partum haemorrhage: a prospective cohort study

S Mooney

Long-term bowel and sexual function in women undergoing surgery for severe endometriosis: a prospective cohort study

H McNamara

Hysteroscopic morcellation vs bipolar resection for retained products of conception: a pilot randomised controlled trial

S Mooney

Funded by Australasian Gynaecological Endoscopy and Surgery Society Research Grant

Pelvic pain clinic: the design and implementation of a shared care model

E Readman

Gas bubbles during hysteroscopy: a descriptive cohort pilot study

A Wong

Video assisted consent for total laparoscopic hysterectomy: a randomised controlled trial

A Wong

Collaborations

Pelvic floor muscle tenderness in women undergoing surgery for endometriosis

H Frawley, C Cheng; Mercy Health, Royal Women's Hospital, University of Melbourne Department of Obstetrics and Gynaecology

Funded by NHMRC Medical Research Future Fund grant for endometriosis research

Treatment with PEA/PLD for endometriosis-related pain: a randomised controlled trial

M Amir; Mercy Health, Royal Women's Hospital, University of Melbourne Department of Obstetrics and

Gynaecology Funded by NHMRC Medical Research Future Fund grant for endometriosis research

Screening for the absence vs presence of endometriosis in women with pelvic pain

C Reddington; Mercy Health, Royal Women's Hospital, University of Melbourne Department of Obstetrics and Gynaecology

Funded by NHMRC Medical Research Future Fund grant for endometriosis research

Endometriosis Longitudinal Fertility Study

S Mooney, V Ross; Mercy Health, Royal Women's Hospital, University of Melbourne Department of Obstetrics and Gynaecology

Funded by NHMRC Medical Research Future Fund grant for endometriosis research

Botulinum toxin type A for the treatment of persistent pelvic pain and pelvic floor tension myalgia.

H McNamara, C Cheng; Mercy Health, Royal Women's Hospital, University of Melbourne Department of Obstetrics and Gynaecology

Funded by Norman Beischer Medical Research Foundation Innovation Grant

Publications

Fox R, Anderson J, Young N, Davis L, Cvejic E, Mooney SS. Medical management of secondary postpartum haemorrhage: a prospective cohort study. *Aust N Z J Obstet Gynaecol.* 2023;63(1):52-58. DOI: 10.1111/ajo.13552

Gordon HG, Mooney SS, Conroy IS, Grover SR. When pain is not the whole story: presenting symptoms of women with endometriosis. *Aust N Z J Obstet Gynaecol.* 2022; 62(3):434-438. DOI: 10.1111/ajo.13482

Hofmann L, Readman E, Kapurubandara S. Uptake of outpatient hysteroscopy in Australia using Medical Benefits Scheme data: Have we fallen behind? *Aust N Z J Obstet Gynaecol.* 2022;62(6):875-880. DOI: 10.1111/ajo.13597

McCaughey T, Mooney S, Harlow K, Healey M, Stone K. The use of the myometrial-cervical ratio in the ultrasound diagnosis of adenomyosis – A validation study. *Aust N Z J Obstet Gynaecol.* 2022;62(4):560-565. DOI: 10.1111/ajo.13515

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Mooney SS, Gill GK, Readman E. Virtual clinics in gynaecology – can we shorten the wait? A randomised controlled trial implementing a novel care pathway for postmenopausal bleeding. *Aust N Z J Obstet Gynaecol.* 2022;62(5):732-739. DOI: 10.1111/ajo.13573

Mooney SS, Hiscock RJ, Hicks L, Narula S, Maher PJ, Readman E, et al. We live in a virtual world: training the trainee using an integrated visual reality simulator curriculum. *Aust N Z J Obstet Gynaecol.* 2022;62(4):581-588. DOI: 10.1111/ajo.13521

Mooney SS, Ross V, Stern C, Rogers PAW, Healey M. Obstetric outcome after surgical treatment of endometriosis: a review of the literature. *Front Reprod Health.* 2021;3:750750. DOI: 10.3389/frph.2021.750750

Sloss S, Mooney S, Ellett L, Readman E, Ma T, Brouwer R, et al. Preoperative imaging in patients with deep infiltrating endometriosis: an important aid in predicting depth of infiltration in rectosigmoid disease. *J Minim Invasive Gynecol.* 2022;29(5):633-640. DOI: 10.1016/j.jmig.2021.12.015

Stewart A, Gill G, Readman E, Grover SR, Mooney SS. Determining a threshold measurement of endometrial thickness for asymptomatic postmenopausal women: A tertiary centre case series. *Aust N Z J Obstet Gynaecol.* 2022;62(6):887-893. DOI: 10.1111/ajo.13604

Taylor C, Ellett L, Hiscock R, Mooney S. Hysteroscopic management of retained products of conception: A systematic review. *Aust N Z J Obstet Gynaecol.* 2022;62(1):22-32. DOI: 10.1111/ajo.13455

Presentations

Cingiloglu P. A rare case of intramyometrial pregnancy. AGES Annual Scientific Meeting, location. November 2022. [Free communication]

Fox R and SS Mooney. Management of secondary postpartum haemorrhage; a systematic review. AGES Annual Scientific Meeting, location. November 2022. [Digital poster presentation]

Fox R, N Young, J Anderson and SS Mooney. Medical management of secondary postpartum haemorrhage; a systematic review. AGES Annual Scientific Meeting, location. November 2022. [Free communication]

Hicks L. Pushing the limits – office hysteroscopy. AGES Annual Scientific Meeting, location. November 2022. [Speaker]

McIlwaine K. It's time – can I store my eggs please. AGES Annual Scientific Meeting, location. November 2022. [Speaker]

Mooney S. What we leave behind – management options for non-viable pregnancy and RPOC – AGES Annual Scientific Meeting, location. November 2022. [Speaker]

Mooney. Chronic pelvic pain: does menstrual frequency predict pain scores in those using the Levonorgestrel intrauterine device? AGES Annual Scientific Meeting, location. November 2022. [Free communication]

Mooney S. Obstetric outcome after surgical treatment of endometriosis: a literature review. AGES Annual Scientific Meeting, location. November 2022. [Free communication]

Mooney S, Ross V, C Stern, PA Rogers, M Healey. Obstetric Outcome after Surgical Treatment of Endometriosis: A literature review. AGES Annual Scientific Meeting, location. November 2022. [Digital poster presentation]

Mooney S, Kavanagh S and SR Grover. The Persistent Pelvic Pain Study: Does Surgical or Medical Management Work Better to Improve Pain and Quality of Life in Women Referred with Pelvic Pain. RANZCOG Annual Scientific Meeting, location. Month 2022. [Free communication]

Sewell M, H McNamara, K Stone and SS Mooney. The myometrial cervical ratio: can a simple sonographic measurement improve diagnosis of adenomyosis in a regional setting? AGES Annual Scientific Meeting, location. November 2022. [Free communication]

Steele L, E Gilbee, SR Grover and SS Mooney. When you see nothing at all: Outcomes following a negative laparoscopy. A review. AGES Annual Scientific Meeting, location. November 2022. [Digital poster presentation]

Young N, Quinlivan J, Fox R, Anderson J, Davis L, Mooney SS. Economic cost of secondary postpartum haemorrhage: a case-control study at a tertiary hospital in Australia. Perinatal Society of Australia and New Zealand Annual Congress, location. Month 2022. [Poster presentation]



MEDICAL, SUBACUTE AND PALLIATIVE CARE SERVICES

This program provides specialist clinical services to optimise health outcomes and support patient care.

GENERAL MEDICINE AND ENDOCRINOLOGY

Publications 2022

Abraham MB, Smith GJ, Fairchild JM, King BR, Ambler GR, Cameron FJ, McAuley, S. A, Keech, A. C, Jenkins, A, de Bock, M. and Davis, E. A, O'Neal D.N, Jones T. Snapshot of CGM metrics in adolescents and adults achieving target HbA1c versus those not meeting target HbA1c. *Diabetes Technol Ther.* 2022;24(9):677-679. DOI:10.1089/dia.2022.0169

Chakrabarti A, Trawley S, Kubilay E, Alipoor AM, Vogrin S, Furlanos S, Lee, M. H, O'Neal, D. N, O'Regan, N. A, Sundararajan, V. and Ward, G. M, et al. Closed-loop insulin delivery effects on glycemia during sleep and sleep quality in older adults with type 1 diabetes: results from the ORACL trial. *Diabetes Technol Ther.* 2022;24(9):666-671. DOI:10.1089/dia.2022.0110

Daskalaki E, Parkinson A, Brew-Sam N, Hossain MZ, O'Neal, D, Nolan CJ, and Suominen, H,. The potential of current noninvasive wearable technology for the monitoring of physiological signals in the management of type 1 diabetes: literature survey. *J Med Internet Res.* 2022;24(4):p.e28901.

Hettiarachchi C, Daskalaki E, Desborough J, Nolan CJ, O'Neal D, Suominen H. Integrating multiple inputs into an artificial pancreas system: narrative literature review. *JMIR Diabetes.* 2022;7(1):e28861. DOI:10.2196/28861

Jiao Y, Lin R, Hua X, Churilov L, Gaca MJ, James S, Clarke, P. M, O'Neal, D. and Ekinici, E. I. A systematic review: Cost-effectiveness of continuous glucose monitoring compared to self-monitoring of blood glucose in type 1 diabetes. *Endocrinol Diabetes Metab.* 2022;5(6):e369. DOI:10.1002/edm2

Jones J, James S, Brown F, O'Neal D, Ekinici EI. Dead in bed—a systematic review of overnight deaths in type 1 diabetes. *Diabetes Res Clin Pract.* 2022;110042.

Kastner JR, Venkatesh N, Brown K, Muchmore DB, Ekinici E, Furlanos S, Joseph, J, Shafeeq, M, Shi, L, Strange, P. and Strasma, P. J, O'Neal D.N. Feasibility study of a prototype extended-wear insulin infusion set in adults with type 1 diabetes. *Diabetes Obes Metab.* 2022;24(6):1143-1149. DOI:10.1111/dom.1468

Klonoff DC, Wang J, Rodbard D,...O'Neal DN,... et al. A glycemia risk index (GRI) of hypoglycemia and hyperglycemia for continuous glucose monitoring validated by clinician ratings. *J Diabetes Sci Technol.* 2023;17(5):1226-1242. DOI:10.1177/19322968221085273

Kong YW, Venkatesh N, Paldus B, Lee MH, Zhu JJ, Sawyer M, Chakrabarti, A, Uren, C, MacIsaac, R. J, Jenkins, A. J. and O'Neal, D. N. Upload and review of insulin pump and glucose sensor data by adults with type 1 diabetes: a clinic audit. *Diabetes Technol Ther.* 2022;24(7):531-534. DOI:10.1089/dia.2021.0558

Kubilay E, Trawley S, Ward GM, Furlanos S, Grills CA, Lee MH, MacIsaac, R. J, O'Neal, D. N, O'Regan, N. A, Sundararajan, V. and Vogrin, S, et al. Lived experience of older adults with type 1 diabetes using closed-loop automated insulin delivery in a randomised trial. *Diabet Med.* 2023;40(4):e15020. DOI:10.1111/dme.15020

Morrison D, Paldus B, Zaharieva DP, Lee MH, Vogrin S, Jenkins AJ, ... O'Neal, D. N. Late afternoon vigorous exercise increases postmeal but not overnight hypoglycemia in adults with type 1 diabetes managed with automated insulin delivery. *Diabetes Technol Ther.* 2022;24(12):873-880. DOI:10.1089/dia.2022.0279

O'Neal DN, Cohen O, Vogrin S, Vigersky RA, Jenkins AJ. An assessment of clinical continuous glucose monitoring targets for older and high-risk people living with type 1 diabetes. *Diabetes Technol Ther.* 2022;25(2):108-115. DOI:10.1089/dia.2022.0350

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Roberts A, Fried L, Dart J, de Bock M, Fairchild J, King B, Ambler GR, Cameron F, McAuley SA, Keech AC, Jenkins A, O'Neal DN, Davis EA, Jones TW, Abraham MB; Australian JDRF Closed Loop Research group. Hybrid closed-loop therapy with a first-generation system increases confidence and independence in diabetes management in youth with type 1 diabetes. *Diabet Med.* 2022;39(9):e14907. DOI: 10.1111/dme.14907

McAuley SA, Trawley S, Vogrin S, Ward GM, Furlanos S, Grills CA, Lee, M. H, Alipoor, A. M, O'Neal, D. N, O'Regan, N. A. and Sundararajan, V, et al. Closed-loop insulin delivery versus sensor-augmented pump therapy in older adults with type 1 diabetes (ORACL): a randomized, crossover trial. *Diabetes Care.* 2022;45(2):381-390. DOI: 10.2337/dc21-1667

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Paldus B, Morrison D, Zaharieva DP, Lee MH, Jones H, Obeyesekere V, Lu, J, Vogrin, S, La Gerche, A, McAuley, S. A. and MacIsaac, R. J, O'Neal D.N. A randomized crossover trial comparing glucose control during moderate-intensity, high-intensity, and resistance exercise with hybrid closed-loop insulin delivery while profiling potential additional signals in adults with type 1 diabetes. *Diabetes Care.* 2022;45(1):194-203. DOI:10.2337/dc21-1593

Trawley S, Stephens AN, McAuley SA, Speight J, Hendrickx C, Vogrin S, Melissa H. Lee, Barbora Paldus, Leon A. Bach, Morton G. Burt, Neale D. Cohen, Peter G. Colman, Elizabeth A. Davis, D. Jane Holmes-Walker, Alicia J. Jenkins, Joey Kaye, Anthony C. Keech, Kavita Kumareswaran, Richard J. MacIsaac, Roland W. McCallum, Catriona M. Sims, Stephen N. Stranks, Vijaya Sundararajan, Glenn M. Ward, Timothy W. Jones, David N. O'Neal, and for the Australian JDRF Closed-Loop Research Group. Driving with type 1 diabetes: real-world evidence to support starting glucose level and frequency of monitoring during journeys. *Diabetes Technol Ther.* 2022;350-356. <http://doi.org/10.1089/dia.2021.0460>

Trawley S, Ward GM, Vogrin S, Colman PG, Furlanos S, Grills CA, Lee, M. H, MacIsaac, R. J, Alipoor, A. M, O'Neal, D. N. and O'Regan, N. A, et al. Glucose profiles of older adults with type 1 diabetes using sensor-augmented pump therapy in Australia: pre-randomisation results from the ORACL study. *Lancet Healthy Longev.* 2022;3(12):e839-e848. DOI:10.1016/S2666-7568(22)00266-5

Yapanis M, James S, Craig ME, O'Neal D, Ekinici EI, Complications of diabetes and metrics of glycemic management derived from continuous glucose monitoring, *J Clin Endocrinol Metab.* 2022;107(6):e2221–e2236

Grants 2022

Prof David N. O'Neal, Dr Dale Morrison, Dr Melissa Lee, Dr Barbora Paldus, Dr Nisha Venkatesh, Prof Alicia Jenkins, Prof Richard MacIsaac *Evaluation of a Novel Medtronic Extended Life Sensor*
Funded by Medtronic (Project grant – 2 years)

Prof David O'Neal, Dr Amanda Edgley, Dr Andrew Kompa *A model of blood ketone modulation in the diabetic rat*

Funded by Medtronic (Project grant – 2 years)

Prof David O'Neal, Dr Dale Morrison, Dr Yee Wen Kong, Dr Melissa Lee, Dr Barb Paldus, Prof Alicia Jenkins, Prof Richard MacIsaac

AHCL: Optimising the Timing of the Temporary Target Prior to Moderate Intensity and High intensity Exercise
Funded by Medtronic (Project grant – 2 years)

Prof Elif Ekinici, Prof RJ MacIsaac, Prof David O'Neal, plus other ACADI investigators

The Australian Centre for Accelerating Diabetes Innovations (ACADI) – aimed at improving the lives of people living with diabetes. Established by MTPConnect's Targeted Transition Research Accelerator (TTRA) Initiative"

Funded by The Australian Government's Medical Research Future Fund (Project grant – 4 years)

Prof David O'Neal, Alicia Jenkins, Richard MacIsaac, Glenn Ward, Melissa Lee, Barbora Paldus, Dale Morrison, Katerina Kiburg, Yee Wen Kong, *A Pilot Study Comparing Treatment Satisfaction with the Omnipod TM Insulin Pump Compared with Usual Care in Adults with Type 1 Diabetes Living in Australia*
Funded by Insulet Pty Ltd (Project Grant – 2 years)

Prof David O'Neal, Professor Tim Jones plus other consortium members Characterising the evolution of impaired hypoglycemia awareness in people with type 1 diabetes and the impact of automated insulin delivery and exercise on restoring hypoglycemia awareness
NIH/NIDDK (Project Grant – 5 years)

GENERAL MEDICINE AND GERIATRICS, WERRIBEE MERCY HOSPITAL

Perera P, O'Donnabhain R, Fazio T, Johnson D, Lange P. 'A Missed Therapeutic Opportunity? SGLT-2 Inhibitor Use in General Medicine Patients With Heart Failure: A Retrospective Audit of Admissions to a Tertiary Health Service'. Clin Med Insights Cardiol. 2022 Oct 27;16:11795468221133607. DOI: 10.1177/11795468221133607. PMID: 36329805; PMCID: PMC9623351.

Lange PW. Response to characteristics of nursing homes associated with COVID-19 outbreaks and mortality among residents in Victoria, Australia. Australas J Ageing. 2022 Jun;41(2):345. DOI: 10.1111/ajag.13047. Epub 2022 Feb 28. PMID: 35226790; PMCID: PMC9111397.

Peter W Lange, Alisa Turbić, Cheng Hwee Soh, Daniel Clayton-Chubb, Wen Kwang Lim, Rachel Conyers, Rosie Watson and Andrea B Maier Sweet Dreams are Made of Amines: Results of a randomized controlled trial of Melatonin for delirium treatment in older adults. Submitted to Journal of the American Geriatrics Society,

Long COVID support – what lessons can we learn from regional and metropolitan services in Victoria? B Grant B, R Armstrong R, CE East.
Funded by Mercy Health Services Research Committee Small Grants. \$3,000 2022-2023

Diabetes care and research into the artificial pancreas

An interview with Professor David O'Neal

One of the leaders in diabetes care and research into the artificial pancreas is Professor David O'Neal.

Werribee Mercy Hospital is pleased to count Prof O'Neal as one of its endocrinologists and senior research-clinicians. Professor O'Neal is a full professor in Diabetes and Endocrinology at the University of Melbourne, where he is Director and Founder of the Diabetes Technology Research Group.

A prolific researcher, Prof O'Neal is involved in 16 active projects, including those relating to the development and application of artificial pancreas technology.

Another project involves the development of prototype sensors which can simultaneously measure ketones, lactate and glucose continuously – part of the emerging interface between technologies improving metabolic health and people with diabetes.

Prof O'Neal has helped to link Werribee Mercy patients into research underway at the University of Melbourne. He says that while Werribee Mercy has great potential, implementation of research at the site is not as straightforward as at an organisation with a more mature research infrastructure.

“We do have some patients participating in research in Fitzroy, who live in the Werribee Mercy catchment area,” Prof O'Neal says.

“With renal failure patients who are on dialysis, there is already a major burden on their time. Combined with their frailty, most find it impossible to travel to the city to participate in an artificial pancreas trial,” Prof O'Neal says.

An artificial pancreas.... the holy grail for researchers and endocrinologists seeking to improve health outcomes and reduce the burden on people with diabetes. The progress towards this goal is most encouraging and is happening in Melbourne.

“There have also been potential opportunities to conduct research with Type 2 Diabetes patients at Werribee Mercy around resurfacing of the duodenum aimed at resetting insulin secretion.”

Prof O'Neal and his colleagues are committed to continuing to look for ways for Werribee Mercy patients to take part in research.

“Werribee Mercy has many research naïve patients. They have never had the opportunity to participate in trials which could provide them access to cutting edge therapies. The hospital has huge research potential which we are committed to fulfilling.”

“Accreditation of large hospitals now takes research into consideration, so there are multiple reasons for strengthening our hospital's research focus.”

Delirium is common in elderly inpatients, causing distress, cognitive decline, and potentially, death.

An interview with Associate Professor Peter Lange

There is an urgent need to find an effective treatment for delirium and that is the focus of much of the work of A/Prof Peter Lange, a geriatrician and physician now based at Werribee Mercy Hospital, where he is Director of Geriatrics and General Medicine. He is also a Clinical Associate Professor at the University of Melbourne.

For six years A/Prof Lange led research to form the basis of a significant trial of the use of melatonin in the treatment of acutely confused, elderly hospital patients.

While many of us might think that a patient being confused is harmless, A/Prof Lange explains that is not the case.

“Delirium is dangerous. Compared to patients with the same illness, age and other characteristics who don’t develop delirium, those who do are almost three times more likely to die during, or soon after, hospitalisation.”

The earlier Australian study led by A/Prof Lange found one in ten people aged over 70 had been experiencing delirium before they arrived at hospital. Another one in ten developed delirium while in hospital – which means one in five elderly patients in hospital were suffering from delirium.

With that earlier research successfully laying the groundwork, A/Prof Lange then moved on to lead a trial with 120 acutely confused elderly patients, conducted at the Royal Melbourne Hospital. The results of that research are still under wraps awaiting publication, but A/Prof Lange is pleased the project has reached this stage and is eager for the results to be widely available.

A/Prof Lange is keen to see Werribee Mercy patients be able to participate in research to a greater degree over time as the research environment matures.

In a hospital setting, delirium in a patient can rapidly become a major concern, with far-reaching implications for the patient, but also for the healthcare staff, if the patient becomes agitated or disoriented.

“Every patient should have the opportunity to participate in research,” he says.

“We know that participants in research do better than patients with the same condition who are not involved in research.”

For now, A/Prof Lange is pleased to have played a part in enabling Werribee Mercy to be the sole investigation site for a new trial addressing blood pressure control in older adults. In partnership with the RMH, the trial involves a device known as Finapres, which non-invasively measures blood pressure through a device that sits on the finger.

“It is anticipated that the Finapres trial will increase our understanding of why older adults might be falling or fainting,” A/Prof Lange explains.

“Werribee Mercy will be the sole site for trial participants, and it will be the first time the device has been trialed in an acute hospital setting.”

Long COVID – is peer support part of the recovery process? B Mulcahy B, L Martin L, C East
Funded by Mercy Health Services Academic Research & Development Committee (ARDC) Small Grants. \$2,500. 2021-2022

Perceived barriers to physiological birth among midwives and obstetricians: An investigation into shared decision making, medical intervention in birth and clinical practices.

B Henshall, J Davis J, C East

Obstetric Triage Decision Aid. M McCarthy, S McDonald.

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Funded by Mercy Health Academic Research and Development Committee Small Grants (2020-21)

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L Speedie, G Malik, C East

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Funded by NHMRC Project Grant APP1143448, \$794,828. 2018-2022

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Publications

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McLachlan H, Mumford S, Newton M, East C, Benzie C. Evaluating a pilot registered undergraduate student of midwifery (RUSOM) model: Mercy Health, La Trobe University.

Presentations

East C. The role of the midwife through the pregnancy journey and how we can reduce preventable severe perineal trauma. 30th National Conference on Incontinence, Melbourne. May 2022.

PALLIATIVE CARE SERVICES

The Palliative Care Unit in Werribee Mercy Hospital (Gabrielle Jennings Centre) and Mercy Palliative Care involve a range of services that support people and their families with advanced disease when a cure is no longer possible. Through this care and service provision, the goal is for each person to experience the best quality of life possible for them – physically, emotionally, socially and spiritually.

The Palliative Care Unit is committed to research, specifically focusing on clinical audits for continuous quality improvement and participation in multi-centre studies.

Research team

Dr Annie Chiu

Dr Lucy Kernick

Dr Maria Pisasale

Dr Andrew Ng

Dr Catherine Oliver

Projects

- A Prospective Observational study of chronic non-malignant pain in patients referred to a Palliative care service L Kernick
- The Impact of Voluntary Assisted Dying (VAD) on the Quality of Palliative Care Delivered by Palliative Care Services with a Conscientious Objection, multi-site retrospective review
L Kernick

- A Multi-Centre COVID-19 Study Examining Symptoms and Medication Use in the Final Week of Life M Pisasale
- Describing end-of-life care experiences for Victorian patients with brain cancer: a qualitative review of the end-of- life period for patients and their carers – Multi-centre study
E Beavis, A Chiu
- Exploring the end-of-life journey of patients with glioblastoma to improve patient and carer experiences: case review of the utilization of supportive pharmacological therapies, hospital and community palliative care services – Multi-centre study
J Tay, A Chiu

Publication

Kernick L, Glare P, Hosie A, Chiu A, Kissane D. Prevalence and management of chronic nonmalignant pain in palliative care populations: a systematic review. *Palliat Support Care*. 2023;1-7. DOI: 10.1017/S1478951523000378.



Werribee Mercy Palliative Care in the Community Research

An interview with Dr Annie Chiu

One of the most significant challenges in conducting research in palliative care is the limited life expectancy and reduced ability of patients to participate. This is one overriding reason why Dr Annie Chiu believes it is essential to involve palliative care patients in research while receiving care in the community.

“These patients are still relatively well and able to actively participate, contribute to the knowledge, access and possibly benefit from novel treatments. They usually engage with the community program much longer than those who enter inpatient care,” Dr Chiu explains.

More than 1500 patients a year are referred to the Werribee Mercy Palliative Care in the Community program. As Head of Palliative Care for the service, Dr Chiu says there is an extraordinary opportunity to learn from these patients.

“On average these patients are in our care in the community for up to 40 days and often more than 60 days, compared with just 7-14 days for those who are inpatients.”

Research involving Werribee Mercy’s community palliative care patients is conducted under the auspices of partners, primarily Peter MacCallum Cancer Centre, and for patients well enough to travel into Parkville, there are additional research opportunities.

Dr Chiu says the Unit constantly seek ways for patients to be able to participate in trials in as geographically accessible a way as possible.

It is clear from the Palliative Care research reported in this document, that Dr Chiu and her colleagues, including Dr Lucy Kernick, Dr Maria Pisasale, and others, are managing to be involved in important research. This includes research such as:

- *Describing end-of-life care experiences for Victorian patients with brain cancer: a qualitative review of the end-of-life period for patients and their carers – Multi-centre study*
- *Exploring the end-of-life journey of patients with glioblastoma to improve patient and carer experiences: case review of the utilization of supportive pharmacological therapies, hospital and community palliative care services – Multi-centre study*
- *A Prospective Observational study of chronic non-malignant pain in patients referred to a Palliative care service*

Leading the largest community palliative care service in Victoria is no mean feat for Dr Annie Chiu, but it doesn’t stop her from adding to her workload by contributing to significant research into her field of medicine.

University of Notre Dame at Werribee Mercy

*An interview with Associate Professor Moyez Jiwa,
Associate Dean, University of Notre Dame at Werribee Mercy*

Associate Dean of Notre Dame at Werribee Mercy is A/Prof Moyez Jiwa, who is also a GP servicing the Werribee area. He greatly values the Mercy partnership on teaching and research although he acknowledges that the primary focus is on training of doctors and that there is a limit to how much time can be spent on involvement in research.

During the past year, the University has reduced its commitment to a research lecturer position, initially withdrawing the full-time position, before restoring it at a reduced, half-time allocation. A/Prof Jiwa acknowledges that clinician researchers at Werribee Mercy are keen to develop the site's research profile and he too is supportive of this. A/Prof Jiwa is optimistic that the research collaboration between the University of Notre Dame and Werribee Mercy will grow during 2024.

“When you have such a high need patient population, there is a huge opportunity to enable patients to participate in clinical trials and research as you build that capacity,” he says.

“In turn, this then attracts additional expertise and doctors who are forward thinking. The flow-on is they tend to be more thoughtful, reflective clinicians who value the science as much as the art of medicine. This is the kind of environment where careers will thrive and clinicians will be able to make a contribution internationally.”

While it might be perceived as unlikely that an outer suburban general hospital such as Werribee Mercy, distant from the likes of the renowned Parkville precinct, could grow in stature as a research driven hospital, A/Prof Jiwa has a different view.

As a relatively young university and medical school with its major campuses in Sydney and Fremantle, the University of Notre Dame's Werribee Mercy partnership is an important cornerstone of its Victorian presence, with most of Notre Dame's training of medical students in the state conducted at the Werribee site.

“Duke University in North Carolina in the United States stands as a shining example – they serve a very disadvantaged population with high levels of illness, but they have invested in developing a good research culture of thoughtful medical practice.

“The untapped population – in research terms – served by Werribee Mercy is a very big holy grail. You have large numbers of patients and untapped data and clinical trials add value in terms of clinical governance, data collection management and protection, and learnings from the international environment.

“With the correct mix of teachers and students and facilities, the sky's the limit”.



2022 RESEARCH SMALL GRANTS APPLICATION

Name of Research Project	Applicant
Maternal & Offspring Outcomes of Pre-gestational Overweight & Obese Women Delivering at WMH	Dr Rashmi Ranatunga Dr Ananda Wijewardana
A Prospective Observational study of chronic non-malignant pain in patients referred to a palliative care service	Chief Investigator: Professor David W. Kissane, AC Co-Investigator/PhD Student: Dr Lucy Kernick Co-Investigator: Associate Professor Annmarie Hosie Professor Paul Glare
Long COVID support – What lessons can we learn from regional and metropolitan services in Victoria	Brigitte Grant Robin Armstrong Professor Christine East
Use of Ultrasound to Image Inferior Vena Cava	Dr Patricia Goonetilleke Dr Greta Gormley
Towards the Perfect Blood Culture in Neonates – A Multi-Modality Quality Improvement Initiative to Reduce Contamination and False Positive Rates	Dr Nicole Ranson
Vaginal Swabs in Obstetrics & Gynaecology: How often is management altered? A single-centred, retrospective observational pre-post study comparing the clinical management of various obstetrics & gynaecological emergency presentations pre and post vaginal swab microscopy, culture and sensitivity results	Dr Jordan Kirby
Chemotherapy Response Score (CRS) and Ki-67 on Histopathology after Neoadjuvant Chemotherapy and Interval Debulking Surgery in Extra-Uterine High-Grade Serous Carcinoma: Prognostic Value and Predictors	Dr Monica McGauran
Therapeutic ultrasound treatment for inflammatory conditions of the lactating breast	Emma Heron – MHW
Maternal views of the enhanced recovery after surgery initiative for caesarean section, Mercy Health	Professor Christine East Dr Sajidah Ilyas Associate Professor Scott Simmons
Care of Neonates Following In-utero Growth Restriction: A prospective case-control study exploring neonatal morbidity (CONFIGR)	Principal Investigator: Dr Maria Guadalupe Alda Supervisors and Associate Investigators: Dr Julia Charlton Dr Teresa MacDonald Dr Amanda Wood Dr Rodney Hunt
Unbiased molecular analysis of urinary exosomes from women with pre-eclampsia	Dr Kathy Paizis Dr Suet Wan Choy
Can women with dyspareunia bypass a gynaecologist and proceed directly to physiotherapy?	Professor Sonia Grover
Model of care and clinical outcomes in standardised groups of women at Mercy Health	Professor Christine East

PROJECTS APPROVED BY MERCY HEALTH HUMAN RESEARCH ETHICS COMMITTEE 2022

Title	Principal Investigator	Site
Reducing Pre-operative X-Rays – a Choosing Wisely Project	Dr Stephen Murphy	Werribee Mercy Hospital
ANZICS Point Prevalence Program	Dr Umesh Kadam	Werribee Mercy Hospital
Retrospective Audit of Intrathecal Morphine for non-obstetric Surgeries at Werribee Mercy Hospital	Dr Lauren Yip	Werribee Mercy Hospital
Describing the pathway for screening and referral to perinatal mental health in a Level 6 Australian Neonatal Unit	Dr Josephine Power	Mercy Hospital for Women
Evaluating a pilot 'Registered Undergraduate Student of Midwifery' (RUSOM) employment program at the Mercy Hospital for Women	Prof Christine East	Mercy Hospital for Women
West Metro HSP Better at Home Program Evaluation	A/Prof Thomas Chan	Werribee Mercy Hospital
Evaluating the impact of a GP eLearning module on congenital cytomegalovirus and syphilis on practitioner and patient knowledge and behaviour	A/Prof Lisa Hui	Mercy Hospital for Women
The MOMENTUM Project: Maternal outcomes in mental health after birth / previously titled - The Traumatic Birth Project: Developing a Predictive Screen for Posttraumatic Stress Disorder (PTSD) in Women after Childbirth	Prof Susan Walker	Mercy Hospital for Women
Timeliness of microbiology testing and documented review plan in general medical patients prescribed antimicrobial therapy at Werribee Mercy Hospital	Ms Rachel Vorlander	Werribee Mercy Hospital
Pain with outpatient hysteroscopic procedures: A case control study	Dr Pinar Cingiloglu	Mercy Hospital for Women
Economic Evaluation of planned induction of labour in low-risk women at 39 weeks in an Australian setting	Dr Heather Loane	Mercy Hospital for Women
Maternal mental health outcomes following complex birth events	Dr Anthea Lindquist	Mercy Hospital for Women
Continuous glucose monitoring (CGM) in type 1 diabetes pregnancy using real-world registry data – a sub-study of the Australasian Diabetes Data Network (ADDN)	Dr Alexis Shub	Mercy Hospital for Women
Vaginal swabs in obstetrics & gynaecology: How often is management altered?	Dr Samantha Mooney	Mercy Hospital for Women
Electrolyte disturbance in infants of birth weight less than 1kg in the first week of life	Dr Tammy Brinsmead	Mercy Hospital for Women
A case series of subsequent pregnancy outcomes following hysteroscopic resection of retained products of conception (RPOC)	Dr Jessica Wagstaff	Mercy Hospital for Women
Exploration of the awareness and perceived understanding, comfort, and confidence of nursing staff about the REACH (Recognise, Engage, Act, Call, Help) inpatient/carer-activated escalation process (for communicating concerns about patient deterioration)	Dr Anne Harrison	Werribee Mercy Hospital

Title	Principal Investigator	Site
Enhancing Protection against Influenza and COVID-19 for pregnant women and medically at risk children (EPIC Study)	Prof Susan Walker	Mercy Hospital for Women
Patient-reported experience and outcome measures in the Ovarian Cancer Registry (OvCR): Integration and implementation	Dr Simon Hyde	Mercy Hospital for Women
Investigating the documentation of VTE risk assessment and appropriate prescribing of thromboprophylaxis in obstetric patients at Mercy Hospital for Women	Ms Anna Lam	Werribee Mercy Hospital
The effects of the COVID-19 pandemic on presentations of vulvar cancer at a gynae-oncology service in Melbourne, Australia	Dr Lydia Di Stefano	Mercy Hospital for Women
Medication Errors in Neonates: a review of processes in a tertiary Neonatal Intensive Care Unit (NICU)	Mr John Adamm Ferrier	Mercy Hospital for Women
Management of late preterm and small for gestational age neonates at the Mercy Hospital for Women, Heidelberg: A retrospective cohort study of neonates born 34 weeks to 36+6 weeks gestation or term infants born <2.6kg and admitted to the nursery in 2021	Dr Katherine Flood	Werribee Mercy Hospital
The Mega Randomised Registry Trial Comparing Conservative vs. Liberal Oxygenation Targets (Mega-ROX)	Dr Umesh Kadam	Werribee Mercy Hospital
Enhancing shared-decision making between women who have experienced a psychologically traumatic birth and their maternity care providers: developing an evidence-based woman-centred support pathway	Prof Christine East	Mercy Hospital for Women
A randomised waitlist-controlled trial examining the effects of a smartphone-based mindfulness meditation on stress, burnout and resilience in obstetrics and gynaecology doctors	Dr Helen McNamara	Mercy Hospital for Women
Exploring the end-of-life journey of patients with glioblastoma to improve patient and carer experiences: case review of the utilization of supportive pharmacological therapies, hospital and community palliative care services	Dr Yin Tay Jia	Werribee Mercy Hospital
Assessment of quality parameters on histological diagnosis in cervical excision specimens; correlation with diagnostic discordance	Dr Marsali Newman	Mercy Hospital for Women
Investigating malnutrition in Victorian Cancer Services: Malnutrition prevalence study 2022	Ms Tanya Darrer	Mercy Hospital for Women
Implementation of a Shared-Care Clinic Design for Management of Persistent Pelvic Pain- a Non-Inferiority Study	Dr Emma Readman	Mercy Hospital for Women
Neonatal morbidities of preterm infants with fetal growth restriction: A retrospective audit in a perinatal tertiary hospital	Dr Maria Guadalupe Alda	Mercy Hospital for Women
Unbiased molecular analysis of urinary exosomes from women with pre-eclampsia	Dr Kathy Paizis	Mercy Hospital for Women
The lived experience of being pregnant with suspected cytomegalovirus infection: a qualitative study of women and their partners	A/Prof Lisa Hui	Mercy Hospital for Women
Indications for Early Term inductions and how this can be prevented	Dr Fiona Brownfoot	Mercy Hospital for Women
Perinatal exposure and late school-age educational performance	Dr Anthea Lindquist	Mercy Hospital for Women
Exploring Maternal Child Health Nurse protocols and perceptions of working with infants at increased risk of neurodevelopmental delay	Prof Susan Walker	Mercy Hospital for Women
Obstetric Outcomes in Women with Moderate or Severe Endometriosis: Does Pre-Pregnancy Surgery Alter Risk of Adverse Maternal or Perinatal Outcomes: A Feasibility Study	Prof Susan Walker	Mercy Hospital for Women

Title	Principal Investigator	Site
Telehealth Use in pregnancy in Lieu of In Person – a pilot randomised controlled trial (The TULIP Study)	Prof Susan Walker	Mercy Hospital for Women
VICS 2022: changing outcomes of infants born extremely preterm or extremely low birth weight (Mercy Health)	Dr Julianne Duff	Mercy Hospital for Women
Exploratory analyses of routinely collected maternity data: Mercy Health	Prof Christine East	Mercy Hospital for Women
New Perioperative Paracetamol Audit	Dr Andrew Robinson	Mercy Hospital for Women
The Impact of Voluntary Assisted Dying (VAD) on the Quality of Palliative Care Delivered by Palliative Care Services with a Conscientious Objection	Dr Lucy Kernick	Werribee Mercy Hospital
Attraction and retention in the public mental health workforce	Ms Ingrid Butterfield	Mercy Saltwater Clinic
TRA2SH Sharps Bin Audit	Dr Stephen Murphy	Werribee Mercy Hospital
A prospective cohort study for success of vaginal hysterectomy with vault suspension compared to Manchester-Fothergill Procedure for utero-vaginal prolapse	Dr Lore Schierlitz	Mercy Hospital for Women
“Back to Better” – is peer support part of the recovery for long COVID?	Prof Christine East	Mercy Hospital for Women
ARROW Trial – Assessing the Reduction of Recurrent admissions with OM-85 for treatment of preschool Wheeze	A/Prof Kathryn McMahon	Werribee Mercy Hospital
Antenatal Art Therapy Wellbeing Program: An exploratory pilot study	Prof Christine East	Mercy Hospital for Women
The C*STEROID Trial. Antenatal corticosteroids prior to planned caesarean section delivery from 35+0 to 39+6 weeks gestation; a randomised controlled trial assessing the effects on neonatal respiratory morbidity and glycaemic control	Dr Elizabeth McCarthy	Mercy Hospital for Women
SUPporting Mothers Milk Intervention Trial (SUMMIT) – A randomized controlled trial comparing different doses of domperidone for treating lactation insufficiency in mothers of preterm infants	Dr Ranmali Rodrigo	Mercy Hospital for Women
A prospective observational study of chronic non-malignant pain in patients referred to a palliative care service	Dr Lucy Kernick	Werribee Mercy Hospital
Assessment of long-term bowel function and sexual function following surgery for deep endometriosis	Dr Helen McNamara	Mercy Hospital for Women
Hysteroscopic Morcellation vs Bipolar Resection for Retained Products of Conception: A Pilot Randomised Control Trial	Dr Samantha Mooney	Mercy Hospital for Women
Placenta accreta spectrum (PAS): a review of the diagnosis, management and outcomes in a dedicated tertiary unit in Australia	Dr Naomi Holbeach	Mercy Hospital for Women
The feasibility of pelvic floor therapies to treat urinary and/or faecal incontinence in women following surgery for gynaecological cancer: a telehealth intervention trial	A/Prof Helena Frawley	Mercy Hospital for Women



OUR SUPPORTERS, PARTNERS AND COLLABORATORS

We acknowledge and celebrate the partnerships we have forged in 2022 and our shared vision for a better future through research and education.

Mercy Hospital for Women researcher Professor Natalie Hannan

Austin Health	National Health and Medical Research Council
Australasian Gynaecological Endoscopy and Surgery Society	Norman Beischer Medical Research Foundation
Australia New Zealand Gynaecological Oncology Group	North West Melbourne Primary Health Network
Australian Catholic University	Northern Health
Australian Research Council	Northern Health Foundation
Australian Society for Colposcopy and Cervical Pathology	Perpetual Trustee
Canadian Institutes of Health Research	Peter MacCallum Cancer Centre
Clovis Oncology	Physiotherapy Research Foundation
Department of Premier and Cabinet (Victoria)	Royal Australian College of Obstetricians and Gynaecologists
Epworth HealthCare	Royal Children's Hospital
Ferring COVID-19 Investigational Grants	Royal Women's Hospital
HealthWest Partnership	Stellenbosch University
Hologic	University of Cambridge
Hume City Council Maternal and Child Health Service	University of Manchester
La Trobe University	University of Melbourne
Medical Research Future Fund, Department of Health (Australian Government)	University of Newcastle
Melbourne Academic Centre for Health	University of Notre Dame (Australia)
Mercy Health Academic Research and Development Committee Small Grants	University of Sydney
Mercy Health Foundation	University of the Andes
Mercy Perinatal	VicSEG New Futures
Monash Health	Victorian Clinical Genetics Services
Monash Medical Centre	Victorian Collaborative Healthcare Recovery Initiative
Monash University	Victorian Fetal Therapy Service
Murdoch Children's Research Institute	Victorian Foundation for Survivors of Torture: Foundation House
	World Health Organisation
	Wyndham Council Maternal and Child Health Service







Mercy Health

Care first



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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.