

2021

RBWH Research Report

WOMEN'S AND
NEWBORN
SERVICES

Contents

Women's and Newborn Services	2
Grantley Stable Neonatal Unit	3
Obstetrics and Gynaecology	8
Obstetric Medicine	14
Perinatal Research Centre	20
Queensland Centre for Gynaecological Cancer	28

Published by the State of Queensland (Metro North Hospital and Health Service), July 2022

This document is licensed under a Creative Commons Attribution 3.0 Australia licence.

To view a copy of this licence, visit creativecommons.org/licenses/by/3.0/au

© State of Queensland (Metro North Hospital and Health Service) 2022

You are free to copy, communicate and adapt the work, as long as you attribute the State of Queensland (Metro North Hospital and Health Service).

For more information, contact:

RBWH Research Services, Metro North Hospital and Health Service, Building 34, Level 2, South Wing, HERSTON QLD 4066, email RBWH_Research_ESO@health.qld.gov.au, phone 07 3647 1008 for RBWH Research Services.

An electronic version of this document is available at <https://metronorth.health.qld.gov.au/research/research-reports>

Disclaimer:

The content presented in this publication is distributed by the Queensland Government as an information source only. The State of Queensland makes no statements, representations or warranties about the accuracy, completeness or reliability of any information contained in this publication. The State of Queensland disclaims all responsibility and all liability (including without limitation for liability in negligence) for all expenses, losses, damages and costs you might incur as a result of the information being inaccurate or incomplete in any way, and for any reason reliance was placed on such information.

Women's and Newborn Services



Associate Prof Karin Lust
Service Director
Women's and Newborn Services



Prof Leonie Callaway
Director of Research
Women's and Newborn Services

Women's and Newborn Services (WNS) provides comprehensive secondary, tertiary and quaternary care to the women, babies and families in our own community, and also to the people of Queensland.

Deanne August was the recipient of the Professor Joan Webster Nursing and Midwifery Research Award. The RBWH Neonatal group were finalists in the Complex Health challenges Research Award.

Together, our team supports 9 maternity clinical trials, 25 neonatal clinical trials, 10 gynaecology clinical trials and 7 Gynaecology Oncology clinical trials. Research teams in WNS were successful in being awarded 10 research grants in 2021. We currently have 35 research higher degree students within WNS with another 4 staff completing PhD's in 2021. Two of our midwifery research higher degree students – Emma Shipton and Lisa McKeon had their RBWH Foundation Scholarships renewed to continue to support their work.

We are delighted to see clinical staff from all disciplines in WNS undertake research that changes clinical practice.

We are proud to have two Metro North Clinical Research Fellows working on research within Women's and Newborn Services – A/Prof Victoria Eley, who is working towards reducing the use of perinatal antibiotics, with the hope this might reduce allergic disease in children; and A/Prof Susie de Jersey, who is working towards new screening approaches for gestational diabetes.

We are also delighted to have ongoing collaborations with colleagues in cardiology, infectious diseases, and mental health.

We are thrilled to welcome A/Prof Lauren Kearney to lead our midwifery research program and look forward to ongoing collaboration with the School of Nursing, Midwifery and Social Work at the University of Queensland.

We continue to value our collaborations with research groups in UQCCR – Prof Paul Colditz and the Perinatal Research Centre, Prof Hayden Homer and the Oocyte Biology Lab and Prof Andreas Obermair and the Queensland Centre for Gynaecological Cancer.

Grantley Stable Neonatal Unit

This year has been an exciting one for the RBWH Neonatal Research group! Not only has an enormous amount of high-quality research work been achieved, the highlights were certainly the awards and recognition of the hard work by the unit's dedicated clinician researchers. Deanne August our Neonatal Research Coordinator was awarded the esteemed Professor Joan Webster Nursing & Midwifery Research Award at the Metro North Research Excellence Awards, a very well-deserved recipient. De has been instrumental in increasing research capacity and resources within the unit, as well as establishing key research collaborations in the exciting areas of new technology and innovation. The research group were also selected as a finalist for the Complex Health Challenges section in the Metro North Research Excellence Awards, another high point in the research year. We continue to be inspired by the families and babies that are cared for in the Grantley Stable Neonatal Unit, to seek and answer the most important research questions, toward improving their outcomes and quality of life.

Research Awards and Achievements

Recipient (RBWH staff in bold)	Award	Event
Deanne August	Professor Joan Webster Nursing and Midwifery Research Award	Metro North Research Excellence Awards 2021
Lisa McKeown	2022 RBWH and RBWH Foundation Post Graduate Scholarship Renewal	2021 RBWH and RBWH Foundation Grant Awards Ceremony
RBWH Neonatal Research Group	Finalist Complex Health Challenges Research Award	Metro North Research Excellence Awards 2021

Research Grants

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Deanne August , Nicole Marsh, Lyn Chapple , Pieter Koorts , Melissa Lai , Joshua Byrnes, Rob Ware, Kathleen Finalyson, Craig McBride, Bronwyn Griffin, Fiona Coyer, Amanda Ullman	RBWH Neonatal Research	What Lies Beneath	RBWH Foundation	\$50,000	2020-2021

Current RBWH Department / Research Group Led Research Activity

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Tim Donovan	Linda Cobbald , Deanne August , Melissa Lai	LPT cohort study: The impact of nutrition, growth and body composition on neurodevelopmental outcome in late preterm infants	38	
Gill Noreiks	Mark Davies , Melissa Lai	HUMIDITY – RCT incubator humidity for ELBW infants	26	137

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Zoya Sharfuddin	Deanne August, Louise Johnston, Elizabeth Main, Kristina Palmer-Field, Trish Smith, Melissa Lai	Prospective review of postnatal discharge program on neonatal outcomes	289	289
Lisa McKeown	Leonie Calloway, Katie Foxcroft , Vanessa Cobham, Kylie Burke	Parental psychological distress associated with high-risk infants admitted to the Neonatal Intensive care	87	92
Lindsay Hepnar	Naoni Ngenda, Deanne August , Michelle Cottrell, Melissa Lai, Janet Sharpe	Positional head deformations in a neonatal unit	53	53
Karen Whitfield	Donna Bostick, Pieter Koorts, Kristen O'Connor, Mark Davies	Micronutrient levels in infants	44	
Tim Donovan	Paul Colditz, Gill Lack , Yvonne Eiby, Barbara Lingwood	Long term outcome of neonatal adiposity (PEACH)		
Philip Scott	Melissa Lai, Garry Inglis, Mark Davies	Neonatal early-onset sepsis calculator safety in an Australian tertiary perinatal centre	31	31
Jane Pienaar	Mark Davies, Nilushka	Retrospective review of HFOV and CO2 levels in a tertiary nursery		
Jasmine Antoine		Improving clinical handover for infants transitioning to Special Care Nursery		
Janet Sharpe		Use of antenatal corticosteroids for women at high risk of preterm birth		
Priyam Jha	Melissa Lai, Mark Davies	An evaluation of the use of spinal ultrasounds in neonates at a tertiary level neonatal unit	148	148
Charlotte Potter	Melissa Lai	Diagnosis and Surveillance of infants with subgaleal haemorrhage in the Grantley Stable Neonatal Unit		
Neeraj Mehta	Drum Patel, Mark Davies, Melissa Lai	Neonatal transfusions and clinical triggers	99	99
Jane Pienaar	Julie Wixey, Paul Colditz, Melissa Lai , Ian Wright, Ju-lee Oei	Retrospective study of ibuprofen administration on neurodevelopmental outcomes in IUGR neonates in Australia		
Sophia Knoblanche	Melissa Lai, Mark Davies	Predicting successful weaning off CPAP in preterm infants: a retrospective analysis	55	55
Kristina Palmer-Field	Melissa Lai, Donna Bostock, Jackie Clement, Louise Johnston, Michelle Gavin, Tiffany Porter, Jennifer Ribergaard, Meg McLean	Improving exclusive mother's own milk feeding in premature infants		

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Claire Mellick	Melissa Lai	Retrospective review of neurodevelopmental outcomes of infants following therapeutic hypothermia for hypoxic ischaemic encephalopathy in a tertiary nursery		
Fran Hosking	Mark Davies , Adam Irwin, Suzanne Parker, Deanne August , Brittany Schoenmaker , Jason Roberts	Optimising Treatment of Infection in Neonates using Microsampling (OPTIONS)	24	24

Collaborative Research Activity Involving RBWH Department / Research Group

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Elsa Wynd	Peter Trnka, Karen Moritz, Joan Li, Michael Guandalini, Melissa Lai , Adam Hoellering	Assessing the impact of prematurity on renal medulla development	10	74
Thuy Frakking	Paul Colditz , Christopher Carty, Melissa Lai , Anne Chang, Kelly Weir, Belinda Schwerin, Stephen So, Michael David, Tim Hong, John Waugh	Swallowing Sounds in Premature Babies (SUPERB): a multi centre cohort study		
Melissa Lai	Deanne August , Mark Davies , Jackie Clement , Linda Cobbald , Nathan Stevenson, Kartik Iyer, Mathilde Desselle, David Forrestal	Towards custom fitting CPAP devices for premature infants (COMFIT)	TBA	TBA
Nathan Stevenson	Melissa Lai , Paul Colditz , Michaela Waak, Stephen Malone, Kartik Iyer	Electroencephalography in the Neonate (ELITE)	TBA	TBA
Anndrea Flint	Mark Davies , Melissa Lai , Deanne August , Kate Coghill	Determining reference ranges for well term neonates overnight oximetry	10	20
Peter Dargarville	Tony De Paoli, John Carlin, Peter Davis, Omar Kamlin, Roger Soll, Howard Clark, Tim Donovan , Melissa Lai	Multicentre randomised controlled trial of minimally invasive surfactant therapy in preterm infants 25-28 weeks gestation on CPAP		
Peter Scally	Tim Donovan , Kelvin Feng, Marita Prior, Rebecca Liong, Ee Shern Lian, Anzela Anzela	Establishing the ideal position of the endotracheal tube in very low birthweight neonates		
Jackson Green	Barbara Lingwood, Yvonne Eiby, Tim Donovan	Haemoglobin levels in the first days of life in very preterm infants		
Sam Cruise	Helen Liley, Pieter Koorts , Lisa Askie, William Tarnow-Mordi, Anna Seidler, Ava Tan-Koay	Transfusions in the APTS Newborns		

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Roslyn Boyd	Pieter Koorts	NEBO: Neonatal Encephalopathy Brain Outcomes: Prospective study of Clinical and MRI Biomarkers in term born infants to improve accurate and earlier prediction of Cerebral Palsy	1	15
Helen Liley	Paul Colditz	RCT - PAEAN -Preventing Adverse Outcomes of Neonatal Hypoxic Ischaemic Encephalopathy with Erythropoietin: A Phase III Randomised Placebo Controlled Multicentre Clinical Trial	5	29
Alicia Spittle	Pieter Koorts Melissa Lai (PhD Candidate)	Kite-Early identification of infants with cerebral palsy: implementation of evidence-based guidelines into practice	21	48
Paul Dawson	Pieter Koorts, Paul Colditz, Nadia Badawi, Roslyn Boyd, Vicki Flenady, Elizabeth Hurron, Francis Bowling, Sailesh Kumar	Neuroprotective role of sulphate among preterm babies (SuPreme Study)	0	532
Iona Novak	Paul Colditz	RCT - GAME: Harnessing Neuroplasticity to Improve Motor Performance in Infants with Cerebral Palsy: a Pragmatic Randomized Controlled Trial		

Research Publications

Publications in 2021

Journal Articles (RBWH staff in bold)

- O'Connor K, Davies MW.** Macrolides for the prevention and management of bronchopulmonary dysplasia in preterm neonates (Protocol). *Cochrane Database of Systematic Reviews*, Issue. Art. No.: CD015063. 2021
- Parker SL, Irwin AD, **Hosking F, August D, Schoenmaker B**, Pandey S, Wallis SC, Lipman J, Roberts JA, **Davies MW.** Innovation in microsampling for therapeutic drug monitoring of gentamicin in neonates: a proof-of-concept study. *International Journal of Antimicrobial Agents* 2021. In press.
- Scott PA, Lai M, Inglis GDT, Davies MW.** Neonatal early onset sepsis calculator safety in an Australian tertiary perinatal centre. *J Paediatr Child Health* 2021. In press.
- O'Connor KL, Hurst C, Llewellyn S, Davies MW.** Factors associated with successful extubation following the first course of systemic dexamethasone in ventilator dependent preterm infants with or at risk of developing bronchopulmonary dysplasia. *Pediatr Pulmonol* 2021. In press.
- O'Connor KL, Davies MW.** Response to the Letter to the Editor: The tidal volume reported is not necessarily what it appears to be *Early Hum Dev* 2021;**163**:105469.
- O'Connor KL, Davies MW, Koorts P, Cartwright DW, Whitfield K.** Gentamicin dosing in neonates with normal renal function: trough and peak levels. *Eur J Drug Metab Pharmacokinet* 2021;**46**(5):677-684.
- O'Connor KL, Davies MW.** Ventilation settings in preterm neonates with ventilator-dependant, evolving bronchopulmonary dysplasia. *Early Hum Dev* 2021;**159**:105417.

Journal Articles (RBWH staff in bold)

8. **Hosking F**, Griffin A, **Davies MW**. Weight gain in the first week of life and its association with morbidity and mortality in extremely low birthweight (ELBW) infants. *Early Hum Dev* 2021;**160**:105421.
9. Kim E, Nguyen KH, **Donovan T**, Edirippulige S, Armfield NR. A Cost-Minimisation Analysis Comparing Alternative Telemedicine Screening Approaches for Retinopathy of Prematurity. *J Telemed Telecare*. 2021:1357633x20976028
10. **Donovan TJ**, Eiby YE, Lingwood BE. Quality of Growth Predicts Neurodevelopment in very preterm infants. *J Paed & Child Health* 56 (Suppl 1), 3-54, 2021
11. Dargaville PA et al. **Donovan TJ**. Effect of Minimally Invasive Surfactant Therapy vs sham treatment on death or BPD in preterm infants with respiratory distress syndrome: The OPTIMIST-A RCT. *JAMA* doi:10.1001/jama.2021.21892 Published online December 13, 2021
12. Berkhout A, Kapoor V, Heney C, Jones CA, Clark JE, Vaska VL, **Lai M**, Nourse C. Herpes Simplex Virus Infection in Infants: 13 Year Evaluation (2005-2017) of Laboratory confirmed cases in Qld, Australia. *Pediatr Infect Dis J*. 2021 Mar 1;40(3):209-214. doi: 10.1097/INF.0000000000002970.PMID: 33165280

Books (RBWH staff in bold)

1. Moniaci V, Alessi S, **August D**, Conway-Orgel M, **New K**, and Bellflower B. Skin Physiology and Thermal Protection in The National Association of Neonatal Nurses; Thermoregulation in the Care of Infants Guideline for Practice. 2021(1)

Obstetrics and Gynaecology

The Department of Obstetrics and Gynaecology delivers excellent patient-centred care and high-quality tertiary and quaternary obstetrics and gynaecology services for MNHHS and QLD. The department is involved in multidisciplinary research to ensure the care of the women we treat and manage is contemporary and evidenced based. Collaborative research is the key – strengthening collaborations and partnerships in line with the strategic directions, and Metro North Health's Research Strategy 2017-2022 to encourage collaboration and excellence across the themes of diagnostics, therapeutics and health services.

Maternity Services collaborate closely with the Perinatal Research Centre, University of QLD and UQCCR for local state and commonwealth grants and multi-centre research projects. The department has been progressive in the enhancement of research activities in the area of antenatal care, general obstetrics and gynaecology.

The Obstetrics and Gynaecology department continues to collaborate with numerous other departments within Metro North Hospital and Health Service (MNHHS) as well as with UQ, QUT, UQCCR, Mater Hospital, interstate hospitals and New Zealand. A growing academic team in O&G along with O&G PhD scholars (Tanaka, Smith) and more registrars and residents undertaking and presenting research is increasing research output to enhance clinical outcomes.

Doctors Amoako and Tanaka have an ongoing research project into the genetics of endometriosis, and via the RBWH research foundation. In 2019, Metro North Health partnered with the University of Queensland to offer a collaborative research grant to Dr Amoako and the project team to enable new collaborative research between clinicians, academics and scientists with the potential to lead to ongoing research of direct benefit to Metro North Health patients and the community. Research funded through this program has formed the basis for ongoing collaboration between Metro North Health and the University of Queensland to identify the knowledge gap which currently exists in the diagnosis and treatment of endometriosis and the potential to bridge this gap to improve the lives of Australians living with this debilitating disease. This project aims to establish a scalable, high-quality, standardised clinical and surgical database populated with linked professionally processed and curated biospecimen repository to facilitate high-quality translational research, this data infrastructure will improve screening, diagnosis, prevention and management of patients at risk of or living with endometriosis. This will be achieved through establishing a secure database and collecting large scale clinical data and linked biospecimen to facilitate research collaboration to stimulate new ground-breaking research concepts, methods and technologies including advanced bioinformatics and computational biology such as deep machine learning and artificial intelligence to address the needs of Australians with endometriosis.

Dr Lehner is conducting research pertaining to COVID and peri mental health effects. The Gynaecology Oncology department continue their focus on conducting surgical clinical trials to develop the best standard of care for women experiencing gynaecological cancer and have been awarded 5 grants to undertake further clinical trials.

The Maternal Fetal Medicine unit has been very proactive in fostering an environment conducive to prospective and retrospective research and audits as well as partnering with centres in both Australia and New Zealand to develop collaborative research. Dr Duncombe has been awarded a RBWH foundation Project Grant to conduct research centred on indicators of early gestational Pre-eclampsia (pre- 16 weeks pregnant).

In 2021 key research outputs include grants, publications, presentations at national and international meetings. Overall, there are 12 trials currently underway with 3 trials anticipated to commence in 2022, added to this achievement, there have been 7 grants awarded including 4 RBWH Foundation Grants awarded and 1 NHMRC grant.

Research Grants

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Keisuke Tanaka	Obstetrics and Gynaecology	Investigation of endocannabinoid system signalling pathways and their regulations in endometriosis establishment, progression and severity	RBWH Foundation	\$138,977.00	3yrs, 2020-2022

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Brett Mckinnon, Grant Montgomery, Sally Mortlock, Akwasi Amoako, Keisuke Tanaka	Obstetrics and Gynaecology	Environmental risk factors for endometriosis	Endometriosis Australia	\$41,250	2021
Chris Lehner, Anousha Pamela Woods Susan de Jersey, Katie Foxcroft, Alka Kothari, Akwasi Amoako, Leonie Callaway, Tracey Mackle, Sailesh Kumar, Petrina Duncan	Obstetrics and Gynaecology	The impact of the COVID-19 pandemic on maternal depression and related disorders during the perinatal period.	RBWH Foundation	\$13,156.00	2020-2021
Nigel Lee, Sue Kildea, Lena Birgitta Mårtensson, Yu Gao, Leonie Callaway, Belinda Barnett, Akwasi Amoako, Trish Smith, Janine Farquharson, Sarah Kirby	Obstetrics and Gynaecology	SATURN trial, Novel Use of Water for Injections to Relieve Contraction Pain in Labour	MRFF - NHMRC	\$302,942.00	3 years 2021 - 2023
Victoria Eley, Severine Navarro, Akwasi Amoako, Leonie Callaway		Do pre-delivery antibiotics affect the neonatal microbiome and immune system? Intravenous Cefazolin v Placebo before elective caesarean section: RCT Feasibility Study	The Children's Hospital Foundation	\$55,000.00	2021–2022
Ismail Sebina, Christoph Lehner, Akwasi Amoako		FLT3L expression is essential for protection against preterm birth	QIMR Berghofer seed funding grants 2021 for early career researchers	\$49,900.00	2021
Sailesh Kumar, Christoph Lehner, Akwasi Amoako, Renuka Sekar, Paul Colidtz, Callander E.		Reducing emergency caesarean birth for fetal distress in women with small or poorly grown infants using Sildenafil Citrate – The RidStress 2 Randomised Controlled Trial	RBWH & RBWH Foundation Project Grant	\$150,000.00	2021 - 2023

Current RBWH Department / Research Group Led Research Activity

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Akwasi Amoako, Keisuke Tanaka, Akram Khalil, David Baartz, Matthew Smith	Grant Montgomery (IMB, UQ), Brett McKinnon (IMB, UQ), Sally Mortlock (IMB, UQ), Joanna Crawford (IMB, UQ)	Endocannabinoid Signalling in Endometriosis-Associated Pain: A potential Therapeutic Target		
Akwasi Amoako, Keisuke Tanaka, Akram Khalil, David Baartz, Matthew Smith	Grant Montgomery, Brett McKinnon, Sally Mortlock, Joanna Crawford	Somatic mutation in endometriotic lesions and their relationship to disease progression, severity and symptoms		
Keisuke Tanaka, Akram Khalil, David Baartz, Akwasi Amoako	Pathmila Navaratne	Management of Tubal ectopic pregnancy with intravenous Methotrexate		
Akwasi Amoako, Keisuke Tanaka	Lauren MacArthur	Understanding the impact of endometriosis and chronic pelvic pain on women's lives through a qualitative study		300
Akwasi Amoako, Keisuke Tanaka, Rebecca Kimble	Alexandra Wisentaner	Laparoscopic investigation for endometriosis in symptomatic adolescents		212
Lehner C	Woods A, de Jersey S , Lawton S, Foxcroft K , Kothari A, Amoako A , Kumar S , Callaway L , Mackle T, Bennett E:	The impact of the COVID-19 pandemic on maternal depression and related disorders during the perinatal period		
Field B	Lehner C	Raising awareness of decreased fetal movements and initial rollout of the Safer Baby Bundle in a tertiary maternity unit – impact on service utilisation, obstetric activity and perinatal outcomes at the Royal Brisbane and Women's Hospital		
Kumar S	Lehner C, Amoako A, Sekar R , Colditz P, Callander E	Reducing emergency caesarean birth for fetal distress in women with small or poorly grown infants using Sildenafil Citrate – The RidStress 2 Randomised Controlled Trial		

Collaborative Research Activity Involving RBWH Department / Research Group

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Grant Montgomery (IMB, UQ), Brett McKinnon (IMB, UQ), Sally Mortlock (IMB, UQ), Joanna Crawford (IMB, UQ)	Akwasi Amoako, Keisuke Tanaka, Akram Khalil, David Baartz, Matthew Smith	Genetics of Reproductive Disorders - Functional Consequences of Genetic Variations in Endometriosis		

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Grant Montgomery (IMB, UQ), Brett Mckinnon (IMB, UQ), Sally Mortlock (IMB, UQ), Joanna Crawford (IMB, UQ)	Akwasi Amoako, Keisuke Tanaka, Akram Khalil, David Baartz, Matthew Smith	Progesterone and Immune induced transcriptomic changes in endometrial stromal fibroblasts, their contribution in endometriosis pathogenesis and potential for targeted treatment		
Tarnow-Mordi, W et al (University of Sydney)	Karen Baker	Lactoferrin Evaluation in Anaemia in Pregnancy: LEAP-1 Should we treat iron deficiency anaemia of pregnancy with lactoferrin? A randomised controlled trial	29	110
Fernando S.F. Guimaraes UQ)	Gustavo Rossi Timothy McCulloch Bianca Balzasch Jane Sun, Akwasi Amoako, Christoph Lehner	Enhanced Natural Killer Cell Therapies: A new cell immunotherapy approach against cancer	29	29
Ismail Sebina (QIMR)	Christoph Lehner, Akwasi Amoako , Simon Phipps (QIMR),	The role of FLT3L in the pathophysiology of preeclampsia and preterm birth.	56	56
Nigel Lee	Sue Kildea, Lena Birgitta Mårtensson, Yu Gao, Leonie Callaway , Belinda Barnett, Akwasi Amoako	Novel Use of Water for Injections to Relieve Contraction Pain in Labour		
Jodie Painter (QIMR), Cecelia Lindgren (Oxford)	Hayden Homer	Large-scale genome-wide analyses to investigate the genetic aetiology of miscarriage		
Victoria Eley	Severine Navarro, Akwasi Amoako, Leonie Callaway	Do pre-delivery antibiotics affect the neonatal microbiome and immune system? Intravenous Cefazolin v Placebo before elective caesarean section: RCT Feasibility Study		

Research Publications

Publications in 2021

Journal Articles (RBWH staff in bold)

1. Adams K, Ballard E, **Amoako A, Khalil A, Baartz D**, Chu K and **Tanaka K** (2021). *When is it too late? Ovarian preservation and duration of symptoms in ovarian torsion*. Journal of Obstetrics and Gynaecology, 1-5. doi: 10.1080/01443615.2021.1929114
2. Mayne L, Liu C, **Tanaka K** and **Amoako A** (2021). *Caesarean section rates: applying the modified ten-group Robson classification in an Australian tertiary hospital*. Journal of Obstetrics and Gynaecology, 1-6. doi: 10.1080/01443615.2021.1873923
3. Brownhalls L, Gillett A, Whately Y and **Tanaka K** (2021). *A Pregnancy Case of Primary Mediastinal Large B Cell Lymphoma with Superior Vena Cava Syndrome*. Case Reports in Obstetrics and Gynecology, 2021, 1-4. doi: 10.1155/2021/3438230

Journal Articles (RBWH staff in bold)

4. Julie Lee, Victoria Eley, Kerstin Wyssusek, **Rebecca MN Kimble**, Mandy Way, Andre van Zundert. Rotational thromboelastometry (ROTEM) in gestational Diabetes mellitus and coagulation in healthy term pregnancy: a prospective observational study in Australia. Australian and New Zealand Journal of Obstetrics and Gynaecology 2021 1-6 accepted December 2021.
5. G Cham, B O'Brien, **RMN Kimble**. Idiopathic hypogonadotrophic hypogonadism: a rare cause of primary amenorrhoea in adolescence- a review and update on diagnosis, management and advances in genetic understanding. BMJ Case Reports CP 14 (4)e239495 **2021**
6. J Lee, KH Wyssusek, **RMN Kimble**, M Way, AA van Zundert, J Cohen, J Rowell, VA Ealy. The influence of obesity on coagulation in healthy term pregnancy as assessed by rotational thromboelastometry. Obstetric Anaesthesia Digest Volume 41, Issue 2, p85-86 **June 2021**
7. Flenady V, Kettle I, **Laporte J**, Birthisel D, Hardiman L, Matsika A, Whelan N, **Lehner C**, Payton D, Utz M, Wojcieszek AM, Lawford H, Walsh T, Ellwood D. Making every birth count: Outcomes of a perinatal mortality audit program. Aust N Z J Obstet Gynaecol. 2021 Aug;61(4):540-547. doi: 10.1111/ajo.13325. Epub 2021 Apr 1
8. Russo Serafini M, Medeiros Savi F, Ren J, Bas O, O'Rourke N, **Maier C**, Huttmacher DW. The Patenting and Technological Trends in Hernia Mesh Implants. Tissue Eng Part B Rev. 2021 Feb;27(1):48-73. doi: 10.1089/ten.TEB.2019.0245. Epub 2020 Oct 22.PMID: 32403989 Review
9. Mustafa Mikhail S, Fairweather P, Eastman A, Hartel G, Chen Z, **Maier C**. Actinomyces in explanted transvaginal mesh: commensal or pathogen? Int Urogynecol J. 2021 Nov;32(11):3053-3059. doi: 10.1007/s00192-020-04610-z. Epub 2021 Jan 8.PMID: 33416964
10. Chen Z, Mikhail SM, Buttini M, Mowat A, Hartel G, **Maier C**. Online prediction tool for female pelvic floor dysfunction: development and validation. Int Urogynecol J. 2021 Oct 7. doi: 10.1007/s00192-021-04985-7. Online ahead of print. PMID: 34618193
11. Moss, K. M., Doust, J., **Homer, H.**, Rowlands, I. J., Hockey, R. and Mishra, G. D. (2021). *Delayed diagnosis of endometriosis disadvantages women in ART: a retrospective population linked data study*. Human Reproduction, 36 (12), 3074-3082. doi: 10.1093/humrep/deab216
12. **Homer, Hayden Anthony** (2021). *Website advertising of IVF add-ons: Does PGT-A live up to its billing?* Australian and New Zealand Journal of Obstetrics and Gynaecology, 61 (3), 328-330. doi: 10.1111/ajo.13366
13. Ho, Uda Y., Feng, Chun-Wei Allen, Yeap, Yvonne Y., Bain, Amanda L., Wei, Zhe, Shohayeb, Belal, Reichelt, Melissa E., **Homer, Hayden**, Khanna, Kum Kum, Bowles, Josephine and Ng, Dominic C. H. (2021). *WDR62 is required for centriole duplication in spermatogenesis and manchette removal in spermiogenesis*. Communications Biology, 4 (1) 645, 1-14. doi: 10.1038/s42003-021-02171-5
14. Greaney, Jessica, Subramanian, Goutham, Ye, Yunan and **Homer, Hayden** (2021). *Isolation and in vitro culture of mouse oocytes*. bio-protocol, 11 (15) e4104, e4104. doi: 10.21769/bioprotoc.4104
15. Alhusuny, Ameer, Cook, Margaret, **Khalil, Akram** and Johnston, Venerina (2021). *Visual symptoms, Neck/shoulder problems and associated factors among surgeons performing Minimally Invasive Surgeries (MIS): A comprehensive survey*. International Archives of Occupational and Environmental Health, 94 (5), 959-979. doi: 10.1007/s00420-020-01642-2

Keynote or Plenary Lectures given in 2021

Date	Title
08/2021	Tanaka K. Should I operate or treat with antibiotics? Impact of early surgical management on tubo-ovarian abscess. Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting
08/2021	RM Kimble. Paediatric and Adolescent Gynaecological conditions that can catch you out. Speaker Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting

08/2021	A Amoako. Chronic Pelvic Pain – A Neglected Reproductive Health Morbidity - Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting
08/2021	Thangeswaran Rudra. Session Chair: Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting
08/2021	Johanna Laporte. Challenges in Managing Mono Chorionic Twins - Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting
08/2021	Sailesh Kumar Surendran. New Insights in Screening for the Fetus at Risk - Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting
08/2021	Matthew Smith. What is in the future with Cervical Screening Guidelines? - Royal Australian and New Zealand College of Obstetricians and Gynaecologists Queensland and New South Wales Annual Scientific Meeting
09/2021	RM Kimble. Trauma and the Pregnant patient Masterclass. Trauma 2021- International Trauma Society and Australian Trauma Society combined Annual Scientific Conference
10/2021	A Veasey, RMN Kimble. Laparoscopic hemi-hysterectomies for Mullerian Anomalies; a fifteen-year experience from the Queensland Paediatric and Adolescent Gynaecology Service. FIGO 2021 World Congress (International Federation of Obstetrics and Gynaecology) Israel
02/2021	RM Kimble. Australasian Trauma Society and World Coalition for Trauma Care. 5 th World Trauma Congress, Brisbane Convention and Exhibition Centre, Brisbane

Obstetric Medicine

The department of Obstetric Medicine continues to undertake high level research into maternal and fetal outcomes during and after pregnancy. A particular focus of research in 2021 was the effect of COVID-19 on clinical care provision and the impact of this on health workers in Metro North. Research into outcomes in women with cardiac disease in pregnancy continues to be a focus of the department as well as the impact of maternal metabolism on obstetric outcomes. 2021 also saw the recruitment of multiple patients to the Pneumatters trial evaluating the effect of maternal immunisation on infants born to Indigenous women.

Research Grants

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Graves N, Hillman K, Willmott L, White B, Harvey G, Prof L Callaway Cardona-Morrell M, Barnett A, Lee X		InterACT study: Intervention for Appropriate Care and Treatment	NHMRC	\$1,008,215	2018-2021
Shipton E	Obstetric Medicine	Reducing Non-Beneficial Treatment at the End-of-Life.			
		PhD models of care and Breastfeeding	RBWH Foundation	\$114,247	2019-2022
Lisa McKeown	Obstetric medicine	The prevalence of post-traumatic stress disorder in parents of infants in the Neonatal Intensive Care Unit	RBWH Foundation	\$116,613	2020-2023
Prasad S, Atherton J, Parsonage W, Lo A, Callaway L, Lust K, Robinson H	Cardiology & Obstetric medicine	Serial evaluation of advanced echocardiographic parameters during healthy pregnancy — a prospective observational cohort study	RBWH Foundation	\$40,000	2020-2021
Prasad S, Atherton J, Parsonage W, Lo A, Callaway L, Lust K, Robinson H	Cardiology & Obstetric medicine	Serial evaluation of advanced echocardiographic parameters during healthy pregnancy — a prospective observational cohort study	Australian Society of Ultrasound Medicine	\$20,000	2020-2021
A/Prof Abdullah Mamun Prof Peter Sly, Dr Yaqoot Fatima, Prof Kevin Thomas, A/Prof Frances Boyle, Prof Leonie Callaway		Trihalomethanes in pregnancy and birth outcomes in Queensland: integrated data analysis and case studies for better policy and health outcomes.	NHMRC	\$522,284	2020-2023
Alex Lindgren, Alka Kothari, Kylie Burke, Katie Foxcroft, Meredith Shallcross, Elizabeth Ryan, Catherine Alexander, Lisa McKeown, Leonie Callaway		An assessment of the impact COVID-19 pandemic on maternity and neonatal health workers in the Metro North Hospital and Health care service	RBWH Foundation COVID-19 Grants	\$39,689.00	2020 -2021

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Chris Lehner , Anousha Pamela Woods, Susan de Jersey , Katie Foxcroft , Alka Kothari, Akwasi Amoako , Leonie Callaway , Tracey Mackle Sailesh Kumar , Petrina Duncan	Obstetrics and Gynaecology	The impact of the COVID-19 pandemic on maternal depression and related disorders during the perinatal period.	RBWH Foundation	\$13,156.00	2020-2021
Susie D Jersey , Michael D'Emden , Leonie Callaway , Nina Meloncelli, David McIntyre, Adrian Barnett		We changed Australia's approach to Gestational Diabetes Mellitus screening and diagnosis during COVID-19: Are these changes worth continuing?	RBWH Foundation COVID-19 Grants	\$49,572.00	2020-2021
Nigel Lee, Sue Kildea, Lena Birgitta Mårtensson, Yu Gao, Leonie Callaway , Belinda Barnett, Akwasi Amoako , Trish Smith , Janine Farquharson , Sarah Kirby	Obstetrics and Gynaecology	SATURN trial, Novel Use of Water for Injections to Relieve Contraction Pain in Labour	MRFF - NHMRC	\$302,942.00	2021-2023
Skouteris H, Teede H, Boyle J, Moran L, Thangaratinam S, Hills A, Venn A, Jack B, Norman R, Ademi Delaney Z, Callaway L , (Chair of Advisory Group).	Centre for Research Excellence in Preconception and Pregnancy.	Prevention of Maternal Obesity	NHMRC.	\$2,496,527	2019-2024
Victoria Eley , Severine Navarro, Akwasi Amoako , Leonie Callaway		Do pre-delivery antibiotics affect the neonatal microbiome and immune system? Intravenous Cefazolin v Placebo before elective caesarean section: RCT Feasibility Study	The Children's Hospital Foundation	\$55,000.00	2021–2022

Current RBWH Department / Research Group Led Research Activity

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Emma Shipton	Leonie Callaway , Susie de Jersey , Katie Foxcroft , Nigel Lee	Antenatal Models of Care and the effect on breast feeding post discharge	117	242

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Prof Leonie Callaway	Alexander Lindgren, Katie Foxcroft, Meredith Shallcross, Elizabeth Ryan, Lisa McKeown, Leonie Callaway , Alka Kothari, Kylie Burke, Catherine Alexander	An assessment of the impact of COVID-19 pandemic on Maternity health workers in the Metro North Hospital and Health care service	Recruitment completed	276 RBWH (510 total for all 3 sites)

Collaborative Research Activity Involving RBWH Department / Research Group

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Graves N, Hillman K, Willmott L, White B, Harvey G, Cardona-Morrell M, Barnett A, Lee X	Prof L Callaway	InterACT study: Int ervention for A ppropriate C are and T reatment Reducing Non-Beneficial Treatment at the End-of-Life.		
EURObservational research programme	Lust K, Parsonage W	Registry of pregnancy and cardiac disease	N/A	
Sullivan E, Cordina R, Simmons L, Pollock W, Kennedy D, Vaughan G, Li Z, O'Brien A, Turnbull K, Peek M, Celermajer D, Lam L, Zentner D, Hyett J, Clarke M	Lust K, Parsonage W	NSW longitudinal study of first-time mothers with heart disease and their babies	N/A	
Regan AK, Andrews RM, Moore HC, Binks MJ, McHugh L, Pereira G, Blyth CC, Van Buynder PG,	Lust K	Links2HealthierBubs: Influenza and pertussis vaccine effectiveness in pregnancy	N/A	
Chang A, Binks M, Smith-Vaughan H, Pizzutto S, O'Grady K, Marshall H, Toombs M, Torzillo P, Grimwood K	Lust K	Pneumatters - Preventing early-onset pneumonia in Indigenous infants through maternal immunisation: a multi-centre randomised controlled trial.	19	31
A/Prof Abdullah Mamun	Leonie Callaway , Prof Peter Sly, Dr Yaqoot Fatima, Prof Kevin Thomas, A/Prof Frances Boyle	Trihalomethanes in pregnancy and birth outcomes in Queensland: integrated data analysis and case studies for better policy and health outcomes.	N/A	N/A
Chris Lehner , Anousha Pamela Woods	Susan de Jersey, Katie Foxcroft , Alka Kothari, Akwasi Amoako, Leonie Callaway , Tracey Mackle Silesh Kumar, Petrina Duncan	The impact of the COVID-19 pandemic on maternal depression and related disorders during the perinatal period.		

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Susie D Jersey	Leonie Callaway , Michael D'Emden , Nina Meloncelli, David McIntyre, Adrian Barnett	We changed Australia's approach to Gestational Diabetes Mellitus screening and diagnosis during COVID-19: Are these changes worth continuing?		66
Victoria Eley	Severine Navarro, Akwasi Amoako , Leonie Callaway	Do pre-delivery antibiotics affect the neonatal microbiome and immune system? Intravenous Cefazolin v Placebo before elective caesarean section: RCT Feasibility Study		
Skouteris H, Teede H, Boyle J, Moran L, Thangaratinam S, Hills A, Venn A, Jack B, Norman R, Ademi Delaney Z, Callaway L , (Chair of Advisory Group)	Centre for Research Excellence in Preconception and Pregnancy.	Prevention of Maternal Obesity		

Research Activity With a Specific Focus on First Nations People

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
A/Prof Karin Lust	Chang A, Binks M, Smith-Vaughan H, Pizzutto S, O'Grady K, Marshall H, Toombs M, Torzillo P, Grimwood K	Pneumatters - Preventing early-onset pneumonia in Indigenous infants through maternal immunisation: a multi-centre randomised controlled trial.	19	31
Ms Claire Reilly	A/Prof Maree Toombs Prof Anne B Chang Ms Remai Mitchell A/Prof Karin Lust Dr Hasthika Ellepola Ms Lisa Emmett Ms Sophia King	PneuMatters: The facilitators and barriers to vaccination uptake in pregnancy amongst Aboriginal and Torres Strait Islander women	8	8

Research Publications

Publications in 2021

Journal Articles (RBWH staff in bold)

- Helen Tanner**, Helen L Barrett, **Leonie K Callaway**, Shelley A Wilkinson, Marloes Dekker Nitert. Consumption of a Low Carbohydrate Diet in Overweight or Obese Pregnant Women is Associated with Longer Gestation of Pregnancy. *Nutrients* 2021,13 (10), 3511
- Bonnie L Bermas, Milena Gianfrancesco, **Helen L Tanner** et al. COVID-19 in women with rheumatic disease who in pregnant: Data from the COVID-10 Global Rheumatology Alliance. *The Journal of Rheumatology*. *Sept 2021*
- Helen Tanner**, Helen Barrett. Subclinical thyroid disease in pregnancy. Maternal medical health and disorders in pregnancy. *The Global library of Women's Medicine (GLOWM)*. Volume 8. ISSN: 1756-2228; DOI 10.3843/GLOWM.414103. Aug 2021

Journal Articles (RBWH staff in bold)

4. Gardiner FW, Richardson A, Roxburgh C, Gillam M, Churilov L, McCuaig R, Carter S, Arthur C, Wong C, Morton A, **Callaway L**, **Lust K**, Davidson SJ, **Foxcroft K**, Oates K, Zhang L, Jayawardane S, Coleman M, Peek M. Characteristics and in-hospital outcomes of patients requiring aeromedical retrieval for pregnancy, compared to non-retrieved metropolitan cohorts Aust N Z J Obstet Gynaecol. 2021 Aug;61(4):519-527. doi: 10.1111/ajo.13308. Epub 2021 Jan 10.

5. Chang AB, Toombs M, Chatfield MD, Mitchell R, Fong SM, Binks MJ, Smith-Vaughan H, Pizzutto SJ, **Lust K**, Morris PS, Marchant JM, Yerkovich ST, O'Farrell H, Torzillo PJ, MacLennan C, Simon D, Unger HW, Ellepola H, Odendahl J, Marshall HS, Swamy GK, Grimwood K. Study Protocol for Preventing Early-Onset Pneumonia in Young Children Through Maternal Immunisation: A Multi-Centre Randomised Controlled Trial (PneuMatters). Front Pediatr. 2022 Jan 17;9:781168. doi: 10.3389/fped.2021.781168. eCollection 2021.

6. Boyle S, Sung-Him Mew T, **Lust K**, McKenzie S, Javorsky G, Parsonage W. Corrigendum to "Pregnancy Following Heart Transplantation: A Single Centre Case Series and Review of the Literature" [Heart Lung Circ 2021;30:144-153.]. Heart Lung Circ. 2021 Mar;30(3):461. doi: 10.1016/j.hlc.2021.02.001.

7. Boyle S, Sung-Him Mew T, **Lust K**, McKenzie S, Javorsky G, Parsonage W. Pregnancy Following Heart Transplantation: A Single Centre Case Series and Review of the Literature. Heart Lung Circ. 2021 Jan;30(1):144-153. doi: 10.1016/j.hlc.2020.10.007. Epub 2020 Nov 6.

8. Parsonage WA, Zentner D, **Lust K**, Kane SC, Sullivan EA. Heart Disease and Pregnancy: The Need for a Twenty-First Century Approach to Care.... Heart Lung Circ. 2021 Jan;30(1):45-51. doi: 10.1016/j.hlc.2020.06.021. Epub 2020 Jul 28.

9. Davidson SJ, Barrett HL, Price SA, **Callaway LK**, Dekker Nitert M. Probiotics for preventing gestational diabetes. Cochrane Database Syst Rev. 2021 Apr 19;4(4):CD009951. doi: 10.1002/14651858.CD009951.pub3.

10. Bokern MP, Robijn AL, Jensen ME, Barker D, **Callaway L**, Clifton V, Wark P, Giles W, Mattes J, Peek M, Attia J, Seeho S, Abbott A, Gibson PG, Murphy VE. Factors Associated with Asthma Exacerbations During Pregnancy. J Allergy Clin Immunol Pract. 2021 Dec;9(12):4343-4352.e4. doi: 10.1016/j.jaip.2021.07.055. Epub 2021 Aug 14.

11. Mullins TP, Tomsett KI, Gallo LA, Callaway LK, McIntyre HD, Dekker Nitert M, Barrett HL. Maternal gut microbiota displays minor changes in overweight and obese women with GDM. Nutr Metab Cardiovasc Dis. 2021 Jun 30;31(7):2131-2139. doi: 10.1016/j.numecd.2021.03.029. Epub 2021 Apr 18.

12. Jensen ME, Robijn AL, Gibson PG, Oldmeadow C; Managing Asthma in Pregnancy study collaborative group; Breathing for Life Trial collaborative group, Murphy VE. Longitudinal Analysis of Lung Function in Pregnant Women with and without Asthma. J Allergy Clin Immunol Pract. 2021 Apr;9(4):1578-1585.e3. doi: 10.1016/j.jaip.2020.10.061. Epub 2020 Nov 13.

13. Barrett HL, Dekker Nitert M, D'Emden M, Lingwood B, de Jersey S, McIntyre HD, **Callaway LK**. Capillary Triglycerides in Late Pregnancy-Challenging to Measure, Hard to Interpret: A Cohort Study of Practicality. Nutrients. 2021 Apr 13;13(4):1266. doi: 10.3390/nu13041266. PMID: 33924317 Free PMC article.

14. Gardiner FW, Richardson A, Roxburgh C, Gillam M, Churilov L, McCuaig R, Carter S, Arthur C, Wong C, Morton A, **Callaway L**, **Lust K**, Davidson SJ, **Foxcroft K**, Oates K, Zhang L, Jayawardane S, Coleman M, Peek M. Characteristics and in-hospital outcomes of patients requiring aeromedical retrieval for pregnancy, compared to non-retrieved metropolitan cohorts. Aust N Z J Obstet Gynaecol. 2021 Aug;61(4):519-527. doi: 10.1111/ajo.13308. Epub 2021 Jan 10.

15. **Tanner HL**, Nitert MD, **Callaway LK**, Barrett HL. Ketones in Pregnancy: Why Is It Considered Necessary to Avoid Them and What Is the Evidence Behind Their Perceived Risk? Diabetes Care. 2021 Jun;44(6):1456. doi: 10.2337/dc21-er06b. Epub 2021 Apr 29.

16. Blake JA, Pelecanos A, Najman JM, **Callaway L**, Scott JG. The association between birth by caesarean section at term and offspring cognitive and academic performance: A birth cohort study. Aust N Z J Obstet Gynaecol. 2021 Jul 5. doi: 10.1111/ajo.13403. Online ahead of print.

17. de Jersey S, Meloncelli N, Guthrie T, Powlesland H, **Callaway L**, Chang AT, Wilkinson S, Comans T, Eakin E. Implementation of the Living Well During Pregnancy Telecoaching Program for Women at High Risk of Excessive Gestational Weight Gain: Protocol for an Effectiveness-Implementation Hybrid Study. JMIR Res Protoc. 2021 Mar 18;10(3):e27196. doi: 10.2196/27196.

Journal Articles (RBWH staff in bold)

18. Fergus W. Gardiner, Alice Richardson, Carly Roxburgh, Marianne Gillam, Leonid Churilov, Ruth McCuaig, Sean Carter, Christopher Arthur, Cynthia Wong, Adam Morton , **Leonie Callaway**, **Karin Lust**, Sarah J. Davidson, **Katie Foxcroft**, Kiri Oates, Lucy Zhang, Sahani Jayawardane, Mathew Coleman and Michael Peek. Characteristics and in-hospital outcomes of patients requiring aeromedical retrieval for pregnancy, compared to non-retrieved metropolitan cohorts. ANZJOG 2021;1-9

Keynote or Plenary Lectures given in 2021

Date	Title
02/2021	Callaway Leonie . The Psychology of Obesity, RANZCOG Annual Scientific Meeting, Virtual.
03/2021	Callaway Leonie , Queensland Maternal and Perinatal Quality Council, National Perinatal Mortality Education Session. Brisbane QLD/virtual.
10/2021	Callaway Leonie . Health, not weight: How can a different approach support effective clinical care, national conference for Australia and New Zealand Society for Metabolic and Obesity Surgery Society (ANZMOSS). Virtual
11/2021	Callaway Leonie , Pandemic, Pressure and Platitudes, The New Zealand College of Public Health Medicine, Annual Scientific Meeting, Virtual.

Perinatal Research Centre

The Perinatal Research Centre (PRC), directed by Professor Paul Colditz, is committed to improving health for mothers and babies through world class biomedical and clinical research. Our multidisciplinary research team, consisting of clinicians, scientists, allied health professionals and engineers, aims to discover and translate research advances into clinical practice and better health outcomes for mothers and babies. Research within the PRC covers several related areas including neonatal brain injury and neuroprotection led by Dr Tracey Bjorkman, fetal growth restriction led by Dr Julie Wixey, systems physiology led by Dr Yvonne Eiby and Dr Barbara Lingwood, signal processing led by Prof Boualem Boashash as well as clinical trials involving the Royal Brisbane and Women's Hospital.

2021 was a successful year for the Perinatal Research Centre. We were awarded a 2021 RBWH Research grant led by Dr Yvonne Eiby and Prof Paul Colditz to identify priority targets for effective blood volume management in preterm infants. Dr Yvonne Eiby continues with her 4-year 2020 NHMRC Ideas grant examining why preterm babies may have poor outcomes. Preterm babies often have poor heart function that is associated with adverse neurodevelopmental outcomes. Preterm babies may also be vulnerable to low blood volume due to leaky capillaries. This study is examining whether leaky capillaries result in a loss of blood following birth and subsequently poor neurodevelopmental outcomes for these babies.

Professor Paul Colditz continues to lead a \$1.65 million NHMRC grant over 5 years to predict neurodevelopmental disability in babies born very preterm. By identifying structural and functional brain connectivity features earlier and more accurately than currently possible in the preterm brain, this research will enable better prediction of longer-term motor and neurodevelopmental function. This will lay the groundwork for new interventions to prevent or effectively treat brain injury. NHMRC, Cerebral Palsy Alliance, and other external sources have been instrumental in our continuing work on fetal growth restriction (FGR) and hypoxic-ischemic encephalopathy (HIE) projects using placental stem cells as a treatment for brain injury. Data from our encouraging preliminary studies have been presented at multiple National and International conferences.

The RBWH NICU will contribute to a new multicentre Phase III randomised controlled trial funded by NHMRC to determine whether Erythropoietin treatment can prevent adverse outcomes in babies with HIE. Other ongoing clinical trials which utilise state-of-the-art methods and techniques include predicting motor outcomes in preterm babies using MRI, optimising adaptation of the cardiovascular system to extrauterine life in the very preterm baby and determining the effects of different feeding regimens on development in preterm babies.

Our ongoing funding is creating amazing results and media interest and we look forward to another year of high impact translational research. We would like to thank RBWH Foundation and so many members of the public for their generous support which is vital to improving outcomes for mothers and babies through research.

Research Awards and Achievements

Recipient (RBWH staff in bold)	Award	Event
Julie Wixey	2021 Publication of the Month (December)	UQCCR Publication of the Month
Kirat Chand	2021 Best Oral Presentation Early Career Researcher	2021 Queensland Perinatal Consortium Conference
Kirat Chand	ECR of the Year	UQCCR Director's Awards
Kirat Chand	Publication of the Month (November)	UQCCR Publication of the Month
Tam Nguyen	First Prize Best Short Talk Presentation	2021 Queensland Perinatal Consortium Conference
Tam Nguyen	First Place Presentation Award (Short Presentation)	2021 Australian Society of Medical Research Queensland Postgraduate Student Symposium
Bhavisha Bakrania	Best Poster Award	Queensland Women's Health Forum
Susan de Jersey	National Award of Merit	Dietitians Australia

Research Grants

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Eiby Y, Wright I, Lingwood B , Pang J	Perinatal Research Centre	Loss of blood volume at the capillary level contributes to poor outcomes for preterm babies	NHMRC Ideas grant	\$300,000	4 years, 2020-2023
Wixey J , Chand K	Perinatal Research Centre	Contribution of systemic inflammatory response to brain injury in growth restricted newborns	NHMRC Project grant	\$358,371	4 years, 2018-2021
Wixey J	Perinatal Research Centre	Targeting injured brain cells to protect growth restricted infants	Mary McConnel Career Boost Program for Women in Paediatric Research, Children's Hospital Foundation	\$50,000	3 years, 2021-2023
Wixey J , Colditz P, Bjorkman ST, Chand K, Patel J, Khosrotehrani K	Perinatal Research Centre	Long-term protection in the growth restricted newborn	Research Foundation of Cerebral Palsy Alliance grant	\$200,000	3 years, 2021-2023
Wixey J , Chand K	Perinatal Research Centre	The right cell – which stem cells provide optimal neuroprotection in the growth restricted newborn?	UQ Early Career Researcher Award	\$40,000	2 years, 2020-2021
Chand K	Perinatal Research Centre	Targeting the NLRP3-inflammasome in IUGR brain injury	Rebecca L Cooper Project grant	\$100,000	3 years, 2020-2022
Susan de Jersey	Perinatal Research Centre; Nutrition and Dietetics	Improving nutrition related antenatal care to optimise future health outcomes for mothers and their offspring	MNHHS Clinician Research Fellowships	\$255,157	5 years, 2020-2024
Susan de Jersey	Perinatal Research Centre; Nutrition and Dietetics	Improving nutrition related antenatal care to optimise future health outcomes for mothers and their offspring	UQ Faculty of Medicine Clinician Research Support	\$160,000	5 years, 2020-2024
Christoph Lehner, Leonie Callaway, Sailesh Kumar, Katie Foxcroft, Stephanie Lawton, Akwasi Amoako, Alka Kothari, Susie de Jersey	Women's and Newborn Services, Nutrition and Dietetics RBWH; Mater Health Services; Redcliffe Maternity Services; Perinatal Research Centre	The impact of the COVID-19 pandemic on maternal depression and related disorders during the perinatal period	RBWH Foundation COVID-19 Grants	\$12,891.84	2 years, 2020-2021

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Susie de Jersey, Michael d'Emden, Leonie Callaway, H. David McIntyre, Nina Meloncelli, Adrian Barnett.	Perinatal Research Centre; Nutrition and Dietetics, Women's and Newborn Services, Dept of Endocrinology, RBWH; Mater Health Services; School of Public Health, QUT, Sunshine Coast HHS, UQ	We changed the whole of Australia's approach to Gestational Diabetes Mellitus screening and diagnosis during COVID-19: Are these changes worth continuing?	RBWH Foundation COVID-19 Grants	\$49,572	2 years, 2020-2021
Paul Colditz	Perinatal Research Centre; Women's and Newborn Services	Identifying priority targets for effective blood volume management in preterm infants	RBWHF Research Project Grant 2021	\$49,000	2021-2022
Helen Barrett; Susie de Jersey; Marloes Dekker	Mater Research Institute; Nutrition and Dietetics; UQ Bichemistry and Metabolism	Assessing hyperglycaemia in women pregnant after bariatric surgery"	Diabetes Australia Research Program	\$60 000	2021-2022
Gita Mishra, Jenny Doust, Katrina Moss, Deborah Loxton, Lisa Buckley, Kathleen Baird, Anthony Herbert, Seema Miharshahi, Annette Dobson, Craig Olsson; Galina Daraganova, Leigh Tooth, Debra Anderson, Joanne Gray, Susan de Jersey	Nutrition and Dietetics; UQ; University of Newcastle; UTS; QUT; Macquarie University; Deakin University, AIFS	Mothers and their Children's Healthcare Experience Study (MatCHES)	MRFF PPHR initiative 2020: Maternal First 2000 Days and Childhood Health	\$681 300	2022-2026
Deanne August, Nicole Marsh, Lyn Chapple, Pieter Koorts, Melissa Lai, Joshua Byrnes, Rob Ware, Kathleen Finalyson, Craig McBride, Bronwyn Griffin, Fiona Coyer, Amanda Ullman	RBWH Neonatal Research	What Lies Beneath	RBWH Foundation	\$50,000	2021

Current RBWH Department / Research Group Led Research Activity

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Tim Donovan	Linda Cobbald, Deanne August, Melissa Lai	LPT cohort study: The impact of nutrition, growth and body composition on neurodevelopmental outcome in late preterm infants		
Tim Donovan	Paul Colditz, Gill Lack, Yvonne Eiby, Barbara Lingwood	Long term outcome of neonatal adiposity (PEACH)		
Philip Scott	Melissa Lai, Garry Inglis, Mark Davies	Neonatal early-onset sepsis calculator safety in an Australian tertiary perinatal centre	31	31
Jane Pienaar	Julie Wixey, Paul Colditz, Melissa Lai, Ian Wright, Julie Oei	Retrospective study of ibuprofen administration on neurodevelopmental outcomes in IUGR neonates in Australia		
Susie de Jersey	Nina Meloncelli (MN AH, SCUH), Michael d'Emden (Endo), Leonie Callaway (WNBS), Adrian Barnett (QUT), David McIntyre (Mater)	Staff and consumer experiences with changes to Gestational Diabetes Mellitus (GDM) screening and diagnosis during COVID-19	46	
Susie de Jersey	Nina Meloncelli (MN AH, SCUH), Michael d'Emden (Endo), Leonie Callaway (WNBS), Adrian Barnett (QUT), David McIntyre (Mater), Cate Cameron (Jamieson Trauma Institute), Charles Appleton (QML), David Kanowski (SNP)	Are changes to Gestational Diabetes Mellitus screening and diagnosis during COVID-19 worth continuing?		
Susie de Jersey	Nina Meloncelli (MN AH); Sarah James (Redcliffe), Kristen Riggs (Caboolture)	Implementation of evidence-based routine antenatal care to support healthy weight gain during pregnancy: Exploring barriers and enablers to implementation		
Susie de Jersey	Leonie Callaway (UQ, WNBS), Taylor Guthrie, Jeanette Tyler (Women's and Newborn), Nickie Moreton (Women's and Newborn), Karen New (UQ, Women's and Newborn)	Efficacy of a low intensity consumer held pregnancy weight monitoring tool to prevent excess gestational weight gain		
Susie de Jersey	Elizabeth Eakin (UQ, SPH), Shelley Wilkinson (Mater), Tracy Comans (CAHR), Leonie Callaway (UQ, WNBS), Claire Gardiner, Hilary Powlesland, Taylor Guthrie, Angela Chang (CAHR)	Implementation evaluation of a telephone-delivered dietetic model of care for overweight pregnant women		

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Susie de Jersey	Lynda Ross (QUT), Helen MacLaughlin , Rachel Willims (QUT), Hayley Sullivan (QUT), Taylor Guthrie	Care provided to pregnant women with a history of bariatric surgery: retrospective audit of clinical care and outcomes		
Paul Colditz	Khosrotehrani K, Bjorkman T, Patel J, Wixey J	Stem cell treatment for neonatal hypoxic ischemic encephalopathy		
Paul Colditz	Koorts P , Liley H, Hunt R, Jacobs S, Badawi N, Morris S, Osborn D	PAEAN: Preventing Adverse Outcomes of Neonatal Hypoxic Ischaemic Encephalopathy with Erythropoietin: A Phase III Randomised Placebo Controlled Multicentre Clinical Trial		
Paul Colditz	Boyd R, Malhotra A, Rose S, Boashash B, Ditchfield M, Fahey M, Pannek K, Moldrich R	Neurodevelopment of the preterm infant (PREBO)		

Collaborative Research Activity Involving RBWH Department / Research Group

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Elsa Wynd	Peter Trnka, Karen Moritz, Joan Li, Michael Guandalini, Melissa Lai, Adam Hoellering	Assessing the impact of prematurity on renal medulla development	10	74
Thuy Frakking	Paul Colditz , Christopher Carty, Melissa Lai , Anne Chang, Kelly Weir, Belinda Schwerin, Stephen So, Michael David, Tim Hong, John Waugh	Swallowing Sounds in Premature Babies (SUPERB): a multicentre cohort study		
Melissa Lai	Deanne August, Mark Davies, Jackie Clement, Linda Cobbald , Nathan Stevenson, Kartik Iyer, Mathilde Desselle, David Forrestal	Towards custom fitting CPAP devices for premature infants (COMFIT)		
Nathan Stevenson	Melissa Lai, Paul Colditz , Michaela Waak, Stephen Malone, Kartik Iyer	Electroencephalography in the Neonate (ELITE)		
Anndrea Flint	Mark Davies, Melissa Lai, Deanne August	Determining reference ranges for well term neonates overnight oximetry	10	20
Peter Dargarville	Tony De Paoli, John Carlin, Peter Davis, Omar Kamlin, Roger Soll, Howard Clark, Tim Donovan, Melissa Lai	Multicentre randomised controlled trial of minimally invasive surfactant therapy in preterm infants 25-28 weeks gestation on CPAP		
Peter Scally	Tim Donovan , Kelvin Feng, Marita Prior, Rebecca Liong, Ee Shern Lian, Anzela Anzela	Establishing the ideal position of the endotracheal tube in very low birthweight neonates		

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Jackson Green	Barbara Lingwood, Yvonne Eiby, Tim Donovan	Haemoglobin levels in the first days of life in very preterm infants		
Angela T Chang (CAHR)	Susie de Jersey , Anna Farrell (Speech Pathology), Jenny Strong (Occupational Therapy), Adrienne Young , Gai Harrison (Social Work), Jennifer Paratz (Physiotherapy), Peter Buttrum (AHP), Merrilyn Banks	Understanding research capacity and outputs in allied health workforce at RBWH		
Christoph Lehner (WNBS)	Leonie Callaway (WNBS), Alka Kothari (Redcliffe), Anousha Woods (WNBS), Katie Foxcroft (WNBS), Susie de Jersey , Sailesh Kumar (Mater), Akwasi Amoako (WNBS), Stephaie Lawton (Psychology), Elizabeth Bennett (PMH), Tracey Mackle (PMH)	The impact of the COVID-19 pandemic on maternal depression and related disorders during the perinatal period		
Emma Shipton (WNBS)	Susie de Jersey , Katie Foxcroft (WNBS), Leonie Callaway (WNBS), Nigel Lee (UQ)	Antenatal Models of Care and the effect on breastfeeding rates after discharge		
Helen Barrett (UQ, Mater Health Services)	Marloes Dekker (UQ), H David McIntyre (Mater and UQ), Michael d'Embden (Endocrinology), Leonie Callaway (WNBS), Susie de Jersey	Post prandial triglycerides in diabetes in pregnancy: a pilot study		
Michelle Palmer (Logan)	Elaina Elder Robinson (UQ); Shannon Huxtable (Logan), Susie de Jersey	National survey of antenatal clinics to determine care practices for pregnant women with previous bariatric surgery		
Sarah Davidson (Duke University)	Susie de Jersey , Leonie Callaway (WNBS), Hillarie Drever (UQ); Renuka Sekar (WNBS)	The effect of using ultrasound-guided management of gestational diabetes on maternal and neonatal outcomes in pregnant women.		
Shelley Wilkinson (Mater, UQ)	Danielle Schoenaker (Uni Southhampton), Susie de Jersey , Clare Collins (Newcastle Uni), Megan Rollo (UN), Marloes Nitert Dekker (UQ), Helen Barrett (Mater, UQ), Linda Gallo (UQ), Sailesh Kumar (Mater, UQ), Vicki Clifton (UQ)	MQFC Sub-study: How does dietary intake and gestational weight gain change over pregnancy?		
Victoria Eley (Anaesthetics)	Laura McDermott (DAPM), Anita Pelacanos (QIMR), Amy Krepska (DAPM), Geraldine Lee (DAPM), Derek Moa (DAPM), Annika Blackie (DAPM), Susie de Jersey	Oral Intake in Labour		

Research Publications

Journal Articles (RBWH staff in bold)

1. Chand KK, Miller SM, Cowin GJ, Mohanty L, Pienaar J, **Colditz PB**, Bjorkman ST, Wixey JA. Neurovascular Unit Alterations in the Growth-Restricted Newborn Are Improved Following Ibuprofen Treatment. *Mol Neurobiol*. 2021 Nov 26.
2. Chand KK, Patel J, Bjorkman ST, Sim SL, Miller SM, Teo E, Jones L, Sun J, **Colditz PB**, Khosrotehrani K, Wixey JA. Combination of human endothelial colony- forming cells and mesenchymal stromal cells exert neuroprotective effects in the growth-restricted newborn. *NPJ Regen Med*. 2021 Nov 18;6(1).
3. George JM, **Colditz PB**, Chatfield MD, Fiori S, Pannek K, Fripp J, Guzzetta A, Rose SE, Ware RS, Boyd RN. Early clinical and MRI biomarkers of cognitive and motor outcomes in very preterm born infants. *Pediatr Res*. 2021 Dec;90(6):1243-1250.
4. Teo EJ, Jones LE, Wixey JA, Boyd RN, **Colditz PB**, Bjorkman ST. Combined hypothermia and mesenchymal stem cells in animal models of neonatal hypoxic- ischaemic encephalopathy: a systematic review. *Pediatr Res*. 2021 Sep 4.
5. van Eijk L, Seidel M, Pannek K, George JM, Fiori S, Guzzetta A, Coulthard A, Bursle J, Ware RS, Bradford D, Rose S, **Colditz PB**, Boyd RN, Fripp J. Automating Quantitative Measures of an Established Conventional MRI Scoring System for Preterm-Born Infants Scanned between 29 and 47 Weeks' Postmenstrual Age. *AJNR Am J Neuroradiol*. 2021 Oct;42(10):1870-1877.
6. Caesar R, **Colditz PB**, Cioni G, Boyd RN. Clinical tools used in young infants born very preterm to predict motor and cognitive delay (not cerebral palsy): a systematic review. *Dev Med Child Neurol*. 2021 Apr;63(4):387-395.
7. Hunt RW, Liley HG, Wagh D, Schembri R, Lee KJ, Shearman AD, Francis-Pester S, deWaal K, Cheong JYL, Olischar M, Badawi N, Wong FY, Osborn DA, Rajadurai VS, Dargaville PA, Headley B, Wright I, **Colditz PB**; Newborn Electrographic Seizure Trial Investigators. Effect of Treatment of Clinical Seizures vs Electrographic Seizures in Full-Term and Near-Term Neonates: A Randomized Clinical Trial. *JAMA Netw Open*. 2021 Dec 1;4(12):e2139604-e2139604. Available from: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2787243>. doi:10.1001/jamanetworkopen.2021.39604
8. Mesbah M, Khlif MS, Layeghy S, East CE, Dong S, Brodtmann A, **Colditz PB**, Boashash B. Automatic fetal movement recognition from multi-channel accelerometry data. *Computer methods and programs in biomedicine*. 2021;210:106377–106377.
9. Chi C, Fan Y, Li C, Li Y, Guo S, Li T, Guo S, Li T, Buys N, Clifton VL, **Colditz PB**, Yin C, Sun J. Early gut microbiota colonisation of premature infants fed with breastmilk or formula with or without probiotics: A cohort study. *Nutrients*. 2021;13(11):4068.
10. Dargaville PA, Kamlin COF, Orsini F, Wang X, De Paoli AG, Kanmaz Kutman HG, Cetinkaya M, Kornhauser-Cerar L, Derrick M, Özkan H, Hulzebos CV, Schmölzer GM, Aiyappan A, Lemyre B, Kuo S, Rajadurai VS, O'Shea J, Biniwale M, Ramanathan R, Kushnir A, Bader D, Thomas MR, Chakraborty M, Buksh MJ, Bhatia R, Sullivan CL, Shinwell ES, Dyson A, Barker DP, Kugelman A, **Donovan TJ**, Tauscher MK, Murthy V, Ali SKM, Yossuck P, Clark HW, Soll RF, Carlin JB, Davis PG, OPTIMIST-A Trial Investigators. Effect of Minimally Invasive Surfactant Therapy vs Sham Treatment on Death or Bronchopulmonary Dysplasia in Preterm Infants With Respiratory Distress Syndrome: The OPTIMIST-A Randomized Clinical Trial. *JAMA*. 2021 Dec 28;326(24):2478-2487.
11. Kim E, Nguyen KH, **Donovan T**, Edirippulige S, Armfield NR. A cost-minimisation analysis comparing alternative telemedicine screening approaches for retinopathy of prematurity. *J Telemed Telecare*. 2021 Jan 7.
12. **Donovan TJ**, Eiby YE, Lingwood BE. Quality of Growth Predicts Neurodevelopment in very preterm infants. *J Paed & Child Health* 56 (Suppl 1), 3-54, 2021.
13. d'Emden MC, Ungerer JP, **de Jersey SJ**. Alternative screening protocols may miss most cases of gestational diabetes mellitus during the COVID-19 pandemic. *Med J Aust*. 2021 Apr;214(6):284-284.
14. Barrett HL, Dekker Nitert M, D'Emden M, Lingwood B, **de Jersey S**, McIntyre HD, Callaway LK. Capillary Triglycerides in Late Pregnancy-Challenging to Measure, Hard to Interpret: A Cohort Study of Practicality. *Nutrients*. 2021 Apr 13;13(4):1266-1276.
15. Davidson SJ, **de Jersey SJ**, Britten FL, Wolski P, Sekar R, Callaway LK. Fetal ultrasound scans to guide management of gestational diabetes: Improved neonatal outcomes in routine clinical practice. *Diabetes Res Clin Pract*. 2021 Mar;173:108696.

Journal Articles (RBWH staff in bold)

16. Musial J, Cawte A, Mullins R, Hannan-Jones M, **de Jersey S**. Implementation and evaluation of a university-hospital partnership program for Type 2 diabetes. *Aust Health Rev*. 2021 Nov 16.

17. **de Jersey S**, Meloncelli N, Guthrie T, Powlesland H, Callaway L, Chang AT, Wilkinson S, Comans T, Eakin E. Implementation of the Living Well During Pregnancy Telecoaching Program for Women at High Risk of Excessive Gestational Weight Gain: Protocol for an Effectiveness-Implementation Hybrid Study. *JMIR Res Protoc*. 2021 Mar 18;10(3):e27196. Available from: <https://www.researchprotocols.org/2021/3/e27196/>. doi: 10.2196/27196.

18. **Scott PA, Lai M, Inglis GDT, Davies MW**. Neonatal early onset sepsis calculator safety in an Australian tertiary perinatal centre. *J Paediatr Child Health* 2021. In press.

19. Berkhout A, Kapoor V, Heney C, Jones CA, Clark JE, Vaska VL, **Lai M**, Nourse C. Herpes Simplex Virus Infection in Infants: 13 Year Evaluation (2005-2017) of Laboratory confirmed cases in Qld, Australia. *Pediatr Infect Dis J*. 2021 Mar 1;40(3):209-214. doi: 10.1097/INF.0000000000002970.PMID: 33165280.

20. Eiby YA, **Lingwood BE**, Wright IMR. Plasma Leak From the Circulation Contributes to Poor Outcomes for Preterm Infants: A Working Hypothesis. *Frontiers in neurology*, 2021-08-02, Vol.12, p.636740-636740

21. Schoenaker D, **de Jersey S**, Willcox J, Francois ME, Wilkinson S. Prevention of Gestational Diabetes: The Role of Dietary Intake, Physical Activity, and Weight before, during, and between Pregnancies. *Semin Reprod Med*. 2020;38(6):352-65.

22. Meloncelli N, Wilkinson SA, **de Jersey S**. Searching for Utopia, the Challenge of Standardized Medical Nutrition Therapy Prescription in Gestational Diabetes Mellitus Management: A Critical Review. *Semin Reprod Med*. 2020;38(6):389-97.

23. Bahri Khomami M, Walker R, Kilpatrick M, **de Jersey S**, Skouteris H, Moran LJ. The role of midwives and obstetrical nurses in the promotion of healthy lifestyle during pregnancy. *Ther Adv Reprod Health*. 2021;15:1-12.

Queensland Centre for Gynaecological Cancer

QCGC Research's mission is to research and develop the best standard of care for women experiencing gynaecological cancer. This includes finding causes for and preventing gynaecological cancer; and finding better treatment options to cure women affected by gynaecological cancer. We have a focus on conducting surgical clinical trials. In 2021 we commenced the ENDO3 Trial which is a multicentre randomised trial investigating Sentinel Node Biopsy in Endometrial Cancer. We also continued our study of exercise in ovarian cancer (ECHO) as well as commencing exercise studies in recurrent ovarian cancer (ECHO-R) and gynaecological cancer (ACUMEN).

Research Grants

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Prof Andreas Obermair Jim Nicklin , Val Gebski, Sandra Hayes, Monika Janda	QCGC Research	A Phase III randomised clinical trial comparing sentinel node biopsy with no retroperitoneal node dissection in early-stage endometrial cancer (ENDO-3)	RBWH Foundation	\$40,000	2020-2021
Prof Andreas Obermair Jim Nicklin , Andrea Garrett	QCGC Research	A Phase III randomised clinical trial comparing sentinel node biopsy with no retroperitoneal node dissection in early-stage endometrial cancer (ENDO-3)	Wesley	\$107,605	2020-2023
Prof Andreas Obermair	QCGC Research	Implementing non-surgical options for endometrial cancer treatment into clinical practice	ICON Cancer Centre	\$150,000	2020-2022
Sandra Hayes, Prof Andreas Obermair Monika Janda, Elizabeth Eakin, Catherine Shannon Jeff Goh , Vanessa Beesley, Dimitrios Vagenas, Rosalind Spence	QCGC Research	A Phase II trial evaluating feasibility, safety and efficacy of an individually tailored exercise intervention during chemotherapy for recurrent ovarian cancer (MRFF EPCDR Administered by Griffith)	Griffith University	\$299,756	2020-2023
Prof Andreas Obermair Jim Nicklin , Andrea Garrett Jonathan Carter, Orla McNally, Stuart Salfinger, Kym Reid, Martin Oehler, Yee Leung, Peter Sykes, Cecil Bergzoll, Lois Eva, Monika Janda, Val Gebski, Nicholas Graves,	QCGC Research	feMMe Long Term Follow Up Study	Australian Society of Gynaecologic Oncologists Inc	\$18,615	2021

Investigator Names (RBWH staff in bold)	RBWH Departments / Research Groups	Research Project Title	Granting Body	Total Awarded (whole all years)	Length of Awards in years and years active
Prof Andreas Obermair Jim Nicklin , Val Gebski, Sandra Hayes, Monika Janda	QCGC Research	A Phase III randomised clinical trial comparing sentinel node biopsy with no retroperitoneal node dissection in early-stage endometrial cancer (ENDO-3)	Gynaecological Cancer Research Education and Development Society	\$50,000	2021-2022
Prof Andreas Obermair Jim Nicklin , Val Gebski, Sandra Hayes, Monika Janda	QCGC Research	A Phase III randomised clinical trial comparing sentinel node biopsy with no retroperitoneal node dissection in early-stage endometrial cancer (ENDO-3)	Cherish Women's Cancer Foundation	\$87,053.40	2020-2021

Current RBWH Department / Research Group Led Research Activity

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Prof Andreas Obermair	Jim Nicklin , Andrea Garrett	A Phase III randomised clinical trial comparing sentinel node biopsy with no retroperitoneal node dissection in early-stage endometrial cancer (ENDO-3)	16	16
Prof Andreas Obermair	Carlos Salomon, Eva Baxter, Jamie Kutasovic, Andrew Lai, Michelle Alizart, Margaret Cummings, Olga Kondrashova	Identifying predictive biomarkers for progestin treatment of early-stage endometrial cancer		
Dr Andrea Garrett	Dr Geraldine Herweijer , Dr Andrea Garrett , Dr David Baartz , Ms Karen Sanday , Ms Shona Morrison	A review of the outcomes of second and subsequent dilatation and curettage (D&Cs) at the Queensland Trophoblast Centre (QTC).		
Dr Andrea Garrett	Dr Katherine Artis, Dr David Baartz , Dr Margaret Cummings, Ms Shona Morrison , Ms Karen Sanday , Dr Adam Ewing	Retrospective Genetic analysis of Complete Hydatidiform Moles to investigate for any identifiable biomarkers that will determine the development of persistent disease requiring chemotherapy		

Collaborative Research Activity Involving RBWH Department / Research Group

Lead Investigator Name (RBWH staff in bold)	Other Study Investigators (RBWH staff in bold)	Research Project Title	Number of RBWH Patients Recruited in 2021	Total number of RBWH Patients Recruited
Sandi Hayes (Griffith)	Prof Andreas Obermair Monika Janda, Elizabeth Eakin, Catherine Shannon Jeff Goh , Vanessa Beesley, Dimitrios Vagenas, Rosalind Spence	A Phase II trial evaluating feasibility, safety and efficacy of an individually tailored exercise intervention during chemotherapy for recurrent ovarian cancer (ECHO-R)	8	8
Sandi Hayes (Griffith)	Prof Andreas Obermair (Gyn Onc), Jim Nicklin (Gyn Onc) Russell Land (Gyn Onc) Andrea Garrett (Gyn Onc), Amy Tang (Gyn Onc)	A Phase III randomised controlled trial of exercise during chemotherapy for patients commencing first line treatment for ovarian cancer (ECHO)	26	113
Pedro Ramirez (MD Anderson USA)	Prof Andreas Obermair (Gyn Onc), Jim Nicklin (Gyn Onc) Russell Land (Gyn Onc), Andrea Garrett (Gyn Onc)	A Phase III Randomized Clinical Trial Comparing Laparoscopic or Robotic Radical Hysterectomy versus Abdominal Radical Hysterectomy in Patients with Early-Stage Cervical Cancer (LACC)		61
Prof Alexandra McCarthy (UQ)	Dr Andrea Garrett Tom Bailey (UQ) A/Prof Tina Skinner (UQ) Ms Elizabeth Stewart (UQ)	Enhancing Treatment Outcomes after Gynaecological Cancer: Using Exercise to Promote Health after Cancer Therapy (ACUMEN)	14	14
Dr Shaun McGrath (Mater)	Dr Jim Nicklin , Dr Lew Perrin, Dr Naven Chetty, Prof Andreas Obermair , Dr Andy Garrett , Dr Russell Land , Dr Marcelo Nascimento, Dr Amy Tang	Early-stage cervical cancer – QCGC. A retrospective analysis of laparoscopic Radical hysterectomy versus abdominal radical hysterectomy in patients with early-stage cervical cancer - The QCGC experience		

Research Publications

Publications in 2021

Journal Articles (RBWH staff in bold)

- O'Hara M, Janda M, McCarthy AL, **Nicklin J**, Walker G, **Obermair A**. Patient experiences of conservative treatment for early stage endometrial cancer and endometrial hyperplasia with atypia using levonorgestrel intrauterine device: A qualitative study. *Gynecol Oncol Rep*. 2021 Dec 22;39:100914.
- Janda M, **Obermair A**. Fertility-sparing management of early-stage endometrial cancer in reproductive age women: current treatment outcomes and future directions. *Int J Gynecol Cancer*. 2021 Dec;31(12):1506-1507.
- Obermair A**, **Nicklin J**, Gebiski V, Hayes SC, Graves N, Mileschkin L, Lin MY, Beale P, Baxter E, Robledo K, Salomon C, Hanna GB, Janda M. A phase III randomized clinical trial comparing sentinel node biopsy with no retroperitoneal node dissection in apparent early-stage endometrial cancer - ENDO-3: ANZGOG trial 1911/2020. *Int J Gynecol Cancer*. 2021 Dec;31(12):1595-1601.
- Obermair A**, Beale P, Scott CL, Beshay V, Kichenadasse G, Simcock B, **Nicklin J**, Lee YC, Cohen P, Meniawy T. Insights into ovarian cancer care: report from the ANZGOG Ovarian Cancer Webinar Series 2020. *J Gynecol Oncol*. 2021 Nov;32(6):e95

Journal Articles (RBWH staff in bold)

5. Cibula D, Dostálek L, Jarkovsky J, Mom CH, Lopez A, Falconer H, Fagotti A, Ayhan A, Kim SH, Isla Ortiz D, Klat J, **Obermair A**, Landoni F, Rodriguez J, Manchanda R, Kost'un J, Dos Reis R, Meydanli MM, Odetto D, Laky R, Zapardiel I, Weinberger V, Benešová K, Borčinová M, Pari D, Salehi S, Bizzarri N, Akilli H, Abu-Rustum NR, Salcedo-Hernández RA, Javůrková V, Sláma J, van Lonkhuijzen LRCW. The annual recurrence risk model for tailored surveillance strategy in patients with cervical cancer. *Eur J Cancer*. 2021 Oct 16;158:111-122.

6. Campos A, Sharma S, **Obermair A**, Salomon C. Extracellular Vesicle-Associated miRNAs and Chemoresistance: A Systematic Review. *Cancers (Basel)*. 2021 Sep 14;13(18):4608.

7. Cohen PA, Webb PM, King M, **Obermair A**, Gebiski V, Butow P, Morton R, Lawson W, Yates P, Campbell R, Meniawy T, McMullen M, Dean A, **Goh J**, McNally O, Mileskin L, Beale P, Beach R, Hill J, Dixon C, Hegarty S, Codde J, Ives A, Lee YC, Brand A, Mellon A, Bilic S, Black I, Jeffares S, Friedlander M. Getting the MOST out of follow-up: a randomized controlled trial comparing 3 monthly nurse led follow-up via telehealth, including monitoring CA125 and patient reported outcomes using the MOST (Measure of Ovarian Symptoms and Treatment concerns) with routine clinic based or telehealth follow-up, after completion of first line chemotherapy in patients with epithelial ovarian cancer. *Int J Gynecol Cancer*. 2021 Sep 22:ijgc-2021-002999.

8. Tse KY, Wong RW, Chao A, Ueng SH, Yang LY, **Cummings M**, Smith D, Lai CR, Lau HY, Yen MS, Cheung AN, Leung CK, Chan KS, Chan AN, Li WH, Choi CK, Pong WM, Hui HF, Yuk JY, Yao H, Yuen NW, **Obermair A**, Lai CH, Ip PP, Ngan HY. Development of a Multi-Institutional Prediction Model for Three-Year Survival Status in Patients with Uterine Leiomyosarcoma (AGOG11-022/QCGC1302 Study). *Cancers (Basel)*. 2021 May 14;13(10):2378.

9. Obermair HM, O'Hara M, **Obermair A**, Janda M. Paucity of data evaluating patient centred outcomes following sentinel lymph node dissection in endometrial cancer: A systematic review. *Gynecol Oncol Rep*. 2021 Apr 1;36:100763.

10. Janda M, Robledo KP, Gebiski V, Armes JE, **Alizart M**, **Cummings M**, Chen C, Leung Y, Sykes P, McNally O, Oehler MK, Walker G, **Garrett A**, **Tang A**, **Land R**, **Nicklin JL**, Chetty N, Perrin LC, Hoet G, Sowden K, Eva L, Tristram A, **Obermair A**. Complete pathological response following levonorgestrel intrauterine device in clinically stage 1 endometrial adenocarcinoma: Results of a randomized clinical trial. *Gynecol Oncol*. 2021 Apr;161(1):143-151.

11. Moloney K, Janda M, Frumovitz M, Leitao M, Abu-Rustum NR, Rossi E, **Nicklin JL**, Plante M, Lecuru FR, Buda A, Mariani A, Leung Y, Ferguson SE, Pareja R, Kimmig R, Tong PSY, McNally O, Chetty N, Liu K, Jaaback K, Lau J, Ng SYJ, Falconer H, Persson J, **Land R**, Martinelli F, **Garrett A**, Altman A, Pendlebury A, Cibula D, Altamirano R, Brennan D, Ind TE, De Kroon C, Tse KY, Hanna G, **Obermair A**. Development of a surgical competency assessment tool for sentinel lymph node dissection by minimally invasive surgery for endometrial cancer. *Int J Gynecol Cancer*. 2021 May;31(5):647-655.

12. Jones T, Sandler C, Vagenas D, Janda M, **Obermair A**, Hayes S. Physical activity levels among ovarian cancer survivors: a prospective longitudinal cohort study. *Int J Gynecol Cancer*. 2021 Apr;31(4):553-561.

13. Sanjida S, **Obermair A**, Gebiski V, Armfield N, Janda M. Long-term quality of life outcomes of women treated for early-stage endometrial cancer. *Int J Gynecol Cancer*. 2021 Apr;31(4):530-536.
