Norman Beischer Medical Research Foundation ™

Annual Review
2023

The Norman Beischer Medical Research Foundation

The Norman Beischer Medical Research Foundation supports clinical research by medical practitioners, nurses, midwives, and scientists engaged in the investigation of diseases and conditions which affect women and babies.

The Foundation actively supports research into obstetrics and the prevention, control and treatment of gynaecological diseases and related problems.

A key component of our support is to fund clinical and scientific research by leading and emerging researchers and to use research to educate and inform medical practice in Australia and overseas.

Our values include: respect, integrity, diversity, equity, inclusion, dignity, accountability and transparency. We strive to operate according to the highest ethical standards.

History

The Foundation was established by Professor Norman Beischer in 1981 as the Mercy Maternity Hospital Research Foundation.

Its focus was to enable the funding of clinically based medical research, principally conducted by individuals associated with The University of Melbourne's Department of Obstetrics and Gynaecology.

The Foundation's name was changed to the Medical Research Foundation for Women and Babies in 1997. This was done to reflect its broader aim to support clinically based medical research conducted in Victoria into women's and babies' health issues, with particular focus on obstetric, gynaecological, and neonatal conditions.

In 2015, after the death of Professor Beischer, the name of the Foundation was changed to the Norman Beischer Medical Research Foundation in recognition of Professor Beischer's lifelong contribution to, and participation in, medical research.

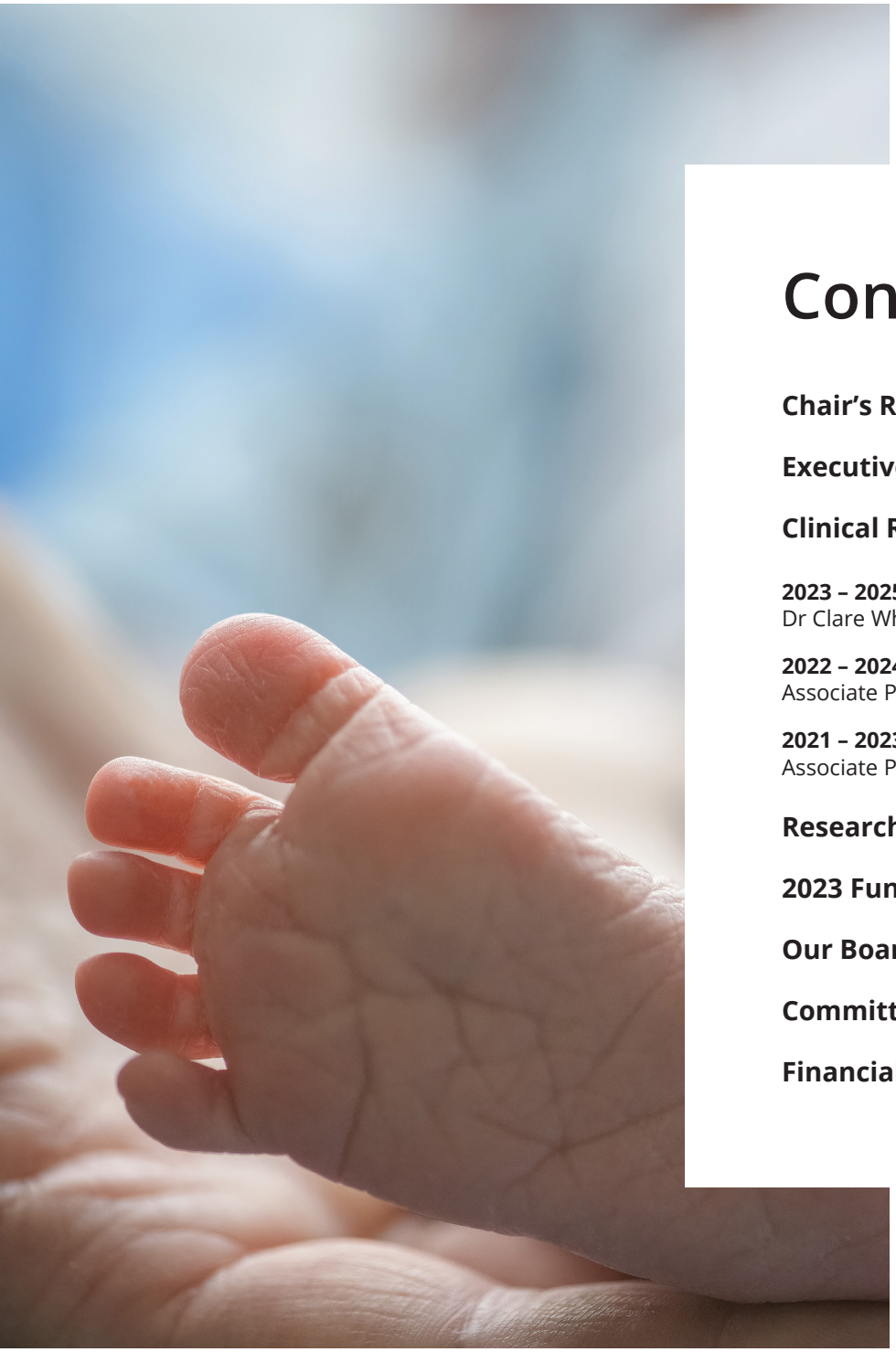
Norman Beischer Medical Research Foundation
ABN 26 005 864 282

(Cover image) Dr Elizabeth Baker BBiomedSci, MBBS (Hons), FRACP, PhD, Neonatal Consultant, Postdoctoral Research Fellow, The Royal Women's Hospital, Department of Obstetrics and Gynaecology, The University of Melbourne

Acknowledgements

Thank you to the patients, staff and researchers of The Women's (The Royal Women's Hospital), for agreeing to participate in the photography for inclusion in the annual review.

Since its establishment 42 years ago, the Norman Beischer Medical Research Foundation has provided in excess of 300 research grants totalling more than $13.3 million in funding.



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Chair's Report

Mr John C Fast

Non – Executive Chair

I am very pleased to provide this short note of the Foundation's activities for inclusion in this Annual Review.

As I indicated last year, the Foundation's ambition is to become one of the most prestigious and internationally recognised of its kind and a leader in enabling research into obstetrics and gynaecology and related problems that affect the health of women, babies and infants. To do this, we need to ensure that our organisation is resourced with outstanding talent and that our Board and Board Committees maintain the necessary bench strength to ensure that, at all times, we can continue the work of the Foundation.

During this year, the Board appointed an external search consultant to identify and canvass a list of potential candidates to join the Board as part of the process of Board renewal. The Board was subsequently delighted to appoint Mrs Nicole (Nicky) Long and Mr Paul Broadfoot as directors, with Paul formally joining the Board as at the beginning of 2024. Both bring new and diverse skills, and we are looking forward to them making their mark on the work of the Foundation.

2023 was a very busy year in terms of the Foundation's grant making activities. Dr Teresa MacDonald was the successful awardee of the prestigious Norman Beischer Clinical Research Fellowship for her project entitled "Checkpoints of placental health during pregnancy to minimise stillbirth risk". This Fellowship is the fourth Clinical Fellowship awarded by the Foundation. Dr MacDonald joins with Associate Professor Fiona Brownfoot, Associate Professor Lisa Hui, and Dr Clare Whitehead, being the first, second and third recipients, respectively.

This year also marked the implementation of a new initiative in the award of the first Norman Beischer Scientific Research Fellowship. This Fellowship is designed to enable scientific researchers (that is, non-clinicians) to undertake research projects in the Foundation's areas of interest. The first awardee of the Scientific Fellowship is Dr Elena Tucker, for her project entitled "Australasian Premature Ovarian Insufficiency Network (A-POINT): A national approach to transform the diagnosis of girls and young women with gynaecological conditions".

The reputation of the Foundation as a grantor of Fellowships and Innovation Grants continues to grow each year and reach a wider cohort of potential applicants as witnessed by the general increase in applications for its Innovation Grants. This year, we received in excess of 40 applications and were able to award 13 Innovation Grants. In total, between the Fellowships, Innovation Grants, and other grants we have committed in excess of $1.4 million for payment during 2023, all the while preserving and enhancing our capital base.

We will be holding a strategy day during 2024, to review and refine our work, our aspirations and our plans for the future. There is a lot to be excited about. The Board and management are looking forward to the challenges ahead and to being able to work towards achieving our ambitions for the Foundation.

In conclusion, I want to thank all of the members of our Board and of our various Board Committees, for their selfless dedication, their time and their hard work in enabling the Foundation to conduct its work. It is the work that they do voluntarily which helps us maintain the vision of the Foundation and of its founder, Professor Norman Beischer AO.

In these uncertain and troubled economic times, I particularly wish to acknowledge the outstanding work of the Investment Committee, which oversees and monitors the economic performance of the Foundation's invested capital base.

I also want to acknowledge two other groups of individuals. The Foundation's grant making activities rely on the hard work and expertise of two committees. The members of our Research Committee evaluate a large number of applications for Innovation Grants and make recommendations to the Board as to which research projects should be considered for funding. Our Fellowship program likewise relies on the very distinguished members of the Fellowship Committee, who are tasked with the responsibility of assessing and evaluating the many outstanding applications for our very prestigious large Fellowships. Both these committees are at the core of what the Foundation has been established to achieve.

Finally, I wish to acknowledge and thank our CEO, Andrew Brookes, for his tireless dedication and hard work at a time of change and great uncertainty in the world. He brings a calm and steady hand to the Foundation, to managing the interests of all our various and varied stakeholders and to ensuring that the work of the Foundation continues smoothly and without interruption.

Executive Director's Report

Mr Andrew D Brookes
Executive Director

2023 marked another fulfilling year for the Foundation, with more than $1.4 million of grants being awarded to fund ground-breaking medical research into a diverse range of obstetric, gynaecological and neonatal conditions.

These included grants allocated to three recipients of the prestigious and coveted Norman Beischer Clinical Research Fellowships, through which the Foundation awards outstanding clinical researchers with $600,000 of project funding spread over a three-year period. In addition, after receiving 44 separate applications, the Foundation awarded 13 research Innovation Grants during the year, totalling $624,566. These one-year grants provide seed funding of up to $65,000 to support various research projects that, if successful, may have a significant clinical impact.

The Foundation awarded its 2023-2025 Fellowship to Dr Clare Whitehead, an obstetrician and Head of Fetal Medicine at The Royal Women's Hospital in Melbourne, who is overseeing an extensive research program aimed at improving outcomes around preterm births. Dr Whitehead leads the Platform for Adaptive Trials in Perinatal Units (PLATIPUS), which is a leading world-first innovative trial investigating multiple questions about how best to care for mothers at risk of preterm birth, and their babies after birth.

The PLATIPUS research involves the implementation of a new trial design, where data is assessed at regular intervals to inform the direction of the trial, to simultaneously answer questions about care in pregnancy and for babies in the neonatal unit. The trial aims to recruit women from 30 medical centres across Australia and New Zealand at high risk of having a preterm birth and will first focus on the application of different antibiotics.

Meanwhile, the Foundation provided additional funding for the 2022-2024 Fellowship awarded to Associate Professor Lisa Hui for research into congenital cytomegalovirus (CMV), a common virus during pregnancies that is Australia's leading infectious – and preventable – cause of disabilities such as deafness, intellectual disability, and cerebral palsy. Associate Professor Hui has partnered with the Cerebral Palsy Alliance, Mercy Health, Austin Health, CMV Australia, and others, to create a multifaceted program involving the use of "Education", "Serology" and "Evaluation" to address the knowledge gaps in this field and help guide future recommendations for care.

During the year she and her team successfully developed and launched an eLearning education module on CMV for general practitioners, to be integrated into a woman's first antenatal visit. The Foundation's funding also is being used to launch a voluntary serological screening program for CMV infection and to appoint a PhD student specialising in maternal fetal medicine.

The last year of the Foundation's 2021-2023 Fellowship, awarded to Associate Professor Fiona Brownfoot, a specialist obstetrician at the Mercy Hospital for Women and Epworth Hospital, saw significant progress in the development of a world-first portable fetal electrocardiogram (ECG) device. The device, which is undergoing testing and regulatory approvals ahead of commercialisation, is able to measure the heartbeat of unborn babies and detect fetal distress. Trials are expected to be completed by 2025 and, subject to approvals, the device would then be made available to hospitals and patients globally in around 12 to 18 months.

During the year, the Foundation was again pleased to partner with Epworth Healthcare to present the annual Obstetrics and Gynaecology Symposium. The Symposium is a most informative day for healthcare professionals interested in obstetrics and gynaecology, with detailed presentations of the latest research including by scientific and clinician researchers funded by the Foundation. Likewise, the Foundation was pleased to support Dr Nancy Custer Chesheir, from the University of North Carolina, Chapel Hill to attend and to present at the Royal College of Obstetricians and Gynaecologists of Australia and New Zealand Annual Scientific Meeting.

Through the bequest of Ernest Williams, the Foundation was able to fund indigenous nursing and midwifery scholarships at Deakin University. This is the fourth year that the Foundation has provided funding for this important initiative to increase the number of indigenous nurses and midwives.

Investment markets remained volatile during the year amid challenging global economic conditions, with central banks responding to surging inflation levels by making rapid and successive rises to official interest rates in an effort to dampen demand. Despite this, global equity and fixed income markets rebounded after delivering negative returns in calendar 2022. The Foundation maintained its strategy of diversification across different asset classes to offset volatility and maximise returns.

The Foundation's net equity increased to approximately $64.1 million by the end of the financial year from approximately $63.2 million at the end of the 2021-22 financial year. I would especially like to thank our investment advisers, Drew, Walk & Co., our product managers, Willis Towers Watson, and our Investment Subcommittee, chaired by Mr Will Baylis, for their ongoing investment support and guidance.

It is with a great sense of pride that I can report the Foundation remains in a solid financial position to continue its support for so many worthy clinical research projects involving medical practitioners, scientists, nurses, midwives, researchers, and other specialists around Australia.

Clinical Research Fellowships

The Norman Beischer Clinical Research Fellowships provide an opportunity for an outstanding clinician researcher to be recognised with an esteemed and competitive fellowship and an award of $600,000 ($660,000 from 2024) over a three-year period for each recipient.

The Fellowships are aimed at those who have completed a PhD and are early-to-mid-career researchers.

Applicants should have obtained their PhD less than seven years prior to the submission of an application, and researchers must be working in areas of interest to the Foundation.

Further information on the Foundation's Research Fellowships covering the periods from 2023-2025 (awarded to Dr Clare Whitehead), from 2022-2024 (awarded to Associate Professor Lisa Hui), and from 2021-2023 (awarded to Associate Professor Fiona Brownfoot), are detailed over the following pages.

2023 – 2025 Clinical Fellowship

Awarded to Dr Clare Whitehead

Researching better outcomes around preterm births

Around the world, about 15 million babies are born preterm ever year. Unfortunately, about one million of these preterm babies die as a result of prematurity complications.

It's a global challenge. In Australia alone, nearly 9% of all births occur before 37 weeks. Those babies born at the earliest gestations are most at risk of both short- and long-term health complications.

In 2023 the Foundation awarded the 2023-2025 Norman Beischer Clinical Research Fellowship together with funding of $600,000 to Dr Clare Whitehead, head of the Platform for Adaptive Trials in Perinatal Units (PLATIPUS).

Dr Whitehead is an obstetrician with subspecialist qualifications in maternal fetal medicine and is Head of Fetal Medicine at The Royal Women's Hospital in Melbourne. She is Senior Research Fellow in the Department of Obstetrics and Gynaecology at The University of Melbourne and the Murdoch Children's Research Institute. She also Chairs the Perinatal Society of Australia and New Zealand (PSANZ) Interdisciplinary Maternal and Perinatal Clinical Trial Network, which brings together clinician researchers across Australia and New Zealand to collaborate and conduct high quality clinical trials that drive practice change.

Through PLATIPUS, Dr Whitehead is leading a world-first innovative trial investigating multiple questions about how best to care for mothers at risk of preterm birth, and their babies after birth.

Unanswered questions

Improving outcomes for preterm babies involves enhancing care of mothers at risk of preterm birth, care at the time of delivery, and care in the neonatal unit after birth. Despite decades of research, there are still many unanswered questions about how to do this best. Current clinical trial design is often a slow and costly way to do this.

The PLATIPUS trial is using an innovative trial design to simultaneously answer questions about care in pregnancy and for babies in the neonatal unit. This new approach is a much more efficient and cost-effective way to ensure we get better evidence to improve care sooner.

The Medical Research Future Fund funded trial is transforming the way clinical trials will be conducted in pregnancy and newborn medicine. The Norman Beischer Clinical Research Fellowship complements this by ensuring PLATIPUS includes the

questions and outcomes that are most important to families as well as doctors and researchers.

"The group of women that we're focusing on in the trial are those who are at a high risk of having a preterm birth in the near future," says Dr Whitehead. "The trial is really thinking about women who are likely to give birth soon, within the next week or two weeks.

"What are the things that we normally do in the clinic to try and improve the outcomes for their babies? These are things like giving the mother corticosteroids or an injection of steroids to try and help improve their baby's lung function after birth."

Dr Whitehead says a big part of the trial will be looking at what antibiotics are best at reducing the risk of infection in both the mother and baby, with infections a big driver of preterm births.

"Other things that we do is give the mum medication to try and protect the baby's brain after birth. And these are the things that we're going to be studying within the trial as to what are the best treatments for those that we're already using, but improving on them to try and enhance the health of the baby after birth."

A perpetual trial

One of the innovations of the PLATIPUS trial design is that it's perpetual.

"So, rather than just answering one question and stopping, you get to answer multiple questions over time," says Dr Whitehead. "You can add questions to add mini trials, and once you've answered them, you stop them.

"But you can add another mini trial to the platform. It just keeps on going until there are no more questions, which will never be the case provided there's funding for the trial. It will continue for many years."

The trial aims to recruit women from 30 medical centres across Australia and New Zealand and will first focus on the application of three different types of antibiotics.

"As we get results, we'll be able to add in different antibiotics or drop antibiotics or change the dose of them or change the length of the course of treatment, to find the best one, the best regimen that we can possibly have," says Dr Whitehead.

"And then, when we feel like that antibiotic question is answered, there are other questions in that group of patients that we will want to ask.

"One of the differences in the type of trial design we have is that in traditional trial designs you don't look at your data until the very end of the trial. And when you open the envelope at the end of the trial, sometimes you find out that you've got a significant result, or you find out you don't have a significant result, you didn't have enough participants, or because it was never going to be significant.

"The difference with our trial is you actually look at the data at regular intervals, and so you can use that data as you go along to inform how the trial works."

Dr Whitehead says as well as getting answers to questions more quickly, any key findings can be translated straight into the clinical setting.

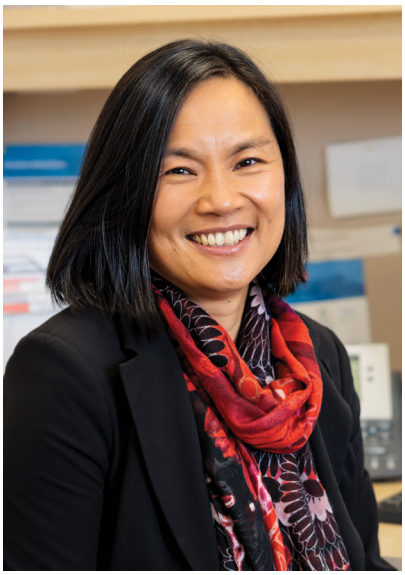
"So, it means that there are benefits for patients in the trial and also benefits for patients in the clinic or in the hospitals as we're able to get the results out and into clinical practice much quicker than we would with traditional trial designs."

The Foundation's funding is being used to support Dr Whitehead and her team in conducting the research activities within the trial and to apply for substantial funding from the National Health and Medical Research Council and the Medical Research Future Fund to continue the longevity of the trial.

2022 – 2024 Clinical Fellowship

Awarded to Associate Professor Lisa Hui

Tackling a common and preventable pregnancy virus



Associate Professor Lisa Hui

Congenital cytomegalovirus (CMV) is a common virus that is Australia's leading infectious – and preventable – cause of disabilities such as deafness, intellectual disability, and cerebral palsy.

CMV usually causes mild or no symptoms and is transmitted through contact with infectious body fluids such as saliva, nasal secretions and urine. If a woman becomes infected with CMV for the first-time during pregnancy, she has a high chance of passing this infection to her baby before birth.

Although most infected babies will be born completely well, about one quarter of those babies infected during the first trimester of pregnancy will have lifelong consequences.

CMV is relatively common, however most Australian women have never heard of the virus. It's the most common infectious cause of hearing loss and is often not diagnosed until a child is several years old. By then it might never be attributed to the CMV infection during pregnancy.

Young children are common sources of CMV infection as they excrete high amounts of the virus for prolonged periods. Women with a child under the age of three years, and day care centre workers, are particularly at risk of infection.

In 2022 the Foundation awarded funding of $600,000 under the Fellowship program to Associate Professor Lisa Hui to implement a three-year medical research and education program focused on preventing pregnancy complications and childhood disability due to CMV infection.

The Australian Department of Health and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists has recommended that all women be provided with advice on how to avoid CMV infection during pregnancy.

There are simple hygiene precautions that can greatly reduce a pregnant woman's risk of infection. For example, paying attention to washing hands, and not sharing saliva with young children through eating utensils used by toddlers, can go a long way to minimising the risk of being infected with this virus.

Associate Professor Hui has partnered with the Cerebral Palsy Alliance, Mercy Health, Austin Health, CMV Australia, and others, to create a multifaceted program for this complex condition. The program, the ESE-CMV study, involves the use of "Education", "Serology" and "Evaluation" to address the knowledge gaps in this field and help guide future recommendations for care.

Raising awareness about CMV

Past research has shown that CMV, and how to avoid catching the virus, has rarely been discussed by general practitioners, obstetricians and midwives with pregnant patients.

Associate Professor Hui and her team have successfully developed and launched an eLearning education module on CMV for general practitioners, to be integrated into a woman's first antenatal visit.

"We've had excellent feedback and we're collecting responses to see if it has resulted in lasting changes in GP behaviour," says Associate Professor Hui. "We've also launched a survey asking pregnant women to evaluate

an educational video about CMV that we've developed.

"In that project we're able to test what their pre-existing knowledge of CMV is, and then also what their views are on the advice that's given in the video – whether they think the advice on hygiene precautions is easy to follow or whether it is going to be difficult to follow."

Associate Professor Hui and her team have already performed a systematic review of clinical practice guidelines and policies on serological screening for CMV during pregnancy and conducted an audit of GPs' current practices in serological screening in pregnancy at the Mercy Hospital for Women.

CMV serological pilot study

Until recently, there was no proven therapy to prevent the virus passing across the placenta to the unborn baby if a pregnant woman became infected with CMV. In 2021, a well-designed clinical trial showed that the antiviral medication, valaciclovir, reduced the risk of fetal infection after first trimester maternal infection from 48% to 11%.

The Foundation's funding is being used to begin Australia's first voluntary program of serological screening for CMV infection in the first trimester of pregnancy at the Mercy Hospital for Women.

This pilot serological screening program will incorporate the option of valaciclovir therapy for women with confirmed infection.

The Foundation's funding has allowed Associate Professor Hui and her team to bring together a multidisciplinary team and engage all stakeholders, including women willing to share their experiences of having a pregnancy with a suspected infection by CMV.

Funding has also been used to appoint a PhD student specialising in maternal fetal medicine, and who also holds a Master of Business Administration qualification, who is supporting the serological screening project.

"We hope she'll be able to use the results of the pilot study to do a cost effectiveness analysis, and she'll set up a prenatal CMV registry so we can also build on our relationship with consumers and do a research priority setting project with consumers and researchers and clinicians.

"That's really exciting because it builds on what the fellowship is about so work can continue beyond the life of the actual three-year fellowship."

The CMV project has the potential to be nationally scalable and progress to a large prospective cohort study. The overarching vision is to create the required body of evidence to drive future national health policy on CMV prevention.

"We're getting a lot of clinical referrals outside of the programme to discuss antivirals," says Associate Professor Hui. "We'll need to understand what the long-term impacts of using the antiviral therapy is. That's part of the project, and we'll be building on that with the PhD student as well."

2021 – 2023 Clinical Fellowship

Awarded to Associate Professor Fiona Brownfoot

A world-first device aimed at reducing stillbirths

Associate Professor Fiona Brownfoot

Stillbirth is a devastating complication affecting one in 130 pregnancies. Disappointingly, the staggering rates of stillbirth in Australia have remained unchanged for decades.

Currently, technologies that can detect fetal distress, just before stillbirth, are intermittent. Therefore, the critical moment of fetal distress when a life-saving delivery could be performed is often missed.

In 2021 the Foundation awarded funding of $600,000 under the Fellowship program to Associate Professor Fiona Brownfoot to head a Fetal Biomedical Engineering Laboratory to develop a device to reduce stillbirth and cerebral palsy.

In receiving this funding, Associate Professor Brownfoot – a clinician academic, a specialist obstetrician at the Mercy Hospital for Women, and a senior lecturer at The University of Melbourne – became the first recipient of the Norman Beischer Research Fellowship.

Detecting fetal distress to reduce stillbirth

In partnership with the Department of Electrical and Electronic Engineering at The University of Melbourne, excitingly Associate Professor Brownfoot and her team have developed a world-first portable fetal electrocardiogram (ECG) device together with commercial grade hardware and software.

The wearable device uses advanced algorithms to reliably measure a fetal heartbeat and detect fetal distress. Leveraging from a cloud-based secure digital health platform it can process heart rate signals and transmit critical data over the internet directly to medical professionals in real time.

This new technology has the potential to revolutionise fetal monitoring and reduce the risk of stillbirth for millions of people worldwide every year.

"Our device is as thin as glad-wrap and will stick on the mother's abdomen and continuously monitor the baby's heart rate. It will alert the mother if the baby is distressed and at risk of stillbirth," says Associate Professor Brownfoot.

"We have recruited 70 participants to our study and validated our device, showing our device detects the fetal heart rate with 90% agreement, which is well above the FDA (United States Food and Drug Administration) accepted limit of 80% agreement."

The device, which is being commercialised through the start-up company Kali Healthcare, co-founded by Associate Professor Brownfoot, is currently progressing through FDA and Therapeutic Goods Administration (TGA) trials to ensure compliance with regulatory standards.

These trials are expected to be completed by 2025 and, subject to approvals, the device would then be made available to hospitals and patients globally in around 12 to 18 months.

Better detecting fetal hypoxia in labour

Associate Professor Brownfoot and her team have also developed a fetal monitoring device to detect a preterm birth heart rate signal from uterine electrical activity.

"Currently we use a heart rate monitor to determine whether the baby is coping with labour," says Associate Professor Brownfoot.

"The Norman Beischer Medical Research Foundation supported this research with a project grant and with my fellowship I have been able to continue to build on this work. We have developed a nano sensor to better detect markers of fetal distress in labour. We are now in the process of optimising this sensor.

"With the Norman Beischer Early to Mid-career Clinical Research Fellowship I have been given the exciting opportunity to expand my lab. I now head the Obstetric Diagnostics and Therapeutics Group, comprising a multidisciplinary team of clinicians, scientists and engineers all focused on translational projects to hopefully bring more mothers and babies safely home.

"Furthermore, I have been promoted to Associate Professor. All streams have now been funded through competitive national research funding schemes and some have commercial based funding.

"All of this would not have been possible without the support of the Foundation through this fellowship. I am extremely grateful for your support."

Research Innovation Grants

Innovation Grants from the Foundation provide seed funding to support highly innovative research projects with the potential for significant clinical impact.

These projects may lead to major grant applications with such institutions as the National Health and Medical Research Council and the Medical Research Future Fund.

Applicants need to define their objectives and test hypotheses in any area of obstetric, gynaecological or neonatological conditions.

Generally, Innovation Grants are for one-year research projects for amounts of up to $65,000 ($70,000 from 2024).

Past Grant Update

Assessing fetal growth to identify babies at increased risk of death and developmental disability

"In 2021, the Foundation funded my project 'Assessing fetal growth to identify babies at increased risk of death and developmental disability'.

"I could not be more grateful for the funding provided by the Foundation as it has led to important clinical discoveries and has allowed me to build my research program and to secure significant further funding.

"The funding from the Foundation has enabled us to curate a large dataset of pregnancies where at least two scans measuring the fetal size had been performed from the mid-trimester on. We were also able to show that a slowing fetal growth rate between scans is associated with increased risk of perinatal death and of other adverse outcomes such as neonatal unit admission, low Apgar* scores and babies being born severely small.

"Our preliminary findings allowed me to secure funding for my salary and research program, including first a Stillbirth Centre of Research Excellence Future Leaders' Fellowship, and then an NHMRC Investigator Grant and the prestigious Norman Beischer Clinical Research Fellowship.

"This means I can now employ my full team of research assistants and research midwives to progress our work to reduce stillbirth.

"The findings from my innovation grant project have been presented nationally and internationally at such conferences as the International Society of Ultrasound in Obstetrics and Gynaecology World Congress, The Perinatal Society of Australia and New Zealand Congress, and in invited presentations to the RANZCOG Annual Scientific Meeting, and the Annual National Stillbirth Forum.

"The findings are now also being prepared for high impact publication. With the further funding now secured we have been completing an in-depth analysis of fetal growth velocity assessment including all of the specifications required to allow clinical translation.

"We will be partnering with consumers and stakeholders to develop a meaningful clinical tool ready for use in antenatal clinics in the near future.

"Our aim is that this clinical tool will mean that with every single growth scan performed, an assessment of fetal growth velocity will also become commonplace. This will mean better detection of fetuses at risk of stillbirth or other poor outcomes so that clinicians are empowered to manage these pregnancies to reduce the risks."

Dr Teresa MacDonald

** The Apgar score is a test given to newborns soon after birth. This test checks a baby's heart rate, muscle tone, and other signs to see if extra medical care or emergency care is needed.*

2023 Funded Innovation Grants

In 2023 there were a total of 44 Innovation Grant Applications made to the Foundation. Of these, 13 applications were approved for funding by the Research Committee, totalling $624,566.

Topic

Prenatal cell-free DNA screening for rare chromosome abnormalities and adverse pregnancy outcomes

Institution

Monash University

Amount funded

$65,000

Researchers

Miss Yvette Raymond
Associate Professor Daniel Rolnik
Professor Ben Mol
Dr Shavi Fernando
Dr Melody Menezes

Cell-free DNA (cfDNA) is a method of testing for fetal genetic problems, in which DNA released by the placenta is analysed.

As this genetic material originates from the placenta and not the fetus, the performance of the test relies on the placenta and the fetus having the same genetic make-up. False-positive results, when the cfDNA test indicates an abnormal fetus, but confirmatory testing (with, for example, amniocentesis) shows that the fetus is actually normal, may arise when there are genetic anomalies in the placenta but not the fetus.

Unfortunately, there is very little information available regarding the consequences of genetic anomalies in the placenta, with the exception of Trisomy 16 (an extra copy of chromosome 16), which is strongly associated with complications such as impaired growth of the fetus, premature birth and stillbirth.

For the prospective cohort study arm of this research project, the researchers are aspiring to follow a population of women who have received a false-positive cfDNA screening result and conduct genetic testing on their placentas after birth. They aim to determine what proportion of false-positive results are attributable to anomalies in the placenta, and what consequences this may have on pregnancy outcomes.

The results of this research project may provide valuable information in counselling women who receive false-positive results and also guide whether closer monitoring is indicated for the management of these pregnancies.

In the second arm of this research, the focus is on fetal fraction, which describes the proportion of cfDNA within a sample of a mother's blood that originates from the placenta versus her own tissues.

Previous studies have attempted to investigate for any association between fetal fraction values and complications of pregnancy, including impaired fetal growth, preterm birth, diabetes in pregnancy or disorders involving high blood pressure in pregnancy, including preeclampsia.

The information that is currently available is conflicting across studies, and any evidence of associations are weak. This is largely because many of these studies have investigated small populations, which may not accurately capture any actual associations.

The research team therefore aims to conduct a data-linkage study with a large number of participants to investigate for any association between pregnancy outcomes and fetal fraction values, which could provide valuable information to guide pregnancy care.

Institution

The Royal Women's Hospital

Amount funded

$34,350

Researchers

Dr Wan Tinn Teh
Dr Alex Polyakov
Ms Franca Agresta
Mr Michael Chan
Professor Peter Rogers

Topic

A linkage study to investigate the potential impact of different frozen embryo transfer protocols on health outcomes of offspring

Pregnancies from IVF constitute almost 5% of Victorian live births. In recent years there is also a trend towards increased use of frozen embryos.

There is mounting evidence that pregnancies resulting from frozen embryo transfer (FET) have an increased risk of certain pregnancy complications. In particular, studies have shown that the use of hormone replacement therapy (HRT) for endometrial preparation prior to FET is associated with the highest risk.

Of these pregnancy complications, increased risk of hypertensive disorders of pregnancy (HDP) including preeclampsia is most significant, with up to a two-fold increased risk reported in FET with HRT protocols compared to non-HRT natural cycles.

Preeclampsia is a progressive condition where maternal organ function deteriorates with time. There is no effective treatment to slow disease progression and the only option to stop the disease is to deliver the fetus and placenta. This often results in delivery of a premature fetus.

Preterm birth can have significant implications on subsequent health outcomes of the offspring. However, the actual magnitude of the impact is currently unknown.

The researchers plan to investigate the effects of different FET protocols on the health and developmental outcomes of offspring across their childhood by performing linkage of different health databases in Victoria with assistance from The Centre for Victorian Data Linkage.

The overall aim for this research project is to investigate whether pregnancies resulted from HRT FET are associated with adverse health outcomes in offspring when compared to non-HRT natural FET pregnancies.

The magnitude of emerging evidence regarding increased risk of pregnancy complications, especially HDP in HRT FET cycles, is sufficient to warrant clinical concern and potential changes in practice.

Despite evidence surrounding increased pregnancy complications in HRT FET compared to other FET protocols, the medium- to long-term health outcomes of these offspring have yet to be investigated.

This study will provide evidence on health outcomes of offspring from different FET protocols, to guide clinical practice in IVF treatment.

Topic

Selective endothelin-1 inhibition: novel strategies to treat preeclampsia

Preeclampsia is an insidious disease of pregnancy responsible for an estimated 70,000 maternal deaths and more than 500,000 stillbirths and neonatal deaths around the world each year.

During a preeclamptic pregnancy the placenta releases toxic factors into the maternal circulation. In otherwise healthy blood vessels, these toxic factors induce excessive release of vasoconstrictive peptide, endothelin-1.

When endothelin-1 is in excess it causes drastic constriction of the blood vessels, resulting in damage to maternal organs, severe hypertension, and compromised blood flow to the developing baby. There is no treatment for preeclampsia, except delivery, which comes with its own problems if occurring before the baby is ready to be born.

The management of preeclampsia has seen little change since the 1960s, and discovery of a therapeutic that can stabilise the preeclamptic state or reduce disease severity would save many lives.

Previously, through support of the Foundation, the research team identified endothelin-1 to be significantly in excess in the maternal circulation during preeclampsia.

In this project they are investigating endothelin-1 as a therapeutic target for preeclampsia using two innovative drugs that selectively inhibit the endothelin-1 receptors. These drugs block the action of endothelin-1 and thus prevent maternal vessel and organ injury.

The researchers are assessing these agents in several sophisticated models of preeclampsia developed in their laboratory to pre-clinically test candidate therapeutics before taking them to clinical trial.

The pipeline for drug testing is examining both maternal and placental vessels to assess drug candidates for their ability to reduce vasoconstriction and endothelial dysfunction and enhance vasorelaxation in a 'preeclampsia-like' environment.

These discoveries will offer the potential to enhance the management of preeclampsia, improving outcomes for both mothers and babies.

Institution

The University of Melbourne, Mercy Hospital for Women

Amount funded

$63,958

Researchers

Dr Natalie Binder
Professor Natalie Hannan
Dr Natasha de Alwis

Past Grant Update

Identifying new therapeutics for endometriosis using high throughput drug screens

"Thank you to the Foundation for your grant funding in 2019 and your support of our research project.

"Our research project commenced in 2019 and was completed during the COVID lockdowns in 2020 and 2021. The aim of this project was to perform a series of high throughput compound screens (HTS) of over 3,500 compounds to identify suitable candidates that would target endometriosis cells and would also have the potential for repurposing as endometriosis therapeutics.

"From the HTS we identified 23 novel compounds in addition to their molecular targets and cellular pathways of activity and function. These outcomes were published in 2023 (Using a Quantitative High-Throughput Screening Platform to Identify Molecular Targets and Compounds as Repurposing Candidates for Endometriosis) and has led to two international collaborations to perform further screening of unique compounds for the treatment of endometriosis and fibrosis using our endometriosis cell lines and HTS protocols.

"As several of the compounds identified from our screen are currently in the clinic for other uses such as diabetes, heart disease and cancer, we are currently investigating their potential for repurposing in preclinical cell-based assays and pre-clinical animal trials.

"Your support of this research project has provided the evidence we need to pursue the repurposing of drugs to target the cells that contribute to endometriosis lesion formation. Through drug repurposing, we can make endometriosis treatment accessible, affordable, and timely."

Dr Jacqueline Donoghue

Institution

Mercy Hospital for Women

Amount funded

$39,686

Researchers

Dr Willem Gheysen
Ms Melissa Graetz
Professor David Amor
Professor Michael Fahey
Dr Calder Hamill
Ms Yael Prawer
Associate Professor Kirsten Palmer
Ms Nikki Gelfand
Ms Susan Fawcett
Dr Anand Vasudevan
Ms Tenielle Davis
Dr Stefan Kane
Associate Professor Joanne Said
Ms Kate Riley
Ms Samantha Dayman

Topic

Fetal exome sequencing in Victoria: are we achieving 'better care, better health, and better access' in perinatal genomics?

Over the last decade genomic medicine has advanced at a rapid rate. No field has been more affected by changes in genomic knowledge and technology than in reproductive medicine.

The use of new genetic technologies now provides answers to many families affected by rare diseases and facilitates new options for future family planning.

Exome sequencing is a powerful genomic test that analyses many thousands of genes at once. It has been instrumental in improving understanding of the genetic causes of ill health and in providing rapid diagnosis of rare childhood diseases.

In recognition of the growing importance of this technology, the Victorian Government recently invested $25 million to build genome sequencing capability in Victoria. While exome sequencing is quickly becoming part of routine clinical care in paediatrics, it has only recently been applied during pregnancy to diagnose conditions in a baby before birth.

In two landmark papers published in The Lancet in 2019, independent research groups found that exome sequencing of fetuses with major structural abnormalities could identify a genetic cause in about 10% of cases.

While this is an exciting development, the high cost of exome sequencing makes this an extremely limited resource.

In Victoria, the state government made genomic sequencing publicly available through established genetics services though the Victorian Clinical Genomic Sequencing Initiative.

This scheme commenced in 2018 for adult and paediatric patients and was expanded in 2019 to include perinatal exome sequencing for fetuses with congenital anomalies.

There are unique practical, clinical, and ethical considerations with offering exome sequencing in the perinatal setting. To date, there has been no formal assessment of the clinical implementation of fetal exome sequencing in Australia.

Furthermore, there is no population-based data on how the results of fetal exome sequencing impacts clinical management of Australian couples and how it contributes to future decision making.

This state-wide multidisciplinary group of experts in perinatal genetics has been assembled to analyse the first five years of publicly funded fetal exomes in Victoria so they can assess the impact of fetal exome sequencing on Australian families and genetics services.

The research team aims to see if this scheme achieves the Victorian Government's overall mission to provide "better health, better access, better care".

Topic

Pain with outpatient hysteroscopic procedures: a case control study

Hysteroscopy is the gold standard to investigate abnormal uterine bleeding.

It is a way to look inside the uterus through a thin, telescope-like device that is inserted into the uterus through the vagina and cervix. It allows clinicians to diagnose or treat a uterine problem.

Endometrial polyps are focal outgrowths of the uterine lining and are detected in 20-40% of women with abnormal uterine bleeding. Advances in technology have increased the capacity for gynaecologists to remove endometrial polyps under hysteroscopic guidance in an outpatient clinic setting.

This has the benefit of avoiding a general anaesthetic and hospital admission. Devices used to achieve this include the Myosure® tissue removal device. Studies have shown that outpatient hysteroscopy is well tolerated and accepted by patients and is offered widely in Australia and the United Kingdom.

Mercy Hospital for Women runs an outpatient hysteroscopy clinic which offers investigation and management of abnormal uterine bleeding in the outpatient clinic setting.

All women undergoing such a procedure are asked to complete a pre- and post-procedure questionnaire that includes providing a pain score for any pre-existing pain, anticipated pain with procedure, and actual pain experienced. Data is collected at the time of procedure and entered into a secure database.

This study is analysing this data, specifically comparing pain scores with a simple hysteroscopy and a polypectomy (removal of polyp).

The researchers are assessing these pain scores to see if both diagnostic and management of abnormal uterine bleeding in the outpatient setting is acceptable for patients. Researchers are also looking at what factors influence overall satisfaction and willingness to attend again.

Institution

Mercy Hospital for Women

Amount funded

$8,000

Researchers

Dr Pinar Cingiloglu
Dr Samantha Mooney
Dr Lenore Ellett
Dr Emma Readman
Dr Helen McNamara
Dr Lauren Hicks
Dr Avelyn Wong
Dr Kate McIlwaine
Dr Caroline Hoggenmuller

Past Grant Update

Placental mitochondria as a therapeutic target in pregnancy complications

"Recent advancements in the field of placental research have shed new light on the critical role of mitochondria. These are the energy 'powerhouses' of cells, particularly in pregnancies with an altered maternal body mass index, or those complicated by fetal growth restriction or preeclampsia.

"Our study focuses on comparing mitochondrial function in placental samples from complicated pregnancies and examining key genes, proteins, lipids, and metabolites that influence mitochondrial function. This approach will provide valuable insights into how mitochondrial dysfunction may affect the placenta, potentially disrupting the essential support it provides to the growing baby.

"The implications of this research are profound and far-reaching. By linking data on placenta mitochondrial function with ultrasound findings, maternal blood profile, and newborn metrics such as birth weight and body composition, we will be able to establish links between placental health, mitochondrial function, and fetal development.

"This research will be pivotal in identifying potential biomarkers of poor placental function. Knowledge gained may be leveraged to develop diagnostic tools and innovative treatments for at-risk pregnancies, ensuring healthier outcomes for both mothers and their babies."

Dr Emily Camm

Institution

The Royal Women's Hospital

Amount funded

$10,800

Researchers

Dr Helen McNamara
Dr Emma Readman
Dr Lenore Ellett
Associate Professor Martin Healey
Dr Lauren Hicks
Dr Claudia Cheng
Dr Avelyn Wong

Topic

Post procedural pain flare following injection of botulinum toxin type A for persistent pelvic pain and pelvic floor tension myalgia: a pilot study

This project is exploring outcomes following a procedure involving injection of botulinum toxin type A (Botox) into the pelvic floor muscles for the treatment of pain and pelvic floor tension.

Botulinum toxin type A blocks signals from nerves to muscles so that the muscles relax. It is used for the treatment of many conditions including conditions causing muscle spasms (spasticity) and in cosmetic procedures.

In people with persistent pelvic pain and pelvic floor tension, there is some evidence that Botox injection into the pelvic floor muscles can reduce pelvic pain, pain with sex, and pelvic floor pressure and tenderness.

In this study the research team is trying to determine if injection of Botox to the pelvic floor muscles is associated with post-procedural pain flare.

A pain flare, in people with persistent pelvic pain, is defined as an episode of pain that is more intense than usual, that lasts from hours to a week, that is difficult to tolerate, and that generally impacts usual activities and/or emotions.

Past Grant Update

A trial of a position modification device for the prevention of supine sleep during pregnancy

"The data collection for this project was completed in November 2021. It has been presented at two conferences – Sleep DownUnder 2021 and Perinatal Society of Australia New Zealand 2022, and the manuscript is under review with the British Journal of Obstetrics and Gynaecology.

"I was very appreciative to be awarded this grant as it was my first grant as a principal investigator following completion of my PhD. This enabled me to continue in my area of work and to be supported by my mentors for an extra year.

"The outcomes of this project heavily informed the design of my follow-up study looking at precise measurement of sleep position during pregnancy, for which I was awarded a Metro North Collaborative Research Grant through Queensland Health in 2022."

Dr Danielle Wilson

Topic

A prospective cohort study for success of vaginal hysterectomy with vault suspension compared to Manchester-Fothergill procedure for utero-vaginal prolapse

Institution

Mercy Hospital for Women

Amount funded

$47,098

Researchers

Dr Lore Schierlitz
Professor Peter Dwyer
Dr Alison De Souza
Dr Yik Um
Dr Kris Cvach
Dr Linli Ow
Associate Professor Anna Rosamilia

When conservative options fail for the management of utero-vaginal prolapse, the vaginal surgical route has long been the preferred method of treatment.

Low complication rates, high patient satisfaction and favourable cost benefit ratios remain high for vaginal surgery when compared to other surgical routes including open, laparoscopic, and robotic procedures.

Vaginal surgical techniques incorporating mesh grafts were developed over the last 20 years to improve long-term surgical outcomes for prolapse. The risks of mesh complications in vaginal prolapse surgery has resulted in Therapeutic Goods Administration withdrawal of all prolapse mesh products in Australia. As a result, older more conventional surgeries are being revisited to give women options for prolapse repair.

Current data regarding the efficacy and longevity of these older surgical procedures is limited and insufficient to counsel women on their surgical options.

There is an urgent need to re-evaluate these traditional operations in light of the limited surgical options available for women in Australia. Prospective long-term data inclusive of patient reported outcomes is required.

The study objective is to compare the Manchester-Fothergill procedure (MP) with uterine conservation to the vaginal hysterectomy (VH), including vaginal repair and vault suspension for the treatment of utero-vaginal prolapse.

Women between the ages of 35-80 years with symptoms of prolapse who request surgical treatment in Mercy Hospital for Women's outpatient clinic are invited to participate in this study.

The hypothesis is that the MP procedure is non-inferior compared to the VH procedure for objective and subjective cure rates of prolapse, quality of life outcomes and patient acceptance.

The trial is a prospective cohort study based on patient preference due to the fact that one procedure is uterine preserving whilst the other results in removal of the uterus as part of the prolapse correction.

This is often a personal choice for women undergoing prolapse surgery and it is currently unclear which operation provides the best long-term outcomes.

In addition to standardised history and examination findings, validated quality of life questionnaires are being administered to assess bladder, bowel and sexual function before and after surgery.

Past Grant Update

The effect of perinatal events and interventions on childhood school outcomes

"We are grateful to the Foundation for your support in our research related to the effects of perinatal events and interventions on childhood outcomes.

"Our research has provided unique insights into the long-term life-course development of children who are affected by pregnancy complications. We conducted the largest population-level work to date in this field and our data informs the ongoing goals of the Safer Baby Bundle and the Australian Preterm Birth Prevention Alliance.

"We have had four publications arise from this work, in addition to current manuscripts which are in preparation, and we have secured ongoing funding to support further projects. We hope our work will continue to inform both maternity care policy and educational policy in Australia and beyond.

"The work was not possible without the funding provided by the Norman Beischer Innovation Grant."

Dr Roshan Selvaratnam

Institution

The University of Melbourne

Amount funded

$65,000

Researchers

Dr Melvin Marzan
Associate Professor Lisa Hui
Associate Professor Daniel Rolnik
Dr Stephanie Potenza
Dr Natasha Pritchard
Associate Professor Joanne Said
Associate Professor Kirsten Palmer
Dr Clare Whitehead
Dr Penelope Sheehan
Dr Jolyon Ford
Professor Ben Mol
Professor Susan Walker

Topic

Enhancing the value of the collaborative maternity and newborn dashboard for the COVID-19 pandemic: epidemiological and geospatial analyses of perinatal datasets

The Collaborative Maternity and Newborn Dashboard (CoMaND) project was created by maternity health professionals at the onset of the COVID-19 pandemic in 2020.

This was out of concerns about the negative impacts of disruptions to maternity care on maternal and newborn outcomes. With the Foundation's support, the CoMaND project has grown into a Melbourne-wide collaboration involving all 12 metropolitan public maternity hospitals.

Since being established CoMaND has provided regular reports on key outcomes such as weekly births, stillbirths, preterm births, and neonatal intensive care admissions. These reports are provided to health services, the Consultative Council on Obstetrics and Paediatric Mortality and Morbidity (CCOPMM), and to Safer Care, Victoria.

The research team has now accumulated a large and valuable dataset that enables it to examine specific questions as they emerge, thus providing an agile and granular surveillance system to "take the pulse" of the maternity sector through each stage of the COVID-19 pandemic.

The pandemic has underscored the crucial influence of social and economic status on health outcomes. The researchers propose to maximise the value of the 230,000 birth records in CoMaND by performing sophisticated geospatial and epidemiological modelling studies. These will study the influence of social determinants of health on maternal and newborn outcomes before and during the pandemic.

There is a notable increase in the prevalence of large-for-gestational age babies. This increase is alongside the rise in the prevalence of gestational diabetes mellitus (GDM) and maternal obesity.

The research team is also exploring the impacts of social determinants of health on outcomes such as maternal and fetal overweight and GDM. These analyses will help it to unpack the impacts of non-modifiable risk factors (such as age, ethnicity, and pre-existing disease), modifiable risk factors (such as the built environment, pollution, food environment, alcohol, and cigarette smoking), and socioeconomic position. These impacts will be measured on key maternal and perinatal outcomes such as maternal obesity, gestational diabetes, and large for gestational age babies.

Alongside geospatial and epidemiological analyses, the researchers are continuing to expand their maternal and perinatal surveillance works in CoMaND.

The CoMaND project is expected to continue to play a vital role as the only Australian system with a robust capacity to rapidly monitor the perinatal impacts of COVID-19.

Topic

Discovering new therapies to treat preeclampsia

Preeclampsia is a life-threatening, pregnancy-induced disorder unique to humans. If left unmanaged, preeclampsia can lead to maternal organ failure and death.

Preeclampsia is caused by a damaged placenta releasing toxins into the maternal blood stream which damage the maternal blood vessels, causing the clinical symptoms of preeclampsia.

Currently, the only treatment for preeclampsia is delivery of the placenta, often resulting in preterm birth. A new therapeutic option to improve placental health and prolong pregnancy until the baby can be safely delivered is desperately needed.

In this study the researchers are testing whether blocking an inflammatory cytokine that causes much of the placental damage in preeclampsia can prevent placental secretion of toxins that damage maternal blood vessels.

The research team has identified three medications currently used clinically that block action of this cytokine (interleukin 1β): canakinumab, anakinra and rilonacept. The researchers will determine whether these medications can improve placental and maternal blood vessel health in preeclamptic pregnancies.

They will also test whether these medications can prevent secretion of toxins by the preeclamptic placenta and whether these medications can stop the damage to maternal blood vessels that cause the maternal symptoms of preeclampsia.

The researchers expect that these medications can ameliorate the maternal symptoms of preeclampsia, allowing a pregnancy to continue until it is safe to deliver the baby.

If successful and advanced to the clinic, this would be a breakthrough in the treatment of preeclampsia and improve health outcomes for mothers and babies worldwide.

Institution

The University of Melbourne, The Royal Women's Hospital

Amount funded

$64,887

Researchers

Dr Ellen Menkhorst
Dr Wei Zhou
Dr Clare Whitehead
Dr Louie Ye
Dr Sarah Marshall

Past Grant Update

Improving patient-focused research in endometriosis: Development and validation of a tool to measure Most Bothersome Symptom for clinical trials in endometriosis

"The generous support from the Foundation has allowed us to make significant progress on the development of a new patient-reported outcome measure to assess for the 'most impactful symptom' of endometriosis.

"Specifically, qualitative research funded by the Foundation has resulted in a reframing of the measure to capture 'impact' rather than 'bother' caused by endometriosis. Quantitative (survey) research funded by the Foundation has helped us refine the list of symptoms to include in the measure.

"We are currently undertaking further cognitive interviews to refine the measure, after which we will have a publishable first version of the tool – ready for use by the research and clinical community.

"We have two publications pending and a further paper planned."

Dr Sarah Lenson

Institution

Monash University

Amount funded

$62,232

Researchers

Dr Paris Papagianis
Professor Claudia Nold
Associate Professor Jane Bourke
Ms Briana Peterson
Associate Professor Ram Nataraja
Professor Marcel Nold

Topic

Breast milk stem cells to treat gastrointestinal disease in preterm babies

Premature birth is the leading cause of mortality and morbidity in newborns worldwide.

Complications in babies born too early or too small make up the greatest health burden in children under five. Complications sometimes stretch into early life and adulthood and include lung disease, asthma, learning difficulties, brain injury and motor deficits.

Necrotising Enterocolitis (NEC) is an inflammatory intestinal complication of premature birth (90% of all NEC cases) or abnormal pregnancy. Currently there is no treatment for NEC. Many newborns with NEC will require surgery, after which death rates can be as high as 65%.

The transfer of immunity from mother to child via breastfeeding is well known, but we are becoming increasingly aware of other specialised cell types in breast milk. Specifically, breast milk contains stem cells with potential anti-inflammatory and reparative properties.

The research team believes that harnessing these stem cells from breast milk can reduce inflammation and injury in premature babies with NEC. This project involves collecting breast milk from mothers at different lactation stages (early, middle, and mature). Using genomic screening and functional assays, researchers characterise the different types of stem cells in breast milk. In this way they can identify stem cell candidates for therapeutic use in NEC.

Breast milk stem cells, which are anti-inflammatory and promote repair of the intestine, will be applied to surgically resected intestinal tissue from premature babies with inflammatory bowel disease. This is a critical proof of concept study to demonstrate the therapeutic potential of easily-accessed breast milk cells for NEC.

Successful application of isolated breast milk-derived cells to premature babies will quickly accelerate into clinical trial, as expression of milk and the consumption of breast milk is routine and avoids some major ethical and safety hurdles of other drug discovery trials.

This work also provides the opportunity to reduce rates of surgical intervention and long-term complications of NEC in a population of babies already vulnerable to other organ failures.

Past Grant Updates

Antiepileptic drug use in pregnancy and the risk of poor fetal growth

"I am most grateful to the Foundation for funding our project. The awarded Innovation Grant was instrumental for tackling a major knowledge gap by combining, for the first time, two large registers assessing risks associated with antiseizure medication use during pregnancy: the Australian Pregnancy Register of Antiepileptic Drugs (APR) and the International Registry of Antiepileptic Drugs and Pregnancy (EURAP).

"The analysis is still ongoing, and its findings are expected to influence the clinical management of women with epilepsy and their infants worldwide.

"The support of this project from the Foundation has also been critical for obtaining other research funding, including most recently funding from the Neurological Foundation of New Zealand."

Associate Professor Piero Perucca

Topic

Development of a novel intravaginal device for rehabilitating women with pelvic organ prolapse

Institution

Monash University

Amount funded

$63,555

Researchers

Mr Ritesh Warty
Associate Professor Anna Rosamilia
Professor Caroline Gargett
Dr Gita Pendharkar

Pelvic organ prolapse (POP) is the downward displacement of one or more pelvic organs into the vagina.

Occurring in up to 50% of women above the age of 50 years, POP often results from vaginal birth injury. Symptoms include pelvic heaviness, difficulty urinating or defecating, recurring urinary tract infections, sexual dysfunction, and urinary or faecal incontinence.

In the most severe cases, the complete presentation of the uterus outside the vagina is possible. As such, this is a condition which can have a significant impact on the quality of life for women around the world.

Current clinical approaches have had limited success and either have a passive management focus (for example, lifestyle changes, physiotherapy, and devices called pessaries which physically hold the organs in place) or require surgical intervention, which has a number of risks and contraindications.

Approximately 10-20% of POP patients will undergo surgery, however roughly 30% of this population will experience an anatomical or subjective failure in the long term. Attempts to improve these results with mesh placement has resulted in greater harm than benefit in some recipients and a subsequent class action and regulatory ban.

As a result, many women wish to avoid surgery and there is a demand for novel non-surgical treatments which can provide further options for treatment.

To address this unmet clinical need, the researchers are developing a novel intravaginal smart prosthetic device to facilitate the rehabilitation of POP sufferers by helping to strengthen the pelvic floor muscles – important for maintaining support alongside ligamentous and fascial structures.

This will be achieved using stimulation and smart technologies embedded in a structure that can provide a better tissue-device interface than existing stimulators (which are primarily used in incontinence), enabling a more effective strengthening program. In doing so, the research aims to improve the quality of life of POP sufferers and limit worsening due to ageing.

To date, the research team has developed early proof-of-concept prototypes and is preparing to perform an observational first-in-human study to demonstrate feasibility of concept for one of these prototype versions.

Using the findings of this study they will then develop advanced prototypes that can hopefully be translated into patient care to empower the lives of women.

Past Grant Updates

Shift work and changes to breast milk composition

"Our team was awarded an innovation grant from the Foundation in 2022 to explore the impact of shift work on breast milk composition by looking at the circadian timing of melatonin during night shift compared to workdays or days off.

"Without the support received through the Beischer Foundation, the team would not have had the opportunity to gather the evidence needed to show that our novel idea warranted further exploration. As a result, larger, longitudinal studies have been recommended to expand this research and to investigate the impact of other circadian rhythm misalignment sleep disorders on breast milk composition.

"The team is thankful of the Foundation's commitment to foster ground-breaking projects and we are now working hard to submit applications for further funding to continue this work."

Dr Lauren Booker

Institution

Walter & Eliza Hall Institute of Medical Research (WEHI)

Amount funded

$40,000

(Previous funding of $60,000 in each of 2021 and 2022)

Researchers

Professor Ian Wicks
Dr Behnaz Heydarchi

Topic

Guaranteeing the health of mothers and babies at risk of haemolytic disease of the newborn

Antibodies are naturally occurring molecules produced by the B-lymphocytes in immune systems to help protect against infection and disease.

Rhesus D (RhD) is a type of red blood cell molecule, with approximately 85% of people RhD positive (RhD+) and 15% RhD negative (RhD-).

When an RhD- mother is carrying an RhD+ infant, fetal red blood cells (RBCs) enter the maternal circulation, sensitising the mother and provoking an antibody response to the RhD molecule.

This 'anti-D response' increases with each pregnancy and can cause destruction of the baby's red blood cells, known as hemolytic disease of the newborn (HDN). HDN remains a major cause of infant mortality in many parts of the world.

The standard of care clinically has been to treat RhD- women preventatively (at 28 and 34 weeks of pregnancy) with serum containing anti-RhD antibodies, and this has proved to be remarkably successful.

Anti-RhD plasma is derived from a small pool of altruistic blood donors who have been screened for the presence of anti-RhD antibodies by the Red Cross Blood Bank. These donors, known as 'super producers', are then periodically boosted with RhD+ RBCs to boost the immune system and maintain high levels of anti-D antibodies.

This study represents a major new collaboration between WEHI and the Australian Red Cross Life Blood Service, which coordinates the national anti-RhD donor program and has a longstanding research interest in HDN.

The project involves applying cutting-edge technology to understand the antibody response that causes HDN. WEHI will contribute its expertise in B cell biology, proteomics, bioinformatics and monoclonal antibodies to analyse this 'experiment of nature'.

In collaboration with Red Cross and their donors in the Australian anti-RhD program, the researchers are exploring the B cells and antibody repertoire of super producers with the aim of developing a standardised therapeutic antibody.

The long-term objective is to replace the need to continually derive new pools of anti-RhD antibodies from human donors with a synthetic antibody equivalent that can be made available around the world.

Funding from the Foundation has provided crucial support for this new project, allowing the researchers to establish experimental systems and generate preliminary data.

Since this project commenced the research teams at WEHI and Red Cross Lifeblood have made significant progress towards the isolation of RhD monoclonal antibodies.

Topic

Identifying how platelets prevent stroke in neonates

This research study aims to improve the health and wellbeing of neonates by investigating how intra-cerebral haemorrhage (which causes stroke) can be prevented.

The aim is to understand how platelets protect newborn brains from significant bleeding events.

Platelets are small cells that prevent innocuous bleeds from becoming significant adverse events that can lead to neurological disease or death. Although it's understood that platelets are required to form blood clots to stem bleeds, it is not clear if they are required to prevent stroke.

The specific goal of this research is to understand if platelets are required to protect the blood vessels in the brain during development in the womb and during early neonatal life.

In the general community 1/1,000-5,000 newborns suffer from low platelet counts. Most concerning is that 30% of babies admitted to neonatal intensive care units also suffer from low platelet counts.

The research being undertaken has recently discovered that platelets are required in the womb and in the neonate to prevent bleeding in the brain. It also has discovered that the location of brain bleed is dependent on the timing during development when platelet loss occurs.

Importantly, the study has demonstrated that fetal/neonatal stroke occurred within regions of the brain which, in humans, could lead to neurological damage.

It is now critical to understand why platelet loss causes such devastating bleeding in the brain. Although it is evident that once bleeding is initiated the inability to produce blood clots would result in continued bleeding, it is unexpected that the loss of platelets alone would cause bleeding in the brain.

The research team aims to understand the underlying mechanisms that cause neonatal stroke in babies that lack platelets, including the role of inflammation in the thrombocytopenic neonate.

Institution

Walter & Eliza Hall Institute of Medical Research (WEHI)

Amount funded

$60,000

(Previous funding of $60,000 in 2022)

Researchers

Dr Samir Taoudi

Past Grant Update

Placental-released early pregnancy serum biomarkers of preeclampsia

"We have five researchers, including three students (two PhD and one Masters) actively working on this project. We have now secured over $1.3 million in funding, all based on the preliminary data we were able to generate because of the initial grant funding provided by the Foundation.

"This funding is from the Foundation and philanthropic organisations, including the American Society for Reproductive Investigation, and Kilvington and Rowden White bequests at the University of Melbourne and The Royal Women's Hospital respectively.

"We have identified two factors that show considerable promise as early pregnancy biomarkers that could help predict women at risk of developing preeclampsia. We have applied for a patent to use these factors in a predictive test at the end of the first trimester (11-14 weeks gestation).

"This work has been presented at multiple scientific conferences including the Society for Reproductive Investigation (USA), the Society for Reproductive Biology (Australia and New Zealand), the Australian and New Zealand Placental Research Association, the School of BioSciences at the University of Melbourne, Hudson Institute of Medical Research, and Newcastle University."

Dr Ellen Menkhorst

Our Board

Mr John C Fast

BEc (Hons), LLB (Hons), F FIN, MAICD

Non – Executive Chair

John is an economist and lawyer. He is the current Executive Chairman of Seawick Pty Ltd.

Previously, John was one of the most senior executives at BHP. His role included central involvement in the development and implementation of the strategy that resulted in the reconstruction and repositioning of BHP as the world's leading diversified resources company and with the major transactions that gave effect to that strategy. He was BHP's Chief Legal Counsel and Head of External Affairs (with overall group responsibility for BHP's worldwide political and country risk), and a member of the Office of Chief Executive, its most senior management committee as well as its Investment Review Committee.

Before joining BHP, John was the senior commercial partner specialising in mergers and acquisitions at the law firm Arnold Bloch Leibler. John is a former member of the Australian Government's Takeovers Panel and consults to a number of private and public companies on country and political risk, governance, succession, and strategy.

He is a Non-Executive Director of ESL Support Pty Ltd, BT Assurance Systems (Aust) Pty Ltd, Learning Base Pty Ltd and The Development Studio Pty Ltd.

He was formerly the founding Chairman of National Indigenous Education Foundation Ltd, and a former Non-Executive Director of The Australian Brandenburg Orchestra, Investa Listed Funds Management Limited, and of The Gandel Group Pty Ltd.

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Associate Professor David Allen

MBChB, MMed(O&G), FCOG(SA), FRANZCOG, CGO, PHD

Non-Executive Director

David has been a Non-Executive Director since 2017 and Chair of the Research Committee. Prior to this he was company Secretary and a member of the Research Committee.

He has worked as a Gynaecological Oncologist at the Mercy Hospital for Women and the Peter MacCallum Cancer Centre since 1994. David was appointed Associate Professor, Department of Surgery, University of Melbourne in 2004, as well as Clinical Associate Professor in the Department of Obstetrics and Gynaecology, University of Melbourne in 2013.

He also worked as the Chief Medical Officer at Mercy Health from 2007 to 2020 and was previously the Director Medico Legal at Mercy. He remains a member of the Quality and Safety Monitoring Committee for the National Cervical Screening Program in Australia (Department of Health and Ageing), a member (and Past President) of the Australian Society for Colposcopy and Cervical Pathology and has been on the Board of the International Federation for Cervical Pathology and Colposcopy. David is also on the Board of the Australian Society for Gynaecological Oncologists.

Previously he was Chair of the Governance Committee of the North-East Metropolitan Integrated Cancer Service (2005-2010), and Chair of the VCOG Executive Committee, Centre for Clinical Research in Cancer at the Cancer Council of Victoria (2007-2009).

David is a member of journal editorial boards and a peer reviewer for a number of international journals. He is also an examiner for certification in Gynaecological Oncology (CGO) at the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG).

Ms Anne E Beischer

B.Bus, CPA, GAICD

Non-Executive Director

Anne has been a Director since 2017 and is Chair of the Finance, Risk and Audit Committee and a member of the Investment Subcommittee.

Anne is an accountant working with family businesses and had previously worked for the Foundation as the Finance Manager from 2002 to 2014. She worked closely with the founder, Dr Norman Beischer, in managing the corpus and operations of the Foundation.

Anne took on the Chief Executive Officer role after Norman's death, stepping down from that position in February 2017. Anne's prior experience includes being a Senior Manager at Pricewaterhouse Coopers in internal audit and business advisory services, and a Corporate Auditor at Dun & Bradstreet Corporation.

Mrs Sandra Fairchild

BCom (Hons), CA, MAICD

Non-Executive Director

Sandra has been a Director since 2013. She is an accountant and an experienced commercial business builder. Sandra is Chief Executive Officer of Yang Kee Group Australia, a wholly owned subsidiary of the Singapore-based logistics company, Yang Kee Logistics Pte Ltd.

As CEO of YKGA, she has operational and commercial oversight of the Australian and China operations of the Axima Pty Ltd group. The company's integrated logistics service provision comprises a footprint of 10 sites, five warehouses and annual revenue of over $200 million.

Prior to joining Yang Kee, Sandra was CEO of Axima Pty Ltd. She championed and successfully implemented a mergers & acquisitions agenda that saw the business grow from a boutique local freight forwarder and customs agency to an international freight, transport, and third-party logistics fulfilment business. She steered the company through an aggressive global expansion program, delivering a network of wholly owned offices through China and the United States.

Sandra was also a Senior Manager at Arthur Andersen. Her experience there included audit services, corporate finance, strategic planning, activity-based costing as well as general operational consulting and business process improvement.

Sandra is a member of the Logistics Association of Australia and the Large Format Retail Association.

Dr Bernadette White

MBBS, FRCOG, FRANZCOG, Grad Dip Arts

Non-Executive Director

Bernadette graduated from the University of Melbourne and trained in obstetrics and gynaecology at the Mercy Hospital for Women and the Royal Hampshire County Hospital in the United Kingdom.

On returning to Melbourne, Bernadette was appointed as a consultant at the Mercy Hospital and continued to work at the hospital for all her professional career, eventually as the Clinical Director of Obstetrics. She also had a busy private practice in obstetrics and gynaecology, as well as extensive experience in medicolegal reports and impairment assessment.

Bernadette has a long association with the Royal Australian and New Zealand College of Obstetricians and Gynaecologists including roles as a training supervisor, examiner, examination coordinator, chair of the Victorian Training Accreditation Committee, member of the College Council and Honorary Treasurer.

Between 2001 and 2016 Bernadette was a member of the Victorian Medical Board and then the Victorian Board of the National Medical Board, including sitting on the Board's Health Committee and chairing one of the Notification Committees.

More recently, Bernadette has ceased clinical practice, completed a Graduate Diploma in Arts, and is enrolled in a Masters in International Relations, which commenced in July 2023.

Mr Andrew D Brookes

BA MAICD

Executive Director and Chief Executive Officer

Andrew has been the Executive Director of the Foundation since 2021 and Chief Executive Officer since 2018.

He is also a Trustee of Trust for Nature, a Director of GW Vowell Foundation, Holmesglen Foundation, The Melbourne Grammar School Foundation and McNally Family Foundation. He is a former Chair of Relationship Matters Counselling and Mediation Services.

Andrew is a Committee Member of the Royal Melbourne Hospital Foundation, a member of WEHI's Advocacy and Support Board Committee, and a Community Representative on the Australian and New Zealand College of Anaesthetists Research Committee. He is a Council Member of the Australian Youth Orchestra.

Previously Andrew held the positions of Chief Executive, Helen Macpherson Smith Trust, and the Colonial Foundation.

Prior to being in the philanthropic sector, Andrew spent 22 years in financial services at the Colonial Group in a variety of roles.

Mrs Nicky Long

B.Nurs, Grad Dip Marketing, MBA

Non-Executive Director

Nicky joined Guide Dogs Victoria as Chief Executive Officer in April 2023 with an impressive track record in the disability and non-profit sectors. She has a deep passion and commitment to 'for purpose' efforts.

Prior to commencing with Guide Dogs Victoria, Nicky was CEO of Expression Australia and held roles in the healthcare, pharmaceutical (CSL and GlaxoSmithKline) and not for profit sectors – including inaugural CEO of Maddie Riewoldt's Vision and board positions with The Royal Women's Hospital Foundation, The Snowdome Foundation and Soap Aid, all with a focus on paradigm shifts in health and medical research.

Nicky is a current Board Member of the St Kilda Football Club Foundation and Independent Non-Executive Director of the Priceline Sisterhood Foundation.

Nicky is a member of 'Mentor Walks Australia' and a member of the mentor program at St Kilda Football Club for AFLW players. She was a finalist in the 2020 Telstra Business Women's Awards for Victoria – for purpose and social enterprise. She is also an Ambassador for the Australian Ballet.

Mr Paul Broadfoot

GAICD, MBA (H. Hons), B.Eng (Chem) Hons

Non-Executive Director

Paul spent his corporate career with large multinational specialty business-to-business companies including Akzo Nobel, Ingredion and ICI. He spent seven years in Asia Pacific in Head of Strategy and Director roles based in Bangkok and Singapore. These roles were responsible for rapid growth business units ranging in size from new fledgling opportunities to divisions turning over hundreds of millions of dollars across the food, chemical, pulp and paper, and medical component industries.

Paul is a strategy expert and author of Xcelerate, the first book to show how disruption can be achieved using business model innovation. Written from an Australian perspective, it contains research on the longevity of over 5,000 Australian ASX 200 listed companies over the past 40 years.

Since exiting his corporate career in 2012, Paul has owned and run three management consulting businesses specialising in business turnarounds, financial performance, and M&A deals. He has facilitated strategy workshops with hundreds of CEOs and board members and become a conference speaker. He also owns a food manufacturing business.

His passion is to help organisations achieve superior governance, better financial performance, faster growth and to become more valuable in a world with an ongoing demand for adaptation to myriad market forces such as climate change, technology advancement, and shifting economic trends.

He holds an MBA from the prestigious University of Chicago, a Bachelor of Chemical Engineering degree, and is a graduate of the Australian Institute of Company Directors.

Committees of the Board

Directors

Mr John Fast (Chair)
Associate Professor David Allen
Ms Anne Beischer
Mrs Sandra Fairchild
Dr Bernadette White
Mr Andrew Brookes
Appointed after the end of the financial year:
Mr Paul Broadfoot
Mrs Nicky Long

Finance Risk and Audit Committee

Ms Anne Beischer (Chair)
Mrs Sandra Fairchild

The Finance, Risk and Audit Committee is a Committee of the Board and is responsible for oversight of, and advice and recommendations to the Board of Directors on financial management (including asset management), risk management (including compliance management), and external audit. The Committee is scheduled to meet twice in a financial year and as necessary.

Investment Subcommittee

Mr Will Baylis (Chair)
Ms Anne Beischer
Mrs Sandra Fairchild
Mr Hugh Murry

Investment Advisor: **Drew, Walk and Co.**

Investment Manager: **Willis Towers Watson**

The Investment Subcommittee is a Committee of the Finance, Risk and Audit Committee and is responsible for the oversight of the portfolio, and the management of external investment managers. The Committee makes recommendations to the Board which retains the ultimate responsibility for investment management. The Committee meets four times in a financial year.

Research Committee

Associate Professor David Allen (Chair)
Associate Professor Megan Di Quinzio
Professor Jock Findlay AO
Associate Professor Harry Georgiou
Associate Professor Peter Grant OAM
Professor Gab Kovacs AM
Associate Professor Martha Lappas
Dr John Negri
Dr Peter Wein
Dr Bernadette White

The Research Committee is a committee of the Board and is responsible for reviewing grant applications submitted. The Committee makes recommendations to the Board of Directors for projects to be funded. The Committee meets twice in a financial year and as necessary.

Fellowship Panel

Emeritus Professor Richard Larkins AC (Chair)
Associate Professor David Allen
Mr John Fast
Professor Jock Findlay AO
Professor Gab Kovacs AM
Dr Bernadette White

The Fellowship Panel is responsible for reviewing Fellowship applications submitted and interviewing candidates. The Committee makes recommendations to the Board of Directors for the Fellowship to be awarded. The Committee meets twice in a financial year.

Nomination and Remuneration Committee

Mrs Sandra Fairchild (Chair)
Mr John Fast
Dr Bernadette White

The purpose of the Nomination and Remuneration Committee is to assist the Board and its Committees in ensuring that they retain an appropriate structure, size, and balance of skills to support the strategic objectives and values of the Foundation. The Committee assists the Board by considering and recommending appointments to Committees of the Board (including itself) and admission to membership of the Foundation. The Committee also assists the Board by reviewing and making recommendations in respect of the remuneration policies and employment framework for staff. The Committee meets as necessary.

Financial Information 2023

COMPREHENSIVE INCOME

For the Year ended 30 June 2023

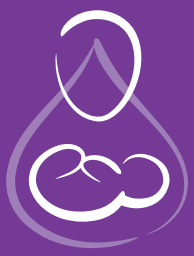
	30 Jun 2023	30 Jun 2022
INCOME		
Revenue	512,658	1,699,626
Other Income	2,678	3,851
LESS EXPENSES INCURRED		
Contracted Staff	224,374	200,273
Research Grants	1,401,716	1,265,402
Right-of-use Depreciation	23,635	25,014
Lease Interest	860	639
Other Expenses	153,620	110,688
TOTAL EXPENSES INCURRED	1,804,205	1,602,016
PROFIT/(LOSS) FOR THE YEAR	(1,288,869)	101,461
OTHER COMPREHENSIVE INCOME (NET OF INCOME TAX)		
Movements for financial assets	2,161,360	(4,976,090)
TOTAL OTHER COMPREHENSIVE INCOME (NET OF TAX)	2,161,360	(4,976,090)
COMPREHENSIVE INCOME FOR THE YEAR	872,491	(4,874,629)

NORMAN BEISCHER MEDICAL RESEARCH FOUNDATION IS A COMPANY LIMITED BY GUARANTEE AND IS REGULATED BY THE AUSTRALIAN CHARITIES AND NOT-FOR-PROFITS COMMISSION.

FINANCIAL POSITION

As at 30 June 2023

	30 Jun 2023	30 Jun 2022
CURRENT ASSETS		
Cash and Cash Equivalents	340,260	446,479
Trade and Other Receivables	485,043	1,665,592
TOTAL CURRENT ASSETS	825,303	2,112,071
NON-CURRENT ASSETS		
Security Deposit	2,789	2,789
Right-of-use Assets	15,757	39,392
Financial Assets	63,390,706	61,226,912
TOTAL NON-CURRENT ASSETS	63,409,252	61,269,093
TOTAL ASSETS	64,234,555	63,381,164
CURRENT LIABILITIES		
Trade and Other Payables	4,554	11,583
Lease Liabilities	16,789	23,513
Provision for annual leave	42,713	35,349
TOTAL CURRENT LIABILITIES	64,056	70,445
NON-CURRENT LIABILITIES		
Lease Liabilities	0	16,789
Provision for long service leave	11,743	7,664
TOTAL NON-CURRENT LIABILITIES	11,743	24,453
TOTAL LIABILITIES	75,799	94,898
NET ASSETS	64,158,757	63,286,266
Reserves	10,184,580	8,023,220
Retained Profits	53,974,177	55,263,046
TOTAL EQUITY	64,158,757	63,286,266



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