



CEO's Message Deb Attard Portughes

It has been a fast start to 2022. Although we remain mindful of COVID and its impact on our community, we are committed to finding new and innovative ways to continue our critical work on behalf of all Australian families. WIRF is entering a new era and our commitment to continue to save lives and make life better for women and babies in Australia is stronger than ever.

Earlier this year, four of our long-serving Directors and champions of women's health retired from WIRF. After almost 12 years of outstanding leadership, compassion and stewardship, Rowena Smith has retired from her position as Chair. Under Rowena's leadership, we have reaffirmed our commitment to our mission, established financial sustainability, and sharpened our strategies for growth and innovation. I would like to thank Rowena for her inspiration, determination and guidance.

Leading gynaecologist and cancer researcher, Professor Yee Leung, and marketing trailblazer, Jim Davies, also stepped down from the Board after each recording more than 10 years of dedicated service. We cannot thank Yee, Jim and Rowena enough for their commitment, hard work and vision in leading WIRF from its first steps to the thriving organisation it is today.

The last of our Board movements involves that of our inaugural Executive Director, Professor John Newnham AM. Beginning with WIRF in 1996, John has served as Chief Scientific Director and Executive Director of WIRF. Over his 25 years with the Foundation, John has ensured that Western Australia is a global leader in research into preterm birth prevention of which you can read more about on page 3.

On behalf of everyone at WIRF, I would like to personally thank John for his dedication to growing the profile of medicine and research in WA, and for his lifelong passion to ensure the next generation of Australians is given the best possible start to life. Despite his retirement, John will remain critical to the success of the Australian Preterm Birth Prevention Alliance and the National Preterm Birth Prevention Program which WIRF is a key partner of.

In a major outcome for WIRF, Professor Matt Kemp has been appointed Acting Chief Scientific Director. Matt brings a wealth of experience, an unparalleled level of research activity and zest for international collaboration to the role. You can read in detail about Matt on page 4. On behalf of the Board and everyone at WIRF I would like to thank Matt for accepting this position and for his commitment to WIRF.

Recently our Ambassador, Amy Hussey, took the chance to reflect on her upcoming 10 year anniversary of her second preterm birth experience. Amy's candid article reminds us how important the work that we do is. You can read Amy's open letter 'My preterm birth story' on page 5. WIRF is incredibly grateful to Amy and Mike Hussey for their unwavering support to WIRF and for sharing their intimate family story with us and our WIRF family. Their help and dedication has made a huge difference to WIRF and to getting the word out about the importance of reducing the rate of preterm birth and its effect on families and the community.

The recent announcement of Telethon's 2022 beneficiaries was an opportunity to reflect on the significance of Telethon's support and the role it has played in shaping and amplifying WIRF research. We are indeed honoured to once again be a Telethon beneficiary. The Chief Investigator of one of our Telethon-funded studies, Dr Matt Payne, is showcased on Page 8's 'Spotlight On' feature.

WIRF's past and future success is only made possible with the help, commitment and dedication of our supporters, staff, volunteers and partners. We are lucky to be supported by some exceptional people and businesses. For this we say thank you from the bottom of our hearts. It is clear that philanthropic support has never been more important to continue to enable our research and expand its positive impact for all women, mothers, babies and families.

Looking into the future, WIRF is sharpening its focus, refining our model and using every tool at our disposal to generate better outcomes for Australian families. We are actively pursuing exciting new research and partnerships and I look forward to reporting more on this soon.

We hope you enjoy reading about WIRF's recent news and activities in this latest edition of *Delivering* the Future. Thank you for your help, generosity, and ongoing commitment to WIRF. We hope you feel as proud as we do about what you are helping us achieve.

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Deb Attard Portughes Chief Executive Officer

Change in scientific leadership for WIRF

Professor John Newnham AM, a leader in the field of preterm birth prevention and medical research in Australia has retired from his position as WIRF's Chief Scientific Director after more than 25 years of service to the women, infants and families of Western Australia.

Joining WIRF in 1996 as the Foundation's Executive Director, Professor John Newnham AM is one of the world's leading authorities in the prevention of preterm birth. His 35 year+ contribution to the field of obstetrics has positively impacted and saved the lives of countless women and infants and his contributions to obstetrics and foetal medicine will positively echo for generations to come.

Professor Newnham has devoted his life to medicine and research for the advancement of all women, mothers and their babies. His enduring research interest to discover strategies to safely reduce the rate of preterm birth and to improve the health outcomes for women and infants has been at the core of many of WIRF's scientific and public health achievements.

Among his impressive record of awards and recognitions, was Professor Newnham's naming as Senior Australian of the Year in 2020. This award recognised Professor Newnham for his clinical excellence and his pioneering approach to preventing early birth and its far reaching impacts on Australian families, communities and health systems.

In 1989, Professor Newnham established the Raine Study, the world's first and most enduring pregnancy-focused lifetime cohort project.

In 2014, Professor Newnham and WIRF launched the Western Australian Preterm Birth Prevention Initiative also known as The Whole Nine Months.



This pioneering initiative resulted in an 8% reduction of preterm births across the state and a 20% reduction at King Edward Memorial Hospital in the first full year of operation.

Supported by WIRF and the Federal Government, the National Preterm Birth Prevention Program is now being implemented nationwide by the Australian Preterm Birth Prevention Alliance, which Professor Newnham will focus on and continue to Chair.

WIRF's Directors and the entire WIRF team would like to thank Professor John Newnham AM for his dedicated service to the Foundation and the women, mothers and families of WA.

As WIRF enters a new chapter, the WIRF Board is excited to announce the appointment of Professor Matt Kemp as our Acting Chief Scientific Director.

Through a diverse and acclaimed research portfolio, Professor Kemp has already ensured that WA and WIRF is a global leader in research into perinatology and finding new solutions to the problems that emerge during the perinatal period. For more about Professor Kemp and his appointment see page 4.

WIRF's Directors and the WIRF team welcome Professor Kemp and a new generation of high quality team of researchers to WIRF.

Perinatology trailblazer named Acting Chief Scientific Director

The Board of the Women and Infants Research Foundation is proud to announce the appointment of Professor Matt Kemp as the Foundation's Acting Chief Scientific Director. In 2009, Professor Kemp was recruited to Perth to lead WIRF's sheep-based perinatal research program.

He is an Adjunct Professor, in the UWA Division of Obstetrics and Gynaecology and holds a number of international appointments, including Honorary Associate Professor at Tohoku University Hospital, Japan, and Associate Professor at the National University of Singapore. He is a Harvard alumnus, and graduate of Harvard Business School's Program for Leadership Development. He holds PhDs in Medicine and Education and completed postdoctoral training at Oxford University.

Professor Kemp's research interests in perinatology are focused on improving outcomes for preterm infants, and include anti-inflammatory and antibiotic therapies, antenatal steroid treatment optimisation, minimally invasive fetal diagnostics, and the development of an artificial uterine life support platform for extremely preterm infants. His work has received significant international attention and has attracted more than \$10 million in funding from a range of national and international agencies. These include: the National Health and Medical Research Council (NHMRC), the National Institutes of Health, the Bill and Melinda Gates Foundation, the Royal Society, the Ramaciotti Foundations and the Financial Markets Foundation for Children.

His 2018 NHMRC Artificial Placenta funding application was the highest scoring Project Grant awarded in Western Australia in over a decade and ranked among the top three scoring



Project Grants in the country that year. He has published 130 peer-reviewed papers and scientific reports. His work has significantly advanced our understanding of how the fetus responds to infectious and inflammatory insults, how susceptibility to infection changes with gestation, and how common prematurity-associated infections can be targeted with antibiotic agents.

Working with collaborators in Japan, Professor Kemp's studies with the artificial uterine life support platform for extremely preterm infants have generated national and international interest and are presently in an advanced phase of preclinical development. The impact of his work in this field is reflected in regular media engagements and an invited exhibition at Ars Electronica Linz, Europe's largest Art-Science festival.

He continues to work closely with academic and industry partners including Chiesi Farmaceutici S.p.A. and Nipro Corporation. Working with collaborators in the United States, Professor Kemp's antenatal steroid studies have shown that current dosing strategies are excessive and demonstrated how modulated dosing can be used to deliver optimal preterm lung maturation.

Board changes

WIRF has had recent changes to its Board. These changes include the resignation of long-serving Chair, Rowena Smith. Rowena joined the WIRF Board in 2010 and has played a pivotal role in a number of WIRF's major achievements and milestones. Acting in the role of Chair is Tony Walsh, Company Secretary at Legend Mining Limited. Also resigning

from their Board positions are Prof Yee Leung, Prof John Newnham AM, and Mr Jim Davies. WIRF thanks Rowena, Yee, John and Jim for their guidance, support and leadership over their decades of service. These changes will ultimately allow WIRF to achieve greater diversity through its Board; strengthening governance and creating new strategic opportunities.

My preterm birth story: Amy Hussey

In 2007 I was pregnant with my third child. I was enjoying a problem-free pregnancy when at 24 weeks out of nowhere I started having complications and ended up in King Eddies on bedrest.

For the next 10 days I would lie there hoping blood clots on my placenta would resolve so I could go home to my 3-year-old daughter and 14-month-old son. After a stay in hospital, I was sent home on light duties and told to stay close to the hospital.

My complications worsened. I found myself in an ambulance in the middle of the night ringing my mum and saying, 'If anything happens to me mum, promise you will look after my babies'.

A few days later I had an emergency C section and delivered a baby girl at 28 weeks weighing just over 1 kg. For 12 weeks I would spend my days at KEMH sitting next to my baby, Molly, expressing breast milk, touching her skin and when well enough having skin to skin cuddles.

What stays with me about this awful experience is when I was well enough to go home I couldn't take my baby with me. I stood at the automatic doors feeling as though an elephant was standing on my chest trying to walk out of the door with tears streaming down my face.

Eventually after 11 weeks of spending up to 16-hour days at the hospital, coming and going and trying to spend time with my other two children at home, we were able to take our precious Molly home. It was an amazing feeling of relief and gratitude that our baby girl had survived and was going to be a part of our family.

Unfortunately for so many babies born too soon once you take them home that is not where the preterm birth journey ends. Our beautiful



girl Molly was diagnosed with Cerebral Palsy and will live with this for the rest of her life.

After many tests and reassurance that having another preterm baby was extremely unlikely to happen to me again, we decided to complete our family with a fourth child.

The pregnancy was smooth sailing until at 28 weeks I fell incredibly sick and was rushed to KEMH. I had contracted an antibiotic resistant bug and my body was trying to dispel whatever it could to help me. Oscar was born a few hours later weighing just over 1kg and very unwell himself having contracted the infection.

Once again, we had a rollercoaster ride of ups and downs over the next 12 weeks never really sure of whether our baby would survive and if he did what his future would look like.

In 2018, my husband and I were asked if we would be interested in becoming Ambassadors for WIRF. It was an easy decision to make. Because we still don't know why some of our babies are born too soon, but we desperately need to.

Unfortunately for so many babies born too soon once you take them home that is not where the preterm birth journey ends.

Fossil fuel pollution hurting fertility rates





Decreasing fertility rates may be linked to pollution caused by fossil fuel burning, a review of scientific studies involving WIRF researchers has found.

In 1950, women were having an average of 4.7 children each. Now, the global mean is 2.4.

Much of the decline can be explained by massive social changes like the invention of cheap and accessible birth control and increasing numbers of women gaining the freedom to work outside the home.

But toxic fossil fuel chemicals could also play a role in the plummeting figures according to WIRF Research Fellow, Professor Roger Hart.

The team hypothesise that declines in fertility rates might be linked to exposures to chemicals originating from fossil fuels causing human reproductive problems and cancer.

"The current unsustainable birth rates will eventually result in decreasing populations."

Burning fossil fuels releases a toxic cocktail of chemicals, all of which have been found in people's blood, urine, semen, breast milk, and fatty tissue.

Many of these pollutants are "endocrine disruptors" — in short, they scramble hormonal systems, damage sperm quality, and harm reproductive health.

Professor Hart, also Head of Fertility Services at King Edward Memorial Hospital and Medical Director, Fertility Specialists of Western Australia, said subtle alterations in fertility rates were already visible by the early 1900s, but had accelerated rapidly.

"Most industrialised regions now have rates below levels required to sustain their populations," he warns.

If further research proves this toxic connection, governments may have to step in with "decisive regulatory action" to reverse the trend.

Other indicators of declining reproductive health include increasing incidence in testicular cancer among young men and an unusual number of twins being born.

WIRF LAF team sweep SRI Awards

WIRF's Large Animal Facility (LAF) research team has won a number of major awards as part of the Society for Reproductive Investigation's (SRI) 67th Annual Scientific Meeting (ASM).

WIRF Research Fellow, Dr Tsukasa Takahashi took out the SRI President's Plenary - being ranked one of the four top abstracts from a PhD student.

Dr Takahashi's research found that continuous (not pulsed) dose of fetal betamethasone extends the durability of antenatal steroid (ANS) therapy for those at risk of preterm birth.

The use of steroid therapy to rapidly mature the fetal lung has been responsible for saving the lives of countless thousands of preterm babies.

Continuing the remarkable result for the LAF team, WIRF's Dr Haruo Usuda was awarded the SRI's Laxmi Baxi award for his further examination into antenatal steroids.

Dr Usuda's study demonstrated lower dose antenatal steroids resulted in equivalent lung maturation but with less side effects for neonates when compared to current ANS dosing treatments.

His research has also suggested that the dose of ANS planned in resource-limited settings could be reduced by 50% or more with considerable benefits to peopates.

This finding will play a key part in the World Health Organization's ACTION III which provides a global framework to improve patient safety at all levels of health systems over the next 10 years.

Given the strong link between excess fetal steroid exposure to lower birth weights and other potentially adverse effects, these results are set to play a major role in improving health outcomes for all preterm infants.

In total, the LAF team was awarded for two oral and three poster presentations at the SRI Annual Scientific Meeting held in Denver, Colorado.

New Development Managerjoins WIRF

Kate Miles has joined WIRF as its new Development Manager and has her eyes firmly set on supporting and growing the Foundation's life-changing research and projects.

Kate has been working in the fundraising and development space for over 13 years with her strengths being in the area of growing and maintaining long-term, mutually beneficial partnerships both with major donors and corporate partners.

In her role as Development Manager, Kate will be building support, developing and enhancing initiatives and fundraising for

WIRF's transformative programs initiated in Western Australian and now positively impacting communities across the globe.



Spotlight on Dr Matt Payne

WIRF Senior Research Fellow and Head of Laboratories, Dr Matt Payne, has focused his attention on the vaginal microbiome and how certain combinations of vaginal microbes can impact a pregnancy outcome.

In recent years the importance of the human microbiome (the collective community of bacteria, viruses, fungi and prokaryotes found in and on our bodies) to human health has received widespread media attention.

Although most focus has been on the gut microbiome, Dr Payne has turned his attention to specific bacterial DNA signatures present in the vagina and how they can impact a pregnancy.

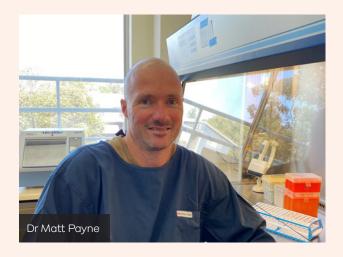
Dr Payne's research aims to develop new diagnostic tests to predict women at high risk of preterm birth, a condition that is the leading cause of death and disability in children less than five years of age.

It impacts approximately 8% of Australian infants and is twice as prevalent in First Nations people.

Since 2012, Dr Payne led two pregnancy cohort studies that together documented the presence of specific vaginal microbes and linked this with preterm birth.

From this research, in 2017 he designed a new microbial diagnostic test called the GLU test, which was able to predict women at high risk of preterm birth in mid-pregnancy using a self-collected vaginal swab sample. Women who tested GLU-positive were four times more likely to give birth preterm than those who were GLU-negative.

In 2018, Dr Payne began a randomised clinical trial, The Preterm Birth Prevention Study, in Perth.



This trial utilises the GLU test in combination with a specific antibiotic and probiotic treatment regimen in mid-pregnancy. The trial aims to identify if applying this treatment protocol to GLU-positive women in mid-pregnancy is effective at preventing preterm birth.

Scheduled for completion at the end of 2022, if successful, the GLU test and associated treatment protocol would likely result in the single biggest reduction in preterm births in the history of obstetrics.

At present Dr Payne is focused on bringing the current trial to completion, whilst at the same time expanding his research to focus on First Nations women, who are disproportionately affected by preterm birth.

He is also pioneering research into the vaginal microbiome present during conception and how this may impact pregnancy outcome in The PREDICTOR study, which will begin in mid-2022.

Federal funding to reduce rates of Aboriginal preterm birth

New Federal funding is set to further develop the reach of WIRF's pioneering GLU Test to determine if this breakthrough in pregnancy care is also an effective tool for Aboriginal and Torres Strait Islander (ATSI) women. First Nations women continue to be disproportionately affected by preterm birth with rates of preterm birth for ATSI women is almost double that of non-ATSI women.

Included in the 248 innovative research projects to receive funding through the 2022 Ideas Grants scheme, is the GLU Test.

This funding will enable the study team to work with First Nations women, healthcare providers and communities, to determine if vaginal

bacterial DNA signatures are a useful tool in predicting ATSI women at risk of spontaneous preterm birth. The funding will also allow the development of a simple pre-pregnancy diagnostic test for prediction of preterm birth risk in all Australian women around the time of conception.



Preterm Study needs you!

WIRF is looking to recruit more pregnant Western Australian women to its Preterm Birth Prevention Study.

Using a pregnant woman's bacterial DNA signature, the GLU Test algorithm has already been shown to be able to predict women at high risk of preterm birth. Specifically, GLU-positive women have been found to be 4-fold more likely to deliver a preterm infant than GLU-negative women.

Over 2700 women have taken part in the study, but the COVID climate of the past two years has meant recruitment has slowed. With 2022 the final year of the study, the team

is ramping up recruitment efforts hoping to reach their goal of 4000 pregnant women.

By taking part in the trial, Western Australian women are contributing to cutting edge research that will redefine how pregnancies are managed and will result in the lives of thousands of infants being saved.

If you would like to participate in this study please visit: www.wirf.com.au/PBPstudy

We thank all participants for helping us to continue to make pregnancy safer for all women and their babies.

The Women and Infants Research Foundation thanks the Eastcourt Foundation for its generous support of our research and programs. In partnership with the Eastcourt Foundation, WIRF is working to expand the scope and reach of our programs to the benefit of all Australian women, infants and families.



Dr Sean Carter: a John Monash scholar

One of Western Australia's most promising early career researchers has been awarded a prestigious John Monash Scholarship for his research into preterm birth prevention conducted through WIRF.

Obstetrics and Gynaecology Registrar at King Edward Memorial Hospital (KEMH), Dr Sean Carter, was one of 18 scholarship recipients announced by the General Sir John Monash Foundation, Australia's most recognised postgraduate overseas study program.

For several years Dr Carter has worked closely with WIRF investigating the prevention and management of preterm birth using new technologies. His research focuses on the continued development of WIRF's Artificial Placenta for babies born at the border of viability. Dr Carter intends to undertake his PhD through the National University of Singapore (NUS) to further investigate the use of antenatal corticosteroids in the management of preterm birth.

His PhD research will blend clinical studies (new corticosteroid drug formulations), large animal (sheep) and laboratory studies involving artificial intelligence and advanced molecular techniques to study preterm lung maturation and the effects of antenatal corticosteroids. After completing his PhD,



Dr Carter said he hoped to return to WA to be an Obstetrics and Gynaecology Senior Registrar at KEMH, with longer term plans to be a Maternal Fetal Medicine specialist.

"I want to care for the highest risk pregnancies, and in doing so, directly contribute to the health and well-being of women and babies born in Australia." Dr Carter said.

Through WIRF, Dr Carter is ensuring that Western Australia remains a global leader in research into perinatology and finding new solutions to the problems that emerge during the perinatal period. We wait with great anticipation for the results from Dr Carter's research and the bilateral research opportunities he is able to promote between the National University Singapore and the University of Western Australia.

Harvard scholarship boon for WIRF CEO

WIRF CEO, Deb Portughes, has been named as one of just two scholarship recipients for the prestigious Harvard Club of Australia Ferris Family Fellowship.

First initiated in 2001, this program is an opportunity for non-profit leaders to attend the course Strategic Perspectives in Nonprofit Management in July 2022 at the Harvard Business School in Boston.

On hearing of her scholarship win, Ms Portughes reflected 'I am honoured to receive the Harvard Club of Australia Ferris Family Fellowship for 2022. This is a wonderful learning opportunity, and I look forward to sharing my learnings with our team to drive significant growth and change for WIRF by taking our programs global to achieve the best outcomes for all women, mothers and families. I would like to thank the Ferris Family and the Harvard Club of Australia for this opportunity.'



Euroz Hartleys Foundation: Commission for a Cause 2022

The Women and Infants Research Foundation is extremely honoured to be named a beneficiary of the 2022 Euroz Hartleys Foundation's Commission for a Cause.

Euroz Hartleys' fourth annual 'Commission for a Cause' on 17 June will see 100 per cent of all brokerage generated on that day donated equally to WIRF and three other Western Australian charities: the Perth Children's Hospital Foundation, Lifeline WA and the Western Australian Cricket Foundation.

Since 2019, the Euroz Hartleys Foundation has donated more than \$2.6 million to a broad range of charities. In addition to financial

support, Euroz Hartleys employees are encouraged to volunteer their time to charities.

WIRF and Euroz Hartleys proudly share a commitment to helping Western Australian communities in need. The funds of the Euroz Hartleys Foundation continue to contribute and make a difference to a number of WA-based charities and the communities they serve.

WIRF would like to thank the Euroz Hartleys Foundation for their incredible support.

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A bright new future for King Eddies volunteers

The Women and Infants Research Foundation and King Edward Memorial Hospital (KEMH) has unveiled plans to transition its hospital volunteer team to Ronald McDonald House Charities Western Australia.

With the future move of WA's tertiary maternity hospital from its current site in Subiaco to Nedlands a major factor, WIRF and KEMH have been considering how best to continue and grow the volunteering program while planning for this future relocation.

The RMHC WA Volunteer Program is a highly engaging program which encompasses over 360 volunteers. The affectionately known 'RMHC WA Blue Army' work across a multitude of diverse and rewarding roles.



WIRF remains committed to its family of volunteers and to ensuring this group of generous and inspiring individuals are able to continue their selfless work for the patients and services of KEMH. A number of these volunteers will remain with WIRF namely working in the WIRF café and gift shop, the Opportunity Shop and in the Social Work department to help with the very important task of putting together Baby Bundles and Women Care packages.

WIRF would like to acknowledge the work of Executive Director of the Womens and Newborn Health Service, Dr Jodi Graham, and Director of Midwifery, Nursing and Patient Support Services, KEMH, Graeme Boardley, for their support to WIRF and their role in creating this new partnership which will ensure the longevity of volunteers of KEMH.

Women give us the precious gift of life. We are dedicated to giving them and their families the healthiest

and their families the healthiest possible future.

WIRF is one of Australia's leading medical research institutes pioneering a new era of preventative medicine, solving problems at the earliest stages before they start. Our world-class research and public healthcare programs are focused on the most critical issues impacting women, infants and pregnancy:

- the prevention of preterm birth
- gynaecological cancers
- women's mental health
- development of an Artificial Womb

Together with our partners and supporters, we have the opportunity to fundamentally improve

maternal-fetal medicine, and significantly advance women's healthcare. We hope you feel as proud as we do about what you are helping us to achieve on behalf of all women, mothers and their babies.

We ask you to please continue your support of WIRF so we can deliver the healthiest possible future for all Australian families.

Regular giving

By setting up a regular gift with WIRF you can help make an ongoing difference to the lives of women, infants and families across Australia. To set up your monthly donation go to: wirf.com.au/donate

THANK YOU FOR YOUR SUPPORT

	Yes, I would like to make a donation to the Women and Infants Research Foundation All donations of \$2 and over are tax deductible. You can also donate online: wirf.com.au/donate			
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