

WINTER 2024

# HUDSON NEWS



*"It's been a real journey. It affects literally every single area of my life: socially, mentally, emotionally, physically."*

– Maddy Forster, endometriosis patient advocate

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# Director's message

Professor Elizabeth Hartland



## Advancing women's health

Every day we are reminded that women's health conditions don't receive the funding or priority in medical research that they should. Women are more likely to die from a heart attack, twice as likely to have a hip replacement fail (prosthetic hips have been developed for the male body), more likely to be over medicated (women are frequently excluded from clinical trials) and less likely to have their pain taken seriously.

For example, endometriosis is a common inflammatory condition affecting the lives of 1 in 7 women, yet the cause is unknown and there is no cure for this debilitating condition.

Our researchers are fighting to increase awareness to address the unmet medical needs of health conditions affecting women, but these are often conditions no-one talks about, which makes it difficult to attract funding.

Pelvic organ prolapse (POP) is a prominent example. You probably know at least one person who lives with POP, but you have probably never heard it discussed.

Conditions like POP, which affects up to 40% of all women who have experienced childbirth, can lead to debilitating, lifelong symptoms. We desperately need more attention and more funds in order for medical researchers to produce effective treatments and interventions for POP.

We know that every dollar invested in women's health research is repaid many times over in reduced healthcare costs, increased productivity and improved quality of life. Unfortunately, these benefits don't always translate into funding when it comes time for research grants to be allocated.

That is why it is so important for us to explore every possible avenue for research funding and why every dollar you commit to our work makes such an important difference.

We are seeing the benefits of those funds, not only in our work on endometriosis, but also in ovarian cancer, where Hudson Institute-developed technology is now being used to create the next generation of diagnostic tests.

We all know that high-quality research requires significant funding, and it takes years to bring an idea from the lab into the clinic.

At Hudson Institute, we continue to strive for something better for women and their health conditions. We have a long way to go, but two things are certain: we will continue to strive to overcome these challenges and your help will make a major difference to achieving these goals.

Thank you for your support.

**Professor Elizabeth Hartland**  
Director and CEO

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SCAN ME





# Two women, one goal



Like most endometriosis sufferers, Maddy Forster went from knowing very little about the disease to being something of an expert, but it was a process that took years and included many wrong turns along the way.

Maddy Forster, endometriosis patient advocate.

At just 26 years old Maddy has just had surgery for the sixth time, and she knows that, until better treatments are found, it's far from her last.

"It's been a real journey. It affects literally every single area of my life: socially, mentally, emotionally, physically," Maddy said.

"There's a real lack of understanding by people around us who just don't get it, whether that's an employer, a friend, family member. It's something people struggle to understand because I don't look sick."

Dr Fiona Cousins is an endometriosis expert - her knowledge comes from a very different experience of the disease - but when the

two women met for the first time, there was plenty of common ground.

**"I was constantly getting pain and I ended up back at the doctor's every six to 12 months saying: 'Things don't feel right', and I was just told nothing was wrong. It took a lot of time and money to eventually get that diagnosis in my third excision laparoscopy."**

**Maddy Forster, endometriosis patient advocate**

Dr Cousins has spent 10 years studying the condition, understanding how and why it occurs, and looking for ways to minimise its impact.

What we don't know is why some people get endo and some people don't, and that's what research scientists like me are working on," she recently told Channel 9's Today Show.



Dr Fiona Cousins and endometriosis patient advocate, Maddy Forster, speak on the latest research in our lab.

*continued next page*



## Power our research with your legacy.

Leaving a gift in your Will to Hudson Institute will allow us to power new and innovative treatments and cures for current and future generations.

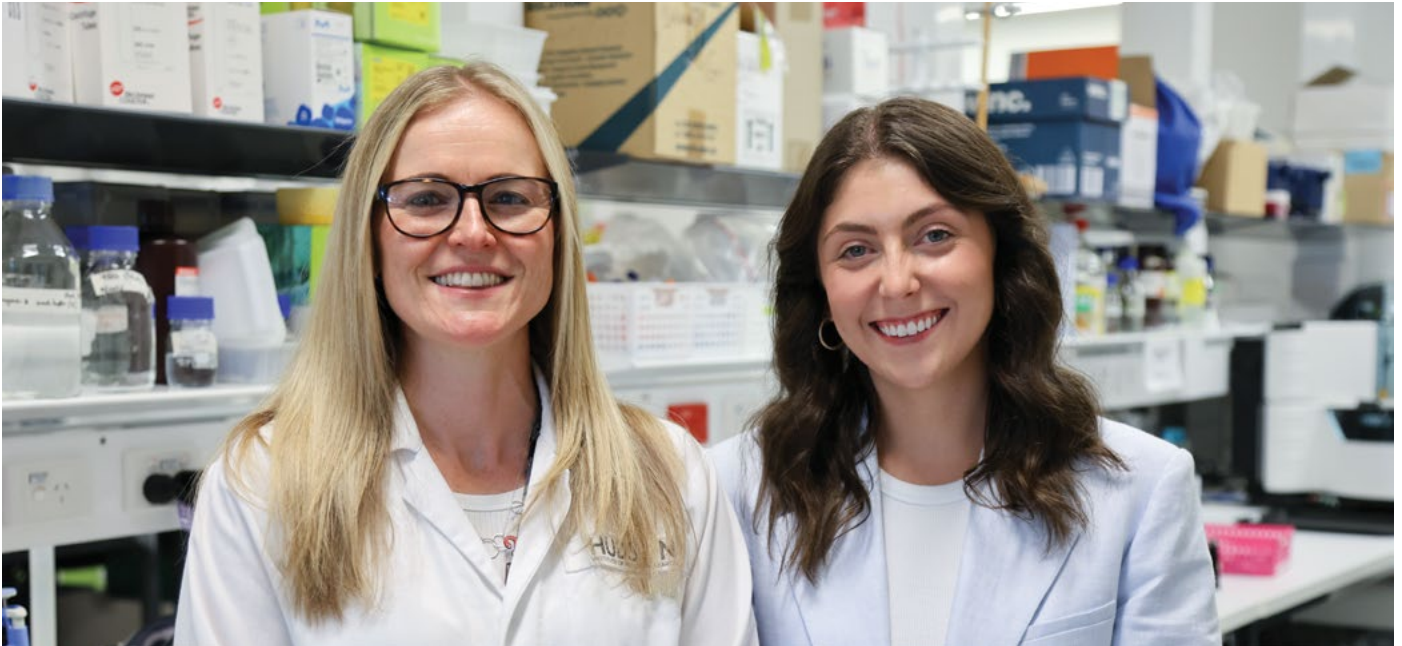
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L-R: Lachy Kinsella and his sister, Isabelle Kinsella. Lachy is a survivor of neuroblastoma cancer.



L-R: Dr Fiona Cousins and endometriosis patient advocate, Maddy Forster, speak on the latest research in our lab.

Dr Cousins's latest research centres on a specific cytokine ("just a fancy word for a secreted protein", in her words) discovered here at Hudson Institute, with the potential to do some wonderful things.

**"It's not ideal. At the moment there are very few treatment options for people who have endometriosis."**

**Dr Fiona Cousins**

IFNε-based treatment that can be tested on human subjects, but the data so far looks very encouraging.

Interferon Epsilon (IFNε) was first identified by Prof Paul Hertzog's lab around 20 years ago, but more recent studies have unlocked more than just its anti-inflammatory potential.

IFNε acts as a natural booster of immunity to infections, so Dr Cousins is investigating whether it can also protect the body against endometriosis or even detect and destroy endometriosis lesions.

The pre-clinical results are extremely promising, but it's early days.

"This cytokine has known properties: it can regulate cell growth and also regulate the immune system - two things that we know don't work in endometriosis."

Dr Cousins says there are still a lot of boxes to be ticked before there is an

The two women met recently in the lab, giving each a glimpse into the other's world and giving everyone else a real-life reminder of why this research is so important.

Dr Cousins needed no reminding, but it always helps to put a face to the condition you are striving to conquer.

Maddy knows she is not alone on this journey. She also knows that anyone who has endometriosis faces their own individual battles in a society that too often dismisses this debilitating condition as "just period pain".

"Life for me didn't follow the path that I thought it would; however, I've tried to make something of it. I now run my own business and I'm an advocate for those who have endometriosis and feel like they can't speak up, because speaking out about it is something that's really important to me," said Maddy.



*Any donation, big or small, will power improved diagnoses and treatments for endometriosis.*

**Power our endometriosis research. Donate today**



A photograph of Professor Caroline Gargett, a woman with short reddish-brown hair and glasses, wearing a white lab coat with the 'HUDSON INSTITUTE OF MEDICINE' logo. She is smiling and looking towards the camera while working in a laboratory. She is holding a small black object in her right hand and has her left hand on a piece of laboratory equipment. The background shows shelves with various bottles and lab equipment.

## Biobank project tackles endometriosis diagnosis and treatment

Professor Caroline Gargett has spent decades working to address the two major issues presented by endometriosis: diagnostic delay and poor treatment options.

Professor Caroline Gargett in her lab at Hudson Institute.



Endometriosis is a disease affecting women where tissue similar to the lining of the womb grows outside the womb, in other parts of the body. Symptoms include severe and chronic pelvic pain, and while endometriosis most often affects the reproductive organs, it is frequently also found in the bowel and bladder and has occasionally even been found in muscles, joints, the lungs and the brain.

Endometriosis is a “quality of life” disease and numerous international studies have demonstrated that the long diagnostic delay impacts women’s health and wellbeing, including social activities, mental and emotional health, education, employment, finances and sexual relationships.

Professor Gargett is a world leader in this area – her international standing was recognised by the Endometriosis Foundation of America, which named her among the inaugural members of its Scientific Advisory Board. She also has a position on the International Scientific Committee of the Fondation pour la Recherche sur l’Endométriose in France.

In 2019, Professor Caroline Gargett and collaborators at the University of

Queensland and Monash IVF were the first to be awarded funding from the United States Department of Defense for endometriosis research (AU\$3.05 million over 4 years) to determine the cause and the physiological processes associated with the disease.

In a study published in *Reproductive Biomedicine Online*, Prof Gargett’s team was the first in the world to show the role of endometrial stem/progenitor cells in the disease – establishing that they can escape in menstrual fluid from the uterus through the fallopian tubes and into the pelvic cavity, where they have the potential to survive and grow into painful lesions.

Prof Gargett is currently working on a non-invasive diagnostic technique using a woman’s own menstrual fluid to determine the presence of endometriosis. At present, apart from imaging, which cannot identify all types of endometriosis, surgery is still the only method of establishing a definitive diagnosis and the only way to remove the lesions which cause so much pain and distress. However, they frequently return in most patients.

Key to the success of this project is the establishment of the Australian Menstrual

Fluid Biobank for Endometriosis Research (AMBER), a sustainable, living biobank of five menstrual fluid components per sample, to enable the development of new treatments and diagnostics for endometriosis and potentially other gynaecological conditions.

Prof Gargett’s aim is to dramatically reduce the time to diagnosis from the current average of 6.5 years and for pathology services to analyse menstrual fluid samples as commonly as blood tests.

“Menstrual fluid contains endometrial tissue and provides a non-invasive way of obtaining this tissue,” Prof Gargett said. “We want to develop a diagnostic test for endometriosis based on its cellular, protein or molecular components.”

An added bonus of the Biobank concept is that these samples could also be used to generate 3D endometrial organoids and stromal cultures, which can then be tested to identify the most suitable treatment for each individual patient.

This ambitious project could one day be recognised as the crucial point at which both diagnosis and treatment of endometriosis became quicker, easier and more personalised.

**“We want to develop a diagnostic test for endometriosis based on its cellular, protein or molecular components.”**

**Prof Caroline Gargett**

Below Hudson Institute’s endometriosis researchers







(L-R): Inner Wheel members with Professor Graham Jenkin (second from left) and Dr Suzie Miller (second from right) of the Ritchie Centre.

# Inner Wheel Foundation: a vital partner for our science

Collaborations are a vital part of successful science, whether they are a group of researchers from different backgrounds creating a synergy greater than the sum of its parts or the connection between funders and the work they support.

A collaboration that goes back further than Hudson Institute's 10 year history is the one we are lucky to share with Inner Wheel, which is one of the largest voluntary women's service organisations in the world.

Of particular interest to Inner Wheel in Australia is the research being done at Hudson Institute on the use of umbilical cord blood to prevent and treat the brain injuries that can commonly affect very preterm babies.

## A long and fruitful relationship

Inner Wheel have had a long relationship with veteran neuroprotection specialist, Professor Graham Jenkin, and, in more recent years, with stem cell biologist, Dr Courtney McDonald, who researches

stem cell therapies that reduce brain inflammation (neuroinflammation) and brain injury in vulnerable newborns, which can lead to conditions such as cerebral palsy.

Dr McDonald says the passion the members at Inner Wheel have for fundraising for research into umbilical cord blood is truly inspiring.

"Inner Wheel's continued support of our cord blood research for over 10 years has led to multiple large NHMRC and MRFF grants, making it possible to take our early preclinical findings all the way through to clinical trials," she said.

## Benefits beyond research

And the benefits go beyond the research itself: "Personally, it has also allowed me to establish my own independent research team; I am very grateful for their dedicated fundraising efforts," Dr McDonald said.

The groups based in Wangaratta, Wodonga, Bundoora and Narre Warren have perhaps the closest connection with our work; they

have been visiting us at Hudson Institute – and before that at the Monash and Prince Henry's Institutes – for more than a decade.

Their latest visit gave them a chance to tour our labs and hear about the latest research from Dr McDonald and her colleagues, including Dr Tayla Penny, another beneficiary of Inner Wheel funding.

Members from Inner Wheel Wangaratta, Wodonga, Bundoora and Narre Warren

also enjoyed the opportunity to catch up with their old friend Prof Jenkin, whose welcome was as warm as ever.

This is one scientific collaboration that has proved to be extremely fruitful, and, thanks to Inner Wheel, thousands of babies will grow into healthier, more productive adults as a direct result.

(R-L): Dr Courtney McDonald speaks about her research to members in the Ritchie Centre lab.



**"Inner Wheel's continued support of our cord blood research for over 10 years has led to multiple large NHMRC and MRFF grants, making it possible to take our early preclinical findings all the way through to clinical trials."**

Dr Courtney McDonald

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INSTITUTE OF MEDICAL RESEARCH





Professor Caroline Gargett and Dr Fiona Cousins, endometriosis research pioneers in their lab at Hudson Institute.

## Our researchers are powering towards better diagnoses and treatments for endometriosis



*Give before 30 June 2024 and help us improve the lives of more people.*

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# Flu and you – what you need to know in 2024



A/Prof Michelle Tate in her lab

## Fast flu facts

- Australia’s pre-COVID pandemic flu seasons ran April to October, peaking in August. The last two flu seasons have started earlier and lasted longer – beginning in March and peaking in June.
- Last year in Australia, there were 252,296 confirmed cases, with 3,696 people hospitalised – 256 of them in ICU – and 376 deaths.
- There are three types – A, B and C. Influenza A and B are the most common, but the strains change each year.
- Flu symptoms usually last 2-7 days but they can last as long as a couple of weeks. Symptoms are worst for 1-2 days. A cough and general fatigue may continue after other symptoms have gone.
- Seasonal vaccination remains a safe and effective way to protect against severe influenza.

Hudson Institute’s resident flu guru, Associate Professor Michelle Tate, answers all your questions heading into this flu season.

### Q: How do I know if I have flu?

**A:** Flu symptoms usually start with a runny nose, sneezing and sore throat, like a cold. What makes the flu different is that it takes hold quickly and moves into headaches, fever or chills, aching muscles and joints, cough, shortness of breath, fatigue and weakness.

### Q: Are flu symptoms the same for everyone?

**A:** Children’s symptoms are similar to adults, but can include nausea, vomiting and diarrhea. Individuals with underlying chronic respiratory conditions such as asthma may experience wheezing, shortness of breath and chest tightness.

### Q: What should I do if I have the flu?

**A:** For a healthy adult, your immune system will usually clear the flu virus. It is essential to stay at home and rest. Other things that may help are

- Paracetamol and/or ibuprofen can lower your temperature and ease aches and pains
- Drink plenty of fluids
- Throat lozenges and saline nasal drops can help ease nose and throat symptoms
- See a doctor if symptoms change or become worse. Complications are more likely in the at-risk groups.

### Q: I had the influenza vaccination in 2023, do I need it this year?

**A:** As the virus circulates in humans, it mutates quickly. Each year the influenza vaccine is made to protect against circulating strains, thus the vaccine can change from year to year. Also, your protection declines rapidly, so it’s important to receive the latest vaccine every year. For this reason, it is recommended to receive the 2024 flu vaccination.

### Q: How long does it take for the flu vaccination to work?

**A:** It takes 2-4 weeks to be effective, so it’s wise to be vaccinated as soon as possible. The vaccine does not contain live virus and can’t cause flu, but may result in low-grade flu-like symptoms for 1-2 days.

**Scan for your copy of our “Flu and you” fact sheet** >

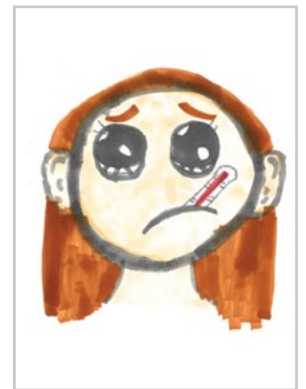
Kids connected to Hudson Institute were asked to draw what it feels like to have the flu or what the flu looks like.



“What the flu looks like” by Charlie Donnelly



“What it feels like to have the flu... and how to manage it” by Emilie Herrison



“What it feels like to have the flu” by Georgia Schumann