WINTER 2023

# HUDSON **NEWS**

*It's hard to imagine four words more frightening than "Your child has cancer".*

Hudson Institute of
Medical Research
27–31 Wright Street
Clayton VIC 3168
Australia

**t:** + 61 3 8572 2700
**e:** info@hudson.org.au
**w:** hudson.org.au

**Change starts here.**
**Donate today.**

# Director's message

**Professor Elizabeth Hartland**

## For children with cancer, change starts here

Childhood cancer is rare but devastating, and new treatment options are desperately needed. In the last four decades, the US Food and Drug Authority (FDA) has approved 500 drugs for adult cancers but just 12 to treat childhood cancers.

Children's cancers are not the same as adult cancers, and the impact of treatments on the developing body can lead to long-term detrimental effects on survivors. We need better and more precise therapeutics to increase survival and reduce the side effects of treatment.

As you'll read, our Winter 2023 *Hudson News* has a focus on childhood cancer research under the leadership of Professor Ron Firestein, Head of our Centre for Cancer Research, and also co-leader of the Victorian Paediatric Cancer Consortium (VPCC).

Our science offers hope that another child like Luca Boggia, who you'll read more about in this edition, will benefit from improved therapies and avoid harrowing rounds of chemotherapy or radiotherapy as a result of our research.

You'll hear more about how our Childhood Cancer Model Atlas (CCMA), the world's largest collection of high-risk paediatric cancer cell lines, was developed at Hudson Institute, providing a unique open-source facility to paediatric oncologists and cancer researchers worldwide.

The story of the CCMA was recently published in the prestigious journal *Cancer Cell*, explaining how it was developed through active collaborations with 34 cancer research institutes, universities and academic medical centres. **We are proud to be driving this worldwide collaborative work that will change the landscape of childhood cancer research.**

While cancer affects so many lives negatively, it can also spur on amazing action. You'll hear more about one of our incredible donors who decided to give while living to osteosarcoma research in Dr Jason Cain's lab.

This edition has a major focus on childhood cancer, but we also feature a story on our team of researchers, including PhD student Elisabeth Ng and Associate Professor Jun Yang, who are pioneering better detection and treatment of a major undiagnosed cause of hypertension, affecting around 600,000 Australians.

Your annual flu update comes from Associate Professor Michelle Tate, a leading expert on the flu and RSV viruses. She explains how to prepare and what to look out for this flu season.

You can read more about our research on our website or stay up to date with it all by subscribing to our mailing list.

For those who generously donated to our Festive Health Appeal earlier in the year, I'd also like to thank you for your support.

**As we work towards innovative treatments and cures for childhood cancer, your continued support is key to ensuring that our scientists can solve important challenges like these for more children.**

We hope that the updates in this newsletter inspire you to give generously. With your commitment, together we can support the research that helps improve survival rates and quality of life for thousands of children.

With gratitude,

**Professor Elizabeth Hartland**
Director and CEO

Cover image: The Boggia family of (L-R) Monique, Luca (rare brain tumour survivor) and Baden in a park

### In this issue

**Want to keep up to date with Hudson Institute's latest discoveries?**

**Sign up to our mailing list at www.hudson.org.au**

**Change starts here. Donate today.**

**Support life-saving research by making a tax-deductible donation today.**

**w:** hudson.org.au
**t:** + 61 450 524 565
**e:** donations@hudson.org.au

Hudson Institute of Medical Research
27-31 Wright Street
Clayton VIC 3168

# Hope from the depths of despair

It's hard to imagine four words more frightening to a parent than "Your child has cancer".

Luca Boggia (rare brain tumor survivor) enjoying playing in a park

Amid the fear and panic such a sentence creates, three-year-old Luca's parents, Monique and Baden, had little choice but to trust in the best that medical science could offer.

To treat the "mass" that a CT scan showed in his brain, Luca needed surgery.

Monique and Baden did not know whether Luca would survive, or how he might be affected if he did – and that was just the start of their cancer journey.

> **"I'd hope that, through this work, the next family gets a clearer picture of the available treatments and what can be done."**
>
> **Luca's mother, Monique**

"It turned out to be a high-grade glioblastoma – one of the rarest and most dangerous types of brain tumour," Monique said. "But the surgeons were confident they had removed it all.

"Because it's so rare, they couldn't say 'this is what we do with this type of tumour' so we threw everything at it."

What followed was 11 rounds of chemotherapy over the next 10 months, then 33 consecutive days of radiotherapy.

That was five years ago, and Luca is now a healthy, cheeky 8-year-old who is indirectly increasing the survival hopes of the next child with a glioblastoma.

Because Monique and Baden agreed to donate tissue samples from Luca's tumour for research, those cells are still being used to test potential treatments.

That's where Hudson Institute comes in.

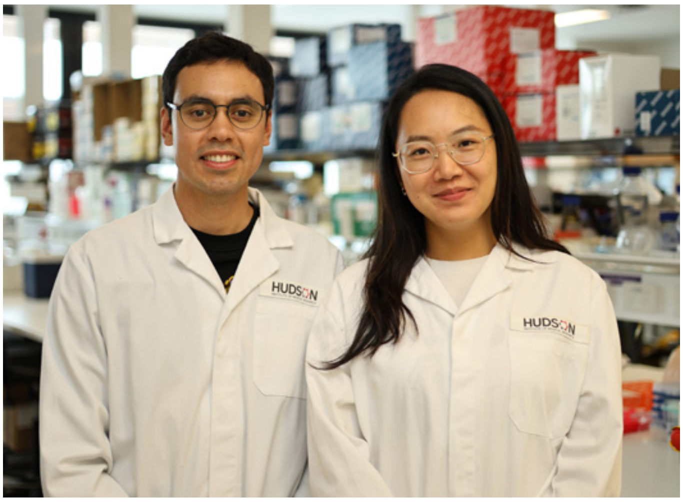
## A world leader in paediatric cancer research

As home to the Childhood Cancer Model Atlas (CCMA) – a tissue bank where samples of actual cancers can be stored and reproduced – Hudson Institute is a global hub for paediatric cancer research.

Head of Hudson's Centre for Cancer Research, Professor Ron Firestein, says the CCMA is a goldmine for cancer researchers everywhere.

*continued next page*

Professor Ron Firestein and Dr Jason Cain in their lab at Hudson Institute's Cancer Centre



Postdoctoral researchers Dr Paul Daniel and Dr Claire Sun in their lab at Hudson Institute's Cancer Centre

"Children's cancers make up only about one per cent of all diagnosed cancers, so the pharmaceutical industry tends not to invest in finding new treatments," Prof Firestein said.

"Having models (samples) of various childhood cancers allows us to study the disease and understand how it develops, what makes it grow, and ultimately what treatments can be used to fight it off and hopefully cure it."

The CCMA is the world's biggest living biobank of paediatric tumour tissue samples, and the data from the tests we run on all of them is freely available to every paediatric oncologist and childhood cancer researcher worldwide.

That means every child like Luca, regardless of their own outcome, can help save lives through the use of their tumour tissue.

## International cooperation

The CCMA is the outcome of seven years of support and more than $7 million in funding from the Children's Cancer Foundation. It was developed through active collaborations with 34 cancer research institutes, including Stanford University (USA), the University of California San Francisco (USA), The Hospital for Sick Children (Canada), Johns Hopkins University (USA), McGill University (Canada), the Institute of Cancer Research (UK), and Hopp Children's Cancer Center Heidelberg (Germany). The CCMA also benefited from the support of the Australian Government's Medical Research Future Fund and the Robert Connor Dawes Foundation.

> **"Children's cancers make up only about one per cent of all diagnosed cancers, so the pharmaceutical industry tends not to invest in finding new treatments."**
>
> **Prof Ron Firestein**

Assistant Professor of Paediatrics at Harvard Medical School, Dr Mimi Bandopadhayay, says the CCMA is essential to help identify new treatments. "This work is a tour de force that includes the largest collection of brain tumour models, generating a resource that will be invaluable to researchers across the world," she said.

And it's not just about saving lives, as Hudson's Dr Jason Cain explains. "Many survivors of childhood cancer are left with debilitating long-term side effects of their treatments. We need to do better," he said.

The team's goal is to determine which patients are likely to respond to which therapies, avoiding ineffective treatments (and their side effects).

"No one treatment is going to be effective for all patients, even with the same cancer diagnosis, so we aim to identify several different therapies that can be used in combination to treat patients," Dr Cain said.

Luca's mother, Monique, agrees. "I'd hope that through this work, the next family gets a clearer picture of the available treatments and what can be done", she said.

### Childhood cancer facts (Source: CCI)

- One in five children diagnosed with cancer will not survive.
- Most survivors will suffer long-term disability from the toxic treatments.
- Cancer remains the leading disease-related cause of death among Australian children.
- Despite many years of research, survival rates from some cancers have hardly improved.
- In the last four decades, 500 drugs for adult cancers were approved in the US, but only 12 were approved to treat childhood cancers.
- Cancer kills three children every week in Australia — more than any other disease.

*You can join us in making change, with a tax-deductible donation before 30 June 2023*

**Change starts here.**
**Donate today.**

# Tackling hypertension at the source

It was a simple suggestion that led Associate Professor Jun Yang to begin studying primary aldosteronism (PA), but when she discovered both her parents had the condition, she knew she was onto something.

Associate Professor Jun Yang and clinical trial patient, David

## Endocrine hypertension facts

- Endocrine hypertension refers to high blood pressure caused by the abnormal production of hormones
- The most common form of endocrine hypertension is primary aldosteronism (PA), also known as Conn syndrome.
- Primary aldosteronism affects five to 10 per cent of those with hypertension, but often goes undiagnosed.
- Endocrine hypertension is treatable with specific medication or even curable with surgery, depending on the exact cause.

That initial prompt from her supervisor, two years into her PhD, to develop a hospital protocol for PA led A/Prof Yang to big things.

"Once I started reading about the topic, I couldn't stop," A/Prof Yang says. "There seemed to be so much disease out there, either not diagnosed or diagnosed too late."

The more she investigated, the more she found patients with hypertension that would not respond to the usual treatments, and frequently the cause was PA.

> **"Funding is needed for rigorous research that has the power to change clinical practice guidelines."**
>
> **A/Prof Jun Yang**

"As a result, we were seeing patients with totally preventable cardiovascular disease, caused by decades of poorly controlled hypertension and organ damage," she says.

### Tackling hypertension for 600,000 Australians

Further research established that of the one-in-three Australian adults with high blood pressure, at least 10 per cent have PA; equating to approximately 600,000 people in Australia.

"In people with PA the adrenal glands produce too much aldosterone, a salt retaining hormone," A/Prof Yang explains. "As well as high blood pressure, PA increases the risk of stroke, heart attack and kidney disease, but it is rarely diagnosed. Yet, if it is accurately diagnosed, PA can be cured or effectively treated using a simple medication."

Now, as Head of the Endocrine Hypertension Group at Hudson Institute, alongside PhD candidates Dr Renata Libianto and Dr Elisabeth Ng, A/Prof Yang is working with GPs and hospitals to improve this situation on two fronts.

Firstly, to help GPs diagnose PA in patients with hypertension, and secondly with hospitals to ensure they are equipped to deal with the expected influx of PA cases coming their way.

She recently received a Federal Government-funded MRFF clinical trials activity grant of $2,290,000 over four years for a trial running in three states, aiming to increase diagnosis of PA.

"Hypertension is a very common problem in primary care, hence GPs play a crucial role in the timely diagnosis of primary aldosteronism," she says.

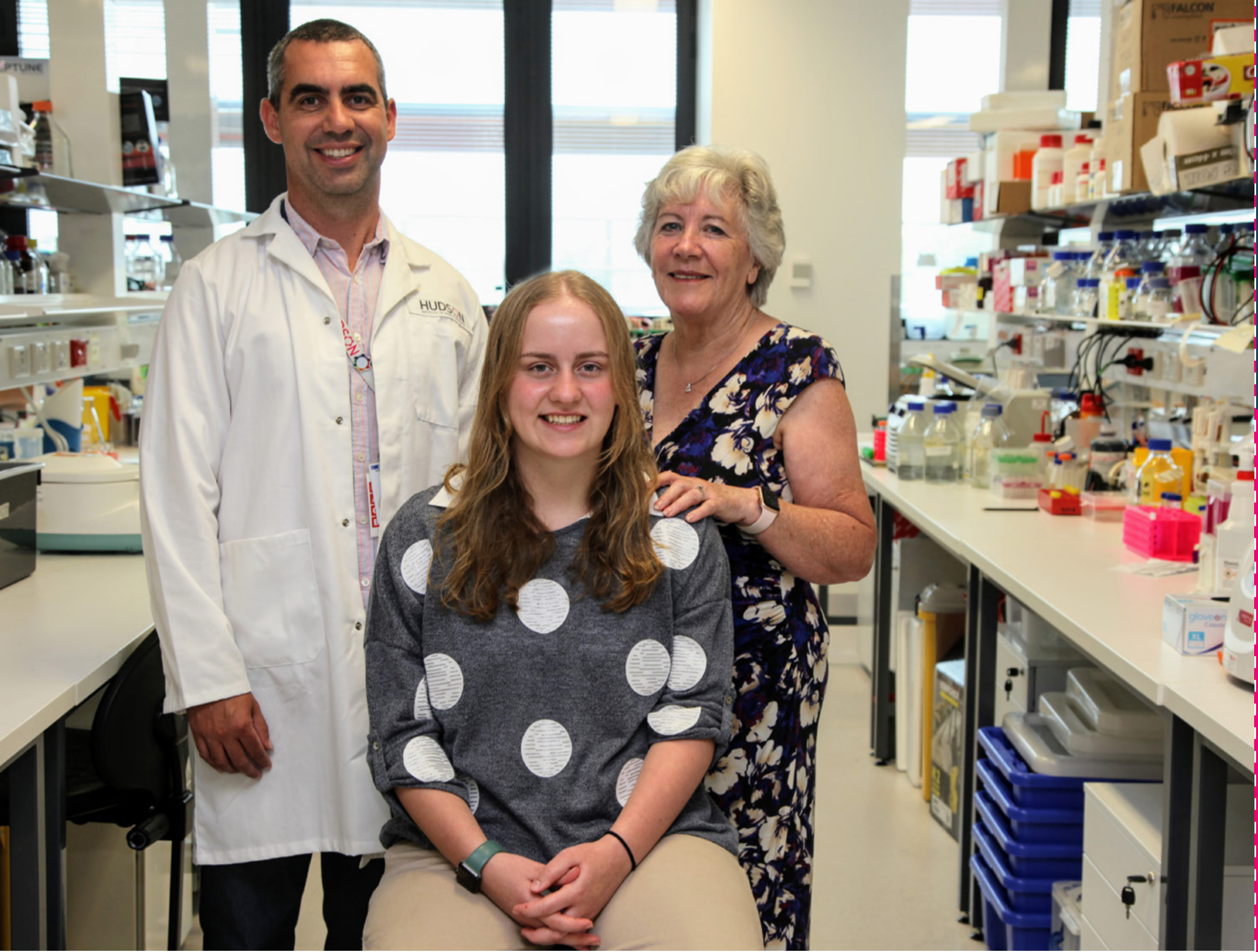
"If they can detect PA early in the patient's hypertension journey, then targeted treatment – and potential surgical cure – can be offered to treat the root of the problem."

## "Your contribution will make a real difference to people's lives."

**Professor Elizabeth Hartland**
Director and CEO

Hudson.org.au
HUDSONResearchAU
Hudson_Research
Hudson-Research
Hudson_Research

*Eli Mohibi, childhood cancer survivor, with Mum, Nelly Mohibi*



Dr Jason Cain in his lab, with supporter Mrs Ann Lorden and her granddaughter, Ella, an osteosarcoma survivor

# Giving while living to help cancer research

Some families are blessed to live lives free from the scourge of cancer ... and then there are families like the Lordens.

Four members of Ann Lorden’s family have endured their own battles with the dreaded disease — for a start, both Ann and her daughter are breast cancer survivors.

Sadly, Ann’s husband Max succumbed to renal cancer in 2017, not long after their granddaughter Ella was diagnosed with osteosarcoma at just 8 years old.

This catalogue of medical challenges has left Ann all too familiar with the realities of cancer, and full of admiration for the medical scientists who devote their lives to finding ways to conquer it.

However, it was when Ella faced her own cancer challenge at such a young age that Ann felt the need to make a difference.

It was then that her nursing experience came to the fore, as she realised that little had changed in cancer treatment over several decades.

“Osteosarcoma is a type of cancer that begins in the cells that form bones, and from my experience as a nurse in the 1970s to when Ella had her treatment, the drugs were the same,” says Ann.

This inspired her to do whatever she could to help improve cancer treatments, and she chose Dr Jason Cain’s lab at Hudson Institute as an ideal place to start.

“When it comes to rare childhood cancers, the pharmaceutical industry rarely invests in treatments and cures, so our role is to fill those gaps,” Dr Cain says.

> **“My children and grandchildren could have a lovely holiday with their inheritance after I’ve gone, but there’s more good to be done for kids just like Ella by giving while living.”**
>
> **Ann Lorden**

Ann’s first donation was in Max’s memory and in his name. That was back in 2018.

Now, five years on, she’s still a donor, with a focus on childhood cancer and an eye to the future.

The Lorden family are survivors, and thanks to her generosity, Ann Lorden is doing her bit so many more families facing cancer will one day be able to say the same.

---

## Yes, I would like to make a donation for change for childhood cancer

**Please fill out this form and return in the enclosed reply paid envelope**
(Or you can make a secure online donation at hudson.org.au)

**Yes, I will support groundbreaking medical research**

$100 ☐ $250 ☐ $500 ☐ My choice

**Cheque** (made payable to ‘Hudson Institute of Medical Research’) ☐

**Please deduct the above amount**

Once ☐ Monthly ☐ Annually ☐

Visa ☐ Mastercard ☐ AMEX ☐

**Cardholder’s name** BLOCK LETTERS

**Card number**

**Expiry date** MM YY **CVC**

**Signature**

**My contact details**

**Title** **Donor ID**

**Name** FIRST SURNAME

**Address**

**Suburb** STATE POSTCODE

**Phone**

**Email**

**Please forward my receipt to**

☐ My postal address ☐ My email address

**Thank you, your donation is powering new treatments and cures!**

Your gift of $2 and over is tax deductible.

HUDSON
INSTITUTE OF MEDICAL RESEARCH

Hudson Institute (ABN 48 132 025 024) protects your privacy in accordance with the information Privacy Principles of the Information Privacy Act 2000. TAX2023

**Please send me further information about**

☐ Making a regular, automated donation to Hudson Institute

☐ Remembering Hudson Institute in my Will (strictly confidential)

☐ I have included a gift in my Will to Hudson Institute (strictly confidential)

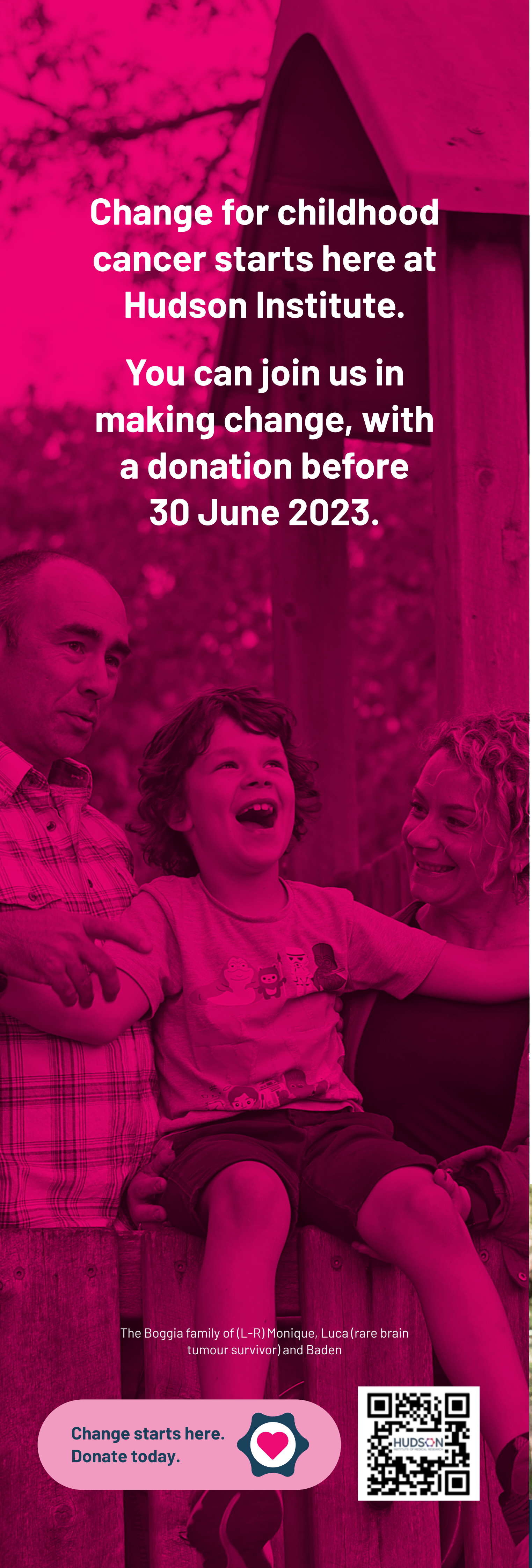
**Please change my communications**

☐ I no longer wish to receive *Hudson News*

☐ I only wish to receive *Hudson News* by email (as per my email details on this form)

**For all other enquiries, please contact us**

**t:** +61 3 8572 2700 (9am–5pm)
**e:** donations@hudson.org.au

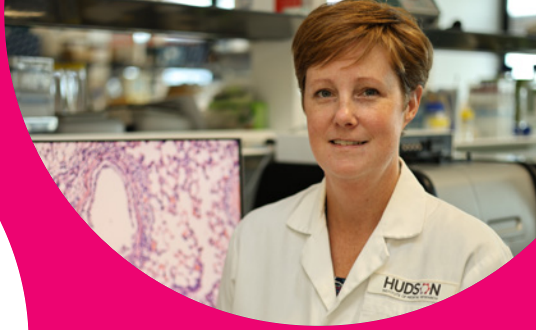


## Change for childhood cancer starts here at Hudson Institute.

## You can join us in making change, with a donation before 30 June 2023.

The Boggia family of (L-R) Monique, Luca (rare brain tumour survivor) and Baden

**Change starts here.**
**Donate today.**



A/Prof Michelle Tate in her lab, with photo of a virus on her computer screen

# What you need to know about the flu in 2023 — with A/Prof Michelle Tate

Just like in 2022, the 2023 influenza (flu) season is predicted to kick off early, and the young and old are most at risk. Influenza expert Associate Professor Michelle Tate shares her 2023 flu season facts.

### 1. When is the flu season in Australia?

Historically, Australia's flu season is April to October with the peak in August. But the 2023 flu season may have an early start, just like in 2022, when it started in March and peaked May-June.

### 2. How many people were affected by flu in 2022 ?

- 225,332 confirmed cases
- 1832 hospitalised
- 122 in ICU
- 308 deaths (median age 82 years)
- Without accurate testing and limited reporting, overall case numbers were likely much higher.

### 3. Is the flu dangerous?

For the young, old, and people with chronic illnesses or suppressed immune systems, flu can be deadly. By the time patients with severe flu reach hospital, there are no effective drugs available to reduce the response to the virus.

### 4. How do I avoid catching the flu?

It's like avoiding COVID — the best protection is vaccination, which will help you avoid catching flu, reduce your symptoms if you do, and minimise the spread to others. Vaccinated people are about 40 per cent less likely to get severe influenza.

### 5. Do I need to get vaccinated every year?

Flu viruses rapidly mutate or change, so having flu one year doesn't protect you from getting it in the future, but it does help. Your protection from viruses or vaccination also declines over time, so it's important to receive the latest vaccine every year. The vaccine composition can also change from year to year, based on what viruses are in the community. Vaccination is recommended for all people six months of age and older, and is usually available from early April.

### 6. How long does it take for the flu vaccination to work?

It takes two to four weeks to be effective, so it's wise to be vaccinated as soon as possible.

### 7. Can children be seriously affected by the flu?

Last year 56 per cent of hospital patients with flu were under 16; those aged 5-9 were most likely to be hospitalised, followed by children under five. Flu cases and vaccination declined during COVID, but we now have low immunity and increased susceptibility to the flu.

Read the full 2023 Flu and RSV report online at https://www.hudson.org.au/news/

A/Prof Tate investigates how inflammation can turn from protector to destroyer in severe and fatal viral infections, including influenza and RSV. By studying this hyperinflammatory response, A/Prof Tate and her team are identifying therapeutic targets and treatment strategies to limit disease severity and save lives.

### Why do you research the flu and pandemics?

Without effective drugs to treat damaging inflammation, we will always be at risk. Our aim is to develop new drugs that protect us from severe infection by limiting inflammation and the ability of viruses to replicate.

### Why is your research vital?

When new viruses emerge, vaccines take time to develop and roll out, so we can't rely on vaccination alone. Current antiviral drugs for the flu act directly on the virus itself but they have been shown to not be effective at limiting mortalities. Fatal influenza infections are associated with an overreaction on the immune system.

We urgently need new drugs that modulate the host's immune system to limit excessive inflammation and the ability of the virus to replicate. These can be stockpiled for rapid use to save lives in the next pandemic.

## 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.

Our team is here to help with any queries.

Please contact Connie Honaker at

**t:** +61 450 524 565
**e:** connie.honaker@hudson.org.au

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

**w:** hudson.org.au | **t:** +61 450 524 565 | **e:** donations@hudson.org.au