



# Mater Little Miracles Research Centre

For mothers and babies









Research has transformed the lives of many babies, including Elsie, Charlie, Ollie and Violet, who feature on these pages.

There is more to be done though. There are more lives to save, and more lives to change forever.

**We invite you to join us on this important journey.**

Andrew Thomas  
CEO Mater Foundation



## An eternal legacy

**On 19 August 2025, Sister Angela Mary will celebrate her 100th birthday.**

In honour of an exceptional and visionary leader, we present a major research initiative to carry forth, in perpetuity, Mater's unwavering commitment to our tiniest and most vulnerable patients—**Mater Little Miracles Research Centre for mothers and babies.**

*It seems to me, if we are to stand up and be counted, we need a great deal of love in our hearts.*

*S. Angela Mary*



**Mater Little Miracles Research Centre for mothers and babies is an ambitious project that will deliver transformational research in an area of care so close to Sister's, and Mater's, heart.**

Mater Little Miracles Research Centre will both underpin and extend Mater Research's existing Mother and Baby program, with national and international acclaim, incorporating:

- Neonatology
- Maternal Fetal Medicine
- Stillbirth
- Growth and Development
- Maternity.

To meet its bold aspirations, this initiative requires the vital pillars of success for transformational, translational research:

- Continuity of funding
- Collaborative and multi-disciplinary functionality
- Capability to attract more lead researchers to Mater's world-class and research-friendly environment.

With your support, Mater Little Miracles Research Centre for mothers and babies will stand as a beacon that leads the international research community and delivers better outcomes, measured by the lives and futures it will save.



Baby Charlie at Mater's Neonatal Critical Care Unit (NCCU).  
Charlie and his twin brother, Oliver, were born 14 weeks premature in November, 2023.



Baby Elsie preparing for major surgery; and with parents Hannah and Simon at Mater's NCCU.

## Mater Little Miracles Research Centre for mothers and babies

Every baby born at Mater is affectionately known as a Mater Little Miracle, but some newborns need intensive, round-the-clock specialist care.

Through the generosity of supporters like you, Mater clinicians and researchers can continue to improve outcomes for our tiniest and most vulnerable patients.

Mater researchers are focused on improving women's postnatal and broader gynaecological health; advancing the care and outcomes for sick neonates; and studying the relationship between fetal development, early life experience and lifelong health.

This Research Centre will drive innovation by:

- implementing and extending the current parameters of Mater's Mother and Baby research program; and
- creating a sustainable funding model, enabling Mater to retain and attract lead researchers.

*There is a whole world out there in desperate need of impact through empathy.*









Baby Ollie; and with mum Erika. Ollie was born at 24 weeks' gestation and spent 159 days at Mater's NCCU.

## Neonatology

Gestation remains a key frontier of ongoing neonatal research, extending the boundaries of lifesaving care at Mater's Neonatal Critical Care Unit (NCCU).

Just a decade ago, 24 weeks' gestation was considered a marker for neonatologists to assess resuscitation, with 25 weeks a "grey area" for medical intervention. Illustrating how research funding has saved and impacted lives, those markers have shifted to 22-23 weeks' gestation. Overseas, success at 21 weeks, with potential for quality of life, has been realised. **This is the potential of this visionary project.**

Inroads are centred on understanding and mitigating risks for extremely premature neonates, the most common being neurological disability, and skeletal and bone development.

**Funding for the establishment of a specialist Tiny Baby Neonates Unit, within Mater's existing NCCU, will accelerate research at the forefront of gestational age viability.**

### **It starts with belief.**

Assoc Prof Luke Jardine  
Mater neonatologist

"When we're able to keep a 22-weeker alive without long-term problems, and apply those skills and learnings, it makes it easier for us to save babies born at 25 or 26 weeks," states Assoc Prof Luke Jardine.



The internationally recognised work of Mater researcher, Assoc Prof Paul Dawson, has begun to unlock the factors leading to cerebral palsy—investigating clinical, biochemical, and genetic markers that predict adverse neurodevelopmental outcomes. It is particularly focused on the role of the nutrient sulphate in brain development.

**Funding for the Mater Little Miracles Research Centre will continue to underpin Assoc Prof Dawson's work and extend the parameters of his explorations**, unlocking new discoveries into how to protect the brain, skeleton and bones, heart, lungs, liver, kidney, eyesight and more—enabling babies to survive at a younger age with no future disability.

69%

of babies born  
less than 750 grams  
survive to discharge

65

days (average) in  
NCCU for babies born  
less than 750 grams



# Maternal Fetal Medicine

Research underpins Mater's world-class Centre for Maternal Fetal Medicine, which provides expert diagnosis and management for women with complex pregnancies. Mater performs a number of Australian-first surgeries, including in-utero surgery to treat spina-bifida.

While the majority of babies with spina-bifida are operated on after birth, Dr Glenn Gardener's team is one of a small number globally—and the only one in Australia—trained to repair a spina-bifida defect inside the womb.

Ongoing research will continue to inform this challenging and delicate operation, undertaken between 22–26 weeks' gestation, and further embed the work of Mater's Maternal Fetal Medicine Research team.

The vision of internationally acclaimed Prof Sailesh Kumar's team is to reliably identify infants who are at-risk of stillbirth and other complications caused by labour delivery in a timely manner, thus informing tailored pregnancy management.

Their focus is on the most common cause of antepartum stillbirth, placental dysfunction and suboptimal fetal growth.

Prof Kumar is currently leading two large randomised clinical trials aimed at improving outcomes for women and babies, evaluating the potential of Viagra® to improve perinatal outcomes by reducing fetal distress during labour.

Mater's Pregnancy and Development Group, led by Dr Vicki Clifton, is focused on investigating the impact of maternal asthma during pregnancy on the mother, placenta, foetus and child.

**Mater also leads the large-scale longitudinal pregnancy cohort study, the Queensland Family Cohort,** which extends to mothers and fathers with asthma.

Scientific research conducted by Mater's Developmental Molecular Genetics Group, led by Dr Sandy Richardson, investigates the dynamic interplay between mutagenic "jumping genes" and the human genome to help determine reasons behind the heartbreaking experience of pregnancy loss for women and their families.

In Australia, one in six couples experience fertility problems and one in four pregnant women under the age of 35 will suffer a miscarriage. For women over 40, the risk of miscarriage increases significantly, with one in every two experiencing the loss of an unborn baby.





Mikayla gave birth to daughter, Violet, 12 weeks after having open maternal fetal surgery at Mater.





Baby Albertine River Brûlé was stillborn at Mater on 20 September 2019. Albertine was a beloved fourth son of parents, Kylie and Coady, and little brother to Byron, Charles and Sidney.

## Stillbirth

Stillbirth—the birth of a baby without signs of life after 20 weeks' gestation—remains a poorly understood loss for families and a serious public health problem.

Mater's Centre of Research Excellence in Stillbirth (Stillbirth CRE) is a collaboration of parents, parent advocates, clinicians, researchers, professional colleges, and policy makers that generates new knowledge and translates that into practice change and improved outcomes.

Led by Dr Vicki Flenady, Stillbirth CRE is implementing a model of maternity care that has successfully reduced rates in the United Kingdom—working toward a 30 per cent reduction in stillbirth.

In recognising that many stillbirths can be prevented by implementing what is already known, a major focus is on evidence-based interventions.

1 in 137

**women who reach 20 weeks' gestation will deliver a stillborn baby**

6

**babies are stillborn every day in Australia**



*Let it be known you are a person of integrity. Recognise the privilege that is yours when you are taken into other people's trust.*

Further, the team is developing novel methods for identification of the at-risk foetus to improve decision-making around appropriate timing of birth. Through its collective biomedical expertise, the Stillbirth CRE ensures new discoveries can be readily translated into practice to further reduce the risk of stillbirth.

Ongoing research will include targeted focuses on Indigenous women, as well as migrant and refugee women from communities disproportionately impacted by stillbirth, supported also by culturally appropriate pregnancy resources under The Safer Baby Bundle.

**It doesn't go away. It's always there. (But) I feel we went through everything as good as we could and we owe all of that to Mater, plus a great community we had around us.**

Kylie and Coady Brûlé



# Growth and development

Funding from the Mater Little Miracles Research Centre will extend the boundaries far beyond perinatal care to inform better understanding of lifelong health and development milestones.

Research in growth and development pertains to the long game. It is intricately connected to all other areas of Mother and Baby research, beginning with preconception, maternal fetal medicine and neonatology, and will inform Mater's new integrated growth and development clinic.

The Queensland Family Cohort Study is a visionary Australian research program to understand the factors that influence healthy growth, wellbeing and ageing that support children and their families throughout life.

It has both short-term and long-term relevance, and also includes a dedicated focus around vulnerable communities, including Indigenous peoples. Beginning with 556 families and 225 children, it will expand in scope to a statewide study, taking a snapshot of health and environment during pregnancy to see how that affects health and wellbeing.

It then provokes vital research questions, with major interests including the ground-breaking work of Prof Vicki Clifton on the placenta, and how that affects the mum's health, and therefore the growth of the foetus and the health of the child.

**The Indigenous Health Research Group is committed to developing research based upon the health research priorities of Indigenous communities.**

Effective research to support health outcomes for Aboriginal and Torres Strait Islanders is multi-disciplinary, thoughtful and focused on health outcome equality—ensuring it will effectively translate research that is knowledge into health deliverables for the community.

**What really matters to both our families and our clinicians is, 'have I helped a young person, born in difficult circumstances because of prematurity and other complications, reach their full potential in life?' Growth and development research is how Mater's specialists will unlock that answer.**

Assoc Prof Mike Beckmann  
Chief Medical Officer Mater





Austin, Kennedy, and Zac, preparing to start school in January 2024. The triplets were born six weeks premature at Mater in February 2018.





Vian, and daughter, Isabella. After tragically losing four babies, Vian delivered four healthy, miracle babies at Mater.



# Maternity

A renowned expert in its field, Mater is Australia's largest and most experienced maternity service provider.

The philanthropy-led project to deliver Australia's first integrated perinatal mental health service of its kind, Catherine's House for mothers, babies and families, provides evidence-based in-patient and day programs. This meets a significant need for mental health services for Queensland parents during pregnancy and in the first year of their baby's life.

Opportunities exist to expand the offering of Catherine's House, providing an optimal model for holistic women's healthcare that includes a dedicated research focus on birth trauma.

The PhD work of Dr Jo Laurie has highlighted a potential astronomical benefit to reduce the incredible burden on families and the health system for diabetes, affecting up to 20 per cent of women during pregnancy, through a simple app.

Mater Little Miracles Research Centre will deliver research to expand the "fourth trimester" of care, expanding the parameters of care to women post-partum to 12 months, a standard benchmark in lead hospitals in North America. The Queensland Family Cohort study will also have potential to push these boundaries to 10,000 days and beyond.

With your help, Mater has the opportunity to adopt learnings from a Canadian Mother Study, a mature study with over a decade of insights, which have helped inform the International Federation of Gynaecology & Obstetrics (FIGO) pregnancy passport, and apply to both public and private patients. It indicates significant reductions in stroke, heart attack, metabolics and type-2 diabetes through intervention in the first year, post-partum.

**The overarching goal is to position Mater as Australia's pre-eminent perinatal research campus.**

Prof Sailesh Kumar

Mater Little Miracles Research Centre will also create opportunities for Mater's Maternal Fetal Medicine team in pre-eclampsia screening and prevention, working with gynaecological and obstetrics specialists, to expand basic science research focuses based on the placenta.





When I reflect on my long life, I am so deeply humbled by the extraordinary experiences I have had at Mater. Never did I imagine that I would be blessed with such a vibrant and fulfilling existence.

Through the years, I've come to understand the profound importance of research in shaping our future. It's through the pursuit of knowledge and innovation that we pave the way for progress and transformation.

That's why I extend this heartfelt invitation to you: join us in our quest to explore the unknown, to discover, and to create a better world for generations to come.

Sister Angela Mary, who will celebrate her 100th birthday on 19 August 2025



## Together, we can do more

A shared opportunity to enhance transformational outcomes for mothers and babies.

### **Lesley Ray**

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