



Supporting Murdoch
Children's Research
Institute's drive
towards Precision
Child Health

High Risk Infant

Key facts

Birth still remains a time of high-risk for infants. In Australia, almost one in 10 infants is born prematurely (26,400 annually), a further two in 10 infants born at term will need resuscitation (51,000 annually). Of these infants, 31,800 will need life-saving newborn intensive care or special care nursery admission.

For those infants born early or needing urgent care there continues to be a high risk of long-term health and developmental challenges.

High-risk infants generally need prolonged hospital admissions and ongoing outpatient care with high associated costs for health systems and families.

Parents and siblings of high-risk infants have increased risk of negative impacts on their mental health, employment and financial security.

Giving high-risk infants a healthy start to life

In Australia, almost one in 10 infants are born ill, with a majority of them born premature. This places them at high-risk of short and long-term complications. Many will need to be admitted to neonatal intensive care (NICU), and many will experience long-term health and developmental impacts.

High-risk infants needing NICU can be affected by prematurity, infection, congenital or genetic problems. Work in the NICU requires supporting babies with all aspects of survival including ventilating the delicate immature lung, facilitating transition to life outside the womb for the heart, and at the same time protecting the newborn brain at critical points in its development.

There have been considerable research-led advances in newborn care in the last few decades. High-risk infants are now surviving to childhood and beyond. Infants who were once regarded as likely to have shortened lives are now seen as ones who may benefit from increased surveillance and early intervention. These measures can help them to live longer and healthier lives.

Despite increased survival, improvements in long-term outcomes have not matched those seen in other

childhood diseases. There remains an urgent need to improve current therapies and develop a more holistic approach to care and management in order to continue to see improvements in health and development for high-risk infants.

Vision

Our vision is to optimise the long-term health and developmental outcomes of all high-risk newborn babies and families through personalised multidisciplinary approaches to treatment.

Current mission

To improve the understanding of disease and develop treatment strategies that will optimise the long-term health and development of all newborn babies admitted to newborn intensive care.



MCRI's high risk infant flagship

Our goal is for all high-risk infants to receive standardised surveillance and early intervention after birth. This will allow us to predict which babies are at highest risk for poorer health and developmental outcomes, and to deliver the most effective treatments and therapies. Ultimately, this will lead to better outcomes for the child and their family.

The first step is to develop prediction models to identify which high-risk infants are most likely to develop specific health and neurodevelopmental problems in the newborn and early childhood period. This can be achieved by understanding which risk factors lead to poorer long-term outcomes. We will then develop new timely interventions focussing on optimising health and wellbeing for the baby and parents.

MCRI is uniquely placed to achieve this goal. We are a team of world-leading multidisciplinary researchers, and our research encompasses a broad range of high-risk infant groups. The High Risk Infant flagship team includes clinicians in neonatology, neurosurgery, cardiology, pulmonology, developmental medicine, mental health, haematology, imaging, psychology, physiotherapy, occupational therapy and speech therapy. We work closely with respiratory, genetic and laboratory scientists.

We are supported by world-class research facilities at MCRI including the Melbourne Clinical Trials Centre, Developmental Imaging Group, Clinical Epidemiology and Biostatistics Unit, Biobanking, and have access to large cohorts from within our world-leading LifeCourse program. We have important national and international

MCRI's High Risk Infant flagship is a strategic program to improve long-term outcomes for the highest-risk babies.

collaborations which maximise the impact of our work on high-risk infants globally.

The High Risk Infant Flagship has the skills to drive policy change and translate research outcomes to improve clinical care, and build a more holistic approach to improving the health and development of all high-risk infants and their families.

Leadership



Prof Jeanie Cheong



A/Prof David Tingay



Prof Sarath Ranganathan



Dr Leah Hickey



Prof Vicki Anderson

The Murdoch Children's Research Institute

The Murdoch Children's Research Institute (MCRI) is Australia's leading child health research organisation.

Our researchers work to translate knowledge into effective prevention, intervention and treatments for a range of disorders affecting infants, children and adolescents.

MCRI advocates for quality equitable care for all children and works closely with its partners, The Royal Children's Hospital and the University of Melbourne's Department of Paediatrics, within a single, purpose-built facility. The Campus partnership is known as Melbourne Children's, with many of the key campus research initiatives supported by The Royal Children's Hospital Foundation.

