



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

Infection

Key Facts

Everyone knows a child who has had an infection: it's one of the **most common** reasons children visit a doctor

Many children receive antibiotics for viral infections, but antibiotics are **ineffective for viruses**

Australian infants use a lot of antibiotics - **more than half** receive antibiotics by their first birthday and over 80 per cent by their second birthday

Global antibiotic use is predicted to increase **three-fold by 2030** if we don't improve how we use them

Antibiotic overuse drives the development and spread of antibiotic resistance, which endangers our ability to treat common infections and is a **threat to global health**

Antibiotic overuse early in life has been linked with **poorer health outcomes** later in life such as obesity and asthma

Antibiotics and children

Antibiotics save lives and are the foundation of modern medicine. They allow doctors to treat and prevent bacterial infections every day for thousands of children and provide safer surgeries, organ transplants, cancer treatments and intensive care.

Despite their importance, every time a child receives antibiotics, whether appropriately or not, there is risk. For individuals, antibiotic use can cause side effects, prolonged hospital stays and longer-term health harms. For the broader community, antibiotic use drives the development of bacterial resistance, making it difficult, or even impossible to treat some infections.

When antibiotics are overused, a particular problem in children, we are exposing them to avoidable risk. Australian children have one of the highest antibiotic use rates in the world. We need to act now and use antibiotics better in children. Using them appropriately will avoid harms and preserve them so we can safeguard the health and future of our children.

Vision

For every child to receive the best care possible through precision antibiotic therapy – delivering the **right drug** in the **right way** at the **right dose** at the **right time** and in the **right place**.

Current mission

To establish a world-leading research program at the Melbourne Children's campus that will revolutionise antibiotic use in children to reduce resistance and prevent long term harms.



MCRI's Infection flagship

MCRI's Infection flagship was established to tackle unanswered questions of global importance in clinical infectious diseases. Our first focus is antibiotic use in children, an area of research that has largely been neglected.

The fragmented nature of research in this area has left fundamental questions unanswered. To address these gaps, the highly successful clinician-researchers of the clinical Infectious Diseases team at The Royal Children's Hospital have come together to lead the flagship. Leveraging the capacity and resources at MCRI and

supported by our campus partner, The Royal Children's Hospital Foundation, we are combining our clinical and research strengths to make an immediate impact and find solutions to big questions.

By tackling the big questions now, we will generate new knowledge about the best way to use antibiotics in children, which will be used to improve health and prevent harms for children around the world.

Our work will provide all children with access to the best treatments, underpinned by the best research, to enable the brightest and healthiest futures possible.

Leadership



A/Prof Penelope Bryant



Prof David Burgner



Prof Nigel Curtis



Dr Gabrielle Haeusler



Prof Andrew Steer

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 treatment to address 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.

