

The KIDS RESEARCH INSTITUTE AUSTRALIA

WESFARMERS CENTRE OF VACCINES & INFECTIOUS DISEASES

Centre Strategy 2026-2035



The Kids Research Institute Australia acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the land and waters of Australia. We also acknowledge the Nyoongar Wadjuk, Yawuru, Kariyarra and Kaurna Elders, their people and their land upon which The Kids is located and seek their wisdom in our work to improve the health and development of all children.

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Foreword from the Centre Head

As a paediatrician and researcher, I witness daily the profound impact that infectious diseases have on children and families across the state, Australia and the globe. From the premature baby struggling with sepsis to the Aboriginal child battling the pain and hearing loss associated with recurrent ear infections - these encounters remind me why our work is essential.

The challenges are both immediate and evolving. Infectious diseases remain the leading cause of childhood death globally and hospitalisation in Australia, yet we face declining vaccination coverage, increasing antimicrobial resistance, and the ever-constant risk of emerging pathogens. Most concerning is the persistent disparity, with Aboriginal and/or Torres Strait Islander* children experiencing more than double the infectious disease burden of their peers.

These challenges require coordinated, multidisciplinary expertise that only a specialised centre can provide. Established relationships with clinical teams at Perth Children's Hospital, community providers, and state and national policy makers, allow our research findings to be translated quickly. This ensures improved patient care while addressing the social determinants driving health inequities.

The opportunity is significant. By bringing together epidemiologists, microbiologists, immunologists, social scientists, clinicians, biostatisticians, and community partners, we will accelerate translation from bench to bedside, ensuring that scientific innovations reach the children who need them most. Prevention and equity will be at the heart of our work - strengthening vaccination programs, increasing vaccine confidence through community engagement, and advancing maternal health to give every child the strongest possible start in life.

Western Australia's unique geography, diverse populations, and distinctive disease patterns position us to develop solutions with national and international impact. Our globally recognised expertise in rheumatic heart disease, ear, skin and respiratory infections, and community-driven research provides insights extending far beyond our state borders.

The call to action is clear: we must continue building the Wesfarmers Centre as a hub of excellence that transforms how we prevent, diagnose, and treat infectious diseases in children.
The stakes are too high for anything less than transformational impact.



Professor Christopher Blyth
Centre Head, Wesfarmers Centre of Vaccines and Infectious Diseases
Paediatric Infectious Diseases Physician and Clinical Microbiologist



* The term 'Aboriginal' is used in preference to 'Aboriginal and/or Torres Strait Islander' or 'Indigenous' peoples to Australia, in recognition that Aboriginal people are the original inhabitants of Western Australia. Use of the word 'Aboriginal' throughout this document refers to both Aboriginal and Torres Strait Islander people. No disrespect is intended to Torres Strait Islander colleagues and community.

The burden of infectious diseases

Infectious diseases are the **#1 reason for hospitalisation** and the **most common cause of childhood death** globally.

1 in 30 **Western Australian babies** are **hospitalised with RSV**, an infection **preventable through immunisation.**

While >80% of parents have heard of RSV, only 50% are aware of its severity.

Despite the availability of a **free vaccine**, more than **180,000 Australian children were diagnosed with influenza** in 2025.

1 in 3 **Australian children are prescribed antibiotics every year.**

Early-life exposures to antibiotics occurs **twice as frequently** in Australia compared to many comparable high-resource settings, **with long-term implications for childhood health and antimicrobial resistance.**

Vaccines have **saved 154 million children's lives** in the **last 50 years.** Despite this, we are **witnessing declining uptake and reduced confidence in their benefit.**

Otitis media affects nearly every child by age 2, causing **over 700 million cases** globally each year.

It is the **leading reason** for **childhood antibiotic use and surgery.**

50% of Aboriginal children living in Perth's urban area suffer **painful ear infections** by six to eight months of age.

2 in 10
Aboriginal children living in remote communities have a skin infection at any one time, with **hospitalisation rates 15x greater** than non-Aboriginal children.

Remote living Aboriginal children in Australia have some **of the highest reported rates of rheumatic heart disease in the world.**

1 in every 10
blood stream infections in children are **resistant to first line antibiotics.**

It is estimated that **sepsis affects more than**

80,000 Australians per year, **with 1 in 7 cases resulting in death.**

The **risk of death from sepsis** increases by **7-10% with every hour that treatment is delayed.**

1 in 4 **preterm babies born earlier than 28 weeks** suffer from **bloodstream infections,** resulting in severe complications and death.

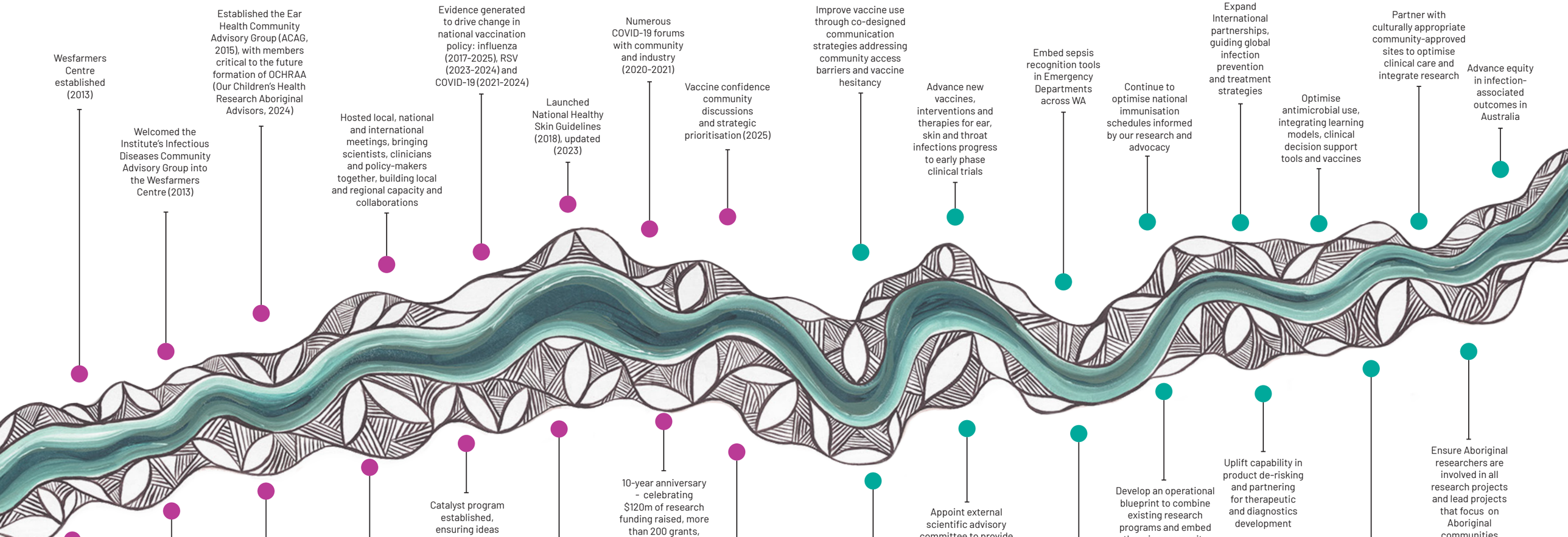
Building on a proud history of achievements and impact

Since 2013, the Wesfarmers Centre of Vaccines and Infectious Diseases has made significant progress in preventing, diagnosing and treating infectious diseases through excellent and innovative research, powered by seed funding, capacity building and other initiatives. Our experience over the past 12 years has shaped our proposed strategy. We have learned that genuine community involvement takes time and is critically important. We also learned that the pathway to effective translation is through partnerships.

One of the strengths of the Wesfarmers Centre is the bench-to-bedside opportunity that co-locations in the state's only tertiary paediatric hospital brings, reinforced by having laboratory and data scientists working alongside clinician scientists. At a portfolio level, we saw how important agility in a work program is. This includes the ability to pivot quickly as new challenges emerge, having access to non-grant/untied funding, seeding new ideas, bridging programs at critical development milestones and being responsive to new opportunities.

Historic Impact

Future Impact



Historic Centre Capability

Future Centre Capability

AS A CENTRE, WE HAVE BROUGHT TOGETHER the best infectious disease researchers in the state, expertise and partners to forge strong foundations and capabilities. This base, and the evidence of our success to drive outcomes, reinforces our ability to deliver the next 10 year strategy.

CULTURE

Culture of INNOVATION and BOLD AMBITION providing pathways for new ideas

- Established track-record of responding to challenges and high-impact areas
- Implemented internal funding mechanisms to test new ideas and provide proof-of-concept
- Provided bridging and matched funding to maintain research momentum
- Created pathways for translating novel concepts from bench-to-bedside

Created environment that encourages risk-taking in research approaches, including:

- Seed funding
- Catalyst grants
- Clinician scientist partnership funding
- Capability development

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ENGAGEMENT

Effective and trusted community ENGAGEMENT and research standards

- Continued commitment to delivering improved health outcomes for Aboriginal populations and other populations where health outcomes lag behind (e.g. investment in specialist capability has built deep and relevant relationships and approaches)
- Established community advisory groups to ensure priorities are in line with community needs
- Developed breakthrough outcomes and practice changes, such as clinical care for skin disease in remote communities through the SToP Trial and National Healthy Skin Guidelines, and access to urgent ear health treatment in the metro area through the Djaalinj Waakinj Centre for Ear and Hearing Health

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LEADERSHIP

ADVOCACY and EXPERTISE driving bench-to-bed TRANSLATION and sustained CHANGE

- Researchers regularly engaged as an expert voice on public health by government and industry
- Consolidated strong track record and regard from industry in paediatric clinical trials
- Adoption of research into policy and practice, with translation of new guidelines, standards, protocols and disease recognition tools into practice
- Improving treatment models and bringing new therapeutics to market
- A driving force and evidence base behind WA's leadership in becoming the first state in Australia to adopt the influenza vaccine for school age children (2020), RSV immunisation program (2024) and the nasal influenza vaccine program in 2026

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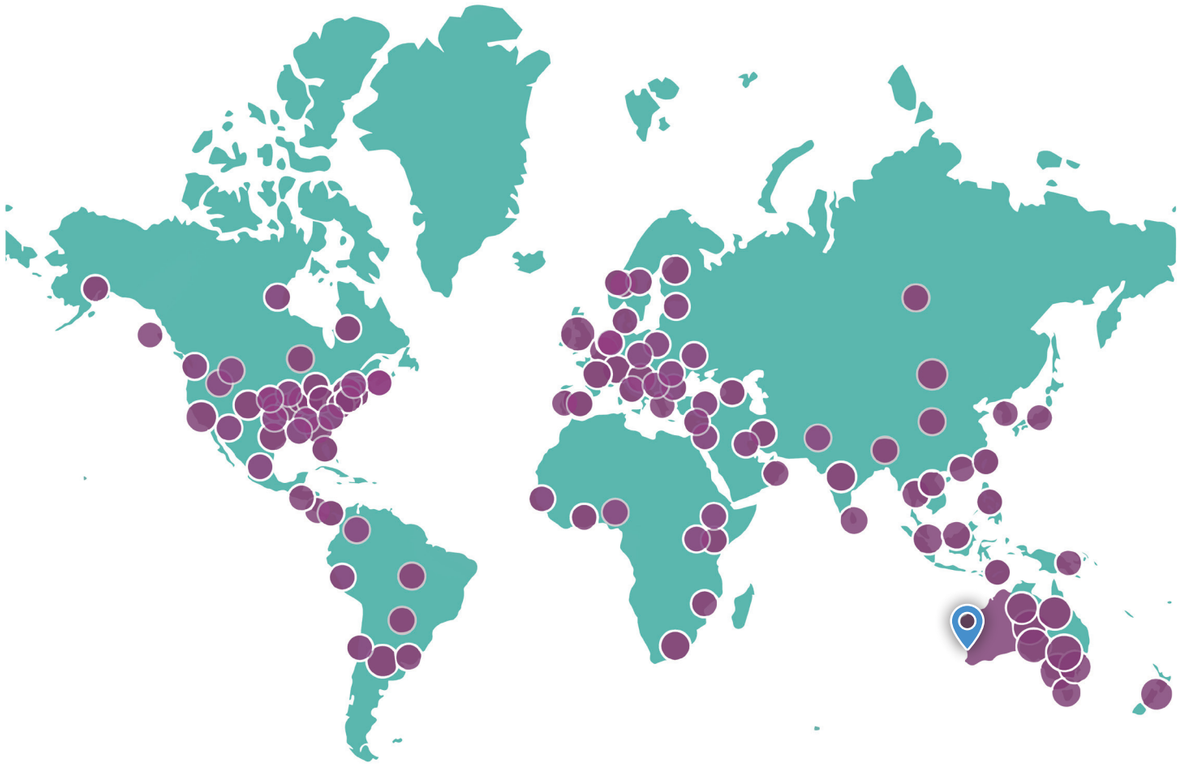
EXCELLENCE

Platform-science enabling vaccine trials, laboratory discovery, development and scientific EXCELLENCE

- Therapeutic and vaccine targets moving into Phase 1 clinical trials, including SPRITZ OM nasal spray preventing ear infections and vaccines targeting Group A streptococcal
- Identification of novel mechanisms of bacterial resistance
- Implemented point-of-care tests enabling rapid diagnosis of Group A streptococcal
- New diagnostics and recognition tools for skin diseases
- Antibody assays and platform development to support vaccine trials
- Undertaking national trial to evaluate effectiveness of coconut oil in preventing neonatal sepsis
- Experts in innovative clinical trials

Our collaborators in Western Australia, Australia and beyond

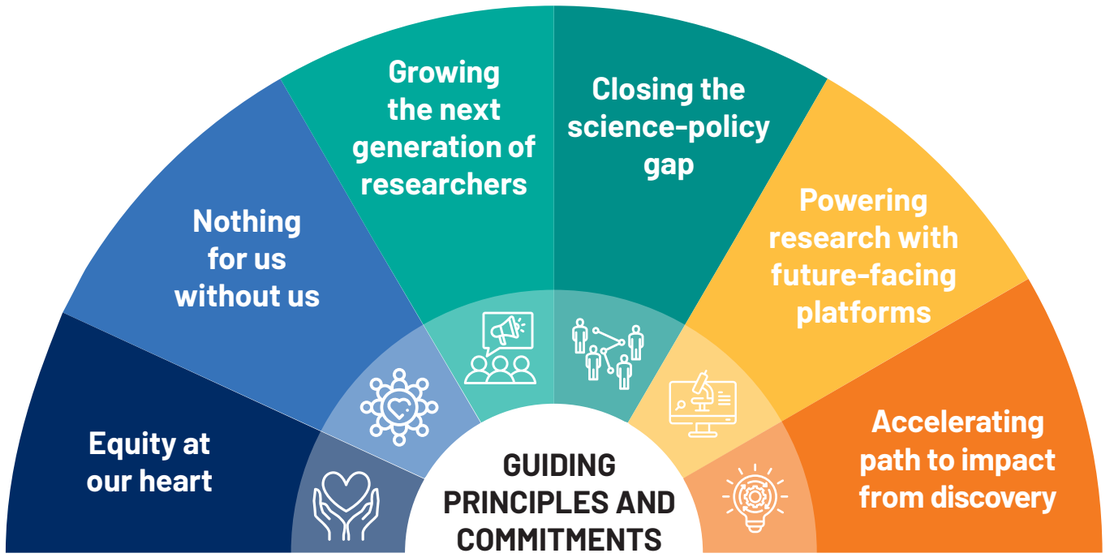
We work with colleagues and collaborators locally, nationally and internationally. We have active collaborations in all Australian states and every continent across the world. This ensures the best national and global knowledge and expertise informs our work, while also providing opportunity for our work to influence and improve health outcomes for children and families on an international scale.



Looking to the next 10 years: our guiding principles and commitments

The future of paediatric infectious disease prevention and treatment requires a comprehensive approach that places equity, community partnerships, evidence, advocacy, technological innovation, and translation at its core. These guiding principles form the foundation of our strategic vision, ensuring that every research endeavour, clinical innovation, and policy recommendation contributes to meaningful, sustainable change in child health outcomes.

Over the past 12 years, the principles of equity, respectful community engagement, supporting the pipeline of researchers, and advocacy and policy leadership has been an enduring focus that will continue. Two new areas of commitment featured in our 2026-35 Centre Strategy are our focus on future-facing platforms to leverage data, technology and trials, and supporting research outcomes to maximise impact.



POWERING RESEARCH WITH FUTURE-FACING PLATFORMS, DATA & TECHNOLOGY enables us to harness cutting-edge approaches, including surveillance systems, point-of-care diagnostics and AI-powered digital health tools. Our work to establish leading clinical trials and services platforms will provide the infrastructure needed to deliver paradigm-shifting paediatric trials, novel diagnostic assays and analytical tools to unlock groundbreaking research.

ACCELERATING PATH TO IMPACT THROUGH PRODUCT DEVELOPMENT AND TRANSLATION focuses on developing paediatric-specific diagnostics, therapeutics, and vaccines that address the unique needs of children and families. We bridge the gap between laboratory discoveries and bedside applications, working with industry partners and clinical networks to ensure innovations reach the children who need them most, particularly those in communities where health outcomes lag behind others.

Our focus and flagships

The Wesfarmers Centre's stated purpose of *reducing the burden of infectious diseases and enabling families to thrive* will remain as we address critical aspects of infection prevention and management to improve health for all. Through a coordinated approach that brings together scientific, clinical, technology and translation capabilities, we will lead transformations in children's health outcomes locally, nationally, and globally.

Infection remains a significant global health challenge, for children and families, compounded by inequity, inadequate vaccination uptake, increasing antimicrobial resistance and the ever-present risk of emerging threats. Coordinated action is required to address these challenges.

Our strategy addresses the complexity, interconnectedness, essential infrastructure and partnerships that are required to achieve a significant reduction in the burden and consequences of infection. The next 10 years will see us focus our efforts in four flagship areas, selected based on the greatest unmet needs and fields where our expertise and track record positions us to deliver unrivalled progress and impact.



Wesfarmers Centre Flagships 2026-2035





FLAGSHIP 1: Accelerating Aboriginal health equity

FLAGSHIP 2: Safeguarding the early years through infection identification and prevention

OUR FLAGSHIP PROGRAMS

FLAGSHIP 3: Recognising and responding to life-threatening infections

FLAGSHIP 4: Combatting antimicrobial resistance





FLAGSHIP 1: Accelerating Aboriginal health equity

Building a strong foundation of Aboriginal leadership in infectious disease research is essential to ensuring policies, funding, and services reflect what matters most to communities.



Challenge:

The knowledge, culture, and leadership of Aboriginal people are central to improving the health and wellbeing of all WA children and families. Aboriginal people and their community groups have the solutions, resilience, and lived experience to guide research that strengthens health outcomes. When Aboriginal people are supported to lead and translate research, the results are more relevant, sustainable, and impactful for communities.

Opportunity:

The Wesfarmers Centre's Aboriginal Equity Platform is designed to realise this opportunity.

By continuing to develop a critical mass of Aboriginal researchers, strengthening community-led research agendas, and embedding translation into practice through a community translation hubs, the Wesfarmers Centre will:

- amplify Aboriginal voices
- accelerate culturally grounded research practices
- create lasting improvements for children and families by reducing the significant burden of infectious diseases - an essential step towards normalising kids ***feeling well*** rather than ***unwell*** and addressing the ongoing gap in health outcomes.

OUTCOMES	MILESTONES	
	YEARS 1 - 5	YEARS 6 - 10
Building on a decade of research in Aboriginal communities, the success of our ear and skin health programs, our RHD advocacy work, and our existing Aboriginal capacity building schemes, we will:		
Accelerate Aboriginal researcher employment across the Wesfarmers Centre, developing a pipeline of Aboriginal researchers to lead Aboriginal health projects	• Evaluate and expand our existing Aboriginal Leadership and Training Development Platform • Cement our Research Cadet Program as a successful pathway to employment at The Kids for Aboriginal researchers • Develop a framework for Aboriginal recruitment processes across the Wesfarmers Centre, ensuring that Aboriginal cultural knowledge is understood as a key selection criteria and is recognised, remunerated and celebrated • Provide equity education across the Wesfarmers Centre, increasing knowledge of why Aboriginal-led research is imperative to accelerating Aboriginal health outcomes	• Have a highly sought after cadet program, with high conversion rates for further study at The Kids or employment within the Institute • Ensure Aboriginal researchers are involved in all research projects - achieve a centre-wide target of 20% employment rate for Aboriginal staff and students • Achieve a target of seven Aboriginal HDR/PhD conferred students
Elevate the capacity and confidence of non-Aboriginal and Aboriginal researchers to conduct ethical research with Aboriginal communities	• Increase understanding of Aboriginal ways of knowing, doing and being through cultural training • Ensure the Wesfarmers Centre Governance restructure has Aboriginal staff front and centre • Hold Aboriginal Data Sovereignty workshops to unpack the challenges, responsibilities and opportunities for researchers • Work in conjunction with Kulunga Aboriginal Research Unit to grow the confidence of research teams undertaking Aboriginal research by assisting with ethics application timelines and processes, data sovereignty and management plans, and the implementation of research standards	• Have Aboriginal staff in leadership positions for all research projects focused on Aboriginal communities • Ensure Aboriginal children are included in all research projects within the Wesfarmers Centre • Grow confidence of non-Aboriginal researchers by 30%, measured by survey responses • Hold annual cultural awareness training on country for staff and students • Increase the number of Aboriginal health research projects undertaken
Develop and implement an operational blueprint for researchers working with Aboriginal communities that increases the efficiency and effectiveness of our research	• Establish a standardised set of protocols and approaches that enable best practice research, ensuring that regardless of who is involved, or where it happens, the way we work will remain the same • Streamline the processes for Aboriginal research, including community engagement, staffing and methods • Strengthen relationships with service providers and support their services through the sharing of information and resources • Identify capacity building opportunities for community members and outline how to implement them as part of 'business as usual'	• The research footprint we leave is aligned to community expectations • Guarantee research treads lightly, always leaving a positive imprint on the communities we engage with • Ensure localised capacity building opportunities are maximised to ensure sustainability of impact and that improvements continue after our involvement

OUTCOMES	MILESTONES YEARS 1 - 5	YEARS 6 - 10
Building on our reputation as a recognised and trusted provider of evidence-based information and the strength of our community reference groups, we will:		
Deliver a collaborative and holistic approach to infection identification and prevention, reducing the burden of research and improving impact for families	• Develop a framework to combine existing research programs that normalise a 'whole child' approach to research and embeds it in community settings. • Establish culturally-appropriate, community-approved sites to lead research and optimise clinical care • Up-skill staff to undertake holistic health checks in one appointment • Optimise referral pathways (including technological advances e.g. digital health) to amplify infection prevention, diagnosis and treatment • Develop partnerships with leading organisations/schools to co-ordinate health assessments • Strengthen clinical service provider relationships and support ways to integrate research	• Establish metropolitan and rural coordinated healthy child community hubs across WA with a comprehensive family-centred infectious disease research program and integrated referral pathways • Embed place-based community research, improving health close to home • Optimise digital health to reduce access barriers
Empower community members to assist in the two-way transfer of information between the Wesfarmers Centre and the community. And reverse - ensure sustainability, continue improvements after our involvement	• Increase community understanding of what we do/why we do it/what we are giving back to community • Work around terminology (e.g. research, prevalence, epidemiology) and promote strength-based, place-based approaches that can be used in grants, ethics, protocols, reports, evaluations etc • Build capacity/community champions/ community development programs - how can individuals prevent ear disease in their families, what symptoms to look for – produce educational health promotion materials e.g. storybooks, factsheets, flip charts, in lay terms and language translations • Ensure that our research is communicated in an evidence-based, strengths-based, place-based manner	• Improve health outcomes by co-designing, with community, a blueprint for infection prevention, diagnosis and treatment communications strategies – need ensuring sustainable, continued messaging of research findings to maximise impact • Integrate community-based researchers in all Aboriginal research projects • Provide micro-credentials for community-based researchers • Invest in platforms to systematically and effectively map and monitor networks, partnerships and engagement to accelerate impact

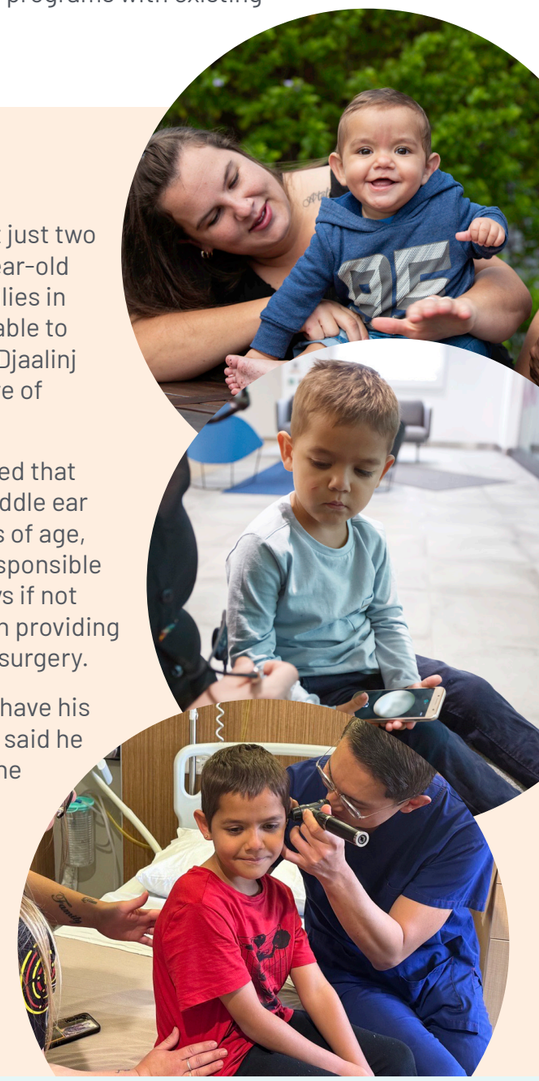
WHY WE ARE UNIQUELY POSITIONED TO ACHIEVE ABORIGINAL HEALTH EQUITY

The Wesfarmers Centre has embedded Aboriginal leadership within the Centre, including succession planning and development of future leaders. We have Aboriginal governance through Aboriginal Community Advisory groups from all major regions across WA. A cadet program in place to develop a pipeline of future researchers. Established research programs integrated with clinical care and referral pathways. Place-based research enabled by existing partnerships and relationships with community.

CENTRE CAPABILITIES LEVERAGED TO DELIVER THIS FLAGSHIP

- Whole of Centre commitment to Aboriginal Health Equity
- An established Aboriginal Leadership and training platform
- The Kids Aboriginal Research Standards, including approaches that preserve indigenous cultural and intellectual property
- Trusted partnerships with the Aboriginal Community Controlled Sector
- Relationships and commitment to Integrating our research programs with existing service providers
- Support from the Kulunga Unit at The Kids

Jahkye's Story



Enrolled in the Djaalinj Waakinj Centre Ear Health program at just two months of age, regular ear checks are part of life for eight-year-old Jahkye. One of 430 Aboriginal and Torres Strait Islander families in Perth who have taken part in the program, Jahkye has been able to access the best possible ear health treatment thanks to the Djaalinj Waakinj (listening and talking) team at the Wesfarmers Centre of Vaccines and Infectious Diseases.

Established in 2018, the first of its kind study project identified that close to 40 per cent of Aboriginal babies begin to develop middle ear infections, or otitis media (OM) between two and four months of age, and this increased to 50 per cent by six-to-eight months. Responsible for causing permanent hearing loss and developmental delays if not caught and treated early, Djaalinj Waakinj played a vital role in providing free, fast-tracked urgent specialist treatment and grommet surgery.

For Jahkye, taking part in the program meant he was able to have his first grommet surgery at 14 months of age. Proud mum Nikki said he spoke his first words not long after, and is very thankful for the opportunity to take part in Djaalinj Waakinj.

"Jahkye has now had two sets of grommets and a tonsil/ adenoid-ectomy, and he no longer suffers from hearing loss or a speech impairment," Nikki said.

"Over the last eight years, we have had access to the tools, appointments, advice and support we could have ever needed and wanted, and it's given Jahkye the best foot forward in life."

FLAGSHIP 2: Safeguarding the early years through infection identification and prevention

With the capacity to co-design, implement, and evaluate innovative infection prevention and diagnostic approaches, we are ready to deliver measurable impact for those children and families most at risk.



Challenge:

Infectious diseases drive more than half of GP visits and hospitalisations in young children, with Aboriginal families experiencing rates more than twice as high as their non-Aboriginal counterparts. Alarmingly, access to healthcare remains challenging for many at-risk populations, and service delivery is fragmented.

Despite the availability of proven infection prevention strategies, implementation can be highly variable. Exacerbating the challenge, rising misinformation and declining trust in science is undermining community confidence and acceptance, particularly in relation to vaccination.

Opportunity:

The Wesfarmers Centre is uniquely positioned to lead transformative changes in paediatric infection and disease prevention. Located within a paediatric hospital and uniting globally recognised clinicians and researchers, we combine expertise in maternal-child health research and policy with trusted partnerships in communities.

A child's health shouldn't depend on circumstance. Through research that supports parents, engages communities and advance the science of lifelong immunity, we're striving for a world where every child has the healthiest possible start.

OUTCOMES	MILESTONES	
	YEARS 1 - 5	YEARS 6 - 10
Building on a decade of discovery research and success of existing ear, skin and respiratory infection programs, we are delivering real world outcomes. We will:		
Accelerate innovations to prevent and reduce childhood infections and inform clinical practice and policy	• Identify new vaccines and therapies for ear, skin and throat infections suitable for early phase clinical trials • Develop and apply mechanistic models and advanced analytics, integrating research evidence to guide selection of vaccine or therapeutic candidates for clinical trials • Generate evidence of the most effective maternal and infant immunisation schedules, providing optimal protection against RSV, influenza, pertussis and pneumococcal disease • Establish and lead a national clinical trial network for evaluating optimal immunisation strategies and vaccines • Deliver health economics evidence to demonstrate value of early-life infection prevention	• Improve health outcomes and reduce inappropriate antimicrobial use by translating new vaccines and therapies into clinical practice and prevention policy • Secure sovereign supply of a novel long-acting penicillin for prevention and treatment of rheumatic heart disease and syphilis • Identify fast-track commercialisation pathways for innovative prevention solutions • Optimise national vaccine schedules, based on latest evidence, delivering both effective and cost-effective prevention strategies
Empower frontline care by further developing new ways to detect infection, ensuring improved health outcomes for families	• Evaluate and validate sepsis biomarkers suitable for inclusion in point-of-care tests, ensuring early sepsis detection and treatment • Use data-driven approaches and AI to develop diagnostic algorithms that will identify children most of risk of severe infections or complications • Adopt predictive modelling approaches and develop decision support tools for prescribing antimicrobial therapy, guiding antimicrobial stewardship efforts	• Integrate point-of-care tests and decision support tools for hospital and community providers, enabling rapid detection of severe disease and guiding appropriate treatment • Through collaboration with international partners and community, trial point-of-care tests and decision support tools in international and remote settings
Deliver a co-ordinated holistic approach to infection identification and prevention, reducing the burden of research and improving impact for families	• Develop the blueprint to combine existing research programs and embed them in community settings. • Establish culturally-appropriate, community-approved sites to lead research and optimise clinical care • Train staff to undertake ear, skin and respiratory health checks in one appointment • Optimise referral pathways to amplify infection prevention • Partner with leading organisations, the early education sector and schools to co-ordinate health assessments	• Establish metropolitan and rural coordinated healthy child community hubs across WA, offering family-centred infectious disease research programs and integrated referral pathways • Embed place-based community research, improving health close to home

OUTCOMES	MILESTONES	
	YEARS 1 - 5	YEARS 6 - 10
Leveraging our experience and recognition as a trusted provider of evidence-based information to community, we will:		
Elevate our voice to strengthen community confidence in vaccines, thereby reducing infections in the community	• Co-design infection prevention communication strategies with community, addressing access barriers, vaccine hesitancy and cultural appropriateness, and become a trusted advisor and communicator. • Create and share clear, innovative resources on vaccine safety, effectiveness and use for existing and new vaccines/immunotherapies • Proactively address vaccine misinformation through trusted channels and community voices • Strengthen partnerships with community and minority groups to enhance vaccine literacy and address access barriers	• Improve uptake rates and confidence in existing and new vaccines included on the national and state programs • Establish ourselves as the trusted provider and voice of evidence-based paediatric infection prevention • Anchor ourselves as the partner of choice for national and state immunisation programs, responsive to community needs and emerging threats • Advocate at the policy level to ensure evidence-informed changes to practice are implemented and sustained

WHY WE ARE UNIQUELY POSITIONED TO SAFEGUARD THE EARLY YEARS THROUGH INFECTION IDENTIFICATION AND PREVENTION

The Wesfarmers Centre is uniquely positioned to lead transformative changes in paediatric infection and disease prevention. Located within a paediatric hospital, and collaborating with globally recognised clinicians and researchers, we combine expertise in child health research and policy with trusted partnerships in communities.

CENTRE CAPABILITY LEVERAGED TO DELIVER THIS FLAGSHIP

- AI- enabled platform for surveillance, data analysis and modelling
- Expertise in microbiology, epidemiology, access to clinical teams at Perth Children's Hospital; laboratory scientists, assay analysis platforms, clinical trial network, platform trials
- Expertise in public health surveillance, microbiology, epidemiology and modelling
- Access to hospital and community-based clinical teams as well as state and national policy makers
- Established analysis platforms to support paediatric vaccines studies
- Access to clinical trials networks and expertise in new trial methodology
- Demonstrated capacity and risk appetite to commercialise

Mabel's Story





Beautiful baby Mabel was just six months old when pneumococcal disease took her life. Mabel was fully vaccinated as per Australia's National Immunisation Program (NIP), so her parents Carly and John weren't overly concerned when doctors suspected she was suffering from a bout of gastro or a urinary tract infection in September 2021.

Initially admitted to the hospital's short stay unit, Mabel's health declined rapidly and she was moved to the paediatric intensive care unit where doctor's discovered pneumococcal bacteria in her spinal fluid. A diagnosis of pneumococcal meningitis soon followed, and Carly and John spent the next 10 days living every parent's worst nightmare as they watched their baby girl lose her fight against the disease.

There are over 100 strains of pneumococcal disease, yet the vaccine given to Mabel at two and four months of age provided protection against just 13 of them. In 2019, the Vaccine Trials Group at the Wesfarmers Centre of Vaccines and Infectious Diseases participated in global research investigating potential vaccines covering seven additional strains of pneumococcal bacteria, including the strain responsible for taking Mabel's life.

This vital work demonstrated the safety and effectiveness of a new vaccine, and on September 1, 2025, the Australian Government introduced the Prevenar 20 pneumococcal vaccine to the NIP. All babies and young children now have significantly stronger and broader protection against pneumococcal, as well as the life-threatening complications of the disease such as pneumonia, meningitis and blood stream infections.

Four years after losing their little girl, Carly and John celebrated Prevenar 20's arrival on the NIP and continue to talk about pneumococcal awareness and prevention in Mabel's memory.

"While the introduction of the new vaccine is too late for Mabel and our family, it gives us comfort to know that many children across Australia will now have stronger protection from this devastating disease," Mr Goya said.

"We are thankful that researchers from the Wesfarmers Centre and around the world are working hard to develop the best possible protection against pneumococcal and hope to see this important research continue in the future."

FLAGSHIP 3: Recognising and responding to life-threatening infections

Few places in the world face the same mix of infectious disease risks as WA, where tropical conditions, proximity to Asia and diverse urban centres create continual challenges requiring ongoing disease recognition and response to infection.

Challenge:

Infections that kill will continue to occur as pathogens (bugs) are constantly evolving. New life-threatening pathogens with pandemic potential will continue to emerge (like COVID-19), alongside old pathogens capable of causing unexpected epidemics (such as influenza). In addition, sepsis, the leading cause of death in hospitals, is caused by a number of known pathogens, demonstrating that recognition alone is not sufficient. These life-threatening conditions require recognition combined with an appropriate rapid response to enable successful treatment.

The burden is substantial and inequitable, especially in our youngest patients - more than one in four paediatric intensive care deaths across Australia and New Zealand are attributable to sepsis.

Sepsis and emerging pathogens are difficult to diagnose and determine, yet infections are preventable when recognised early. Emergency departments rely on outdated tools for sepsis diagnosis, such as early warning scores weighted by parental concerns and senior clinician intuition.

Past pandemics have exposed the risk and dramatic consequences of being underprepared. Health systems, industry and the community are easily overwhelmed. We are missing the networks and tools required to recognise and respond to emerging threats.

Opportunity:

Sepsis is entirely preventable and treatable when recognised early. For every hour that sepsis remains untreated, chances of survival drop by 7-10%. Early detection is critical for rapid response and successful treatment, yet there are no reliable diagnostic tests. Rapid identification of sepsis and appropriate treatment is essential for improved outcomes, and by further leveraging our expertise in this space, we can create cutting-edge tools for early sepsis recognition, rapid response, and evidence-based interventions for sepsis.

In preparation for future pandemics, we will use our expertise and existing relationships with public health authorities, policy makers and the community to safeguard ourselves from emerging threats. Few places face the same mix of infectious disease risks as Western Australia. Using our unique location to our advantage, we have the ability to stay one step ahead of emerging threats by developing strategies that will save lives, improve outcomes, strengthen health systems, and protect the children and families most at risk.



OUTCOMES	MILESTONES	
	YEARS 1 - 5	YEARS 6 - 10
Through established platforms of discovery research, we will enable rapid identification, detection, and treatment of sepsis, slashing preventable sepsis-related deaths. We will:		
Empower frontline care by developing tools to recognise and treat sepsis rapidly	• Develop diagnostic tests for sepsis by evaluating and validating novel biomarkers suitable for inclusion in point-of-care tests • Use data-driven approaches and AI to develop diagnostic algorithms designed to identify children most at risk of life-threatening infections	• Embed sepsis point-of-care tests and decision support tools in Emergency Departments and primary care across the state, enabling rapid sepsis detection
	• Partner with hospital and community providers to standardise sepsis recognition tools and recommended interventions • Assess multi-component interventions for sepsis and severe infection through national clinical trial platforms • Improve health outcomes by co-designing sepsis recognition education programs and action plans with community	• Collaborate with community and international partners to trial sepsis tests and decision support tools in remote and international settings • Lead sepsis and severe infection treatment trials, optimising outcomes and reducing long term morbidity

OUTCOMES	MILESTONES	
	YEARS 1 - 5	YEARS 6 - 10
Building on our experience in COVID-19, we are trusted to respond to emerging threats with clarity, evidence and honesty. We will:		
Build agile, activation-ready surveillance and trial frameworks, essential for responding to today's outbreaks and tomorrow's pandemic	• Design and operationalise flexible, rapid-response surveillance systems, critical for both current outbreak control and long-term pandemic preparedness • Develop modular paediatric-specific trial methodologies with the capacity to rapidly shift to new threats, driving new discoveries • Combine modelling, surveillance, laboratory and trial platforms with government and community partnerships to enable rapid response, epidemic and pandemic forecasting • Expand networks and reach in the Asia Pacific region, strengthening collaborations, partnerships, and local capacity to respond to emerging and re-emerging threats	• Create a national clinical trial platform for evaluating new interventions for emerging pathogens • Use state-of-the-art surveillance systems, including community, school and workplace-based testing, pre-established trial registries, trial platforms, biobanking, and modelling to create an evidence-based emerging threat toolkit used throughout the health system • Share emerging threat toolkit with our Asia-Pacific collaborators to enable rapid rollout of a tailored emergency response hub, reducing spread of disease
Elevate our voice to strengthen community confidence in infectious disease interventions, thereby preparing for emerging and re-emerging infections	• Co-design a blueprint for infection prevention communications strategies for emerging and re-emerging infections alongside community members, ensuring cultural appropriateness • Continue to be the trusted provider and voice of evidence-based paediatric infection prevention	• Establish ourselves as the partner of choice for national and state emerging infection programs and industry, responsive to community and partnership requirements • Develop regional and international partnerships with a co-ordinated response capacity

WHY WE ARE UNIQUELY POSITIONED TO RECOGNISE AND RESPOND TO LIFE-THREATENING INFECTIONS

The Wesfarmers Centre unites globally recognised clinicians and researchers, bringing together expertise in infectious diseases, microbiology, immunology, diagnostics, public health surveillance, clinical and laboratory networks, modelling, data systems and lived experience community groups.

We have demonstrated capacity in sepsis research, conducting world-leading studies to improve survival outcomes for pre-term babies with sepsis. We are leading the establishment of a Sepsis WA Advisory Committee, and partnered with Perth Children's Hospital to lead sepsis recognition programs and rapidly translate knowledge into policy.

Established relationships with government, community and industry were strengthened during the COVID-19 pandemic. These, combined with existing collaborations with critical care and emergency networks will enable us to deliver on this flagship.

CENTRE CAPABILITY LEVERAGED TO DELIVER THIS FLAGSHIP

- Microbiologists, critical care physicians and strong collaborations with Perth Children's Hospital Emergency Department staff (including staff within the PREDICT network – Australian and New Zealand network of paediatric Emergency Departments)
- Clinical and laboratory infrastructure, a to-be-developed AI-enabled next-generation platform for surveillance, data analysis, machine learning and predictive modelling
- Participation in international neonatal sepsis trials and initiatives

Bubba's Story



When three-year old Bubba cut her finger at the playground in 2024, her parents had no idea this small injury would almost cost their baby girl her life. The close-knit family were always outside, and Bubba loved fishing, glamping and going on adventures with her three older sisters. But on October 27, the happy, healthy little girl began complaining of a sore leg, and two days later she was admitted to Perth Children's Hospital and scheduled for surgery to understand why her red, swollen leg was causing her such excruciating pain.

During the surgery, Bubba's condition deteriorated quickly – she was going into septic shock, and her organs were shutting down.

Bubba's parents, Charky and Thornton, say it is difficult to describe how it felt as parents when they first saw their daughter laying on a bed, looking lifeless and hooked up to life support to breathe.

"Not long after that, we were taken to a room and told we had five minutes to sign a medical treatment form because her heart was failing and her body wanted to die," Charky said.

"The next time we saw her, a few hours later, her chest was open and we could see her heart beating while a machine helped to pump her blood through her body to keep her alive – there are no words for how painful this was seeing our baby like this. Just no words."

Doctors performed numerous surgeries and therapies to try and get Bubba's methicillin-resistant Staphylococcus aureus (MRSA) blood stream infection under control. Resistant to commonly used antibiotics, it seemed there was no stopping the infection that was ravaging her tiny body.

After six weeks in a coma battling the deadly infection, Bubba's lungs were so damaged that the decision was made to completely remove her right lung. The muscle in her right leg was dying, and Charky and Thornton were told on three occasions that Bubba's leg may need to be amputated.

Slowly running out of treatment options, one of Bubba's doctor's - a clinician scientist from the Wesfarmers Centre of Vaccines and infectious Diseases - suggested enrolling her in a trial for phage therapy. A medical treatment using bacteriophages - viruses that specifically infect and kill bacteria – phage therapy is still being developed but offers hope for patients with infections resistant to standard antibiotics. Fearing that it may be one of their last options to save their daughter's life, Charky and Thornton signed up for the trial and Bubba became the first child in WA to receive phage therapy. Within two days, the phage therapy successfully stopped the spread of infection, but the huge amount of damage left behind in Bubba's body from the infection was proving impossible to overcome.

"Four days before Christmas, we were woken up at 3am and told to spend as much time as we could with Bubba and to pray for a miracle because the doctors and nurses had done all that they could," Charky said.

"As heart breaking as it was to hear, my faith in Jesus Christ had never been so strong, and I knew with all my heart and soul that she was going to be okay. And on Christmas morning, her vitals were improving and she started making little movements. The doctors couldn't believe what they were witnessing - she was our Christmas miracle."



It took 65 days for Charky and Thornton to be able to hold their baby again, and three and a half months before Bubba could be discharged from hospital.

"Bubba had 12 major surgeries, with most of them being life-threatening due to sepsis. Her little body had been through so much and she is covered in battle scars from her open chest procedure, her rib cut, her right lung removed, and half of her right calf muscle cut off.

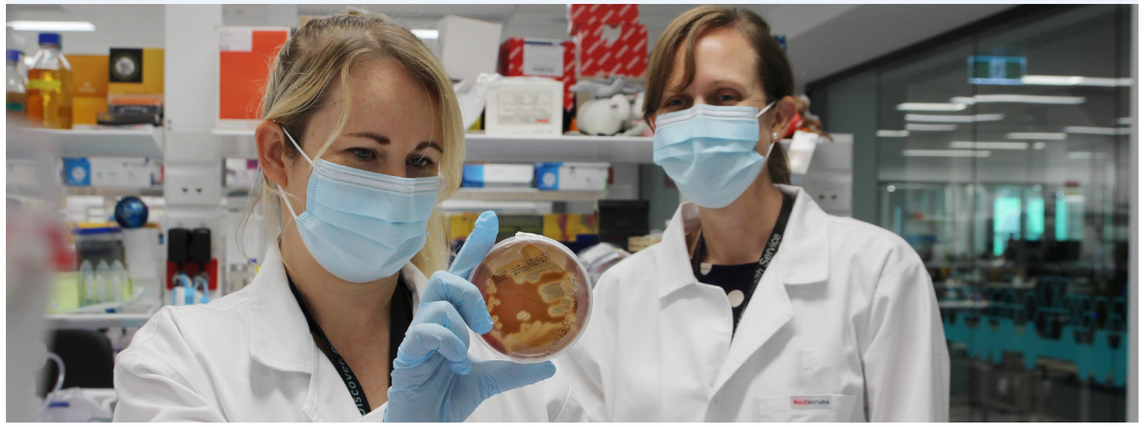
"She had to learn to breathe on her own again, to walk, talk and eat again - it has been a tough journey, but we are so grateful and blessed that she is here with us today.

"I didn't know anything about sepsis prior to what happened to Bubba, so I think further research and awareness is really important, especially around providing clinicians with the ability to diagnose sepsis as early as possible – this could save other families from going through the heartbreak we experienced."



FLAGSHIP 4: Combatting antimicrobial resistance

Left unchecked, antimicrobial resistance (AMR) will have a devastating effect on each and every one of us. Many of the gains made in modern medicine will be reversed. Severe illness and death rates will skyrocket. Routine surgery and chemotherapy could become risky to perform. The resulting economic burden and society cost will be immense.



Challenge:

AMR occurs when germs (pathogens) change over time and no longer respond to medicines designed to kill them, such as antibiotics. This means infections become harder to treat and can spread more easily. The World Health Organization predicts that AMR will be responsible for 10 million deaths per year by 2050. In Australia, more people die from AMR than on our roads. AMR will impact us all and is a priority both globally and locally.

Inappropriate and excessive antimicrobial use drives AMR. Ear infections, sore throats and respiratory viral infections are the most common reason for antimicrobial prescription in Australian children, even though many of these conditions do not require them or benefit from them.

Opportunity:

The Wesfarmers Centre is well positioned to define and rise to the AMR challenge. We have the opportunity to build on our previous experience identifying antibiotic-resistant infections, infection prevention interventions, developing clinical decision support tools and collecting data on the impact and cost of AMR. With this knowledge, our researchers understand the key drivers of AMR in children and families and have the ability to further develop decision support tools and diagnostics to stop inappropriate antimicrobial use.

Community is at the forefront of antimicrobial use, and our trusted and far-reaching community relationships will be critical to the achievement of our ambition in this flagship.

OUTCOMES	MILESTONES	
	YEARS 1 - 5	YEARS 6 - 10
Harnessing our diagnostic, analytical and clinical trial capacity, we will develop strategies to reduce the use of existing agents and encourage use of alternatives. We will:		
Minimise inappropriate antimicrobial use	• Implement decision support tools for accurate antimicrobial selection in hospitals and community settings • Evaluate and introduce point-of-care tests to detect AMR in hospital and clinics • Quantify antimicrobial use in the community and health-care settings and develop data visualisation tools to track the status of AMR • Lead guideline development and enhanced training in community and hospital antimicrobial stewardship	• Develop new diagnostics distinguishing viral from bacterial infection to reduce antibiotic misuse • Develop strong cross cutting partnerships in health, agriculture, environment and economics to advocate for change • Strengthen the region by collaborating with regional partners, including international clinical trial consortia
Advance new antimicrobials and non-antibiotic solutions	• Lead paediatric trials of existing and new AMR strategies • Optimise dosing and drug monitoring to preserve existing antimicrobials • Implement novel approaches including phage therapy for the treatment of resistant infections	• Ensure clinical trial evidence is rapidly translated into prevention and treatment guidelines • Discover unique mechanisms of resistance, informing drug development pipelines • Develop and implement point-of-care resistance tests
Through new technology solutions, education and advocacy, we will:		
Prevent infections to minimise antimicrobial use	• Improve use of existing prevention strategies including vaccines through education, advocacy and programs to reduce vaccine hesitancy • Support the continued development of innovative infection prevention solutions from our centre for childhood ear, throat, lung, skin and bloodstream infections	• Discover and implement new prevention strategies for otitis media, sore throats, respiratory viruses and skin infections • Partner to make centre-led innovations a reality for children in our region and throughout the world
Build community knowledge and AMR advocacy	• Lead AMR awareness sessions with key stakeholders, to understand barriers and work together to overcome these challenges • Develop and implement evidence-based community AMR campaigns in partnership with industry, government, consumers, prescribers and pharmacies	• Be a trusted international voice in neonatal and paediatric AMR and involved in global strategies to combat AMR

WHY WE ARE UNIQUELY POSITIONED TO COMBAT PAEDIATRIC AMR

Our location within a paediatric hospital and collaborations with globally recognised clinicians and researchers allows us to combine expertise in maternal-child health research with trusted partnerships in communities. Our co-locations with the Wal-yan Respiratory Centre also provides the opportunity to collaborate with experts in phage therapy, bringing together a combination of skills and access to clinical setting that is truly unique in a paediatric setting.

We have a proven track-record demonstrating our ability to discover and advance alternative treatments to complement and replace currently available antimicrobials - this is vital for reducing antibiotic user in the community and tackling AMR.

CENTRE CAPABILITY LEVERAGED TO DELIVER THIS FLAGSHIP

- Maternal and childhood vaccination research
- Modelling and data science platforms; collaborations across teams at The Kids
- Adaptive clinical trials and expertise within clinical trials network
- Microbiological expertise in both discovery and diagnostics
- Established position leading paediatric AMR programs within established surveillance networks
- Opportunity to brings additional skills (e.g. epidemiology, social science, community) to the AMR sector
- The Kids research excellence and focus on AI

Ruby's Story

The dangers of AMR may sound far off in the future, but Perth paediatricians and GPs are seeing it in the community every day.

For two-year-old Ruby, a fun-filled family trip to Bali over Christmas could have ended in a hospital stay after she developed a painful urinary tract infection.

Initially prescribed broad-spectrum antibiotics to clear the infection, further tests discovered Ruby had picked up a highly resistant strain of E. coli far more difficult to treat.

Her GP was left with just one option she could prescribe for treatment and, if unsuccessful, a hospital admission would be required for IV antibiotics.

Thankfully, this wasn't the case for Ruby, but doctors are already reporting increasing numbers of AMR cases at Perth Children's Hospital and it's a clear sign the threat is getting very close to home.



The KIDS RESEARCH INSTITUTE AUSTRALIA

WESFARMERS CENTRE OF VACCINES & INFECTIOUS DISEASES

The call to action is clear: we must continue building the Wesfarmers Centre as a hub of excellence that transforms how we prevent, diagnose, and treat infectious diseases in children and their families.

The stakes are too high for anything less than transformational impact.

