The KIDS RESEARCH INSTITUTE AUSTRALIA

2025 Student Research Projects at The Kids Research Institute Australia

A Guide for Postgraduate Opportunities

DISCOVER · PREVENT · CURE

WELCOME TO

THE KIDS RESEARCH INSTITUTE AUSTRALIA

The Kids Research Institute Australia is one of the largest and most successful medical research institutes in Australia, dedicated to the health and wellbeing of children and young people. Drawing on three decades of cutting-edge discoveries, preventative treatment and the quest for cures for the most baffling childhood diseases, The Kids' purpose is to find solutions to improve the health and happiness of children and young people everywhere.

Led by Executive Director Professor Jonathan Carapetis, The Kids is based at Perth Children's Hospital in Nedlands, Western Australia and with offices around WA and in South Australia.

At The Kids, we do research differently. We work hard to find solutions to important problems, but that's not enough. Our job is not done until that solution is changing young lives for the better. Our multidisciplinary approach brings together clinical researchers, laboratory scientists and epidemiologists all under the one roof to tackle the many complex childhood diseases and issues from a range of different angles.

Our Vision
Happy healthy kids.

Our Purpose
To find solutions to improve the health and happiness of children and young people.

Our Mission
To improve the health, development and lives of children and young people through excellence in research and the application of that knowledge.

Our Values
Our values underpin how we work and make decisions. We value:

- Collaboration
- Courage
- Evidence
- Respect

The Kids has strong affiliations with The University of Western Australia, Curtin University, and The Australian National University. We additionally have strong relationships with a range of other universities as well as wide-reaching collaborations with leading research organisations around the world. You can find out more about our current projects, Research Teams, and being a student with us by:

- Visiting our website: www.thekids.org.au
- Contacting our researchers listed within this booklet
- Contacting our Student Team at study@thekids.org.au

RESEARCH THEMES

Our Research Themes are hubs that will facilitate the development, delivery and translation of high-quality collaborative projects that make a difference to child health. Each Research Focus Theme is designed to attract a diversity of expertise and a range of disciplines, in a coalescence of activity and creativity.

ABORIGINAL HEALTH

The Aboriginal Health Research Theme integrates the needs of Aboriginal families and children into all relevant areas of our work. Improving the health and wellbeing of Aboriginal children and families is an overarching priority for every program and team at the Institute.

Aboriginal people experience greater disadvantage than the rest of the population on almost all of the determinants of health, social and emotional wellbeing including employment, education and housing. As there are specific cultural, social and economic contexts that require more specialised investigation in collaboration and consultation with Aboriginal families, this Research Theme is unique in that it provides advice, technical and cultural support across the Institute to all programs of research.

BRAIN AND BEHAVIOUR

Brain and Behaviour is a Research Theme which focuses on the core of many issues affecting the ongoing health and wellbeing of children and young people. Our research investigates the developmental, genetic, family and environmental determinants of child wellbeing, and how clinical, educational and community practices can provide every child with the best opportunity for optimal health and development.

At The Kids Research Institute Australia, this research encompasses a child's learning, development and mental health - and the impact of conditions like cerebral palsy, autism and intellectual disability.

Brain and Behaviour consists of three programs: Development and Education, Disability, and Mental Health and Youth Health.

CHRONIC & SEVERE DISEASES

Chronic and Severe Diseases is a Research Theme which focuses on diseases in children that require a very different investigation and treatment to similar conditions in adults.

Childhood cancers, diabetes, respiratory conditions and rare diseases can be debilitating and often life threatening. Effective intervention and prevention require an understanding of the complex interactions between genetic and environmental factors, as well as a focus on better ways of diagnosing, treating and controlling disease at the individual and population level.

Chronic and Severe Diseases consists of four programs: Cancer, Diabetes and Obesity, Genetics and Rare Diseases, and Respiratory Health.

EARLY ENVIRONMENT

Early Environment is a Research Theme which focuses on the ways that environments early in life can affect a child's life-long health and development.

Factors ranging from infection and climatic conditions to pollutants, housing and our complex microbiome all have an impact. Understanding these exposures and their impact on early growth and development is key to preventing and treating a number of common childhood conditions.

At the The Kids Research Institute Australia, this research encompasses the development of the immune system, infectious diseases, maternal health and the developmental origins of disease and health.

Early Environment consists of three programs: Developmental Origins of Child Health, Infection and Vaccines, and Inflammation and Immunity.

CONTENTS

Aboriginal Health

SNAP-PY: Staphylococcus aureus Network Adaptive Platform trial for Paediatrics and Youth

Research Theme	☒ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Healthy Skin & ARF Prevention, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	January 2025
Chief Supervisor	Professor Asha Bowen, The Kids Research Institute Australia
Other Supervisors	Dr Anita Campbell, The Kids Research Institute Australia
Project Outline	SNAP-PY is a clinical trial aimed at finding the best treatment for Staphylococcus aureus bacteraemia (SAB) bloodstream infections. There are a range of projects for an Aboriginal student to undertake within the team. SAB is common, is not vaccine-preventable and optimal treatment has not been determined for children or adults. Each year, approximately 400 Australian children are hospitalised with SAB, remaining for an average of two weeks for treatment. This means time away from family, school and sometimes travelling a long way from home to hospital. Aboriginal children have double the rate of SAB compared to non- Aboriginal children (Campbell et al 2021). The Staphylococcus aureus Network Adaptive Platform (SNAP) is the most ambitious clinical trial for bloodstream infection globally to date, involving 11 countries, 58 sites and 7,000 patients. SNAP aims to identify which antibiotic treatment options result in the least patients dying and improved outcomes. In contrast to a traditional clinical trial, the SNAP trial is examining multiple different antibiotic treatment options at the same time. The SNAP trial in Australia has an Aboriginal Advisory Committee and Aboriginal Community Project Coordinator to advise and enhance cultural safety for Aboriginal people participating in the trial. More research is needed on this, which a student would have the opportunity to lead. There are currently limited Aboriginal and Torres Strait Islander triallists working directly in infectious diseases research at present in Australia. Scholarships to support an Aboriginal student may be available as well as there being an opportunity for employment one day a week at The Kids Research Institute Australia if this is of interest.
Suitable For	☒Honours ☒MD ☒Masters ☒ PhD
Essential Skills & Qualifications	Aboriginal and/or Torres Strait Islander student preferred Undergraduate degree in a relevant field Good interpersonal and communication skills Have data analysis skills, writing skills and clinical experience
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Ngangk Ngabala Ngoonda (Sun Safety), Moorditj Marp (Strong Skin) and SHARE (Aboriginal Health Practitioner-led skin health care)

Research Theme	☒ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Healthy Skin & ARF Prevention, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	January 2025
Chief Supervisor	Professor Asha Bowen, The Kids Research Institute Australia
Other Supervisors	Dr Heather-Lynn Kessaris
Project Outline	**Ngangk Ngabala Ngoonda** in Noongar language translates to Sun Safety. This exciting research project aims to understand the barriers to sun protective behaviours among Aboriginal children and young people in WA, and improve the availability of culturally inclusive, targeted sun safety resources to increase awareness of skin cancer risk. Co-led by Professor Asha Bowen and Dr Heather-Lynn Kessaris, Western Australia's first Aboriginal Dermatology trainee, the research team is comprised of Aboriginal clinicians, Elders, and community members. The project will work in partnership with Aboriginal Health Services and the Cancer Council of Western Australia. **Moorditj Marp (Strong Skin)** involves the evaluation and development of culturally relevant healthy skin storybooks with a focus to improve health self-efficacy through building awareness and improving confidence in the management of skin conditions. This project aims to fill a gap in the availability of culturally appropriate skin health promotion resources. To date, Aboriginal Consumer Advisory Group members and our team co-created the first-ever healthy skin children's storybook, 'Kaal Tackles Eczema', which is representative of and relevant to Aboriginal children. The project will take a Community Participatory Action Research approach to robustly evaluate and learn from the community co-designed storybook, to inform the development of additional storybooks, and recommendations for culturally respectful health promotion resource development with and for Aboriginal people. **SHARE** will develop an Aboriginal Health Practitioner-led Skin Health Assessment Research Evaluation program for Aboriginal children admitted to Perth Children's Hospital. Co-designed with Elders and an Aboriginal community advisory group, the SHARE program aims to establish culturally relevant frontline services led by Aboriginal Health Practitioners for the treatment of skin health issues for Aboriginal children. The program also aims to compare microbiology of infections between areas of residence.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Aboriginal and/or Torres Strait Islander student preferred, or experience in Aboriginal health Undergraduate degree in a relevant field Good interpersonal and communication skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Headlice Oral Treatment Research

Research Theme	☒ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Healthy Skin & ARF Prevention, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	January 2025
Chief Supervisor	Professor Asha Bowen, The Kids Research Institute Australia
Other Supervisors	Dr Hannah Thomas, Dr Ingrid Amgarth-Duff
Project Outline	Head lice is a common global health problem, affecting people of all ages and backgrounds, especially children. They spread easily through close contact or sharing personal items such as hats and pillows. In Australia, head lice outbreaks are particularly prevalent in schools and childcare centres. This research project aims to address several key aspects related to head lice, including systematic reviews; review of existing guidelines and treatment options; and consultation with Aboriginal and non-Aboriginal communities to understand their priorities. This will lead to a non-inferiority randomised controlled trial comparing oral ivermectin and topical permethrin 5%. This trial will provide evidence on which treatment works best, aiming to make effective treatments more accessible across Australia.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in a relevant field Experience in Aboriginal health preferred Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

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Brain and Behaviour

An exploration of diabetes distress on TikTok

Research Theme	☐ Aboriginal Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Healing Kids, Healing Families
Start Date	March 2025
Chief Supervisor	Dr Karen Lombardi, The Kids Research Institute Australia
Other Supervisors	TBC
Project Outline	Young people view the accessible health information available online as simple and accurate, meaning it can be an effective medium for education. In recent years, TikTok has become an increasingly popular source of advice, validation and information. TikTok is widely used to disseminate both personal experiences of users and mental health education and information, especially for those who experience chronic health conditions. TikTok is a social media outlet that people with type 1 Diabetes use to share information, raise awareness about their condition and to support one another. This project aims to explore how TikTok is used in relation to 'diabetes distress'. Diabetes distress is the emotional burden and overwhelm that young people with type 1 diabetes may experience due to their condition. Diabetes distress may affect a young person's work, school and ability to manage other parts of their life, leading to mental health concerns and burnout. This project will qualitatively explore and analyse the content related to diabetes distress on TikTok.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	If Masters: Honours degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Analysis of Mental Health Content on TikTok

Research Theme	☐ Aboriginal Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Healing Kids, Healing Families
Start Date	March 2025
Chief Supervisor	Dr Karen Lombardi, The Kids Research Institute Australia
Other Supervisors	TBC
Project Outline	Young people view the accessible health information available online as simple and accurate, meaning it can be an effective medium for education. In recent years, TikTok has become an increasingly popular source of advice, validation and information. TikTok is widely used to disseminate both personal experiences of users and mental health education and information. This project will qualitatively explore and analyse the content related to mental health on TikTok.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	If Masters: Honours degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Understanding "detrans TikTok"

Research Theme	☐ Aboriginal Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	Semester 1, 2025
Chief Supervisor	Dr Blake Cavve, The Kids Research Institute Australia
Other Supervisors	Dr Karen Lombardi, The Kids Research Institute Australia Co-supervisors from UWA/Curtin necessary
Project Outline	Some people identify as transgender (trans) or gender diverse before sometime later re-identifying with their birth-registered sex. Some people refer to this experience as detransitioning, however, others find this term medicalising or pathologising. During this period some people may have engaged in social, legal, medical or surgical forms of gender affirmation. Some people may regard their time identifying as trans or the steps of gender affirmation as negative or harmful, while others consider it a necessary and helpful period of exploration. Some people report that their families welcomed their decision to stop gender affirmation, while others feel the loss of their trans community or support systems. As you can see, this is a diverse group of individuals with different experiences and perspectives. Generally, this is also believed to be a fairly small group of individuals spread across the world. For these reasons people who have stopped gender affirmation or detransitioned may find social media platforms particularly valuable in accessing support or information. As such, there is a growing community of detrans people, researchers, and interest groups discussing detransition on TikTok (a popular social media platform with young people aged 16 to 24). Researchers from our Youth Mental Health team have generated a protocol for exploring content posted to TikTok and have applied this to a number of LGBT+ related topics. This project will seek to apply this protocol to detransition-related content to better understand how this platform is used by people who stop gender affirmation or who no longer identify as trans. The student will be responsible for documenting, coding, and interpreting detrans related TikTok content in line with the protocol. This project will take a gender affirming approach to research; respecting the validity of all gender related outcomes (trans or not trans) and respecting the rights of all people to pursue authenticity.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Desired: familiarity with trans health and detransition Psychology, public health or related undergraduate degree Ability to take a mature and nuanced approach to a complex issue Note this project may include distressing content (e.g., descriptions of surgery, self-harm, or feelings of regret) as well as inflammatory or unpleasant language. The student will have mental health resources available to support their wellbeing throughout the project
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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3 I's: the intergenerational transmission of stress & mental health across generations

Research Theme	☐ Aboriginal Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Developmental Science of Mental Health Team: Population and Health Theme
Start Date	2024, flexible
Chief Supervisor	Professor Kathryn Modecki, School of Psychological Science at University of Western Australia & The Kids Research Institute Australia
Other Supervisors	A range of possible co-supervisors will be discussed; the Team has co-supervisory arrangements with colleagues at UWA, Murdoch University, ECU and elsewhere
Project Outline	What is the impact of timing and types of stressful life experiences on the development of mental health and positive wellbeing? Our team makes use of longitudinal data (over years and decades) and daily diary data (over moments and weeks) to address the role of coping, social supports (including online), and prior life history events in shaping how adolescents and parents navigate the challenges of everyday life and meet key developmental demands. Students will be supervised in sub-projects under this umbrella of translational science. Projects will make use of rigorous quantitative methods (we will mentor those who are enthusiastic to learn) and may work together in the field to collect data with teens and families experiencing risk due to living in the context of structural and socio-economic disadvantage.
Suitable For	☒Honours ☐ MD ☐ Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in psychology preferred Interest in and willingness to up-skill in appropriate statistical methods Commitment to values of respect, inclusion, and diversity Commitment to positive team science
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:

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ARC Centre of Excellence for Children and Families over the Life Course: PhD Scholarships

Research Theme	☐ Aboriginal Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Life Course Centre
Start Date	Flexible 2024-2025
Chief Supervisor	Professor Hayley Christian, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	Dr Andrea Nathan
Project Outline	The Life Course Centre (LCC) is funded by the Australian Research Council and collaborating partner organisations. The Life Course Centre has its headquarters at The University of Queensland, with nodes at The University of Western Australia (UWA), and the universities of Melbourne and Sydney. The Life Course Centre aims to produce and empower precision methods and adaptive social interventions to optimise support for disadvantaged children and families, helping them to achieve their full potential. The successful HDR candidate will also be a student member of the Life Course Centre, which qualifies them to apply for travel grants and attend professional development courses. The LCC UWA node has a PhD scholarship available for research project related to one of these topics: • Influence of the built environment on early child health and development • Disadvantage and child health in early childhood learning settings • Other topics related to deep & persistent disadvantage in Australia will be considered.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒PhD
Essential Skills & Qualifications	Ability to conduct quantitative and qualitative research Excellent writing skills An interest in knowledge transfer Good interpersonal, communication and team skills Desirable: Statistical analysis (SPSS/SAS/STATA/R) For PhD candidates: Minimum 2A Honours degree
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:

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Play Active Program - National

Research Theme	☐ Aboriginal Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity, Health and Development (PLAYCE Team): Healthy Behaviours & Environment Neighbourhood
Start Date	Flexible 2024/2025
Chief Supervisor	Professor Hayley Christian, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	Dr Andrea Nathan
Project Outline	Physically active play is critical during the early years of life for physical and mental health. Young children enjoy being active while playing. Yet, many young children do not get enough daily physical activity to support their health and development. With our national and state partners we are scaling-up the Play Active program to evaluate the benefits and costs of supporting childcare services throughout Australia to boost 100,000's of children's daily active play. Our multi-sector partner organisations include major stakeholders in the childcare sector. We are working closely with Goodstart Australia, Australian Childcare Alliance, Early Childhood Australia, state governments and our other partners to adapt our evidence-informed Play Active program for scalable delivery Play Active is part of the Australian Research Council Centre of Excellence for Children and Families over the Life Course (the Life Course Centre) - an international collaboration of 21 organisations. The successful HDR candidate will also be a student member of the Life Course Centre, which qualifies them to apply for travel grants and attend professional development courses. A full PhD scholarship and top-up scholarship is available for a suitable candidate.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Ability to conduct quantitative and qualitative research Excellent writing skills An interest in knowledge transfer Good interpersonal, communication and team skills Desirable: Statistical analysis (SPSS/SAS/STATA/R) For PhD candidates: Minimum 2A Honours degree For Masters candidates: Degree in Public Health, Epidemiology, Data Science or related
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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PLAYCE Cohort: Children's Physical Activity, Health and Development

Research Theme	☐ Aboriginal Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity Health & Development (PLAYCE Team): Healthy Behaviours and Environment Neighbourhood
Start Date	Flexible: 2024-2025
Chief Supervisor	Professor Hayley Christian, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	TBC
Project Outline	This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children's Physical Activity. PLAYCE examines the influence of the physical, social and policy environment on young children's physical activity, sedentary behaviour, eating behaviour, weight status, sun exposure and development: at home, around the neighbourhood, at early childhood education and care (ECEC) and school. This research will provide information on how best to create healthy home, neighbourhood and learning environments. The PLAYCE cohort study details patterns of movement behaviours across childhood and the effect on weight status and socio-emotional, cognitive, and motor development across four waves (two to 13 years). Student projects can be qualitative, quantitative or mixed methods.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Ability to conduct quantitative and or qualitative research Excellent writing skills Statistical analysis (SPSS/SAS/R/STATA) Ability to work as part of a team Good interpersonal and communication skills For PhD candidates: Minimum 2A Honours degree For Masters candidates: Degree in Public Health, Epidemiology, or related
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Chronic and Severe Diseases

Finding new cures for childhood leukaemia

Research Theme	☐ Aboriginal Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Translational Genomics in Leukaemia (TGL)
Start Date	February-March 2024
Chief Supervisor	Dr Sébastien Malinge, The Kids Research Institute Australia
Other Supervisors	
Project Outline	Leukaemia is the most common type of cancer in children. Remarkable therapeutic advances have been made over the past sixty years. Despite this success, it remains the second cause of death by cancer in Australia, mostly due to treatment-related toxicity and relapses. Thus, current treatments have reached their maximum potential and specific subtypes of leukaemia continue to have a poor prognosis, highlighting the need for new efficacious therapies. Our group is focused on finding new key vulnerabilities in the leukaemia cells to develop novel and less toxic targeted therapies and to better understand the microenvironment surrounding the leukaemia cells to design new immune-based therapies. To achieve this, we are using primary patient samples from which we developed sophisticated and clinically relevant models named Patient-derived Xenografts (PDX), as well as novel immunocompetent models of childhood leukaemia (B-ALL, DS-ALL and AML). Our current projects are focused understanding the molecular and cellular bases of leukaemia development and response to standard of care or targeted treatments, using the following technics: • Molecular biology (CRISPR/Cas9, transduction…) • Tissue culture • Flow cytometry • Animal work (tissue preparation and drug testing). Ultimately, our goal is to develop new therapeutic strategies that target key weaknesses of the leukaemia cells, harness the tumour environment to develop novel synergistic approaches, to improve prevention, diagnosis, long-term survival and quality of care for all children with leukaemia.
	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	BSc or BSC (Hons) Excellent oral and written communication skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Aetiology of childhood acute wheezing and asthma

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Children's Respiratory Science Group, Wal-yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Dr Ingrid Laing, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	Professor Peter Le Souëf, The Kids Research Institute Australia & University of Western Australia, Associate Professor Guicheng Zhang, Curtin University
Project Outline	Asthma is one of the most common reasons children need emergency medical treatment in Western Australia. Our research program involves studying young children during the peak of their acute asthma attack. Studying children at this time with a follow-up on recovery is the best way to discover the underlying causes of asthma. We compare results to those of healthy children so we can understand just how stressed the systems are during acute asthma and how much they recover afterwards. We also characterise each child's clinical status including their lifetime history of recurrent exacerbations to identify their tendency to develop persistent asthma. We have a number of projects using different technologies to study the mechanisms of asthma including persistence of type 1 interferon signatures in children with acute asthma. Our aim is to elucidate the biological mechanisms that contribute to the susceptibility to, and severity of wheezing and asthma exacerbations in children. Projects are available in each of our areas of research, and we would be pleased to discuss tailoring a project to a student's area of interest. Each project is likely to use a variety of the latest laboratory and analysis techniques to further the applicants' skills. Students may also have the opportunity to gain experience with recruitment and follow-up of children and with sample processing if appropriate. We will also assist and support selected candidates in obtaining a competitive or philanthropically funded scholarship.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in science Excellent communication and team participation skills Proficient writing and presentation skills Desired: laboratory experience and/or proficiency in statistical analysis, as relevant to the project
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

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What is the burden of cardiovascular disease in Western Australian children and adolescents diagnosed with type 1 and type 2 diabetes?

Research Theme	☐ Aboriginal Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	February 2025
Chief Supervisor	Dr Jeffrey Cannon, The Kids Research Institute Australia
Other Supervisors	Dr Aveni Haynes, The Kids Research Institute Australia & University of Western Australia Dr Matthew Cooper, The Kids Research Institute Australia Dr Michael Hancock, Perth Children's Hospital Professor Tim Jones, Perth Children's Hospital & University of Western Australia
Project Outline	Childhood diabetes is associated with significant long term health complications and an average 14-year reduced life expectancy. Adverse clinical complications including cardiovascular outcomes are a significant contributor to the high morbidity and mortality associated with childhood diabetes. Previous research from our group, led by Dr Cooper, investigated the incidence of hospitalisations and risk factors for health complications experienced during early adulthood in children diagnosed with type 1 diabetes in Western Australia between 1992-2012. This project aims to determine the incidence of health complications and premature mortality in children diagnosed with type 1 and type 2 diabetes in Western Australia from 1992 to 2023, including an additional 10 years of new onset cases and follow-up period for those included in the previous study. Children with diabetes will be identified from the Western Australian Children's Diabetes Database (WACDD) maintained at Perth Children's Hospital and record linkage conducted by the Western Australian Data Linkage Unit (https://www.datalinkage-wa.org.au/) to the Hospitalisations and Morbidity Data System (HMDS) and Mortality Register to determine the incidence of cardiovascular outcomes in this cohort (Cooper et al, J Diabetes Complications (2017) 31(5):843-849). The findings of this study will not only be novel but also make a significant impact on informing future models of care for children diagnosed with diabetes which aim to minimise the risk of long-term adverse effects for individuals affected by this lifelong condition so that they can be prevented in future generations.
Suitable For	☒Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Health Science, Epidemiology/Public Health related area Excellent communication, teamwork and organisational skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Sleep in children with type 1 Diabetes and their parents

Research Theme	☐ Aboriginal Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	February 2025
Chief Supervisor	Dr Keely Bebbington
Other Supervisors	Dr Cele Richardson, University of Western Australia
Project Outline	Existing research has demonstrated that children and adolescents with type 1 diabetes (T1D) experience poorer sleep quality than their healthy peers, characterised by shorter sleep duration and increased sleep disturbances. Poorer sleep quality in children with T1D is associated with poorer glycaemic control, reduced insulin sensitivity as well as impaired executive functioning and poorer psychological wellbeing. Sleep is frequently reported as a key source of stress for parents of children with T1D, whose own sleep is interrupted due to nighttime caregiving behaviours and anxiety associated with the risk of nocturnal hypoglycaemia. To date, there is mixed evidence about the role that diabetes-related technology may play in ameliorating these concerns. In this program of work, we hope to better understand sleep for families with a child living with T1D across various ages and stages. This broad area of research includes consideration of predictors of poor sleep quality and the impact on physical and psychological wellbeing, methods for differentiating normative sleep from problematic sleep at various ages and potential interventions to improve sleep. Potential students have the opportunity to gain experience working with clinical populations.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, or related field Initiative and dedication Strong written communication skills High level of organisation and time management skills Excellent ability to work independently and as part of a team Good interpersonal skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Effect of swimming and head-out water immersion in cold water on the risk of hypoglycaemia in type 1 diabetes

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	February 2025
Chief Supervisor	Professor Paul Fournier, School of Human Sciences at University of Western Australia
Other Supervisors	Professor Tim Jones, The Kids Research Institute Australia & Perth Children's Hospital Professor Elizabeth Davis, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	Physical activity increases the risk of hypoglycaemia in individuals with type 1 Diabetes (T1D), with the associated increased fear of hypoglycaemia contributing to their lower participation rates in regular exercise and lower than average fitness levels. For this reason, a number of recommendations have been published to reduce such risks of hypoglycaemia. Unfortunately, one major limitation with these recommendations is that they generally overlook the impact that some environmental conditions may have on blood glucose response to exercise. Since cold water immersion increases glucose oxidation rate and may inhibit the production of glucose by the liver, this raises the issue of whether upright immersion or swimming in cold water increases hypoglycaemia risk in people with T1D. This is a clinically important issue given the increased risk of drowning associated with hypoglycaemia. Since this issue has not been investigated before, the primary aims of this proposed research project are to test the hypotheses that (a) head out of water immersion in cold (20°C) compared to thermoneutral water (32°C) is associated with a faster rate of fall in blood glucose level; and (b) exercising in cold water causes a greater rate of fall in blood glucose level compared to exercising under thermoneutral conditions.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Initiative and dedication High level of written communication skills High level of organisation and time management skills Ability to complete projects on time Willingness to learn new skills Excellent ability to work independently and as part of a team Good interpersonal skills Good communication skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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Is the recommendation to decrease basal insulin dose pre-exercise conducive to severe hyperglycaemia during and after exercise?

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	February 2025
Chief Supervisor	Professor Paul Fournier, School of Human Sciences at University of Western Australia
Other Supervisors	Professor Tim Jones, The Kids Research Institute Australia & Perth Children's Hospital Professor Elizabeth Davis, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	Current guidelines recommend that people with type 1 diabetes (T1D) should reduce their basal insulin dose by 25-50% prior to exercise to minimise their risks of hypoglycaemia both during and after exercise. However, these recommendations are challenged by our recent findings that when exercise is performed under basal insulin conditions, with no prior insulin dose adjustments, blood glucose levels remain stable or change little. These findings suggest that reducing basal insulin levels prior to a bout of high intensity exercise might be conducive to a marked increase in blood glucose levels, and thus be detrimental to blood glucose management. For this reason, our aim is to test the hypothesis that the recommendation to reduce basal insulin dose by 25 or 50% prior to engaging in a bout of high intensity exercise is conducive to a high increase in blood glucose levels in people with T1D.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Initiative and dedication High level of written communication skills High level of organisation and time management skills Ability to complete projects on time Willingness to learn new skills Excellent ability to work independently and as part of a team Good interpersonal skills Good communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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Effect of yoga on glycaemic control and mental health in young people with type 1 diabetes

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	February 2025
Chief Supervisor	Dr Vinutha Shetty, The Kids Research Institute Australia & Perth Children's Hospital
Other Supervisors	Professor Paul Fournier, School of Human Sciences at University of Western Australia Dr Shaun Teo, The Kids Research Institute Australia Dr Craig Taplin, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	Type 1 diabetes (T1D) is one of the most prevalent chronic diseases in children in Australia. As compared to their healthy peers, children living with T1D not only have poorer glycaemic control, but they also have an increased risk of developing cardiovascular disease, mental health difficulties and a known reduction in life expectancy. Hence, strategies to optimise the management of T1D, reduce mental health difficulties, and improve cardiovascular health is critically important. Despite physical activity (PA) being a key factor in T1D management to help improve glycaemic control and cardiovascular health and its other well reported health benefits, children with T1D are engaging in less PA than their healthy peers due to the complexity of managing exercise in TID. Thus, an effective exercise intervention strategy that is simple and easy to follow to help not only optimise the management of T1D but also promote mental emotional well-being is currently lacking. Few physical activity programs incorporate mind-body skill approaches like yoga, which is known to provide effective self-regulatory and stress management skills to help bring balance and health to the physical, mental, emotional, and spiritual dimensions of an individual. Current evidence suggest that yoga provides some benefits in the management of type 2 diabetes relating to improvements in glucose control, along with growing evidence that the practice of yoga can have protective physical and mental health benefits. However, limited to no research has been completed to examine the benefits of yoga in T1D. Given the importance of PA and good glucose control in reducing the risk of developing cardiovascular complications for adolescents living with T1D later in life, it is important to identify potential strategies that not only help improve physical activity levels but to also provide individuals with cardiometabolic benefits and reductions in psychosocial stress. Therefore, it is vital to assess the benefits of a holistic physical activity approach such as Yoga, to help improve overall health and potentially reduce the risk of developing cardiovascular disease in youth living with T1D. The project aims to pilot a 12-week yoga intervention in young people with T1D to assess its effect on glycaemic control and mental health. The findings arising from the proposed study will help inform the design of a future full-scale randomised control trial to explore further the impact of yoga on long-term glycaemic control and mental health in young and older individuals with T1D.
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree Excellent communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The impact of early morning exercise performance on acute post-prandial glucose time in range and 24-hour glycaemic control in youth with type 1 diabetes

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	February 2025
Chief Supervisor	Dr Craig Taplin, The Kids Research Institute Australia & Perth Children's Hospital
Other Supervisors	Professor Elizabeth Davis, Dr Vinutha Shetty, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	Although regular physical activity (PA) is a key recommendation for the management of type 1 diabetes (T1D), participation in exercise presents unique challenges for children living with T1D. These challenges result in them having significant barriers towards exercise-related diabetes management, with the most frequently reported barrier being fear of hypoglycaemia. Consequently, previous research has focused on the manipulation of exercise variables such as: i) exercise type; ii) intensity; and iii) duration, to provide the evidence needed to address the concerns relating to PA and T1D management. However, despite the availability of these evidence, PA levels in children remain lower than their non-T1D peers. As such, new contemporary methods of manipulating exercise variables are needed to help improve upon exercise prescription for children and adolescents living with T1D. The diurnal timing of exercise could be an important factor that has started to gain attention in recent times and may play a crucial role in T1D management during exercise performance. Hence, the overarching aim of the project is to explore the effect of a morning exercise session on acute glycaemic control measures when compared to a no-exercise control session in youth with T1D. This study will involve working with the team to recruit participants, supervise participants during in-clinic exercise sessions, and collect and analyse data.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree Excellent communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Assessing physical activity levels and patterns of healthcare professionals and parents of children living with type 1 diabetes

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	February 2025
Chief Supervisor	Dr Craig Taplin, The Kids Research Institute Australia & Perth Children's Hospital
Other Supervisors	Professor Elizabeth Davis, Dr Vinutha Shetty, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	Healthcare professionals (HCPs) play an important role in promoting a physically active lifestyle by prescribing regular physical activity (PA) to children and adolescents living with type 1 diabetes (T1D), to improve their health and intervene in their T1D management. In this regard, HCPs possess the knowledge that puts them in a key position to advise on PA and T1D. Previous research has shown that HCPs' lifestyle habits can potentially influence the attitudes and counselling of their patients. Additionally, previous research indicate that parents strongly determine the social and physical environment of their children, and this influence may also provide an unexplored, but potentially important link between parents' PA levels and that of their children. As such, the overarching aim of the project is to assess both the HCPs' and parents' physical activity levels as measured by triaxial accelerometry (Actigraph GT3x). In addition, the project will examine the associations between HCPs/parental PA with that of their patient/child living with T1D.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree Excellent communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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An exploration of peer support options for young people living with type 1 diabetes

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Healing Kids, Healing Families
Start Date	March 2025
Chief Supervisor	Dr Karen Lombardi, The Kids Research Institute Australia
Other Supervisors	TBC
Project Outline	Young people who live with type 1 diabetes (T1D) experience a range of traumatic events due to the nature of their chronic condition. Our most recent research project has suggested that young people would benefit from the support of their peers with T1D, and we would like to explore the ways in which such support could be delivered and provided. This project would qualitatively explore peer support options with young people and develop a framework for a future peer support intervention.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	If Masters: Honours degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Evaluating educational resources to improve awareness and knowledge of type 1 diabetes within community sport settings

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	February 2024
Chief Supervisor	Dr Rebecca Pedruzzi, The Kids Research Institute Australia
Other Supervisors	Professor Elizabeth Davis, The Kids Research Institute Australia & Perth Children's Hospital Dr Vinutha Shetty, The Kids Research Institute Australia & Perth Children's Hospital Dr Craig Taplin, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	Physical activity (PA) is a key factor in type 1 diabetes (T1D) management to help improve glycaemic control and cardiovascular health. Despite its well reported health benefits, children with T1D are engaging in less PA than their healthy peers due to barriers such as a fear of hypoglycaemia or inadequate information on diabetes management around exercise. Previous research by our team at the Children's Diabetes Centre found that one of the main challenges identified by adolescents and youth is the lack of knowledge and awareness around T1D by the community, particularly in community sport settings. Community sport is one of the most common settings in which youth exercise. Our current research is working on bridging this gap to provide support to both coaches and players with T1D. We have designed a series of educational resources based on the needs of the T1D and sporting community. The resources were launched in July 2024. The next step in the project is to implement the educational resources in community sport settings nationally and to evaluate uptake and acceptability of the resources in the wider community.
Suitable For	☒Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree Excellent communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The impact of maternal e-cigarette use in pregnancy on newborn infants' immune responses

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Children's Respiratory Science, Wal-yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia
Other Supervisors	Professor Des Cox, University College Dublin
Project Outline	Vaping (e-cigarette use) is one of the fastest growing preventable health threats, especially for unborn children. Tobacco smoking during pregnancy is accepted as the greatest preventable threat to children's respiratory health. Given that many of tobacco's toxic products, especially nicotine, are shared in e-cigarette use, and further toxic products come from e-cigarettes, determining the risks of vaping during pregnancy is urgently needed, especially as many young people perceive vaping as less harmful than smoking. VAPIRE (Vaping in Pregnancy – Immune Response Effects) builds on ECHO (Impact of E-cigarettes during pregnancy on Childhood Health Outcomes), a large, prospective, multi-centre cohort study of 1,200 infants of women recruited during pregnancy from three groups–vapers, smokers, and non-vaper/non-smokers–comparing outcomes soon after birth, plus growth, brain development and respiratory outcomes serially to two years of age. The main aim of VAPIRE is to examine the effect of in utero exposure to e-cigarette use in pregnancy on immune system and inflammatory responses in the newborn infant and how these affect subsequent outcomes. The student will use latest cutting-edge technologies to examine genes from ECHO infants' nasal epithelial cells sampled within days of birth. These cells are ideal for determining how key genes controlling immune and inflammatory responses are affected by events during pregnancy, and for us to detect the vaping-induced epigenetic changes that dysregulate these key genes. This project has the potential to prevent vaping during pregnancy and protect future children from long-term damage to their immune systems. We will assist and support selected candidates in obtaining a competitive or philanthropically funded scholarship
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	First class Honours in undergraduate science degree Excellent communication and team participation skills Desired: laboratory experience and/or proficiency in statistical analysis, as relevant to the project
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The urgent need to correct United Nations data on child mortality

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Children's Respiratory Science, Wal-yan Respiratory Research Centre
Start Date	January 2025
Chief Supervisor	Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia
Other Supervisors	Dr Melinda Judge, University of Western Australia & The Kids Research Institute Australia Professor Corey Bradshaw, Flinders University
Project Outline	Accurate projections of child mortality are essential for planning global strategies to prevent childhood deaths and to alert governments and global health authorities of areas of growing concern. The most quoted and respected projections of both infant and child mortality for the remainder of the century are those of the United Nations (UN) and these show continuing declines in each up to the year 2100. The problem is that the UN projections are wrong. Our research group has detected that the projections were based on a business-as-usual approach that relies on changes in mortality over the last 30 to 50 years. They completely ignore the rapidly rising effects on child health of environmental change (part of which is climate change) and the risks to children from overpopulation, particularly in low- and middle-income countries. The proposed project will use the latest metrics on the effects of climate change and population density to correct the UN data. From our recent work, we predict that infant and child mortality will start to rise in the next few years and that this increase will accelerate as deterioriation of the climate and the environment gathers pace and more people are crowded into an already greatly overcrowded planet. The importance of these corrections has major global implications, as they challenge the current level of complacency regarding both environmental damage and the continued rapid increase in global population. The project will be supported by an experienced research team–the Future Child Health research group–and assistance will be given to achieve success in winning a post-graduate scholarship for higher degrees.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate or postgraduate degree in science (depending on degree) Excellent communication skills
Ethics Approval	☐ Obtained ☒Not required
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Comparison of gene expression during acute infection

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health, Wal-Yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Dr Melinda Judge, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia Dr Erica Parker, Western Australia Department of Health
Project Outline	Acute HIV infection is the period after initial infection but before seroconversion (approximately 3 to 12 weeks). During this time, infection has indistinct symptoms, is not detectable using widely available antibody-based rapid tests, and has the highest risk of onward transmission due to incredibly high viral load. Enhanced understanding of this stage of infection is crucial. After screening 3,000 patients presenting to Manhiça District Hospital in rural Mozambique with febrile symptoms, we identified 29 acutely HIV-infected individuals (Fiebig I-III). Blood was collected, PBMC, were isolated and mRNA extracted. RNA-sequencing was used to identify gene expression, and compared to contemporaneously collected HIV-negative control samples. A total of 3,873 genes were found to be dysregulated. This project involves: • Searching the literature to identify gene expression data during other acute infections by any pathogen type (viral, bacterial, fungal) • Comparison of gene expression patterns during acute infection. Potential to: • Identify gene expression common to all acute infections • Identify gene expression common to acute infection pathogen types, e.g.: viral, bacterial or fungal • Co-author a paper for publication. We will assist and support selected candidates in obtaining a competitive or philanthropically funded scholarship
Suitable For	☒Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in science Excellent communication and team participation skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Identifying the impacts of climate change on child health outcomes

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health, Wal-yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia
Other Supervisors	Dr Melinda Judge, The Kids Research Institute Australia & University of Western Australia Professor Corey Bradshaw, Flinders University
Project Outline	In 2021, the World Health Organization declared that climate change is the single biggest threat facing humanity. It has been estimated that children under the age of five bear 88% of this burden, based on disability-adjusted life years lost because of climate change. Currently, the literature is fragmented and insufficient to plan protective strategies. The Future Child Health team investigates the impacts of a changing climate on all aspects of child health. Through geospatial modelling, we aim to identify which climate variables are affecting which child health outcomes in which regions both locally and globally. We are currently working on multiple projects, using health data at different geospatial levels and overlaying different resolutions of climate data, including each of the following four areas: • Local Western Australian birth cohort data (ORIGINS) with very fine geospatial resolution to identify local impacts of climate change and solutions • Western Australian-wide data aggregated at Statistical Area Level 2 (approximately 10,000 people per unit area) can identify climate impacts on child health across the state including different climate zones • Western Australian-wide data aggregated at Statistical Area Level 2 with a specific focus on Aboriginal child health outcomes • Global sub-national level health data from low- and middle-income countries, which are the least studied yet most affected regions. Each project is available for student involvement at any level so please get in touch. We will assist and support selected PhD candidates in obtaining a competitive or philanthropically funded scholarship.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in science or mathematics (first class Honours for PhD) Excellent communication skills Background or interest in statistics and data modelling
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Last call for future children – changing climate change's impacts on children's health by changing 'social constructs'

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health, Wal-Yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia
Other Supervisors	Dr Melinda Judge, The Kids Research Institute Australia & University of Western Australia Professor Corey Bradshaw, Flinders University
Project Outline	Climate change scientists predict with high confidence that without an immediate and comprehensive change in human behaviour, the Earth's climate will reach a 'tipping point' whereby climate will rapidly deteriorate and render much of the planet unliveable, especially for children. Professor Bill Rees has proposed that the major obstacle stopping humans acting decisively is intransigent 'social constructs'. A 'social construct' is defined as a set of beliefs that compel an individual to think in simplistic ways about complex issues. A ubiquitous, incorrect and exceedingly dangerous social construct is the belief that human ingenuity can develop technologies to reverse climate change while preserving high living standards for a global population of 8+ billion people. The student will explore ways in which individuals with the above social construct can be educated to adopt the more accurate understanding that only massive reversals in economic and population growth have any chance of preventing catastrophic environmental destruction that will endanger all future children. Initially, a survey will establish the scale of the problem of 'dangerous environmental social constructs' in the general population, those with a tertiary education, senior scientists and politicians. A series of educational approaches will then be developed and tested in the above population groups with the aim of changing social constructs from 'dangerous' to 'demanding' (of immediate, decisive action). The successful approaches will then be tested for efficacy in large population groups using multi-media strategies. This project has the potential to make a major contribution to saving the planet and its inhabitants, including humans and especially children, from the ghastly future that we are accelerating towards. We will assist and support selected candidates in obtaining a competitive or philanthropically funded scholarship.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in science (Honours) 1st class Honours degree (or equivalent) in science (PhD) Excellent communication and team participation skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Systematic review and meta-analysis: the impact of climate change on aspects of child health

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health, Wal-yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Dr Melinda Judge, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	Dr Syeda Hira Fatima, Flinders University & The Kids Research Institute Australia Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia Professor Corey Bradshaw, Flinders University
Project Outline	Climate change is affecting every aspect of human health. Children are the largest and most vulnerable group and work is needed to consolidate the disparate and emerging research in this field. The student project will investigate an aspect of climate change and child health by way of a systematic review using databases such as PubMed, Scopus, PsycINFO, CINAHL, Embase, and Web of Science. Quality appraisal will be conducted using a risk of bias tool. Reporting will follow the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) framework. Suggested topics include: • Impact of extreme heat and heatwaves on antimicrobial resistance and childhood infectious disease • Climate change and sexually transmitted infectious diseases in adolescents • Impact of air pollution on mental health and wellbeing of children and adolescents • Alternatively, if you have a specific area of interest, we are open to discussing your suggested topic. Ethical permission is not required as the information is publicly available through databases. The student will have the opportunity to be a co-author on the resultant publication.
Suitable For	☒Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in science Excellent communication skills, especially writing skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Systematic review of indigenous health relative to non-indigenous populations

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health, Wal-Yan Respiratory Research Centre
Start Date	March 2025
Chief Supervisor	Dr Melinda Judge, The Kids Research Institute Australia & University of Western Australia
Other Supervisors	Professor Peter Le Souëf, University of Western Australia & The Kids Research Institute Australia Professor Corey Bradshaw, Flinders University
Project Outline	Climate change has been recognised as the greatest threat to human health, with children being most affected. Furthermore, disadvantaged children will disproportionately bear the brunt of poor health outcomes due to climate change, as they have the least resources for mitigation and adaptation strategies. Our group's program of research aims to be the first to quantify how current and future environmental changes affect child health. We lead a multi-disciplinary team with the expertise to establish this ground-breaking area of research. It is widely accepted that Indigenous children experience higher rates of chronic illness compared to non-Indigenous children, globally. They may also be especially vulnerable to the effects of climate change. This project involves: • Undertaking a systematic review of the literature (and possible meta-analysis) to identify which factors contribute to poorer child health for Indigenous populations, controlling for socio-economic factors on a global scale • This information will be used to identify how the changing climate will further impact the health of indigenous populations. Ethical permission is not required as the information is publicly available through databases. The student will have the opportunity to be a co-author on the resultant publication.
Suitable For	☒Honours ☒MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in science Excellent communication and team participation skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing a novel assessment of respiratory function for clinical practice (Intrabreath Oscillometry)

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Children's Lung Health
Start Date	February 2025
Chief Supervisor	Associate Professor Shannon Simpson, The Kids Research Institute Australia
Other Supervisors	Dr Elizabeth Smith
Project Outline	Chronic lung diseases affect over half a billion people globally and cause significant personal and societal burden and premature death. Assessments of respiratory function are central to the diagnosis and management of respiratory disease, however measuring respiratory function in children is notoriously difficult and requires specialised equipment and a tailored approach. In Western Australia, the Children's Lung Health team has become world-leaders in this field, authoring methodological papers, clinical practice guidelines and international interpretation guidelines for reporting physicians. Our work has had global impact, leading to improved diagnostic accuracy and earlier detection of deteriorations in lung function, allowing for pre- emptive treatment and preventing irreversible lung damage. Through collaboration with international biomedical engineers, manufacturers and external research institutes, we have implemented novel assessments of respiratory function in our clinical research laboratory. This project focuses on development of intrabreath oscillometry, a novel technique which measures respiratory mechanics throughout the breathing cycle using a single sinusoidal 10Hz waveform. The successful student will leverage a large dataset collected over five years of clinical research to drive translation of this novel test into clinical practice. They will assess the suitability of this novel test for use a range of paediatric respiratory diseases, including cystic fibrosis, neuromuscular disease and chronic lung disease of prematurity. In addition to learning a range of new skills relating to measuring respiratory mechanics, the student will receive mentorship in conducting statistical analysis and manuscript preparation in a large, multi-disciplinary team with a legacy of outstanding student supervision.
Suitable For	☒Honours ☒MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Strong academic background Self-motivated individual Strong written and oral communications skills Critical thinking and problem-solving abilities Must comply with CAHS policies relating to working in healthcare Experience in conducting statistical analysis, cohort studies and/or using lung function testing equipment would be a distinct advantage
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing a novel assessment of respiratory function for clinical practice (Lung imaging)

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Children's Lung Health
Start Date	February 2025
Chief Supervisor	Associate Professor Shannon Simpson, The Kids Research Institute Australia
Other Supervisors	Dr Elizabeth Smith, Dr Daan Caudri
Project Outline	More than two million babies are born very preterm (<32 weeks gestation) annually. Survivors of very preterm birth frequently have progressive chronic respiratory disease. We have previously shown that >50% of children born very preterm have respiratory symptoms, abnormal lung function (49%), and structural lung damage on chest CT scans (93%) at nine to 12 years of age. Common findings on chest CT include decreased pulmonary attenuation (on both inspiration and expiration), linear opacities, and bronchial wall thickening, with varying rates of bronchiectasis and emphysema (5 to 50%), depending on the group studied. Pulmonary vascular abnormalities are also increasingly reported through life in those born preterm. Pulmonary hypertension impacts 12 to 38% of very preterm born infants. Beyond infancy, preterm-born adolescents and adults have elevated pulmonary artery pressures, increased pulmonary vascular resistance, and reduced right ventricular function, all markers of pulmonary vascular disease. It remains likely that the airways, parenchyma and the pulmonary vasculature are all negatively impacted after very preterm birth and contribute to the progressive lung disease experienced by preterm survivors. Our longitudinal cohort of preterm survivors underwent a chest CT scan as part of their respiratory follow up at 19 years of age. The overarching aim of this project is to comprehensively quantify airway, parenchymal and pulmonary vascular disease in young adults born prematurely using state-of-the-art artificial intelligence-based chest CT image analysis techniques. Further, this project aims to evaluate early life predictors of increased lung damage at 19 years and describe the lung "structure-function" relationship in young adults born prematurely.
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Strong academic background Self-motivated individual Strong written and oral communications skills Critical thinking and problem-solving abilities
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Local immunotherapies to fight sarcoma

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Sarcoma Translational Research
Start Date	March 2025
Chief Supervisor	Dr. Ben Wylie, Dr. Tao Wang, The Kids Research Institute Australia
Other Supervisors	Associate Professor Joost Lesterhuis, The Kids Research Institute Australia
Project Outline	Surgery remains a first line therapy for solid cancers. However, if the tumour cannot be completely removed during surgery it will often regrow, causing recurrence of the cancer. Sarcomas are a group of cancers derived from muscle, fat or connective tissue that are often characterised by aggressive local growth. Soft tissue sarcomas in particular have a high risk of local recurrence. Sarcomas are the third most common cancer in children and adolescents and current treatments do not provide significant benefits for patients, if they suffer a recurrence after the initial surgery. The Sarcoma Translational Research group believes all kids with sarcoma deserve to live happy, healthy lives. To achieve this, we aim to discover and develop safer and more effective treatments, through innovative and rigorous research. We apply our knowledge of cancer immunology to develop new immunotherapies using bioinformatics, molecular and cell biology and unique preclinical cancer models. We are currently developing RNA-based immunotherapeutics (dsRNA & mRNA), to activate anti-tumour immunity and modify the tumour microenvironment. To deliver these RNA-based therapies we developed a novel approach to applying immunotherapy locally, during surgery using a unique biomaterial that releases drugs slowly in the surgical area. Now we need to: 1. Understand how best to activate the immune system locally to stop cancer cells coming back after surgery 2. Design improved RNA adjuvants to activate anti-tumour immunity against cancer 3. Develop new mRNA-based therapies to modulate the tumour microenvironment 4. Determine the best way to combine new local therapies with current systemic immunotherapies. To do this we employ a range of skills and techniques including systems biology (bulk & single cell RNASeq), immunoengineering (biomaterial chemistry for drug delivery), cellular and molecular biology (cell culture, flow cytometry, ELISA, immunohistochemistry, CRISPR, PCR and cloning). We currently have projects available for self-motivated and enthusiastic students with a keen interest in cancer immunology/immunotherapy and invite you to meet with us to discuss specific projects.
Suitable For	☒Honours ☐ MD ☐ Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in biomedical science or related discipline 2A+ Honours or equivalent for PhD Good organisational skills, motivation and dedication Keen interest in the immunology Excellent communication skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Dr. Tao Wang
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Investigating the bone marrow microenvironment in childhood leukaemia

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Leukaemia Translational Research Group
Start Date	February/March 2025
Chief Supervisor	Dr Linda Wijaya, The Kids Research Institute Australia
Other Supervisors	Associate Professor Laurence Cheung, The Kids Research Institute Australia & Curtin University Associate Professor Rishi Kotecha, The Kids Research Institute Australia & Perth Children's Hospital
Project Outline	In leukaemia, the bone marrow microenvironment plays a significant role in both the development of the disease and resistance to treatment. This dual role highlights the potential of targeting the bone marrow in leukaemia as a novel therapeutic strategy. Children with high-risk leukaemia could particularly benefit from this innovative approach as current chemotherapy treatments have not significantly improved outcomes. In this project, we aim to explore the under-researched bone microenvironment in childhood high-risk leukaemia using advanced immunofluorescence staining and imaging techniques. Specifically, we will investigate how leukaemia cells interact with other bone marrow cells, such as blood forming cells, blood vessels, bone cells, fat cells, and alter their normal functions to support leukaemia growth and relapse. Through this project, the student will develop expertise in: • Histology, immunofluorescence, and microscopy • Image analysis • Tissue culture • Flow cytometry and cell sorting.
Suitable For	☒Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	• Undergraduate degree in biomedical science or related discipline • Strong organisational skills, motivation and dedication • Excellent written and oral communication skills • Willingnes to learn new skills • Histology/pathology experience (desirable)
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing innovative treatments for paediatric brain cancers

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Brain Tumour Research
Start Date	Flexible, available immediately
Chief Supervisor	Dr Jessica Buck, Dr Annabel Short, Dr Brittany Dewdney, The Kids Research Institute Australia
Other Supervisors	Associate Professor Raelene Endersby
Project Outline	The Brain Tumour Research team at The Kids Research Institute Australia is co-directed by Professor Nick Gottardo and Associate Professor Raelene Endersby. The overarching goals of our group are to define the poorly understood basic biology of several types of childhood brain tumours and improve therapies. We achieve this in the following ways: • Elucidate the molecular basis of different brain tumour types, including medulloblastoma and ependymoma among others, through the analysis of primary patient specimens • Improve understanding of the molecular events contributing to these diseases, by analysing the impact of altered signalling pathways on survival, proliferation, invasiveness and tumorigenicity of brain tumour cells • Develop comprehensive preclinical models of paediatric brain tumours in which to test new treatments. We utilise transplantable xenograft, patient derived xenograft, and genetically engineered tumour models representative of paediatric brain cancer in our translational research • Obtain and test new therapies within our preclinical pipeline that considers all aspects of standard of care treatment, including brain tumour resection surgery, MRI imaging, clinical chemotherapy, and radiation protocols in appropriate brain tumour models. We acquired Australia's first X-RAD SmART platform to model clinical radiation treatment and are currently investigating new therapies that can enhance its efficacy to hopefully reduce the harmful radiation dose • Translate our findings into improved therapies through clinical collaborations. We currently have a project opportunity for a self-motivated and enthusiastic individual. We invite you to meet with us to discuss specific projects. The student will develop expertise in a wide range of technologies including: • Animal techniques • Histology such as paraffin sectioning and immunohistochemistry • Cell/tissue culture from mouse and human specimens • Molecular techniques including DNA/RNA analysis, PCR and cloning • Biochemical techniques such as protein extraction, western blotting and IP
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	For Honours/Masters students: Greater than credit grade average For PhD candidates: First-Class Honours degree or equivalent (e.g. Masters by Research) in biological discipline Ability to work in a multi-disciplinary team Willingness to learn new skills and work with animals Good organisational, writing and oral presentation skills Initiative and dedication
Ethics Approval	☒Obtained ☐ Not Obtained

Funding

☐ Top-up scholarship offered by project group
☐ Full scholarship offered by project group

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Activating the immune system to eliminate cancer

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Sarcoma Translational Research
Start Date	March 2025, Flexible
Chief Supervisor	Dr Lizeth Orozco, The Kids Research Institute Australia
Other Supervisors	Associate Professor Joost Lesterhuis, The Kids Research Institute Australia
Project Outline	Surgery remains a first line therapy for solid cancers. However, if the tumour cannot be completely removed during surgery it will often regrow, causing recurrence of the cancer. Sarcomas are a group of cancers derived from muscle, fat or connective tissue that are often characterised by aggressive local growth. Soft tissue sarcomas in particular have a high risk of local recurrence. Sarcomas are the third most common cancer in children and adolescents and current treatments do not provide significant benefits for patients, if they suffer a recurrence after the initial surgery. The Sarcoma Translational Research group believes all kids with sarcoma deserve to live happy, healthy lives. To achieve this, we aim to discover and develop safer and more effective treatments, through innovative and rigorous research. We apply our knowledge of cancer immunology to improve immunotherapy using bioinformatics, molecular and cell biology and unique preclinical cancer models. We are currently exploring the role of specific proteins and transcription factors, using genetic mouse models and CRISPR models. Inhibition of these proteins improves immunotherapy efficacy, increasing overall survival and response. Now we need to: • Determine the effect of these proteins' inhibition combined with immunotherapy in preclinical models • Determine which immune cells are required for tumour regression when using these treatments • Characterise how the combination treatment changes the immune cell infiltration and gene expression profiles in sarcoma following treatment. To do this we employ a range of skills and techniques including preclinical models, systems biology (bulk & single cell RNA-Seq), cellular and molecular biology (cell culture, flow cytometry, immunohistochemistry, CRISPR, PCR, qPCR, Western Blot). We currently have projects available for self-motivated and enthusiastic students with a keen interest in cancer immunology/immunotherapy and invite you to meet with us to discuss specific projects.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Greater than credit average for Hons; BSc (Hons) or equivalent in biological discipline for Masters or PhD Willingness to learn new skills and work with animals Good organisational skills, dedication, and initiative Excellent communication skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Early Environment

Infectious Diseases Epidemiology Group Opportunities

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Infectious Diseases Epidemiology, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	TBC
Chief Supervisor	Associate Professor Hannah Moore, Professor Chris Blyth, The Kids Research Institute Australia
Other Supervisors	TBC
Project Outline	The Infectious Diseases Epidemiology Group has a particular interest in acute lower respiratory infections, commonly known as chest infections. These conditions include bronchiolitis and pneumonia and occurs secondary to viral and bacterial infections including RSV, influenza, human metapneumovirus, Streptococcus pneumoniae and Bordetella pertussis. Chest infections are a major cause of childhood morbidity with some population subgroups experiencing higher rates of severe disease including Aboriginal children, those with co-morbidities and those from lower socio-economic backgrounds. The work of the Infectious Disease Epidemiology team centres around three key themes: • Burden of Disease: understanding pathogen-specific burden of disease, temporal and seasonal trends in disease and perinatal risk factors to disease in population groups using a range of data sources. • Prevention and Policy: evaluating current prevention policy, such as vaccination policy at local and population levels, incorporating assessment of vaccine coverage, cost effectiveness and overall program performance in reducing the incidence of disease. • Diagnosis and Treatment: developing ways to improve surveillance of and the diagnosis and treatment of severe respiratory infections in children through prospective cohort studies, clinical trials and use of administrative health data. Our team employs an array of methodologies including epidemiological analyses of large-scale population-based linked administrative health data; statistical and mathematical modelling; undertaking prospective cohort studies and clinical trials; and conducting social research. We have a number of potential projects within these broad research areas. If you are interested in our team, please stop by to discuss possible opportunities. More information: https://www.telethonkids.org.au/our-research/early-environment/infection-and-vaccines/infectious-diseases-epidemiology/
Suitable For	☒Honours ☒MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Writing Basic data analysis
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Paediatric bacteraemia - a systematic review and meta-analysis

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Infectious Diseases Epidemiology, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	TBD
Chief Supervisor	Professor Chris Blyth, The Kids Research Institute Australia
Other Supervisors	Anita Williams
Project Outline	In 2018, the World Society for Paediatric Infectious Diseases declared that antimicrobial resistance (AMR) surveillance programs should present neonatal- and paediatric-specific data. Furthermore, global reports suggest there are differences in the prevalence of AMR, not only between adults and children, but within different age groups. Through the AGAR-Kids initiative, led from Wesfarmers Centre of Vaccines & Infectious Diseases (The Kids Research Institute Australia), Australia will be the first country to publish standalone paediatric AMR surveillance reports, monitoring AMR trends and documenting the national prevalence of AMR in bacteraemic children. These reports are a critical first step, but do not provide the full picture of AMR and resources required to manage children with a range of resistant infections. In order to truly understand where the results of the AGAR-Kids report stands in comparison, we want to perform a systematic review and meta-analysis of reported resistances, epidemiology and risk factors of paediatric bacteraemia. We are looking for a Masters student to be involved in the search, analysis and writing process.
Suitable For	☐ Honours ☐ MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Health-related Masters degree being undertaken Demonstrated ability to work both independently and as a member of a team High level of interpersonal, verbal and written communication skills Good organisational skills and high personal motivation Attention to detail is key
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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The clue lies within: deciphering the skin microbiome in healing skin to design probiotics to improve outcomes for children suffering burns

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Healthy Skin & ARF Prevention, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	January 2025
Chief Supervisor	Professor Asha Bowen, The Kids Research Institute Australia
Other Supervisors	
Project Outline	This project aims to identify bacteria contributing to skin healing by analysing the bacterial profile of children who have suffered burns with good healing outcomes. Burn admissions continue to rise in Western Australia, with 28% of all burns affecting children. The skin's ability to function as a barrier is assisted by the good bacteria residing in the skin's top layer which is disrupted following a burn injury and leads to poorer wound healing, scarring, continued need for surgery and increased vulnerability to infection. Knowledge of factors contributing to burn wound healing is scarce. We do not know why children have different outcomes from the same treatment. We hypothesise that skin bacterial profiles of children with burns that heal faster (good outcome) differs from those of children with slower wound healing (poor outcome) and can be used to develop probiotics for the latter. In a preliminary study we have found potential skin bacteria that activate an important pathway involved in skin regeneration. In this study we will further identify the good bacteria contributing to skin healing from the bacterial profile of children with good outcomes. We will then experiment on a laboratory model that mimics the burn to understand the potential of these good bacteria to improve wound healing. This study provides a significant opportunity for the development of biotherapeutics for efficient burn healing and contributes to the vision of scar-free healing for WA children suffering burn injuries.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in a relevant field Good interpersonal and communication skills Have strong data analysis skills, writing skills and lab experience
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Exploring the mechanisms underpinning chronic respiratory disease after preterm birth

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Children's Lung Health
Start Date	Feb/March 2024
Chief Supervisor	Associate Professor Shannon Simpson, The Kids Research Institute Australia
Other Supervisors	Dr Denby Evans
Project Outline	On a global scale, over two million babies are delivered very preterm (<32 weeks gestation) every year. Many of these infants display significant respiratory symptoms that persist throughout childhood, although the mechanisms that underly ongoing lung disease in this population remain largely unknown. Previous research by our team in preterm-born infants has identified that repair and barrier abnormalities exist in the cells that line the airway, called the airway epithelium. Preliminary analysis in adults born preterm suggests that this repair defect persists throughout life and may be associated with lung function. There is now an opportunity to further investigate the epithelial barrier in a paediatric cohort and explore the underlying mechanisms associated with poor respiratory health outcomes in those born preterm. Epithelial cell samples are currently being collected in children aged 6-12 years that were born <32 weeks gestation. Children have also undergone pulmonary function testing at the time of sample collection. Combining laboratory and clinical data will allow us to test the hypothesis that poor epithelial function is associated with reduced lung function in those born preterm. This project has scope to be tailored to the interests of the right applicant, including potential expansion to include additional clinical components, viral interactions and use of additional biological samples. Techniques that may be utilised include (but are not limited to): primary cell culture using stringent aseptic technique, cell wounding and migration analysis, ELISAs, RNA extraction and gene expression analysis. As this project is primarily laboratory based, there will be a requirement to be on-site at The Kids Research Institute Australia. The project may additionally include occasional weekend work (depending on the cellular growth rates of individual patient samples), however, hours during the week are flexible to accommodate this.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Self-motivated Excellent time-management and organisational skills Comfortable working both individually and as part of a large team Above average communication skills Ability to adapt/problem-solve Previous experience in cell culture and/or microbiology is desired but not essential
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Food allergy in breastfed infants

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Nutrition in Early Life
Start Date	February 2025
Chief Supervisor	Associate Professor Debbie Palmer, The Kids Research Institute Australia
Other Supervisors	Professor Donna Geddes, University of Western Australia
Project Outline	Food proteins eaten by a breastfeeding mother are secreted in human milk. These are important early sources of oral food allergen exposure for infants and thought to assist infants to develop oral tolerance to foods and reduce food allergies. However, some mothers report that their breastfed baby has allergic symptoms after the mother eats certain foods (commonly dairy foods, soy, wheat, or egg). This project will collect breast milk samples from mothers reporting that their breastfed baby has allergic symptoms. Detailed maternal and infant characteristics data will also be collected. The breast milk samples will be analysed for: • Presence of common food allergen proteins • Levels of common food allergen-specific antibodies • Macro and micro-nutrient composition. The results from this project will have evidence translation implications and may lead to future personalised maternal diet during breastfeeding food allergy prevention and treatment advice.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Interest in food allergies and human milk composition Undergraduate degree in a relevant discipline Knowledge of quantitative research methods Proficient writing skills Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Infant food allergy

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Group	Nutrition in Early Life
Start Date	February 2025
Chief Supervisor	Associate Professor Debbie Palmer, The Kids Research Institute Australia
Other Supervisors	
Project Outline	Australia has the highest prevalence of food allergy in the world, with one in ten Australian children having food allergies. Current Australian allergy prevention guidelines (since 2016) recommend the introduction of common food allergens (such as egg and peanut) in infant solid foods from around six months of age to reduce food allergy development. Our research team has been collecting data on the timing of food allergen introduction between six to 12 months of age in infant diets and infant food allergy outcomes for 20 years. This project will evaluate changes in patterns of timing of food allergen introduction in infant diets, especially before and after 2016, and associated infant food allergy outcomes. Family, maternal and infant characteristics data will also be examined for potential determinants that may modify the risk of infant food allergy development. The results from this project will have evidence translation implications and may lead to future personalised food allergy prevention advice.
Suitable For	☒Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Interest in food allergy prevention Undergraduate degree in a relevant discipline Knowledge of quantitative research methods Proficient writing skills Good interpersonal and communication skills
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

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The ORIGINS Project: a platform for research discovery

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Group	ORIGINS
Start Date	February 2025
Chief Supervisor	Zenobia Talati, The Kids Research Institute Australia
Other Supervisors	Professor Desiree Silva, Joondalup Health Campus & The Kids Research Institute Australia Dr Nina D'Vaz, The Kids Research Institute Australia Dr Lisa Gibson, The Kids Research Institute Australia & Edith Cowan University Dr Jacqueline Davis, The Kids Research Institute Australia
Project Outline	The ORIGINS Project is a longitudinal, birth cohort study investigating how early environments, maternal health and genetics influence child health outcomes. Detailed information at various time points is being collected via biological samples, questionnaires and routine data, creating a comprehensive databank and biobank. There are currently a number of potential projects available within the areas of nutrition and metabolism; mental health; allergy, inflammation and immunity; environment and lifestyle; infectious disease; oral health; paternal health; reproduction; growth and development; and omics studies. Projects may be observational or interventional, including both quantitative or qualitive data collection and analysis. *Note, PhD students are eligible for an ORIGINS Student Award to the value of $15,000.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in a relevant discipline/or minimum of 2A Honours Interest in child health and development Proficient writing skills Good interpersonal and communication skills Basic statistical analysis skills (SPSS/R)
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The ORIGINS Project: women's perception and experience of gestation weight gain in pregnancy

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	ORIGINS
Start Date	February 2024
Chief Supervisor	Dr Lisa Gibson, The Kids Research Institute Australia & Edith Cowan University Professor Desiree Silva, The Kids Research Institute Australia
Other Supervisors	
Project Outline	Excess gestational weight gain is known to have a negative impact on the health of women (e.g. high blood pressure, diabetes, and caesarean section) and their infants (e.g. high birth weight, trauma at birth, asphyxia). In addition, excess weight gain in pregnancy is strongly related to child overweight/obesity and maternal postpartum weight retention. Despite these short and long term risks, further work is needed to understand women's awareness of weight gain guidelines in pregnancy and their adherence to the guidelines. This project will seek to use existing quantitative and qualitative data collected as part of The ORIGINS Project to understand pregnant women's perceptions and experiences of weight gain in pregnancy. This research will be important in identifying barriers and enablers to assist in the promotion of healthy weight gain in pregnancy. *Note, PhD students are eligible for an ORIGINS Student Award to the value of $15,000.
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in relevant discipline Proficient writing skills Interest in maternal and child health Basic qualitative and quantitative analysis skills Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The Flourishing Child: targeted tools to promote healthy pathways

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	ORIGINS
Start Date	January 2025
Chief Supervisor	Dr Jacqueline Davis, The Kids Research Institute Australia
Other Supervisors	Dr Lisa Gibson, Dr Nina D'Vaz & Professor Desiree Silva, The Kids Research Institute Australia
Project Outline	We aim to empower families with strengths-based, timely and accessible solutions and interventions to place children on a flourishing pathway. This project will access a cohort of 10,000 families based in the Joondalup/Wanneroo catchment through ORIGINS, an established longitudinal cohort study. This project has several proposed steps including: • Development and testing of a Flourishing Assessment • Audit and Gap analysis • Testing of a Pathway tool • Project implementation and evaluation. The student can elect to be involved in all or some steps of this research project. Substantial stakeholder consultation has been undertaken and will continue throughout the project's lifespan. This project would suit a student interested in prevention and early intervention initiatives, evaluation and implementation science. *Note, PhD students are eligible for an ORIGINS Student Award to the value of $15,000.
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in psychology, health promotion, public health or related field Excellent communication skills Excellent organisational skills Opportunity to be part of a large research team
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

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The ORIGINS Project: Children's digital technology use

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	ORIGINS
Start Date	February 2025
Chief Supervisor	Dr Zenobia Talati, The Kids Research Institute Australia
Other Supervisors	Dr Lisa Gibson, Professor Desiree Silva, The Kids Research Institute Australia
Project Outline	The ORIGINS longitudinal birth cohort was set up to investigate the influence of early environments on child health outcomes. This PhD study will leverage the extensive data from the ORIGINS cohort to explore digital technology use among primary school-aged children. Focusing on various environments, including school, home, and extracurricular settings, the research aims to investigate patterns of technology use and their impact on children's cognitive, social, and emotional development. The student will work closely with the ORIGINS project team and will be responsible for refining the research question, proposing and conducting research studies with the ORIGINS cohort and preparing the findings for publication. *Note, PhD students are eligible for an ORIGINS Student Award to the value of $15,000
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in a relevant discipline/or minimum of 2A Honours Interest in child health and development Proficient writing skills Basic statistical analysis skills (SPSS/R) Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Models to support the Strep A Vaccine Global Consortium

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Strep A Translation
Start Date	Semester 1, 2025
Chief Supervisor	Dr Jeff Cannon, The Kids Research Institute Australia
Other Supervisors	Associate Professor Hannah Moore
Project Outline	Group A Streptococcus (Strep A) causes an extensive range of diseases. This includes pharyngitis ('strep throat'), impetigo, scarlet fever, sepsis, necrotising fasciitis ('flesh-eating disease'), and rheumatic heart disease. Due to severe diseases, Strep A has been posted to be the fifth most lethal human pathogen in the world. However, dated and incomplete estimates for the burden of Strep A disease have hindered investment in prevention strategies such as vaccines. Recognising the imperfect Strep A burden of disease estimates and the implication on investment strategies, the Burden of Disease Working Group (BoDWG) was established in 2020 through the Strep A Global Vaccine Consortium (SAVAC). The BoDWG initially comprised 13 members from seven geographically diverse countries with expertise in clinical medicine, epidemiology, surveillance, health economics and global vaccine policies. Key aims of the group are to support the beneficial flow of knowledge between the BoDWG and other SAVAC working groups, which includes a group supporting standardised Strep A disease surveillance among four low- and middle- income countries, and to leverage existing data for contemporary burden of disease estimates and other outputs. There is an opportunity for a student interested in mathematical modelling and statistical analyses of disease burden data to contribute to the SAVAC BoDWG aims. Under the BoDWG, the student will develop or advance models to achieve one or more of the following model-based objectives: (1) estimate the contemporary country, regional, and global burden of Strep A disease; (2) explore and parametrise the mechanistic relationship between Strep A exposure, infection, transmission, acute clinical disease, and sequelae; (3) guide revisions of the Preferred Product Characteristics for Strep A vaccines; and (4) estimate the future burden of disease among vaccine-eligible cohorts and evaluate the impact of vaccination.
Suitable For	☐ Honours ☐ MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in a related field Prospective PhD students need a First-Class Honours Degree or Masters Degree in a suitable discipline (e.g., mathematics, statistics, public health, infectious diseases) Strong data analysis skills Excellent communication skills Demonstrated ability to work both independently and as a member of a team Good organisational skills and high personal motivation
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Systematic review: strength of association between impetigo (skin sores) and the ability to wash clothing and bedding

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Strep A Translation
Start Date	Semester 1, 2025
Chief Supervisor	Kate Summer
Other Supervisors	Dr Rosemary Wyber, The Kids Research Institute Australia & Australian National University
Project Outline	Impetigo, also known as skin sores, is a highly contagious skin infection caused by infection with *Staphylococcus aureus* and/or *Streptococcus pyogenes* (Strep A). Untreated impetigo can have serious consequences, including acute rheumatic fever (ARF), progressing to rheumatic heart disease. The burden of impetigo falls heavily on children, especially in settings where living conditions, tropical climates and poverty intersect. Remote-living Australian Aboriginal and Torres Strait Islander children experience the highest burden of impetigo and sequelae globally. Broad improvements in housing and environmental conditions are needed to address this problem. The nine 'Healthy Living Practices' have been widely adopted as a framework to identify the links between housing and health for Aboriginal and Torres Strait Islander peoples and guide priority areas for action. The ability to wash clothes and bedding (Healthy Living Practice 2) is recognised as an important way to reduce skin infections. However, scientific understanding of the effectiveness of washing clothing and bedding on the reduction of skin infections is incomplete. The strength of association between different infestations (i.e., scabies and lice) that often precede impetigo is also unclear. This student project will involve undertaking a systematic review (and possible meta-analysis) of the literature to describe the association between different pathogens associated with skin infections (Strep A, Staphylococcus aureus, scabies, head lice, *Molluscum contagiosum*) that may be changed by washing clothes/bedding. The work will also explore the strength of association between infestations (scabies and lice) and the development of impetigo. The project will contribute to a suite of landscape analyses, laboratory work, community-based research and translational activities within the STARFISH (STopping Acute Rheumatic Fever Infections to Strengthen Health) program of work. Led by researchers from The Kids Research Institute Australia, University of Queensland, Menzies, Harvard, Peter Doherty Institute, and others, in partnership with Aboriginal and Torres Strait Islander communities, STARFISH aims to answer, "What are the most effective environmental health initiatives to reduce Strep A infections and prevent ARF among communities with the greatest risk?" STARFISH is funded by the National Health and Medical Research Council Australia.
Suitable For	☒Honours ☒MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in science Excellent communication skills Demonstrated ability to work both independently and as a member of a team Strong data analysis skills Good organisational skills and high personal motivation
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Systematic review of the association between Strep A transmission and animal vectors

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Strep A Translation
Start Date	Semester 1, 2025
Chief Supervisor	Kate Summer
Other Supervisors	Dr Rosemary Wyber, The Kids Research Institute Australia & Australian National University
Project Outline	Streptococcus pyogenes (Strep A) infections can have serious consequences, including acute rheumatic fever (ARF), progressing to rheumatic heart disease (RHD) if unresolved. Strep A and sequelae are a significant cause of mortality and morbidity under conditions of poverty, and Aboriginal and Torres Strait Islander children suffer the highest burden of disease in the world. Transmission of Strep A has been historically attributed to large respiratory droplets. More recently, studies have illuminated the possibility for airborne, vehicle and vector modes of transmission. Little is known about the contribution of these possible additional modes of Strep A transmission, especially the role of animal vectors (i.e, dogs, cats, and domestic farm animals). This student project will involve undertaking a systematic review (and possible meta-analysis) of the literature to describe the transmission of Strep A between animal vectors and humans. Collating the contemporary evidence for Strep A vector- associated transmission will help inform research priorities and the development of environmental prevention and control strategies to reduce the burden of Strep A infections and sequelae. The project will contribute to a suite of landscape analyses, labatory work, community-based research and translational activities within the STARFISH (STopping Acute Rheumatic Fever Infections to Strengthen Health) program of work. Led by researchers from The Kids Research Institute Australia, University of Queensland, Menzies, Harvard, Peter Doherty Institute, and others, in partnership with Aboriginal and Torres Strait Islander communities, STARFISH aims to answer "What are the most effective environmental health initiatives to reduce Strep A infections and prevent ARF among communities with the greatest risk?" STARFISH is funded by the National Health and Medical Research Council Australia.
Suitable For	☒Honours ☒MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in science Excellent communication skills Demonstrated ability to work both independently and as a member of a team Strong data analysis skills Good organisational skills and high personal motivation
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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STopping Acute Rheumatic Fever Infections to Strengthen Health

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Strep A Translation
Start Date	Semester 1, 2025
Chief Supervisor	Dr Rosemary Wyber, The Kids Research Institute Australia & Australian National University
Other Supervisors	Kate Summer
Project Outline	Rheumatic heart disease (RHD) is the leading cause of cardiovascular inequality between Indigenous and non-Indigenous Australians. It occurs as an autoimmune complication of acute rheumatic fever (ARF), triggered by preventable group A streptococcal (Strep A) infections. There is a critical evidence gap about how to prevent repeated or chronic recurrences of ARF, which lead to RHD. STARFISH (STopping Acute Rheumatic Fever Infections to Strengthen Health) is funded by the National Health and Medical Research Council Australia. The project is being led by researchers from the The Kids Research Institute Australia, University of Queensland, Harvard, Menzies, Peter Doherty Institute, and others, in partnership with Aboriginal and Torres Strait Islander communities. The key question of the STARFISH project is 'What are the most effective environmental health initiatives to reduce Strep A infections and prevent ARF among communities with the greatest risk?' Thus, the focus of the STARFISH program is on Strep A transmission and environmental risk factors. There is an opportunity for a student to join the STARFISH project and contribute to a growing suite of work, with extensive support and mentorship from STARFISH Investigators, and leadership and cultural governance from the STARFISH Indigenous Governance Council. STARFISH comprehensively integrates a diverse team with skills in research with Indigenous communities; infectious diseases; molecular microbiology; public and environmental health; housing; architecture; anthropology; primary health care; modelling; clinical trials; spatial demography; and data linkage.
Suitable For	☒Honours ☒MD ☒Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in related field (areas listed above) Prospective PhD students need to have a First-Class Honours Degree or Masters Degree in a suitable discipline related to the project, with a substantial research project component Excellent communication skills Demonstrated ability to work both independently and as a member of a team Strong data analysis skills Good organisational skills and high personal motivation Willingness to work in partnership with communities Aboriginal and Torres Strait Islander students are strongly encouraged to apply
Ethics Approval	☐ Obtained ☒Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing fit-for-purpose assays to support the Strep A vaccines pipeline

Research Theme	☐ Aboriginal Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	END RHD
Start Date	Negotiable or Semester 1, 2025
Chief Supervisor	Dr Maria Emilia Dueñas, Michael Morici, The Kids Research Institute Australia
Other Supervisors	Dr Alma Fulurija, The Kids Research Institute Australia
Project Outline	Streptococcus pyogenes (group A Streptococcus, Strep A), a Gram-positive bacterium, is among the deadliest infections on the planet and is one of the most neglected infections in terms of burden of disease. Strep A infections cause a wide range of diseases and significant morbidity and mortality globally, estimated at 0.6 million deaths annually. Disease ranges from mild superficial infections such as throat and skin infections to severe disease including acute rheumatic fever (ARF), rheumatic heart disease (RHD) and acute post-streptococcal glomerulonephritis. Australia has some of the highest rates of ARF and RHD in the world disproportionately affecting young Aboriginal and Torres Strait Islander populations. There is a clear unmet need for more effective disease prevention strategies. Despite the large global burden of disease, there is still no safe and effective vaccine against Strep A. The Australian Strep A Vaccine Initiative (ASAVI) seeks to address this by contributing to the development of safe and effective Strep A vaccines. There are several opportunities for student projects in this area, allowing each project to be customised to match specific interests. Potential projects include developing fit- for-purpose serology assays or immunoprecipitation-proteomics workflows to support Strep A vaccine development and clinical trials. The student will be part of the Strep A Vaccines Team and ASAVI at The Kids Research Institute Australia, and the project will provide valuable hands-on experience in areas including: • Experimental design • Microbiology and molecular biology techniques • Immunoassay development • Immunoprecipitation and proteomics method development • Biospecimen preparation and handling • Data analysis • Industry-standard documentation and reporting.
Suitable For	☒Honours ☒MD ☒Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in medical or biological sciences (e.g. immunology, cell biology) Interest in vaccines and vaccine development Excellent organisation skills, motivation, and dedication
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Identifying triggers of autoimmunity in multiple sclerosis

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Translational Immunology
Start Date	February/March 2025
Chief Supervisor	Dr Stephanie Trend, The Kids Research Institute Australia
Other Supervisors	Dr Tao Wang, Dr Jonatan Leffler, Dr Kimberley Parkin, The Kids Research Institute Australia
Project Outline	Multiple sclerosis (MS) is an autoimmune condition that can result in episodes of neurological inflammation and progressive disability. Currently, the cause is not known and there is no cure, however we and others have identified changes in B cells associated with MS episodes. Our team is utilising cutting-edge single cell technologies such as single cell RNA-sequencing, VDJ-sequencing and full-spectrum flow cytometry to identify B cells that are activated in early MS. The aim of this project is to investigate the antigens that trigger B cell responses in early MS. Identifying triggers of B cell activation in MS could lead to novel therapies that specifically address the underlying cause of the condition or prevention of MS in future. As a student in our team, you will lead the investigations of identifying factors that activate B cells from people with MS. You will gain hands-on experience with advanced laboratory techniques, such as cell transfection, immune cell culture, antigen binding assays including ELISA and flow cytometry. We have opportunities for motivated individuals to contribute to this extremely rewarding field of research and learn a variety of skills within our team. For more information or to join this exciting project, we invite you to contact us to discuss this opportunity.
Suitable For	☒Honours ☐ MD ☐ Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in biomedical science (e.g immunology, microbiology, molecular biology or similar) Excellent communication skills Well-developed problem-solving abilities Self-motivated
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Understanding the contributions of neutrophils to multiple sclerosis

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Translational Immunology
Start Date	February/March 2025
Chief Supervisor	Dr Stephanie Trend, The Kids Research Institute Australia
Other Supervisors	Dr Luke Garratt, Dr Jonatan Leffler, The Kids Research Institute Australia
Project Outline	Multiple sclerosis (MS) is an autoimmune condition that can result in episodes of neurological inflammation and progressive disability. Currently, the cause is not known and there is no cure, however our team have identified specific sub-populations of neutrophils, an important immune cell, associated with MS episodes. The aim of this project is to further investigate the properties of neutrophils seen in early MS. Neutrophils are an important cell in the immune system that can prime the adaptive immune system through a range of functions. By investigating neutrophils in more detail, we hope to uncover new therapeutic targets to treat or prevent MS. As a student in our team, you will lead the studies of neutrophil phenotypes and functions in blood from people with early MS. You will gain hands-on experience with advanced laboratory techniques, such as flow cytometry and functional cell culture assays utilising neutrophils. In addition, you will have the opportunity to learn and utilise data analysis skills utilising statistical programs such as R. We have opportunities for motivated individuals to contribute to this extremely rewarding field of research and learn a variety of skills within our team. For more information or to join this exciting project, we invite you to contact us directly to discuss this opportunity.
Suitable For	☒Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in biomedical science (e.g immunology, microbiology, molecular biology or similar) Excellent communication skills Well-developed problem-solving abilities Self-motivated
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Exploring B Cell Receptor Diversity in Autoimmune Disorders

Research Theme	☐ Aboriginal Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Translational Immunology
Start Date	February/March 2025
Chief Supervisor	Dr Stephanie Trend, The Kids Research Institute Australia
Other Supervisors	Dr Christian Tjiam, The Kids Research Institute Australia
Project Outline	Antibodies are a critical component of immune memory, protecting us from pathogens, or in a pathological context, contributing to autoimmunity. While it is largely accepted that human B cells are capable of expressing only one type of antibody per cell, the advent of single cell V(D)J receptor sequencing has produced bioinformatic evidence that some B cells express more than one combination of heavy and light chain alleles in their B cell receptors (multi-Ig B cells). Cells with more than one B cell receptor potentially may be cross-reactive and contribute to autoimmunity, as they can be activated by more than one antigen. The aim of this project is to investigate multi-Ig B cells in blood, comparing healthy donors and people with MS, an autoimmune condition associated with B cell dysfunction. As a student in our team, you will lead the studies of multi-Ig B cells utilising a rich database of cutting edge single cell V(D)J-seq and RNA-seq data recently generated to identify the properties of these cells. You will gain hands-on experience with advanced laboratory techniques, such as flow cytometry developed to analyse multi-Ig cells at the protein level. In addition, you will have the opportunity to learn and utilise your existing data analysis skills to investigate the contributions of multi-Ig B cells to autoimmunity. We have opportunities for motivated individuals to contribute to this extremely rewarding field of research and learn a variety of skills within our team. For more information or to join this exciting project, we invite you to contact us directly to discuss this opportunity.
Suitable For	☒Honours ☐ MD ☐ Masters ☒PhD
Essential Skills & Qualifications	Undergraduate degree in biomedical science, genetics or related discipline Familiarity with Bioinformatics tools and command-line analysis techniques would be an asset Excellent communication skills Well-developed problem-solving abilities Self-motivated
Ethics Approval	☒Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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