

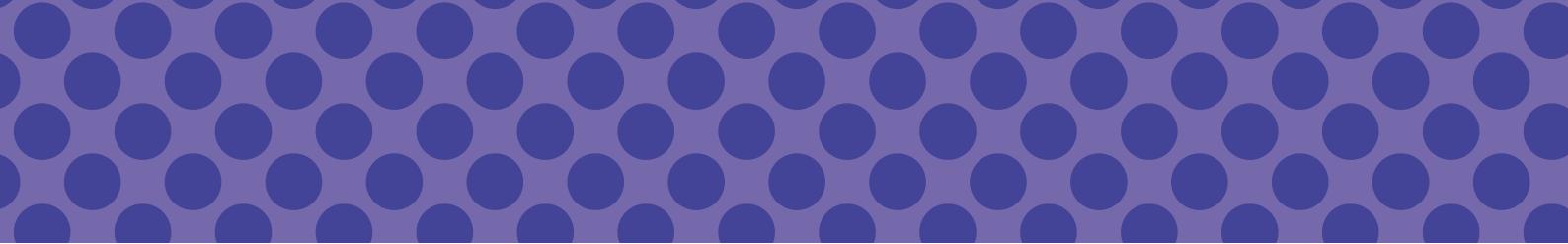
Postgraduate Research Opportunities at the Telethon Kids Institute

Student project booklet 2021



Discover. Prevent. Cure.





WELCOME TO THE TELETHON KIDS INSTITUTE

At Telethon Kids, our vision is simple - HAPPY HEALTHY KIDS.

We bring together community, researchers, practitioners, policy makers and funders, who share our mission to improve the health, development and lives of children and young people through excellence in research. Importantly, we want knowledge applied so it makes a difference.

Telethon Kids Institute is the largest medical research facility in Western Australia. With more than 850 staff and students, we are also one of Australia's largest research facilities dedicated to child health. 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.

In 2018, Telethon Kids moved to brand new premises within the children's hospital building at the QEII Campus in Nedlands. The new building includes state-of-the-art facilities with increased space and improved access to leading edge technology and research equipment.

Telethon Kids has strong affiliations with The University of Western Australia and Curtin University, 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.telethonkids.org.au
- Contacting our researchers listed within this booklet
- Contacting our Student Team at study@telethonkids.org.au
- Attending the Prospective Student Event: Wednesday 2 September June 2020

RESEARCH FOCUS AREAS

Our Research Focus Areas 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 Area 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 Focus Area 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 Focus Area 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 Focus Area 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 Telethon Kids Institute, 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 Focus Area (RFA) 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 requires 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 Focus Area (RFA) 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 Telethon Kids Institute, 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.

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BRAIN & BEHAVIOUR



Brain & Behaviour is a Research Focus Area 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 Telethon Kids Institute, this research encompasses a child's learning, development and mental health - and the impact of conditions like cerebral palsy, autism and intellectual disability.

Developmental Pathways and Social Policy

Research Focus Area	Brain & Behaviour
Research Group	Developmental Pathways and Social Policy
Start Date	January 2021
Chief Supervisor	<p>Dr Rebecca Glauert (Telethon Kids Institute)</p> <p>Dr Melissa O'Donnell (Telethon Kids Institute)</p> <p>Professor David Preen (UWA)</p> <p>A/Prof Helen Leonard (Telethon Kids Institute)</p>
Other Supervisors	<p>Dr Miriam Maclean (Telethon Kids Institute)</p> <p>Dr Megan Bell (UWA)</p>
Project Outline	<p>The Developmental Pathways and Social Policy team undertakes interdisciplinary research by linking cross-jurisdictional data held by a number of State government departments. The linking of population level data across these government agencies offers researchers an unparalleled opportunity to take an integrated and holistic approach to answering important questions concerning health, development and wellbeing across the life span. There is scope within the Developmental Pathways and Social Policy team to recruit PhD students who have an interest in using linked administrative data to conduct translational research in the areas of physical health, mental health, child maltreatment, domestic violence, offending, injury, Aboriginal health and wellbeing, refugees/migrants, education, child development and disability.</p> <p>Aims of the current program are to:</p> <ol style="list-style-type: none"> 1. Determine pathways (across individual, family, community and system levels) that reduce vulnerability to adverse outcomes including social disadvantage, child abuse and neglect, mental illness, poor educational attainment, justice system involvement, and restricted access to public services; 2. Identify critical transition points to target prevention and intervention strategies across government sectors; 3. Identify factors associated with resilience in disadvantaged groups to improve intergenerational outcomes; 4. Apply innovative new methods for data linkage across sectors; and 5. Enable responsive evidence-based policy and decision making for government departments.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • A minimum 2A Honours degree or Master's degree in a related field (e.g. Psychology, Public Health, Biostatistics) • Knowledge of quantitative data analyses • Demonstrated ability to perform independent research and a commitment to interdisciplinary research • Capacity to communicate research concepts to technical and non-technical audiences • Excellent interpersonal skills, including an ability to interact with internal and external stakeholders (academic, government, NGOs), in a courteous and effective manner • Excellent written and verbal communication skills, demonstrated by presentation of research results and through manuscript submissions • Demonstrated ability to work both independently and as a member of a team • Willingness to travel inter-state and/or internationally • Applicants should apply for an RTP or other relevant scholarship
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i>	
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Understanding the behavioural phenotype in Rett syndrome, a neurogenetic disorder mainly affecting girls

Research Focus Area	Brain & Behaviour			
Research Group	Child Disability			
Start Date	Jan-March 2021			
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)			
Other Supervisors	A/Prof Helen Leonard (Telethon Kids Institute) A/Prof Peter Jacoby (Telethon Kids Institute)			
Project Outline	<p>Rett syndrome is a rare genetic disorder that mainly affects girls and is associated with severe physical and intellectual disability. The Rett Syndrome Behaviour Scale (RSBQ) was developed to describe behaviours typically observed in Rett syndrome and to distinguish children with Rett syndrome from children with other intellectual disabilities. However, the behavioural phenotype of Rett syndrome remains poorly understood.</p> <p>Our group has established the International Rett Syndrome Database. The dataset describes behaviour, including RSBQ, the Anxiety, Depression and Mood Scale and qualitative descriptions, as well as data to describe multiple aspects of health and wellbeing and genotype. This project could involve qualitative and / or quantitative analyses. Depending on the level, activities could include:</p> <ol style="list-style-type: none">1. Examination of relationships between total and subscale scores for the behaviour measures,2. Exploring relationships between Anxiety, Depression and Mood Scale scores and other aspects of phenotype as well as genotype,3. Content analysis of the qualitative data to understand parent concerns, and.4. Conduct of a needs analysis including interviews with parents to inform what is needed to support the management of behavioural difficulties in Rett syndrome.			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in disability and family wellbeing• Interest in qualitative and quantitative research skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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What strategies in home and community settings could improve quality of life in children with disability?

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	Jan-March 2021
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Dr Rachel Skoss (Telethon Kids Institute)
Project Outline	<p>We recently developed a measure of quality of life for children with intellectual disability. The Quality of Life Inventory-Disability measures health, emotional and social wellbeing and has good reliability and validity.</p> <p>Quality of life is an important outcome for evaluating the effects of treatments and other supports and services in children with disability.</p> <p>We aim to develop a planning tool for families with a child with disability, to support how families identify strategies within their home and community settings, and consistent with the quality of life concept. This tool will support National Disability Insurance Scheme planning for the child.</p> <p>This project will include the following objectives that lay the foundations for this planning tool:</p> <ul style="list-style-type: none">• Conducting a literature review on planning tools for children with disability and• Conduct interviews with parents with a child with intellectual disability to collect their stories and strategies for improving their child's quality of life within home, community and service sector frameworks.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in stakeholder engagement and family wellbeing• Interest in qualitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

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The effects of orthopaedic surgeries on subsequent health of children with disability

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	Jan-March 2021
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	A/Prof Peter Jacoby (Telethon Kids Institute) A/Prof Helen Leonard (Telethon Kids Institute)
Project Outline	We recently interrogated a large linked dataset to determine whether hospitalisations for children with intellectual disability changed following the child receiving a gastrostomy. We found some reduction in hospitalisations suggesting better health for the child and providing evidence that helps parents to decide whether or not to proceed with gastrostomy for their child. Marked musculoskeletal deformity of the spine and hips is common in children with severe disability. This has impact on the child's breathing and the children are prone to respiratory infections. Working with an existing linked dataset and conducting a similar analysis to that investigating gastrostomy, we aim to investigate whether a spinal fusion or complex hip surgery is associated with any change in overall number of hospitalisations and the number of acute respiratory tract infections.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in disability and family wellbeing• Interest in quantitative research skills and linked data analysis
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

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What change in quality of life is important to children with disability?

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	Jan-March 2021
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Dr Amy Finlay-Jones (Telethon Kids Institute)
Project Outline	Quality of life is an important outcome for evaluating the effects of treatments and other supports and services in children with disability.

We have recently developed a measure of quality of life for children with intellectual disability. The Quality of Life Inventory-Disability measures quality of life including health, emotional and social wellbeing, and has good reliability and validity.

What we do not know is how much change in quality of life is important, or the Minimal Clinically Important Difference (MCID). This project will include the following objectives:

- Conducting a literature review on methods of determining the MCID for quality of life measures in children,
- Conduct interviews with parents with a child with intellectual disability to collect their stories of change in their child's quality of life that was important to their child, and
- Identify parent estimations of the MCID value, using a mix of anchor-based and social comparison methods.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in stakeholder engagement and family wellbeing• Interest in qualitative and quantitative research skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Career aspirations of siblings of children with developmental disabilities

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2021
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)
Other Supervisors	Dr Emma Glasson (Telethon Kids Institute)
Project Outline	<p>Siblings of children who have developmental disabilities naturally provide carer roles from a young age. Parents report siblings to be very compassionate and considerate individuals and credit this to having a sibling with special needs.</p> <p>There is some evidence that these siblings of children with special needs often should career paths that are centred around helping others, such as teaching, social work or nursing. This project investigates this issue further, by exploring the career aspirations of these young people and the eventual career choices of older siblings, and an analysis of the attitudes and drivers of these siblings according to the characteristics of siblings with disability.</p> <p>This will be a qualitative study in which siblings of children in our various disability databases will be interviewed in depth about their attitudes and reflections/path career they took.</p> <p>This is a qualitative study with data collected by interview with siblings of children in our local, national, and international databases. Data from interviews will be analysed using thematic techniques.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in psychology, health sciences or related field• Excellent communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

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Language preferences when referring to people with any developmental or intellectual disability

Research Focus Area	Brain & Behaviour
Research Group	Child Disability
Start Date	March 2021
Chief Supervisor	Dr Emma Glasson (Telethon Kids Institute)
Other Supervisors	A/Professor Helen Leonard (Telethon Kids Institute) Ms Brittany Mann (Telethon Kids Institute)
Project Outline	<p>Distinct preferences exist regarding how autistic people and their families wish them to be referred. Many prefer the 'person first' method (i.e. child with autism), while others prefer the 'identity first' method (i.e. autistic child). It was said 'The right words can show respect and help grow that understanding. The wrong ones can destroy it' (https://www.abc.net.au/life/autistic-or-has-autism-why-words-matter-and-how-to-get-it-right/10903768), suggesting if the diagnosis is lost, it is something to be cured, rather than embracing identity. However, the person-first method is still popular, and it is difficult to know which method to use. These issues also apply to other developmental disabilities (e.g. cerebral palsy, Down syndrome). The disability community are at risk of erasure, exploitation, stigma, and misunderstandings and so need to be respected. There have been changes in the ideology of the language choice over time, and even disability journals debate which language is acceptable for publication (e.g. https://home.liebertpub.com/publications/autism-in-adulthood/646/for-authors).</p>

There also appear to be differences according to age, whether it is a parent or diagnosed adult, type of profession or state of residence. Another important issue is whether individuals with 'severe' or 'mild' intellectual disability are referred to differently, and similarly whether there is a concept such as 'high functioning' autism (implying 'low functioning' autism. See <https://pubmed.ncbi.nlm.nih.gov/31215791/>). There also are no data on the preferences of siblings, which is important given their vulnerability as young people and their life-long kin relationships. This project will collect responses nationally to uses, preferences and reasons why, and will be analysed by personal circumstance. The student will first conduct a literature review to synthesise the conflicting studies regarding person- or identity-first language, whether this varies within and between disability types, ages groups, and ethnicity. The student will then help to plan and develop the questionnaire. They will sort and clean the data that are received and analyse it descriptively using quantitative methods with a small amount of qualitative data analysis. Particular focus on the data contributed by siblings will be made.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in psychology, health sciences or related fieldExcellent communication skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Family structure in those with developmental disability

Research Focus Area	Brain & Behaviour					
Research Group	Child Disability					
Start Date	March 2021					
Chief Supervisor	Dr Emma Glasson (Telethon Kids Institute)					
Other Supervisors	A/Professor Helen Leonard (Telethon Kids Institute)					
Project Outline	<p>Families are the primary support base for children with developmental disabilities.</p> <p>Family capability depends on the structure, support networks and resources available to them.</p> <p>This project investigates the types of family structures that exist for children with genetic disorders and other developmental disabilities. It considers the type and severity of disability, family size, sibling spacing, birth order, parental age, and temporal changes.</p> <p>A dedicated database of the relevant variables from an existing linked data analysis will be created for this project. The student will sort and clean the relevant variables within a dedicated database and therefore previous experience in data management as well as competency in statistics would be preferable. Once the database is complete, analyses will be undertaken to investigate family structures across a number of developmental disabilities.</p>					
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD		
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in psychology, health sciences or related field• Excellent communication skills					
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group					
<i>For more information, please contact:</i> Dr Emma Glasson 08 6319 1760 Emma.Glasson@telethonkids.org.au						

Parent report of the sibling impact of having a child with Rett syndrome or Down syndrome in the family

Research Focus Area	Brain & Behaviour						
Research Group	Child Disability						
Start Date	March 2021						
Chief Supervisor	A/Professor Helen Leonard (Telethon Kids Institute)						
Other Supervisors	Dr Emma Glasson (Telethon Kids Institute) Ms Jenny Bourke (Telethon Kids Institute)						
Project Outline	<p>Having a child with a disability impacts all family members. This project utilises existing data collected over 16 years across several family surveys administered to families of children with Rett syndrome and Down syndrome. At several time points, questions about the impact on non-affected siblings were asked of parents.</p> <p>This project will analyse parental responses for families of each syndrome, across different time points. Analyses will consider the sibling impact of disability type and severity, sibling age and gender, aspects of family life, and other variables. The student will compile the relevant variables across several surveys for both syndromes into a single database. Once complete, analyses will be undertaken to investigate the quantitative and qualitative data. Qualitative data will be analysed using thematic analyses, and quantitative data will be analysed using descriptive statistics and subgrouping will occur using major factors.</p>						
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in psychology, health sciences or related fieldExcellent communication skills						
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained					
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group						
<p><i>For more information, please contact:</i></p> <p>A/Professor Helen Leonard 0419 956 946 Helen.Leonard@telethonkids.org.au</p>							

BEACHES - Longitudinal data study of built environments and child risk factors for non-communicable disease

Research Focus Area	Brain & Behaviour
Research Group	Children's Physical Activity, Health and Development & ORIGINS Project Team
Start Date	Flexible: 2020-2021
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute & UWA)
Other Supervisors	Prof Pete Gething (Telethon Kids Institute & Curtin) Dr Bryan Boruff (UWA School of Agriculture & Environment) Dr Andrea Nathan (Telethon Kids Institute)

Project Outline

This research will use longitudinal data from Australian cohort studies as part of the NHMRC funded Built Environments and Child Health in Wales and Australia (BEACHES) project. Population level data will be used to identify and understand the complex factors in the built environment and how they influence modifiable risk factors (physical inactivity, sedentary time, dietary intake, and overweight/obesity) for non-communicable disease across childhood.

Findings from this research will inform evidence-based policy planning to prevent the rise of non-communicable diseases across the lifespan as well as inform sustainable ways to prevent modifiable risk factors for non-communicable disease.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Ability to conduct quantitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • 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	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project	<input type="checkbox"/> Full scholarship offered by project

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Children's Physical Activity, Health and Development

Research Focus Area	Brain & Behaviour			
Research Group	Children's Physical Activity, Health and Development			
Start Date	Flexible: 2020-2021			
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)			
Other Supervisors				
Project Outline	<p>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 and whilst attending early childhood education and care (ECEC). This research will provide information on how best to create healthy home, neighbourhood and ECEC environments.</p> <p>The project involves qualitative research with children, parents, staff and key stakeholders in the ECEC setting, as well as quantitative research measuring young children's movement behaviours (physical activity, sedentary time and sleep), overweight/obesity, development and the influence of the ECEC physical, policy and social environment. There is scope to evaluate the impact of policy and practice-based interventions to improve children's movement behaviours at ECEC.</p> <p>Students have the option to work on the PLAYCE cohort study which details patterns of movement behaviours and the effect movement behaviours have on weight status and socio-emotional, cognitive, and motor development across childhood (2-9 years).</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Ability to conduct quantitative and or qualitative research• Excellent writing skills• Statistical analysis (SPSS/SAS)• Ability to work as part of a team• Good interpersonal and communication skills			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project	<input type="checkbox"/> Full scholarship offered by project		
<i>For more information, please contact:</i> A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au				

Impact of Nature (green & blue space) on Young Children's Health

Research Focus Area	Brain & Behaviour
Research Group	Children's Physical Activity, Health and Development
Start Date	Flexible: 2020-2021
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)
Other Supervisors	Dr Andrea Nathan (Telethon Kids Institute)
Project Outline	<p>Contact with nature (plants and animals) is associated with children developing a sense of identity, autonomy, psychological resilience, self-regulation, gross motor skills and learning healthy behaviours. The impact of nature contact has been examined in older children, but there are very few studies in young children. Research on the health benefits of green and blue space is an emerging field of research with most studies conducted in the last 5 years. Overall, studies have shown that blue and green space is associated with several physical and mental health benefits. This project has the scope to examine the role that water systems play in human health looking at variations by geographical location and population and how Western Australians access and use different types of blue spaces in their community and what the health and wellbeing benefits (and potential negative effects) are. The amount of time children spend in these environments, the types of play they engage in, their risk-taking assessment ability, social interactions and physical health will be examined. There is also scope for this project to examine the impact of <i>green and blue space</i> on early child health and development.</p>

This project's finding has the potential to strengthen sector and transdisciplinary collaboration on water systems and health and advance understanding of the relationship between water systems and health in the local context. In the longer term, the research will inform recommendations to ensure people continue to receive health benefits from blue spaces.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Ability to conduct quantitative and qualitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 			
	<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"> • Minimum 2A Honours degree 			
	<p><i>For Masters candidates:</i></p> <ul style="list-style-type: none"> • Degree in Public Health, Epidemiology, or related 			
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project			
<p><i>For more information, please contact:</i></p> <p>A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au</p>				

ARC Life Course Centre 2020: Neighbourhood Influences on Child Health and Development

Research Focus Area	Brain & Behaviour							
Research Group	Children's Physical Activity, Health and Development							
Start Date	Flexible: 2020-2021							
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)							
Other Supervisors	Prof Donna Cross (Telethon Kids Institute, UWA) Dr Andrea Nathan (Telethon Kids Institute)							
Project Outline	<p>Developmental delays in physical health and wellbeing, social competence, emotional maturity, language, cognitive, and communication skills have significant health, social and economic consequences for later life. Across Australian suburbs there are inequalities in the proportion of children developmentally at risk. A significant amount of this inequality in developmental vulnerability remains unexplained. This project will examine the influence of the neighbourhood and home physical environment on child health and development. It will provide evidence to inform the design of urban areas that are supportive of child health and development. The built environment incorporates land use patterns, transportation systems, building design, access to shops and services and social infrastructure, and creates conditions that are optimal (or detrimental) for child health and development.</p> <p>This research will fall under the Life Course Centre 2020 and use data from the Australian Early Development Census (AEDC) and Middle Childhood Development Index to examine neighbourhood attributes (e.g., access to child education and health services) associated with child health and development outcomes. It will provide evidence to determine what are child-friendly environments in the context of neighbourhoods and what are optimal levels of built environmental features for child health and development?</p>							
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD				
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Ability to conduct quantitative and qualitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 							
<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"> • Minimum 2A Honours degree 								
<p><i>For Masters candidates:</i></p> <ul style="list-style-type: none"> • Degree in Public Health, Epidemiology, or related 								
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained						
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project <input checked="" type="checkbox"/> Full scholarship offered by project							
<p><i>For more information, please contact:</i></p> <p>A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au</p>								

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

Research Focus Area	Brain & Behaviour
Research Group	Children's Physical Activity, Health & Development; Development and Education
Start Date	Flexible: 2021
Chief Supervisor	A/Professor Hayley Christian and Prof Donna Cross (Telethon Kids Institute, UWA)
Other Supervisors	

Project Outline

The Life Course Centre (LCC 2020) is funded by the Australian Research Council and collaborating partner organisations. The LCC 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 LCC 2020 aim is 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 LCC UWA node has PhD scholarships available for specific research projects that fit within the LCC research themes.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Ability to conduct quantitative and qualitative researchExcellent writing skillsStatistical analysis (SPSS/SAS)Ability to work as part of a teamGood interpersonal and communication skillsMinimum 2A Honours degree			

Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project <input checked="" type="checkbox"/> Full scholarship offered by project	

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NHMRC PLAYCE 'Early Movement' Policy Project - Parent Engagement

Research Focus Area	Brain & Behaviour			
Research Group	Children's Physical Activity, Health and Development			
Start Date	Flexible: 2020-2021			
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)			
Other Supervisors	Dr Andrea Nathan (Telethon Kids Institute)			
Project Outline	<p>This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children’s Physical Activity. The Cancer Council, National Heart Foundation, Goodstart Australia, Nature Play Australia, the Australian Childcare Alliance, Minderoo Foundation-Collaboration for Kids, Department of Health and Department of Local Government, Sport and Cultural Industries are working together with the research team to develop, implement and evaluate evidence-based policy for improving physical activity and movement in children attending early childhood education and care (ECEC).</p> <p>This component will use qualitative research to identify barriers and enablers for parents and ECEC staff to implement the ‘Early Movement’ policy in centres and, recommendations for centres and parents to support children to be physically active.</p>			
	<p>The project involves qualitative research with parents in the ECEC setting. We will work with our partners, ECEC staff and parents to co-design strategies for the development of an ECEC-based parenting program to increase parent’s knowledge, skills, and modelling of physical activity. This will involve qualitative research to identify barriers and enablers for parents (and ECEC staff) to the ‘Early Movement’ policy being implemented in centres and used by parents at home.</p>			
Suitable For Essential Skills & Qualifications	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD <ul style="list-style-type: none"> • Ability to conduct quantitative and qualitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 			
	<p><i>For PhD candidates:</i></p> <ul style="list-style-type: none"> • Minimum 2A Honours degree 			
	<p><i>For Masters candidates:</i></p> <ul style="list-style-type: none"> • Degree in Public Health, Epidemiology, or related 			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			
<p><i>For more information, please contact:</i></p> <p>A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au</p>				

PLAYCE PAWS Intervention Scale Up

Research Focus Area	Brain & Behaviour			
Research Group	Children's Physical Activity, Health and Development			
Start Date	Flexible: 2020-2021			
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)			
Other Supervisors				
Project Outline	<p>This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children’s Physical Activity. The PLAYCE PAWS Study aims to trial different methods of encouraging more physical activity in children through playing and walking with the family dog. The overall aim of this study is to see whether active play and walking with the family dog facilitates improved developmental outcomes in young children.</p> <p>The project involves intervention scale up research with children, parents and the family dogs. There is scope to use the learnings from the pilot study and further investigate the health and developmental benefits of companion animals for young children.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Ability to conduct quantitative research • Excellent writing skills • Statistical analysis (SPSS/SAS) • Ability to work as part of a team • Good interpersonal and communication skills 			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			
<i>For more information, please contact:</i> A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au				

Longitudinal study of family physical activity and young children's physical activity, play and development

Research Focus Area	Brain & Behaviour
Research Group	Children's Physical Activity, Health and Development & ORIGINS Project Team
Start Date	Flexible: 2020-2021
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute & UWA)
Other Supervisors	
Project Outline	<p>Daily physical activity is critical during the early years of life. Physical inactivity and sedentary behaviours have been shown to track from early childhood into adolescence and adulthood, negatively influencing health throughout the life course. Regular physical activity provides children with health and developmental benefits, including healthy weight, improved bone health, cardiovascular fitness, and enhanced cognitive, emotional, and psychosocial development. More than one fifth of Australian children aged 2-4 are overweight or obese. Physical activity is a critical strategy for combating rising levels of obesity. Objective measures of physical activity show less than a third of Australian 2-5-year-olds achieve the recommended three hours of physical activity per day required for their health and development.</p> <p>This research will use longitudinal data collected as part of the ORIGINS project to examine parent's physical activity levels pre-pregnancy, during pregnancy, and at 6 and 12 months after childbirth. Relationships with children's time spent playing will also be examined at 9 and 12 months. Findings from this research will provide evidence of the role of prenatal, antenatal, and postnatal parent physical activity habits on young children's physical activity, play and development. It will provide evidence to inform intervention strategies to facilitate the development of healthy physical activity behaviours in young children.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Ability to conduct quantitative research• Excellent writing skills• Statistical analysis (SPSS/SAS)• Ability to work as part of a team• Good interpersonal and communication skills
	<i>For PhD candidates:</i> <ul style="list-style-type: none">• Minimum 2A Honours degree
	<i>For Masters candidates:</i> <ul style="list-style-type: none">• Degree in Public Health, Epidemiology, or related
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project
<i>For more information, please contact:</i> A/Professor Hayley Christian (08) 6319 1040 Hayley.Christian@telethonkids.org.au	

Exploring policy priorities using societal return on investment

Research Focus Area	Brain & Behaviour			
Research Group	Development and Education			
Start Date	March 2021			
Chief Supervisor	Professor Elizabeth Geelhoed (Telethon Kids Institute)			
Other Supervisors	TBA			
Project Outline	<p>Over the past two years the Economics Working Group have created a valuable data bank of academic research on the return on investment from interventions in early childhood.</p> <p>This student project would draw on the data bank and other sources to explore policy priorities using Multi-criteria decision analysis (or similar tool), focussing on societal (whole child) measures of return on investment.</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Ability to work autonomously, with some direction• High level written and oral communication skills• High level organisational and time management skills• First-Class Honours (or equivalent) and/or a research Masters in Health, Economics, or another relevant degree including a clear research component• Eligible to enrol in a PhD or Masters at a University			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Investigating digital access and equity among young people in Western Australia

Research Focus Area	Brain & Behaviour
Research Group	Health Promotion and Education Research
Start Date	February 2021
Chief Supervisor	Professor Donna Cross (Telethon Kids Institute)
Other Supervisors	Associate Professor Hayley Christian (Telethon Kids Institute) Dr Helen Monks (Telethon Kids Institute)
Project Outline	<p>Although access to digital technology has educational and social benefits, widespread use by young people has many potential risks, especially as they are still developing socially and emotionally and have limited capacity for sound decision-making.</p> <p>Responsible adults in young people's lives can feel ill-equipped to regulate and support their child's technology use, and minimise risk from exposure to potentially harmful online content and contact, such as cyberbullying, gaming and other problematic online activity (e.g., sharing of personal information) that can lead to adverse physical, social and mental health outcomes.</p>

This proposed student project will expand on existing research to investigate how digital wellbeing interventions can be more responsive to vulnerable groups (including those from low-SES backgrounds) with higher exposure and risk profiles in online environments.

The scope for this work would depend upon the post-graduate degree being undertaken. A broad range of topics that might be explored as part of this project include:

- the relationship between socio-economic status and digital wellbeing (positive and negative aspects of technology use)
- Investigating risk and/or protective factors related to cyber-safety in low-SES communities
- Exploring young people's perceptions of their technology use (positive and negative aspects) in low-SES communities
- Examining parents', school staff and/or practitioners' views on young people's digital access and equity, and possible intervention strategies

The findings from this project will be used to inform the development of interventions to improve digital access and equity among vulnerable groups.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate and/or Masters degree (or equivalent) in health sciences/health promotion or related discipline• Excellent research, writing and communication skills			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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Investigating effective message framing to transform community attitudes about young people's technology use

Research Focus Area	Brain & Behaviour
Research Group	Health Promotion and Education Research
Start Date	February 2021
Chief Supervisor	Professor Donna Cross (Telethon Kids Institute)
Other Supervisors	Dr Helen Monks (Telethon Kids Institute) Dr Leanne Fried (Telethon Kids Institute)
Project Outline	The Beacon app project is a collaboration between Telethon Kids Institute and Bankwest (2019-2022) focused on assisting parents/carers to help their children use digital technologies in a beneficial way and minimise the negative impacts of digital technologies on development.

This student project aims to identify implicit understandings and assumptions about school-age children's digital behaviours held by the general public relative to current research findings. These learnings will be used to determine the most effective ways of framing key messages in the Beacon app, to transform community attitudes about school-age children's digital citizenship and build support for sustainable interventions.

This project will involve working collaboratively with experts and partner organisations identify key frames and evaluate messages and cultural models affecting attitudes towards children's and young people's technology use. Ultimately, this will culminate in an overarching communications narrative that will refine and amplify communication messages about how adults (especially parents and carers) can effectively support children's and young people's appropriate use of technology.

The cultural models and framing advice are intended for dissemination not only in the Beacon app, but also widely among practitioners, educators, and family support services, to raise the capacity of the community at large to communicate effectively about young people's technology use.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Masters degree (or equivalent) in health sciences/health promotion or related discipline• Excellent communication skills, research and writing skills			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Parenting for digital citizenship: A synthesis of current research and recommendations for action

Research Focus Area	Brain & Behaviour			
Research Group	Health Promotion and Education Research			
Start Date	February 2021			
Chief Supervisor	Professor Donna Cross (Telethon Kids Institute)			
Other Supervisors	Dr Helen Monks (Telethon Kids Institute) Dr Natasha Pearce (Telethon Kids Institute)			
Project Outline	<p>The Beacon app project is a collaboration between Telethon Kids Institute and Bankwest (2019-2022) that aims to provide parents and carers with knowledge and skills to help improve the digital health and wellbeing of their children (age 0-17 years). Through assisting parents/carers to help their children use digital technologies in a beneficial way and minimise the negative impacts of digital technologies on development, the Beacon app ultimately seeks to improve the digital future for the children of Western Australia.</p> <p>The proposed student project will involve conducting a comprehensive review of the most recent and robust literature about child and adolescent use of digital technology, as well as the evidence on how parents can help their child navigate this complex and rapidly changing landscape. Following an evidence mapping process, a set of common understandings about the research topic and key recommendations for action will be generated.</p> <p>These will subsequently be validated by leading researchers and industry stakeholders with expertise in child and adolescent health, cyber-safety, digital citizenship, and evidence-based interventions. This is to be achieved through a modified Delphi process, whereby the student will engage these stakeholders in a consensus process to collate and consolidate key research findings and recommended actions. The resulting framework will be used to confirm and further refine the areas of focus for the Beacon app, as well as other interventions to improve young people's use of digital technology.</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in health sciences/health promotion or related disciplineStrong writing, research, organisation, and communication skills			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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Exploring school staff responses to student reports of bullying

Research Focus Area	Brain and Behaviour
Research Group	Health Promotion and Education Research
Start Date	January 2020
Chief Supervisor	Dr Jacinta Francis
Other Supervisors	
Project Outline	<p>Bullying has been recognised as a major public health concern, with approximately 1 in 6 students in Australia bullied at least once a week and victimisation peaking at age 10 and during periods of school transition. Peer bullying and aggression are associated with physical and mental health problems, such as anxiety and depression, increased risk of self-harm, attempted or completed suicide, poor academic performance, and criminality and delinquency. Many school bullying interventions encourage bullying victims to seek help from school staff. However, students often fear that reporting bullying incidents will worsen their situation. School staff have also requested additional training to adequately address bullying behaviour.</p> <p>This qualitative study will explore school staff responses to student reports of bullying behaviour by 8-10-year-old students attending Western Australian primary schools. The research plan includes a rapid review of the published literature and interviews with school staff from Catholic and Independent primary schools. Findings will inform the development of resources to equip school staff when responding to witnessed or reported incidents of bullying and to support the students involved.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	List skills/qualifications required in dot points <ul style="list-style-type: none">• Undergraduate degree in psychology, health science, health promotion, education, nursing or similar discipline.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Reducing and preventing energy drink intake in children and adolescents

Research Focus Area	Brain & Behaviour			
Research Group	Health Promotion and Education Research			
Start Date	Jan 2021 or earlier			
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)			
Other Supervisors	TBD			
Project Outline	<p>Energy drinks have catapulted to popularity among young people. Whilst they are marketed to improve the body's performance, they pose a significant health risk. Energy drinks provide a potent source of caffeine and can contain high levels of sugar, sodium, and herbal stimulants. Their consumption has been linked to heart palpitations, hypertension, cardiac arrest, and even sudden death in individuals with underlying heart conditions. Despite growing community concern and evidence of health risks, Australian governments have not enforced age-specific restrictions on the purchasing of energy drinks unlike other countries. Thus, there is a critical need to identify other ways to minimise harm to children.</p> <p>We are looking for multiple students to undertake research projects aimed at reducing and preventing energy drink intake in children and adolescents. Potential research topics include:</p> <ul style="list-style-type: none">• Development of a parent-based intervention to reduce energy drink intake in children and adolescents• Supermarket-based interventions to decrease the number of young people (<18 years) purchasing energy drinks.• Development of a child-focused intervention to reduce and prevent energy drink intake• Investigating parent, teacher and school principal's knowledge, attitudes, perceptions, and experiences towards energy drink intake by children and adolescents			
Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent interpersonal, written, and oral communication skills• 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.			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<ul style="list-style-type: none"><input type="checkbox"/> Top-up scholarship offered by project group<input type="checkbox"/> Full PhD scholarship offered by project group			

For more information, please contact:

Dr Gina Trapp

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Influence of the food environment near schools on children's food intake

Research Focus Area	Brain & Behaviour						
Research Group	Health Promotion and Education Research						
Start Date	Jan 2021 or earlier						
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)						
Other Supervisors	TBD						
Project Outline	<p>Population-level strategies to improve children's diet have mainly focused on improving nutrition standards within schools. However, our research shows many WA schools, especially in socio-economically disadvantaged areas, are surrounded by unhealthy food-outlets. Recent calls from the WA community for a ban on fast-food outlets near schools, further highlight the need for regulation addressing the location of unhealthy food-outlets, yet little is known about how often schoolchildren patronise food-outlets near schools and what they purchase. This lack of evidence means policies to manage food-environments near WA schools are currently non-existent and difficult to advocate for.</p> <p>We are looking for multiple students to undertake multidisciplinary, innovative research projects aimed at:</p> <ul style="list-style-type: none"> • Longitudinally mapping, measuring, and monitoring the food environment surrounding Perth schools • Investigating students' patronage of food outlets near their school, including which food outlets they use, how often, when and what they purchase • Identifying differences in the dietary intake of students attending schools located in 'healthy' versus 'unhealthy' food environments • Undertaking natural experiments (before and after studies) to investigate how new food outlets opening near a school impacts on the eating behaviours of children attending that school • Investigating student, school staff, the community and food business owners' attitudes towards (a) unhealthy food environments near schools; and (b) potential policy and practice changes to improve food environments near schools • Co-developing a research translation tool for Local Governments to better manage food provision near schools <p>The findings will build the capacity of Local Governments to embed considerations of food accessibility/availability into their policies, practices and Public Health Plans and guide the WA Sustainable Health Review's recommendation to "Promote and foster healthy-eating environments" including "Changes to planning laws to limit unhealthy food-outlets and support access to healthy food options near schools."</p>						
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Excellent interpersonal, written, and oral communication skills • 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. 						
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained					
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full PhD scholarship offered by project group (TBC)						
<i>For more information, please contact:</i> Dr Gina Trapp 0410 589 374 gina.trapp@telethonkids.org.au							

Supporting Healthy Lifestyle Behaviours & Environments

Research Focus Area	Brain & Behaviour
Research Group	Health Promotion and Education Research
Start Date	Jan 2021 or earlier
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute) Dr Robyn Johnston (Telethon Kids Institute)
Other Supervisors	TBD
Project Outline	The Health Promotion and Education Research (HPER) Team aims to undertake collaborative, innovative, and high quality applied and intervention-based research aimed at optimising the health, development and wellbeing of young people.

We are currently seeking multiple students to expand HPER's '**Supporting Healthy Lifestyle Behaviours & Environments**' research priority area, which aims to investigate ways to improve and promote healthy lifestyle behaviours and environments. Within this priority area we currently have two programs of research with multiple research projects available depending on the applicant's interests:

Healthy eating

- Creating healthy food environments where children live, eat, go to school and play

Reducing alcohol use

- Exploring fathers' attitudes and behaviours regarding the alcohol-related parenting of children 10-17 years
- Exploring social networking and social media influences on drinking

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• <i>Excellent interpersonal, written, and oral communication skills</i>• <i>Australian Citizen, Australian Permanent Resident</i>• <i>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.</i>			
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full PhD scholarship offered by project group (TBC)			

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Statistical Map Making with Compositional Data from the Health and Physical Sciences

Research Focus Area	Brain & Behaviour
Research Group	Geospatial Health and Development
Start Date	January 2021
Chief Supervisor	Associate Professor Ewan Cameron, Telethon Kids Institute, Curtin University
Other Supervisors	Professor Peter Gething, Telethon Kids Institute, Curtin University
Project Outline	<p>Compositional data represent measurements (direct or indirect) of proportions with an implicit ‘sum to one’ constraint: for instance, fractional contributions to total mortality by disease type among a population; proportional abundances of minerals or rock types in geological data; or voting share across parties among an electorate. Regression methods using compositional data must overcome a number of technical challenges posed by this constraint (e.g. choice of transformations to ensure predictions remain within the simplex; handling of artificial correlations induced by such transformations, non-identifiability of full correlation and cross-correlation structure), and have thus been less intensively studied than ‘ordinary’ measurement models in general, and specifically with regard to model-based geostatistics.</p> <p>This project proposal is to investigate the transfer of contemporary approaches from model-based geostatistics to compositional data, including the first order approximation of Gaussian random fields and treatment of non-stationarity (such as via Random Fourier Features), and the estimation of model hyper-parameters via methods such as cross-validation with stochastic gradient descent. The methods developed will be informed by application to epidemiological datasets concerning malarial and non-malarial fevers in children (MIS/DHS survey data), and potentially datasets from other fields (such as geochemistry and astronomy).</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate science degree with course work having included a substantial mathematical component (e.g. statistics, physics, engineering, computational epidemiology, scientific computation)Some experience of scientific computing and programming (e.g. use of R, Python, matlab, mathematica for coursework or other project)Ability to work in a team and carry out tasks autonomously
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Chronic conditions and wellbeing in children and adolescents

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	Jan-March 2021
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p>Chronic physical illness (e.g. diabetes, asthma, autoimmune disease) affects 10-20% of Australian youth and frequently involves recurrent pain, fatigue, and daily functioning limitations, as well as self-stigma and isolation. These issues may be exacerbated as young people transition through adolescence and negotiate changing social roles and uncertainty about the future, as well as changes in their supports and expectations regarding illness management. Accordingly, young people with chronic illness are at high risk of psychological distress and report prevalence of mental illness more than double that of their physically healthy peers. Accessible, evidence-based interventions for young people with chronic illness are urgently needed to improve wellbeing, support adaptation and resilience and enhance daily functioning.</p>
There are a range of student opportunities within our team that are available depending on the level of study and interests of the student. These include:	
<ul style="list-style-type: none">• Using an existing data to test models of the relationship between positive psychology constructs (e.g. hope, optimism) and wellbeing/adjustment outcomes in young people with chronic illness• Using existing data in combination with qualitative work to develop intervention components to improve wellbeing for young people with chronic illness• Adapting an online self-compassion intervention for parents of young people with chronic illness	
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in chronic conditions youth wellbeing• Competency and willingness to learn qualitative and quantitative research skillsInterest in participatory action research
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
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Fathering and compassion

Research Focus Area	Brain & Behaviour							
Research Group	Youth Mental Health							
Start Date	Jan-March 2021							
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)							
Other Supervisors	Dr Vincent Mancini							
Project Outline	<p>Self-compassion is an important resource for mothers: it is associated with better mental health, relationship quality, and child quality of life. The relationship of father's self-compassion to individual, family, and child outcomes is less clear. It is also unclear how fathers experience constructs like self-compassion and compassion for others. This is important to articulate when developing interventions to improve father mental health, relationships, and family involvement.</p> <p>We are seeking an honours, masters, or PhD student to undertake qualitative and/or quantitative research with fathers to explore some of these constructs and their relationship with mental health and family wellbeing. There is potential for the student to develop a compassion-based fathering intervention under the supervision of Dr Finlay-Jones.</p>							
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD				
Essential Skills & Qualifications	<ul style="list-style-type: none">Excellent communication skillsInterest in stakeholder engagement and family wellbeingQualitative and quantitative research skillsInterest in participatory action research							
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained							
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group							
<i>For more information, please contact:</i>								
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Improving program-person fit for fathers: Needs analysis and co-design

Research Focus Area	Brain & Behaviour			
Research Group	Youth Mental Health			
Start Date	Jan-March 2021			
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)			
Other Supervisors	Dr Vincent Mancini (Telethon Kids Institute)			
Project Outline	<p>Despite substantial evidence documenting the role of fathers in child and family wellbeing, it is unclear whether fathers feel their needs are met by existing parenting, child development and family wellbeing programs.</p> <p>We are interested in understanding the needs and experiences of fathers and developing parenting programs that meet these needs. Working with our community partner and their reference group, this project will explore the needs of fathers, experiences, and preferences of fathers, using a mixed methods approach. Depending on the level of the student, this project may also involve co-design and intervention testing. An advisory group is available to provide feedback on the proposed project.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in stakeholder engagement and family wellbeing• Qualitative and quantitative research skills• Interest in participatory action research			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			
<i>For more information, please contact:</i> Dr Amy Finlay-Jones (08) 6319 1808 Amy.finlay-jones@telethonkids.org.au				

Supporting toddler's ability to self-regulate: A needs analysis

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	Jan-March 2021
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	A/Professor Jenny Downs (Telethon Kids Institute)
Project Outline	Child self-regulatory difficulties (sleeping, settling, and managing emotions and behaviour) are one of the most common reasons parents seek support. When self-regulatory difficulties persist, it can be detrimental to parent mental health and child outcomes.

Understanding the needs and experiences of parents/caregivers who have a child with self-regulatory difficulties is an important step in developing targeted supports. Community service providers can also provide important perspectives on the facilitators and barriers to accessing support. The aim of this project is to conduct a needs analysis in this area, in partnership with our community partner/s.

The needs analysis may comprise some or all of the following objectives, depending on the level of study:

- Conducting a literature review and content analysis of existing programs that aim to address toddler self-regulation
- Conducting interviews and/or focus groups with parents/caregivers
- Conducting stakeholder consultation and/or interviews with community service providers

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Excellent communication skills• Interest in stakeholder engagement and family wellbeing• Qualitative research skills			
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group		<input type="checkbox"/> Full scholarship offered by project group	

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Sleep and Childhood Neurodevelopmental Disorders: Caregiver and Community Service Provider Perspectives

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	Jan-March 2021
Chief Supervisor	Dr Amy Finlay-Jones (Telethon Kids Institute)
Other Supervisors	Dr Vincent Mancini (Telethon Kids Institute), A/Prof Jenny Downs (Telethon Kids Institute)
Project Outline	<p>Difficulties with sleep are a common experience for children with ADHD, ASD and many other neurodevelopmental disorders (NDDs). These sleep-related issues can exacerbate NDD symptoms and can become an additional source of distress for the wellbeing of children and their families. ‘Traditional’ solutions to managing sleep-difficulties in children with NDDs are limited in effectiveness due to the impact of NDDs on sleep, expressing a need for further research in this area.</p> <p>Understanding the experiences of childhood NDDs and sleep from a caregiver’s perspective is yet to be comprehensively examined. Being able to identify these needs will help to direct targeted areas for improvement beyond generic methods to manage sleep. Similarly, community service providers are well-positioned to provide support to caregivers of children with NDDs and sleep-related difficulties.</p> <p>However, it is also important to identify whether community service providers are equipped to meet the additional needs of caregivers of children with NDDs and sleep-related difficulties.</p> <p>The scope of this project will be tailored to suit the level of study undertaken. Students will work toward achieving the following aim/s:</p> <ol style="list-style-type: none">1. Investigate the link between child’s sleep and parent’s wellbeing in a sample of children with NDDs2. Explore the needs of caregivers of children with NDDs in managing their child’s sleep3. Explore the needs of community service providers in supporting caregivers of children with NDDs in managing sleep
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<p>List skills/qualifications required in dot points e.g:</p> <ul style="list-style-type: none">• Excellent communication skills• Interest in stakeholder engagement and family wellbeing• Competency and willingness to learn qualitative and quantitative research skills
Ethics Approval	<input type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Improving the physical and mental health of trans and gender diverse young people: the GENTLE Cohort

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Ashleigh Lin, Telethon Kids Institute Penelope Strauss, Telethon Kids Institute
Other Supervisors	TBC
Project Outline	The Youth Mental Health team at Telethon Kids Institute in partnership with the Gender Diversity Service at Perth Children's Hospital is currently conducting the GENTLE Cohort Study. This project is a longitudinal cohort study that collects data on physical health as well as mental health of trans and gender diverse young people (aged 11-18 years old) at the Gender Diversity Service. The field of trans health is rapidly expanding and this is a novel dataset yet to be fully explored. Data collected includes endocrine data around gender-affirming hormone initiation, psychosocial information as well as information on the family context of the young person. The student will assist with data collection and entry of confidential patient medical and psychological information for a research cohort of adolescents who are trans or gender diverse. The student will work closely with the Gender Diversity Service (GDS) clinical team while they are conducting their project.

The focus of the specific student project will depend on the interest and skills of the student and our projects are flexible based on the student's time frame. There is the opportunity for the student to suggest and develop a new project or to develop an intervention within this study cohort.

Prospective students may be involved in recruitment, data management, analysis and/or preparation of publications. There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in Psychology, Public Health, or a related fieldExcellent written and communication skillsAbility to work with, accept and respect diverse peoples			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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Preventing suicide and self-harm contagion in young people

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Ashleigh Lin, Telethon Kids Institute
Other Supervisors	Nicole Hill, Telethon Kids Institute
Project Outline	A study on the prevention of suicide and self-harm contagion in young people is available to a prospective PhD student. Exposure to suicide and self-harm is associated with increased risk of suicidal behaviour in young people. However, few studies have investigated how to interrupt the behavioural contagion process.

The project will involve the development of an intervention following peer-to-peer exposure to a suicide or self-harm behaviour within the education settings and will involve consultation with both education professionals, clinician's, and young people.

The resulting intervention will be piloted as part of the PhD project.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Honours or Master's degree in Psychology, Public Health or a related field• Excellent written and verbal communication skills• Experience collaborating with community stakeholders and young people• Basic skills in developing surveys and data analysis (training in these fields will be provided, however basic skills are required).			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Nicole Hill

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Meta-analysis: the association between exposure to suicide and adverse mental health outcomes in others

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Nicole Hill, Telethon Kids Institute
Other Supervisors	Ashleigh Lin, Telethon Kids Institute Penelope Strauss, Telethon Kids Institute
Project Outline	There is an opportunity for prospective Masters student to be involved in a systematic review and meta-analysis that examines the association between exposure to suicide and adverse mental health and grief outcomes

This research aims to:

- Quantify the association between exposure to suicide on mental health and grief outcomes
- Identify the factors that increase or decrease the association between exposure to suicide and the range of mental health and grief outcomes.

Results from this study will be published in the peer review literature. The study will involve protocol registration, conducting the systematic search, screening, assessment of bias, and data extraction.

The student will be guided and trained in meta-analytic data analysis. The project will be best suited to a student who is interested in advancing their research skills and has excellent attention to detail.

Suitable For	<input type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in Psychology, Public Health, statistics, or a related field• Excellent written and communication skills• Demonstrated attention to detail			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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Evaluation of a serious game to prevent depression in trans and gender diverse young people

Research Focus Area	Brain & Behaviour			
Research Group	Youth Mental Health			
Start Date	February, 2021			
Chief Supervisor	Yael Perry, Telethon Kids Institute			
Other Supervisors	Ashleigh Lin, Telethon Kids Institute Penelope Strauss, Telethon Kids Institute			
Project Outline	<p>There is an opportunity for prospective Honours and/or Masters students to be involved in a trial of serious game to prevent depression in trans and gender diverse young people. Preliminary work has already been conducted, adapting an existing evidence-based digital intervention for the specific needs of trans and gender diverse young people. The next step in this program of research is to conduct an evaluation of the effectiveness, acceptability, and feasibility of the intervention.</p> <p>Prospective students may be involved in recruitment, data management, analysis and/or preparation of publications. There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in Psychology, Public Health or a related fieldExcellent written and communication skillsAbility to work with, accept and respect diverse peoplesFamiliarity with digital health is desirable but not essential			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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Improving the mental health of trans and gender diverse young people and their parents

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Yael Perry, Telethon Kids Institute
Other Supervisors	Ashleigh Lin, Telethon Kids Institute Penelope Strauss, Telethon Kids Institute
Project Outline	There is an opportunity for prospective Honours, Masters and/or PhD students to be involved with a program of research focused on improving the mental health of trans and gender diverse young people, and their parents.

This research aims to:

- Better understand the experiences of trans and gender diverse young people and their parents, especially in relation to parental support
- Better understand the mental health of parents of trans and gender diverse young people, and the impact of their child's gender diversity on their wellbeing
- Develop an intervention to enhance parental understanding and support

This research program will use a range of methodologies including interviews/focus groups, a national survey, co-design workshops and a randomised controlled trial. Prospective students can work within the existing program of work or develop their own research proposal in line with the research program.

There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in Psychology, Public Health or a related field• Excellent written and communication skills• Ability to work with, accept and respect diverse peoples			
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group		<input type="checkbox"/> Full scholarship offered by project group	

For more information, please contact:

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Understanding the impact of stigma on the mental health of teenagers who are attracted to the same gender

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Dylan Gilbey, Telethon Kids Institute
Other Supervisors	Ashleigh Lin, Telethon Kids Institute Yael Perry, Telethon Kids Institute
Project Outline	<p>There is an opportunity for prospective Honours students to be involved with research focused on understanding the impact of stigma and self-stigma on the mental health of teenagers who are attracted to the same gender (for example, those that identify as lesbian, gay or bisexual). The aim of this research is to understand why these young people are more likely to experience mental health difficulties, and how we can help.</p> <p>As part of this research, we have developed a measure of stigma and self-stigma for this group and will be collecting data to understand how these factors are related to mental health difficulties like depression and suicidal ideation. Prospective students can work with data that has already been collected or develop their own research proposal in line with the research area. There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in Psychology, Public Health, or a related fieldExcellent written and communication skillsAbility to work with, accept and respect diverse peoples
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
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Suicide prevention in LGBTIQA+ young people

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Dependent on the specific project: Penelope Strauss, Telethon Kids Institute Associate Professor Ashleigh Lin, Telethon Kids Institute Dr Yael Perry, Telethon Kids Institute Nicole Hill, Telethon Kids Institute
Other Supervisors	TBC

Project Outline
The Youth Mental Health team at Telethon Kids Institute is working on improving the mental health and wellbeing of LGBTIQA+ young people. We have several opportunities to conduct research and translation projects on preventing suicide in LGBTIQA+ young people.

Potential new projects are:

- Creating an intervention to decrease suicide risk in LGBTIQA+ young people
- Projects with parents or families of LGBTIQA+ young people
- Translating research through advocacy and policy change

The project can focus on a specific subgroup of LGBTIQA+ young people, or LGBTIQA+ young people broadly. Students are also able to work on one of the projects already underway in our team, depending on their degree requirements.

The focus of the specific student project will depend on the interest and skills of the student and our projects are flexible based on the student's time frame. There is the opportunity for the student to suggest and develop a new project or to develop an intervention within this study cohort.

Prospective students may be involved in recruitment, data management, analysis and/or preparation of publications. There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in Health Sciences, Psychology, Public Health or a related field• Excellent written and communication skills• Ability to work with, accept and respect diverse peoples			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Penelope Strauss
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Penelope.strauss@telethonkids.org.au

Mental health and wellbeing of trans and gender diverse young adults following top surgery

Research Focus Area	Brain & Behaviour
Research Group	Youth Mental Health
Start Date	February, 2021
Chief Supervisor	Penelope Strauss, Telethon Kids Institute
Other Supervisors	Ashleigh Lin, Telethon Kids Institute
Project Outline	Some trans and gender diverse young people seek gender-affirming top surgery (e.g. double mastectomy, breast augmentation and other chest/breast surgeries), however little research has been conducted around mental health and wellbeing outcomes post-top surgery. Through a comparison of questionnaires conducted at 6 weeks pre surgery, 6 weeks post-surgery and 1-year post surgery, this project investigates how top surgery influences mental health and quality of life among trans and gender diverse young adults.

The focus of the specific student project will depend on the interest and skills of the student and our projects are flexible based on the student's time frame. There is the opportunity for the student to suggest and develop a new project or to develop an intervention within this study cohort.

Prospective students may be involved in recruitment, data management, analysis and/or preparation of publications. There may also be opportunities to become involved in the broader activities of the team who conduct youth mental health research across several marginalised populations.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in Health Sciences, Psychology, Public Health, or a related fieldExcellent written and communication skillsAbility to work with, accept and respect diverse peoples			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Penelope Strauss

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Ngulluk Koolunga Ngulluk Koort (Our Children, Our Heart) Project

Research Focus Area	Brain & Behaviour
Research Group	Aboriginal Health and Wellbeing
Start Date	Jan/Feb 2021
Chief Supervisor	Dr Brad Farrant (Telethon Kids Institute, University of Western Australia)
Other Supervisors	Sharynne Hamilton (Telethon Kids Institute) Carol Michie (Telethon Kids Institute) Nicole Ilich (Telethon Kids Institute) Dr Carrington Shepherd (Telethon Kids Institute)
Project Outline	<p>Healthy development in early childhood, particularly during the years before school, has a strong influence on a range of later life outcomes including physical health, social and emotional wellbeing, and academic achievement. There needs to be a culturally appropriate fit between the values, needs and expectations of Aboriginal parents, children and families and the resources and services that are available to them, to support Aboriginal children to fulfil their potential. The overall aim of the Ngulluk Koolunga Ngulluk Koort Project is to bring the Aboriginal community(s) of Perth together with service providers and policy makers to develop culturally appropriate strategies to improve outcomes for young Aboriginal children (0 – 6 years) and their families.</p> <p>The project includes eight local Aboriginal Elders as Co-researchers. These Elders provide cultural advice to the project team on all aspects of the research. The Elder/ Co-researchers guide the setting of research priorities, the planning of research processes and the implementation and evaluation of the research findings. The research team is working with the Elder/Co researchers and the broader Aboriginal community(s) of Perth to develop a better understanding of early childhood development from an Aboriginal perspective. The discussions with community members focus on identifying the family and cultural factors which keep young Aboriginal children strong. After engaging with the Aboriginal community of Perth, the Elder/Co researchers identified three main community priority areas: child protection/removal, early childhood education and care, and housing and homelessness. We are looking for Honours, PhD and/or Masters students that are interested in getting involved with the qualitative and/or quantitative aspects of the project. While not a requirement, students of Aboriginal descent are encouraged to apply.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in a relevant field • Ability to work effectively with Aboriginal and culturally diverse people • Capacity to work with communities (in particular Aboriginal communities) to understand and respond to their needs • Well-developed interpersonal skills, specifically a proactive attitude to relationship building • Well-developed verbal and written communication skills • Well-developed organisational skills and attention to detail, including a demonstrated ability to set goals, manage multiple priorities and meet deadlines
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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CHRONIC & SEVERE DISEASES



Chronic and Severe Diseases is a Research Focus Area (RFA) 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 requires 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.

Testing the capacity of a smartphone app to promote safe sun behaviours in teenagers

Research Focus Area	Chronic & Severe Diseases
Research Group	Cadiometabolic Sun health
Start Date	From July 2020
Chief Supervisor	Dr Shelley Gorman (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p>In this project, we are testing whether a recently developed smartphone app helps young adolescents better balance their health needs for sun protection and sun exposure. Sun protection is important for this age group as sunburn in childhood and adolescence is a major risk factor for melanoma, and other skin cancers. Melanoma is the most common cancer of young adults in Australia. Recent research in young people in WA has identified that sun protection messages need to target adolescents who are less likely to engage in the most effective sun protection behaviours and are at increased risk of sunburn. Some safe sun exposure is necessary for health benefits, such as vitamin D. It is not easy to frame health messages that provide sun safety for protection from sunburn but allow sufficient sun exposure for optimal vitamin D.</p> <p>In this project, we will test newly developed smartphone app, designed for and with adolescents, on its capacity to actively engage young people in an entertaining and age-appropriate way to deliver rigorously vetted health information around optimal sun protection and exposure. The main aim of this project is to pilot test a prototype app that aims to improve the knowledge and behaviours that young adolescents have around safe sun protection and exposure practices for vitamin D. Our research objective will be to obtain end-user responses (e.g. engagement, functionality, aesthetics and information quality) on the app and test the capacity of the developed online tool to improve the sun health knowledge and behaviours in young adolescents (aged 12-13) through community- and school-based intervention studies.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in Bachelor of (Medical) Science or related degree• Excellent 2A Honours (if PhD)• Statistical skills• Excellent written and oral communication skills• Very good organisation• Motivation and dedication
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained (in development)
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Exploring how sun exposure is beneficial for cardiometabolic health

Research Focus Area	Chronic & Severe Diseases
Research Group	Cardiometabolic Sun health
Start Date	From July 2020
Chief Supervisor	Dr Shelley Gorman (Telethon Kids Institute, University of Western Australia)
Other Supervisors	

Project Outline

Skin exposure to the ultraviolet light (UV) – found in sunlight – results in the production of helpful biological mediators, like vitamin D and nitric oxide. Our novel studies have shown that frequent skin exposure to low dose UV suppressed weight gain and metabolic dysfunction in mice fed a high fat diet through nitric oxide and other mediators. Beneficial effects of UV include improvements in glucose tolerance, insulin sensitivity, liver lipid levels, and adiposity (1-3). These findings are supported by emerging clinical studies that suggest there may be benefits of sun or UV exposure on cholesterol metabolism, and in preventing low-level systemic inflammation in people (4).

We are now looking for students to join the *Cardiometabolic Sunhealth* team to help us better characterise the effects of UV light – one of our most important, but often neglected environmental exposures – on metabolic health. A current focus of our team is to better understand the potential for UV light to regulate bile acids and the gut microbiome for improved metabolic health in humans. These studies may have important ramifications for the development of health policies and therapies that consider both the beneficial and detrimental effects of sun exposure, phototherapies, and induced mediators.

References

1. Dhamrait GK, Panchal K, Fleury NJ, Abel TN, Ancliffe MK, Crew RC, Croft K, Fernandez BO, Minnion M, Hart PH, Lucas RM, Mark PJ, Feelisch M, Weller RB, Matthews V, Gorman S: Characterising nitric oxide-mediated metabolic benefits of low-dose ultraviolet radiation in the mouse: a focus on brown adipose tissue. *Diabetologia* 2020;63:179-193
2. Fleury N, Feelisch M, Hart PH, Weller RB, Smoorthy J, Matthews VB, Gorman S: Sub-erythema ultraviolet radiation reduces metabolic dysfunction in already overweight mice. *J Endocrinol* 2017;233:81-92
3. Geldenhuys S, Hart PH, Endersby R, Jacoby P, Feelisch M, Weller RB, Matthews V, Gorman S: Ultraviolet radiation suppresses obesity and symptoms of metabolic syndrome independently of vitamin D in mice fed a high-fat diet. *Diabetes* 2014;63:3759-3769
4. Gorman S, de Courten B, Lucas RM: Systematic Review of the Effects of Ultraviolet Radiation on Markers of Metabolic Dysfunction. *The Clinical Biochemist Reviews / Australian Association of Clinical Biochemists* 2019;40:147-162

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in Bachelor of (Medical) Science or related degreeExcellent 2A Honours (if PhD)Statistical skillsExcellent written and oral communication skillsVery good organisationMotivation and dedication			
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained (depends on project developed)	
Funding	<input type="checkbox"/> Top-up scholarship offered by project			<input type="checkbox"/> Full scholarship offered by project

For more information, please contact:

Shelley Gorman

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Understanding the basophil response to acute wheezing/asthma exacerbations and their capacity to predict future exacerbations in children

Research Focus Area	Chronic & Severe Diseases			
Research Group	Experimental Immunology and Children's Respiratory Science Group			
Start Date	Feb 2021			
Chief Supervisor	Jonatan Leffler (Telethon Kids Institute)			
Other Supervisors	Ingrid Laing (Telethon Kids Institute) Emma de Jong (Telethon Kids Institute) Deborah Strickland (Telethon Kids Institute)			
Project Outline	<p>Background Frequent wheezy respiratory illness in childhood is associated with an increased risk of asthma, a substantial decline in quality of life and represents a significant financial burden for the Australian healthcare system. Early identification of children at high-risk of recurrent wheezing exacerbations would enable early and targeted interventions. However, no biomarkers that reliably identify these children currently exist. Our team investigates the mechanisms of wheezing exacerbations and asthma in children. We have discovered that the number of basophils in peripheral blood mononuclear cells (PBMC) can predict the risk of future persistent respiratory exacerbations in childhood. Importantly, we also found that this phenotype was already strongly associated with recurrent exacerbations in children experiencing their <u>first</u> exacerbation. We now aim to further investigate this basophil risk-phenotype to enable early identification of children at high risk of recurrent asthma exacerbations. We hypothesise that by characterising the phenotypical and functional profile of basophils collected during an acute wheezing illness, we will be able to identify a replicable biomarker of persistent respiratory exacerbations and consequently better understand what is driving the development of recurrent asthma in childhood.</p> <p>Project plan We have recruited children, taken blood samples and extracted their PBMC, when they presented to Perth Children's Hospital with a wheezing exacerbation. Using these biobanked PBMC, we can extract the circulating low density basophils. These basophils from children with acute wheezing as well as healthy controls will be phenotyped using our existing in-house basophil-specific flow cytometry panel. Basophils will also be sorted and used for in vitro activation and for transcriptomic analysis by RNA Sequencing. The aim of the project is to identify markers (phenotypical, functional and transcriptional) that are associated with the persistent exacerbation phenotype. The number of respiratory exacerbations before and after study recruitment have already been determined using the public hospital clinical database.</p> <p>Role of Student As a student on this project, you will assist in processing and culturing primary immune cells from children. You will help to stain cells for flow cytometry analysis and run the samples through the flow cytometer. You will also get experience in flow cytometry assisted cell sorting and RNA extraction. A considerable part of the project will consist of data (flow cytometry) analysis with potential to learn transcriptomic analysis as well, depending on the time frame (Honours/PhD).</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in biomedical science, immunology, microbiology or similar • Theoretical foundation of flow cytometry • Excellent communication skills <p>Desirable</p> <ul style="list-style-type: none"> • Experience in laboratory work, including culture of human cells • Experience in using the statistical package R 			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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CRISPR editing for rapid diagnosis of rare genetic diseases in children

Research Focus Area	Chronic & Severe Diseases
Research Group	Genetic and Rare Diseases Program, Computational Biology
Start Date	Honours: February 2021 PhD: February 2021 onwards
Chief Supervisor	Dr Vanessa Fear (Telethon Kids Institute)
Other Supervisors	
Project Outline	<p>Rare diseases collectively affect more than 190,000 Western Australians, including 63,000 paediatric patients, and accordingly have been identified as a public health priority. Around 80% of all rare diseases have a genetic basis. The advent of Next Generation Sequencing has allowed high speed, affordable sequencing, with Whole Exome Sequencing (WES) now implemented in WA as the diagnostic method of choice for rare diseases. However, diagnosing a child with a rare disease requires that the genetic variant has previously been functionally characterised, validated and reported. This means that many children with rare diseases present with previously unseen single nucleotide variants (SNVs) that are of uncertain significance. Even in cases where the new mutation is localised to a region known to be important to gene function, providing the patient with a diagnosis requires validation of the effects of the new variant. This means that many patients and their families endure months or even years of not knowing the cause and best treatment for their disease, with the psychological burden this entails.</p> <p>CRISPR technology provides a new way to rapidly validate the effects of rare variants found in patients. This project will use CRISPR homology directed repair, with click chemistry, and CRISPR base editing to mutate human inducible pluripotent stem cells (iPSCs) with the SNV of interest. The impact of these SNVs on relevant mesoderm, endoderm, ectoderm differentiation pathways in iPSCs will then be investigated using RNAseq, flow cytometry and protein analysis.</p> <p>This project will contribute to our genetic and rare disease studies that aim to reduce the time to paediatric patient diagnosis. This is highly valuable as an early, accurate diagnosis may alleviate disease progression, reduce complications and co-morbidities, and improve patient quality of life.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in Biochemistry, Molecular Biology, or similar• Excellent communication and writing skills
	For PhD candidates: <ul style="list-style-type: none">• Minimum 2A honours degree.
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i></p> <p>Dr Vanessa Fear (08) 6319 1022 Vanessa.fear@telethonkids.org.au</p>	



EARLY ENVIRONMENT

Early Environment is a Research Focus Area (RFA) 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 Telethon Kids Institute, this research encompasses the development of the immune system, infectious diseases, maternal health and the developmental origins of disease and health.

Effects of maternal prebiotics consumption on breastfeeding and infant growth

Research Focus Area	Early Environment						
Research Group	Childhood Allergy and Immunology Research						
Start Date	February 2021						
Chief Supervisor	Dr Debbie Palmer (Telethon Kids Institute)						
Other Supervisors	Prof Donna Geddes (University of Western Australia)						
Project Outline	<p>The Childhood Allergy and Immunology Research Team is currently conducting a randomised controlled trial, known as the SYMBA Study, which is investigating the effects of maternal prebiotic fibre supplementation during pregnancy and breastfeeding on maternal and infant outcomes. ‘Prebiotics’ is a general term for non-digestible dietary fibre that promote health and well-being by inducing the growth and/or activity of beneficial gut bacteria. This is a sub-study nested within the ORIGINS Birth Cohort.</p> <p>A mother’s diet during pregnancy and lactation may have effects on her breastfeeding, breast milk composition and development of infant body composition.</p> <p>This PhD student project will involve laboratory analysis of breast milk samples and data analysis of maternal diet, infant feeding, and infant growth outcomes. The student will be based at the Telethon Kids Institute (Joondalup Health Campus and Perth Children’s Hospital sites) and at University of Western Australia (Crawley Campus).</p>						
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">• A minimum 2A Honours degree or Masters degree in a related field• Undergraduate degree in science/ biomedical science/relevant degree• Eligible to enrol in a PhD at UWA• Excellent communication skills including oral presentation and writing						
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained					
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group						
<i>For more information, please contact:</i> Debbie Palmer 0410 851 607 debbie.palmer@telethonkids.org.au							

Immunomodulatory effects of maternal prebiotics consumption on infant immune development

Research Focus Area	Early Environment
Research Group	Childhood Allergy and Immunology Research
Start Date	February 2021
Chief Supervisor	Dr Debbie Palmer (Telethon Kids Institute)
Other Supervisors	Prof Susan Prescott (UWA and Telethon Kids Institute)
Project Outline	The Childhood Allergy and Immunology Research Team is currently conducting a clinical trial, known as the SYMBA Study, which is investigating whether supplementing the mother's diet during pregnancy and breastfeeding with prebiotic fibre will reduce the development of allergies in her child. This is a sub-study nested within the ORIGINS Birth Cohort.

Allergic diseases, including eczema, asthma, hay fever and food allergies, now affect 30-40% of the Australian population. One in every four children will suffer from eczema and asthma, while one in every ten children will have at least one food allergy. We now know that a baby's immune system begins to develop even before birth, and that the mother's diet and her environment in pregnancy can have an important influence. Research now also shows that the mother's gut health may have important effects on the immune development of her baby. 'Prebiotics' is a general term for non-digestible dietary fibre that promote health and well-being by inducing the growth and/or activity of beneficial gut bacteria.

This PhD student project will be laboratory based at the Telethon Kids Institute and focus on assessing the immunomodulatory effects of the maternal prebiotics intervention on infant immune function development.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• A minimum 2A Honours degree or Masters degree in a related field• Undergraduate degree in science/ biomedical science/relevant degree• Eligible to enrol in a PhD at UWA• Excellent communication skills including oral presentation and writing			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group			
<i>For more information, please contact:</i> Debbie Palmer 0410 851 607 debbie.palmer@telethonkids.org.au				

Research Opportunities with The ORIGINS Project

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University)
Other Supervisors	Prof Susan Prescott (Telethon Kids Institute, CAHS – Princess Margaret Hospital) Prof Desiree Silva (Joondalup Health Campus, Telethon Kids Institute) Jackie Davis (Telethon Kids Institute, Curtin University) Dr Nina D'Vaz (Telethon Kids Institute) Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Project Outline	<p>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.</p> <p>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 qualitative data collection and analysis.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• 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/SAS)• Good interpersonal and communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i></p> <p>Dr Erika Hagemann (08) 6319 1330 erika.hagemann@telethonkids.org.au</p>	

Kindy readiness in the ORIGINS cohort

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	July 2020
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Other Supervisors	Prof Susan Prescott (Telethon Kids Institute, CAHS – PCH, University of Western Australia, Edith Cowan University), Prof Desiree Silva (Joondalup Health Campus, University of Western Australia, Edith Cowan University, Telethon Kids Institute), Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University), Jackie Davis (Telethon Kids Institute, Curtin University), Sarah Whalan (Telethon Kids Institute, Curtin University)
Project Outline	<p>The aim of this study is to provide an opportunity to review the development and wellbeing of children prior to them commencing kindergarten and/or an early learning environment.</p> <p>The study will be in partnership with The ORIGINS Project and recruitment will occur when children are close to three years of age. Participants will complete a number of online surveys on child health, development, and behaviour. Feedback will be provided on development, wellbeing, and preschool readiness.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in a relevant discipline• Knowledge of quantitative and qualitative research methods• Interest in child health and development• Proficient writing skills• Basic statistical analysis skills (SPSS/SAS)• Good interpersonal and communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Nature Play & Grow: An intervention to promote health and well-being in young children

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Other Supervisors	Prof Susan Prescott, Prof Desiree Silva, Dr Alan Logan, Tanja Sobko, Erika Hagemann, Jackie Davis, Nina D'Vaz Prof Susan Prescott (Telethon Kids Institute, CAHS – Princess Margaret Hospital), Prof Desiree Silva (Joondalup Health Campus, Telethon Kids Institute), Dr Alan Logan (New York), Dr Tanja Sobko (University of Hong Kong), Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University), Jackie Davis (Telethon Kids Institute, Curtin University), Dr Nina D'Vaz (Telethon Kids Institute)
Project Outline	Research has shown that nature related activities enhance general wellbeing as well as physical activity, diet, and sleep. This proposed project aims to develop and test the effectiveness of an intervention ("Nature Play & Grow") to promote connectedness to nature, health, and well-being. The project will evaluate a number of short and long-term outcome measures related to health, lifestyle behaviours and emotional wellbeing. It will be a sub project within The ORIGINS Project and will recruit a subset of families participating in this longitudinal birth cohort.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Minimum of 2A Honours degree in psychology, public health, nutrition, or related • Ability to conduct quantitative and qualitative research • Excellent writing skills • Strong statistical analysis (SPSS/SAS) skills • Ability to work as part of a team and with families and young children • Good interpersonal and communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Lisa Gibson

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Lisa.Gibson@telethonkids.org.au

Improving the health and well-being outcomes of families experiencing disadvantage

Research Focus Area	Early Environment
Research Group	The ORIGINS Project
Start Date	January 2021
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, University of Western Australia, Edith Cowan University)
Other Supervisors	Prof Susan Prescott (Telethon Kids Institute, CAHS – PCH, University of Western Australia, Edith Cowan University), Prof Desiree Silva (Joondalup Health Campus, University of Western Australia, Edith Cowan University, Telethon Kids Institute), Dr Erika Hagemann (Telethon Kids Institute, Edith Cowan University), Jackie Davis (Telethon Kids Institute, Curtin University)
Project Outline	<p>This project will be a partnership with The ORIGINS Project, targeting families with cultural diversity, socioeconomic disadvantage, and high disease burden, who are currently not involved with The ORIGINS Project. The project will take a family-based approach, collaborating with community organisations, local government, and service providers.</p> <p>A multidisciplinary team will work to assess, support, and assist with addressing the needs of these families in order to improve the health and well-being trajectories of the children and parents.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Minimum of 2A Honours degree in social work, psychology, public health, health promotion or related • Ability to conduct quantitative and qualitative research • Excellent writing skills • Strong statistical analysis (SPSS/SAS) skills • Ability to work as part of a team and with families and young children • Ability to work productively with external stakeholders • Good interpersonal and communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

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Lisa Gibson
 (08) 6319 1405
 Lisa.Gibson@telethonkids.org.au

WESFARMERS CENTRE OF VACCINES & INFECTIOUS DISEASES

The SToP (See, Treat, Prevent Skin Sores and Scabies) Trial: A Stepped Wedge, Cluster Randomised Controlled Trial

Research Program	Infection and Vaccines
Research Group	Skin Health Team, Wesfarmers Centre of Vaccines and Infectious
Start Date	2020
Chief Supervisor	A/Professor Asha Bowen (Telethon Kids)
Other Supervisors	Professor Jonathan Carapetis
Project Outline	In remote Australian Aboriginal communities, skin infections (scabies and impetigo) are common. At any one time, 45% of children have impetigo. Untreated skin infections can lead to secondary lifelong conditions, including chronic kidney disease and possibly rheumatic heart disease, all of which occur at among the highest rates in the world in Aboriginal people. The SToP trial has three key activities: Seeing; Treating; and Preventing skin infections to evaluate a comprehensive, sustainable health skin program. The Treating component will assess whether streamlined, evidence-based treatment of impetigo with cotrimoxazole and scabies with ivermectin will have an impact on reducing the burden of skin infections in Aboriginal school children in the Kimberley, WA. The PhD student would lead the scientific direction, efficacy analysis and process evaluation of the SToP Trial.

This project is funded by the National Health and Medical Research Council Australia and Department of Health, Western Australia. The project is being led by researchers from the Telethon Kids Institute, in partnership with Kimberley Aboriginal Medical Services Council (KAMS) and Western Australia Country Health Service (WACHS).

Smaller projects for Honours, Masters or MD are also achievable within the SToP trial. Please contact me to discuss..

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in health care field e.g. nursing, medicine, allied health, or early childhoodExcellent communication skillsInterest in healthy skin in Aboriginal familiesBecome part of a highly innovative team with extensive support and mentorshipBe willing to work in partnership with communitiesComplete regular travel to remote communities in the KimberleyApply for scholarshipsHave a high-level pass in Honours degree or equivalent, data analysis skills, writing skills and clinical experienceAboriginal people are strongly encouraged to applyApplicants based in Broome are encouraged to apply			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group			
	<input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

A/Professor Jonathan Carapetis
0412 608 003
Asha.Bowen@telethonkids.org.au

Cochrane reviews of interventions to treat chronic otitis media

Research Focus Area	Early Environment			
Research Group	Ear Health			
Start Date	February 2021			
Chief Supervisor	Dr Chris Brennan-Jones (Telethon Kids Institute & Perth Children's Hospital)			
Other Supervisors	Dr Natalie Strobel (University of Western Australia) A/Prof. Peter Richmond (UWA, Telethon Kids Institute & Perth Children's Hospital) Dr Mahmood Bhutta (University of Oxford and Brighton & Sussex University Hospital)			
Project Outline	<p>Chronic suppurative otitis media (CSOM) is defined as chronic inflammation of the middle ear and mastoid cavity and the most prominent symptom is the persistent or recurrent ear discharge through a tympanic membrane perforation or a ventilation tube. This condition is estimated to have an incidence rate of 31 million episodes per year, or 4.8 new episodes per 1,000 people (all ages). Children are particularly affected, with 22% of all cases affect children <5 years of age, and highest incidence is in the first year of life (15.4 new cases per 1,000 children per year). The prevalence of this condition varies widely between countries, and more common in low or middle-income countries seems to be most affected.</p> <p>In 2016 our team conducted a scoping and prioritisation review that identified 11 interventions for CSOM that required Cochrane reviews to inform the evidence-based treatment of this condition. The team has completed Cochrane reviews for 7 of the identified topics. These 7 reviews will require updating and a further 4 reviews remain to be conducted as part of a Masters or PhD. In addition, an 'overview of reviews' comprising a network meta-analysis of evidence from all 11 reviews will be conducted as part of a PhD project.</p> <p>We are seeking students with a background in epidemiology and public health who are keen to apply their knowledge to ear health and otitis media. However, applicants will clinical or other relevant qualifications will be considered, with prior experience of conducting systematic reviews highly desirable. This is a high impact project involving numerous international stakeholders and has been conducted in close collaboration with the Cochrane ENT group at the University of Oxford. Therefore, opportunities for international travel are expected for applicants. This is a unique opportunity for exceptional individuals wishing to undertake training in Cochrane methodology within the Telethon Kids Ear Health team in Perth.</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<p>(For Post-Grad)</p> <ul style="list-style-type: none"> • Have achieved a First Class Honours (or equivalent) or a Masters in a relevant field (e.g. Public Health, Epidemiology, Medicine, Audiology or another relevant degree). • Eligible to enrol in a PhD or a Masters at UWA (or other WA institution). <p>(For Honours)</p> <ul style="list-style-type: none"> • A 65% course weighted average in a relevant field is desirable • Aboriginal / Torres Strait Islander students are particularly encouraged to apply 			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Dr Chris Brennan-Jones

Chris.brennan-jones@telethonkids.org.au

(08) 6319 1520

Childhood pneumonia associated with respiratory viruses: A systematic review and meta-analysis

Research Focus Area	Early Environment
Research Group	Infectious Disease Epidemiology
Start Date	January 2021
Chief Supervisor	Dr Mejbah Bhuiyan (Telethon Kids Institute)
Other Supervisors	A/Professor Christopher Blyth (Telethon Kids Institute)
Project Outline	Pneumonia is the greatest cause of death among young children. Approximately 150 million episodes occur annually with nearly 2 million deaths. Pneumonia remains an important public health concern in developed countries with growing resistance of bacteria to antibiotics, identification of new causative pathogens, and bacterial pneumonia caused by replacement non-vaccine strains. In recent years with the improvements in technology, a large number of aetiology studies from different settings and different age groups found that 60-80% of childhood pneumonia is caused by respiratory viruses. These studies have used varying pneumonia case definitions and methods for pathogen detection - from blood, nasopharyngeal aspirates or swabs and pleural fluid (for severe cases). To our knowledge, no group has attempted to describe role of respiratory viruses in childhood pneumonia through systematic review and formal meta-analysis.

The objective of this study is to describe the proportion of childhood pneumonia caused by commonly identified respiratory viruses through the conduct of a systematic review. The student is expected to support the chief supervisor in screening articles from the electronic databases, extract data from eligible research articles and participate in descriptive analysis.

The student will have the opportunity to get hand-on experience on how to do a systematic review on a subject of interest and techniques to perform meta-analysis.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in biological science• Interest in epidemiological research• Data entry and analysis experience is not essential but will be highly appreciated			
Ethics Approval	<input type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	<input checked="" type="checkbox"/> Not applicable
Funding	<input type="checkbox"/> Top-up scholarship offered by project group		<input type="checkbox"/> Full scholarship offered by project group	

For more information, please contact:

Mejbah Bhuiyan

(08) 6319 1836

Mejbah.Bhuiyan@telethonkids.org.au

Which key opens door #2; characterisation of a cell invasion pathway exploited by serotype M1 Group A Streptococcus

Research Focus Area	Early Environment Strep A
Research Group	Wesfarmers Centre of Vaccines & Infectious Diseases (Strep A Research Team)
Start Date	Negotiable (can start immediately pending approval)
Chief Supervisor	Dr Tim Barnett (Telethon Kids Institute)
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute, The University of Western Australia, Curtin University)
Project Outline	<p><i>Streptococcus pyogenes</i> (Group A <i>Streptococcus</i>, Strep A) is a human-adapted pathogen responsible for a wide spectrum of disease. GAS can cause relatively mild illnesses, such as "strep throat" or impetigo, and less frequent but severe life-threatening diseases such as "flesh-eating disease" and streptococcal toxic shock syndrome. A single GAS clone (M1T1) has disseminated globally as a prevalent cause of pharyngitis and invasive disease. M1T1 strains have evolved multiple mechanisms to evade the immune system and replicate within host cells (see Barnett <i>et al.</i> 2013 Cell Host Microbe 14: 675-682).</p>

We have uncovered evidence that M1T1 strains exploit a novel pathway to invade epithelial cells. This project will characterise this pathway, using a combination of bacterial genetics and cell biology:

- Examine the requirement of individual GAS surface proteins to invade epithelial cells using a panel of M1T1 mutant strains.
- Examine the role of a candidate cell endocytosis pathway using a combination of siRNA and pharmacological inhibitors.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Cell culture• Culturing bacteria• Good understanding of molecular biology and cell biology			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained (Not Required)			
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project			

For more information, please contact:

Dr Tim Barnett
(08) 6319 1319
timothy.barnett@telethonkids.org.au

How does Group A Streptococcus attach to the tonsils?

Research Focus Area	Early Environment						
Research Group	Wesfarmers Centre of Vaccines & Infectious Diseases (Strep A Research Team)						
Start Date	Negotiable (can start immediately pending approval)						
Chief Supervisor	Dr Tim Barnett (Telethon Kids Institute)						
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute, The University of Western Australia, Curtin University)						
Project Outline	<p><i>Streptococcus pyogenes</i> (Group A <i>Streptococcus</i>, Strep A) is a human-adapted pathogen responsible for a wide spectrum of disease. GAS can cause relatively mild illnesses, such as "strep throat" or impetigo, and less frequent but severe life-threatening diseases such as "flesh-eating disease" and streptococcal toxic shock syndrome. As the first step in the progression of strep throat, a precise understanding of Strep A attachment to the tonsils is needed for design of vaccines to prevent this stage of disease.</p> <p>This project will examine attachment of Strep A to the tonsils using a combination of bacterial genetics and cell biology:</p> <ul style="list-style-type: none">• Examine attachment of the major strep throat-associated Strep A serotypes to tonsil epithelial cells.• Examine the role of a major Strep A surface protein in tonsil attachment.						
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">• Cell culture• Culturing bacteria• Good understanding of molecular biology and cell biology						
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained (Not Required)					
Funding	<input type="checkbox"/> Top-up scholarship offered by project <input type="checkbox"/> Full scholarship offered by project						
<i>For more information, please contact:</i> Dr Tim Barnett (08) 6319 1319 timothy.barnett@telethonkids.org.au							

TELETHON KIDS CANCER CENTRE

Improving the immune response to cancer

Research Focus Area	Chronic & Severe Diseases							
Research Group	Cancer Immunotherapy Unit							
Start Date	March 2021							
Chief Supervisor	Dr Jason Waithman, Dr Bree Foley, Dr Alison McDonnell and/or Dr Jesse Armitage, Telethon Kids Institute							
Other Supervisors								
Project Outline	<p>Our research program is focusing on developing new strategies for treating children and adolescents with cancer. Exciting new interventions focused on harnessing the power of the immune system are altering the way oncologists approach the treatment of cancer. Our multidisciplinary team works across several areas to identify the best approaches to manipulate the immune system to improve cancer control. These include:</p> <ul style="list-style-type: none">• Understanding T cell and natural killer (NK) cell biology: Our goal is to understand the mechanisms that underpin T and NK cell responses to cancer which will allow us to develop enhanced immunotherapies• Improving cellular therapies for blood and solid cancers:<ol style="list-style-type: none">1) We are identifying ways to improve the durability, longevity and effector functions of the immune cells used in cellular therapies.2) We are developing an 'off the shelf' therapy that can be made from immune cells from healthy donors to treat patients with cancer.• Developing improved vaccination strategies: we are using novel approaches to boost the endogenous immune system to respond to tumour antigens. <p>Across these areas we use techniques such as cell culture and processing clinical samples, flow cytometry, molecular biology, CRISPR, bulk and single cell RNA sequencing, T cell receptor sequencing, bioinformatics, and small animal experimentation. We encourage all interested students to contact us and discuss specific project options.</p>							
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD				
Essential Skills & Qualifications	<ul style="list-style-type: none">• Greater than credit average for Hons; BSc (Hons) or equivalent in biological discipline for Masters or PhD• Good organisational skills, motivation, and dedication							
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained						
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group							
<i>For more information, please contact:</i>								
Jason Waithman Jason.Waithman@telethonkids.org.au (08) 6319 1744								
Bree Foley Bree.Foley@telethonkids.org.au (08) 6319 1741								
Alison McDonnell Alison.McDonnell@telethonkids.org.au (08) 6319 9166								

Investigating the role of ion channels in the plasticity of high-grade gliomas

Research Focus Area	Brain & Behaviour
Research Group	Oncogenic Signalling Laboratory
Start Date	February/March 2021
Chief Supervisor	Dr Abbie Francis (Telethon Kids Institute)
Other Supervisors	Professor Terrance Johns (Telethon Kids Institute)

Project Outline

Why are successful targeted therapies available for many types of cancer but not for the deadliest of brain cancers: high-grade glioma (HGG)? Targeted therapeutics have been developed for HGG but have failed. One possible reason for this failure may involve cellular plasticity: the ability of cells to adapt to changes in their environment by re-wiring their inner functions and finding new pathways to survive. HGG cells are, essentially, neural cells and may be using their innate plasticity to evade the effects of targeted drugs. This plasticity is likely driven by a special type of trans-membrane protein called ion channels. Ion channels are pore-forming proteins found in the cell's membrane, which allow electrically charged metal ions to pass in and out of the cell. Ion channels have been shown to be critical mediators of cell plasticity.

However, nothing is known about the role of ion channels in neuroplasticity associated with adaptive drug resistance. Targeting ion channels in HGG cells with clinically approved drugs may be a fast and effective way to overcome HGG plasticity and increase the anti-tumour activity of targeted therapies. Using HGG cell lines from adults and children, our laboratory is studying the expression pattern and function of ion channel genes that could be mediating HGG plasticity. This information will help us develop new and effective therapies for the treatment of HGG.

The student will be part of the Oncogenic Signalling Lab and will develop skills in:

- Molecular biology
- Tissue culture
- RNA and protein extraction
- Quantitative-PCR
- Western blotting
- Immunohistochemistry

The overall goal of the project is to elucidate the role of ion channels in HGG plasticity, with the aim of identifying potential therapeutic targets.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in biology, neurobiology, biomedicine, or related discipline• Excellent written and oral communication skills			
Ethics Approval	<input type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Dr Abbie Francis

abbie.francis@telethonkids.org.au

Towards improving outcomes for Down syndrome children with leukaemia

Research Focus Area	Chronic & Severe Diseases
Research Group	Leukaemia & Cancer Genetics
Start Date	February 2021
Chief Supervisor	Dr Sébastien Malinge, Telethon Kids Cancer Centre University of Western Australia
Other Supervisors	None
Project Outline	<p>Leukaemia is the most common type of cancer in children. Remarkable therapeutic advances have been made over the past sixty years, but specific types of acute leukaemia still have a poor prognosis and today, death from leukaemia still accounts for 22% of all cancer-related deaths in Australia. Current therapeutic approaches have now reached their maximum potential, highlighting the need for new efficacious treatments.</p> <p>These poor clinical features are exemplified for Down syndrome children that developed acute lymphoblastic leukaemia (named DS-ALL). Indeed, treatment intensification is limited for these DS children due to a high rate of treatment-related morbidity. As a result, there is a nearly two-fold increased risk of developing relapses in DS-ALL compared to other type of childhood ALL.</p> <p>Our lab aims to tackle this by 1- Find new targeted therapies, more efficient and less toxic, and 2- identify the critical features of the relapse initiating cells. To achieve these goals, we are using primary patient samples and clinically-relevant animal models named Patient-derived Xenografts (PDX), to better understand response to conventional treatments use in the clinic, and find novel molecular biomarkers and new cellular weaknesses that can be targeted therapeutically.</p> <p>Over the course of this project, the student will develop expertise in:</p> <ul style="list-style-type: none">- Flow cytometry and cell sorting,- Animal handling, tissue preparation and drug testing,- Tissue culture and molecular biology,- CRISPR/Cas9 technology and screening strategies.- Single cell approaches. <p>This project, that aims to develop new tools and strategies to improve prevention, diagnosis, long-term survival, and quality of care for Down children with DS-ALL, also has a broad application for many other children with leukaemia.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• BSc (Hons)• Good oral and written communication skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
<p><i>For more information, please contact:</i> Dr Sébastien Malinge sebastien.malinge@telethonkids.org.au (08) 9489 7854</p>	

Deciphering the role of ion channels in high grade glioma

Research Focus Area	Chronic & Severe Diseases
Research Group	Oncogenic Signalling Laboratory
Start Date	March 2021
Chief Supervisor	Dr. Panimaya Jeffreena Miranda
Other Supervisors	Professor Terrance Johns
Project Outline	<p>High grade glioma (HGG) is a fatal type of brain cancer with no effective treatment at hand extending survival by just few months. Targeted therapy has been ineffective against HGG, as cancer cells develop resistance following treatment. A key factor that might be driving this resistance is glioma plasticity. Plasticity is an inherent property of brain cells that allows them to adapt to different conditions in their environment. Ion channels, pore-forming proteins present on the cell membrane, where they regulate the flow of small charged molecules, such as calcium and sodium, in and out of the cell. Ion channels are key regulators of brain cell plasticity. Changes in the flow of ions across the cell membrane can lead to rewiring of cellular signalling. However, role of ion channels in HGG progression is not completely explored.</p>

In this project, we will explore the role of selected ion channel proteins in HGG progression and to understand the effects of therapeutically targeting these proteins to treat HGG using orthotopic mouse xenograft models. Findings from this study hold great potential to be translated into clinical to treat HGG patients. This study will help you develop skillsets in the below mentioned areas

- Tissue culture
- Molecular biology
- Western blotting
- Generation and Handling genetically modified knock-out and knock-in models (CRISPR)
- Transfection studies
- qRT-PCR
- in vivo experience (tumour implantation, drug treatment, autopsy, tissue processing, tumour analysis)
- Drug testing on in vitro and animal models

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• A relevant undergraduate/post-graduate degree			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			
<i>For more information, please contact:</i> Dr. Panimaya Jeffreena Miranda (08) 6319 1015 or 0469630695 jeffreena.miranda@telethonkids.org.au				

Paediatric Brain Tumour Research

Research Focus Area	Chronic & Severe Diseases
Research Group	Brain Tumour Research
Start Date	Flexible, available immediately
Chief Supervisor	Dr Raelene Endersby
Other Supervisors	Dr Nick Gottardo
Project Outline	<p>The Brain Tumour Research team at Telethon Kids is co-directed by Drs Nick and Raelene. 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:</p> <ul style="list-style-type: none"> • 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 novel 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 tumour in our translational research. • Obtain and test new therapies in combination with standard 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. <p>We currently have project opportunities 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:</p> <ul style="list-style-type: none"> • 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

Students are expected to have or develop excellent writing and oral presentation skills.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications		<ul style="list-style-type: none"> • Ability to work in a multi-disciplinary team • Willingness to learn new skills and work with animals • Good organisational skills • Initiative and dedication 		
		For Honours/ Masters students		
		<ul style="list-style-type: none"> • Greater than credit average 		
		For PhD candidates		
		<ul style="list-style-type: none"> • First-Class Honours degree or equivalent (e.g. Masters by Research) in biological discipline 		
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding		<ul style="list-style-type: none"> <input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group 		

For more information, please contact:

Dr Raelene Endersby
(08) 9489 7851 or Raelene.Endersby@telethonkids.org.au

CHILDREN'S DIABETES CENTRE

Using CGM to explore glucose control in a paediatric clinic population

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Grant Smith (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Continuous glucose monitoring devices provide patients with real-time access to blood glucose levels, allowing for improved glycaemic control. The most commonly used devices take 5-minute measurements of glucose levels, allowing the patient to monitor both short-term and long-term trends in their glycaemic control and adjust their management accordingly. In 2017 the Australian Government began an initiative to fully subsidise continuous glucose monitoring products to children and young people with Type 1 diabetes through the National Diabetes Services Scheme. Consequently, over 80% of the approximately 1100 patients attending the WA Paediatric Diabetes Service currently use a CGM device. As part of the routine data collection undertaken by the service, CGM observations are collected and stored along with comprehensive clinical data.</p> <p>Whilst research indicates that CGM can improve glycaemic control in children, there is little longitudinal research examining how glycaemic control changes based on how long the device has been used. This project proposes the use of this longitudinal CGM data to model trajectories of key metrics of glycaemic control (e.g. time in target glucose range, hypoglycaemia) as a function of CGM-use duration. The project will also aim to identify whether there are various subclasses of trajectories and identify key clinical, patient, and environmental characteristics that predict glycaemic control after commencing CGM use. This project represents a unique opportunity.</p> <p>This will be the first time CGM data to be used on such a scale, the degree of precision in the measurements of glycaemic control will greatly improve upon the existing literature examining trajectory/trends in glycaemic control, and the results will have direct clinical relevance for decision making around CGM.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of 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	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Tanyana Jackiewicz

(08) 6456 4616

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Activity monitor-versus questionnaire-based assessment of physical activity in adolescents and young adults with type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital) Dr Wayne Soon (Telethon Kids Institute)
Project Outline	Physical Activity (PA) is an important outcome parameter in adolescents and young adults with Type 1 Diabetes (T1D) regarding glycaemic outcomes, quality of life and long-term cardiovascular outcomes. Despite the benefits of regular exercise, many young people with T1D do not meet PA recommendations. Both objective assessment by activity monitors and self-evaluation by questionnaires are used in studies investigating PA in T1D. Whether self-reported questionnaires can adequately reflect PA and its changes over time in a free-living setting in individuals with T1D has not been thoroughly investigated.

Our research team have developed a mobile health App called acT1ve. This project is part of a larger study trialling the use of acT1ve in free-living conditions with 40 young people with T1D. Participants will wear an activity monitor throughout the study and complete the physical activity questionnaire on three occasions.

The primary aim of this project is to compare the measurement of physical activity levels using a validated questionnaire with a wrist-worn activity monitor in adolescents and young adults with T1D. The analysis of the agreement between objectively measured and self-reported activity will help us to evaluate whether PA measured by activity monitor can also be assessed adequately by self-reported questionnaires.

The student will be expected to:

1. Conduct a literature review
2. Assist with data collection
3. Perform data analysis
4. Report the agreement between objectively measured and self-reported activity throughout the study period.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • High level of 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	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Tanyana Jackiewicz

(08) 6456 4616

Tanyana.Jackiewicz@telethonkids.org.au

Supporting players with T1DM and their coaches in sport: developing resources to educate and empower

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Along with insulin and diet, exercise has been recognised as one of the three essential components of managing type 1 diabetes (T1D). However, the challenges associated with managing T1D while physically active can be a barrier to a physically active lifestyle.</p> <p>A research project conducted through the Children's Diabetes Research Centre found that a significant challenge experienced by adolescents when playing sport was dealing with a lack of knowledge of T1D of coaches in the community. This not only meant that they did not receive the support they needed to be physically active but 'wrong' knowledge and lack of trust caused frustration and stress.</p> <p>The aim of this project is to develop resources to assist sports coaches to support young people with type 1 diabetes to engage in sport, through 4 stage process. The student could be involved in stage 3 or 4.</p> <ol style="list-style-type: none">1. Determine what resources and training is currently available and assess gaps in knowledge2. Interview sports coaches and young people with Type 1 Diabetes to determine needs and resource format3. Co-develop resources as determined by interviews e.g. short online learning training modules, handouts, website with young people with type 1 diabetes and participants from stage 24. Pilot resources prior to dissemination
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in psychology, health science, education or related degree• High level of written communication skills• Excellent ability to work independently and as part of a team• Good interpersonal skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i>	
Tanyana Jackiewicz (08) 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au	

Impact of introducing a novel mobile application to empower adolescents and young adults with type 1 diabetes to exercise safely on the anxiety level among participants and their parents

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Dr Wayne Soon (Telethon Kids Institute)

Project Outline
While the primary management goal of Type 1 diabetes (T1D) is achieving near-normal glycaemia, this is limited by the frequency and fear of hypoglycaemia. One of the most common causes of hypoglycaemia in T1D is exercise, and fear of hypoglycaemia has been cited as a significant barrier to participating in physical activity. Young adults with T1D and their parents are concerned about the risk of hypoglycaemia during and after exercise during participation in physical activities. Our research team have developed a mobile health App called 'acT1ve' in collaboration with young people with T1D, which enables users to receive personalised insulin and carbohydrate advice in relation to the exercise they plan to participate in.

The primary aim of this project is to determine the impact of introducing an education exercise App providing real-time exercise/glucose management during exercise to adolescents and young adults with T1D on the anxiety level among participants and their parents. This project is part of a larger study trialling the use of acT1ve in free-living conditions with 40 young people with T1D. Participants and their parents will complete the anxiety scale questionnaire three times during this study.

The student will be expected to:

1. Conduct a literature review
2. Assist with data collection
3. Perform data analysis
4. Report the change in anxiety level of participants and parents throughout the study period.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • High level of 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	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

Tanyana Jackiewicz
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An innovative approach to improving mental health outcomes: A feasibility study of an exercise intervention for adolescents with type 1 diabetes

Research Focus Area	Chronic & Severe Diseases Brain & Behaviour
Research Group	Diabetes and Obesity
Start Date	January 2021
Chief Supervisor	Dr Keely Bebbington (Telethon Kids Institute)
Other Supervisors	Professor Timothy Jones (Telethon Kids Institute/Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute/Perth Children's Hospital) A/Professor Ashleigh Lin (Telethon Kids Institute)
Project Outline	<p>It is now well documented that adolescents with T1D are at greater risk for poor mental health, relative to their peers without T1D. In addition to poor psychological wellbeing, stress and anxiety are associated with poor glycaemic control, which can increase the risk of life-limiting micro and macrovascular complications.</p> <p>Engagement in physical activity is associated with improved psychological well-being, self-esteem and quality of life and may serve to mitigate the risk of poor glycaemic control in adolescents with T1D. However, maintaining stable blood glucose levels is a challenge for people with T1D and presents a barrier to engagement in physical activity. As a result, participation and fitness levels in this population are currently lower than recommended.</p> <p>This project aims to design and pilot an intervention designed to increase engagement with physical activity as a means of improving psychological and physiological outcomes for adolescents with T1D.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Excellent communication skills • 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 • Ability to work independently and as part of a team • Good interpersonal skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<p><i>For more information, please contact:</i></p> <p>Tanyana Jackiewicz Tanyana.Jackiewicz@telethonkids.org.au (08) 6456 4616</p>	

Investigating the association of maternal smoking during pregnancy and childhood onset type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Aveni Haynes (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Mr Grant Smith (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	Childhood type 1 diabetes (T1D), thought to be the result of environmental and genetic factors, continues to increase in Western Australia (WA) but the cause of this increase unknown. In several populations, including WA and more recently SA, a lower risk of T1D has been observed in children born to mothers who smoked during pregnancy. Notwithstanding the well established risks of maternal smoking during pregnancy for both mother and the developing baby, further investigation of this association could provide novel insights into immune/other mechanisms that could explain this association, and contribute important new knowledge on causal pathways to childhood onset T1D. In WA, >99% of children diagnosed with T1D <15 years of age are managed by the diabetes team at Perth Children's Hospital (PCH) and their data are stored in the Western Australian Children's Diabetes Database (WACDD). In addition, data are available on all births in WA from the Midwives' Notification System (MNS), a statutory data collection maintained by the Department of Health. Record linkage between these data collection enables identification of perinatal data for children diagnosed with T1D who were born in WA. A record linkage case-control study will be undertaken to analyse the association between maternal smoking during pregnancy and risk of the offspring being diagnosed with T1D aged <15 years in WA. Further analyses will be developed with collaborators to investigate immunogenetic mechanisms, including epigenetic signatures and systems biology approaches.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Genetics/Molecular Biology• Use of SPSS/STATA/R or other statistical package• High level of organisation and time management skills• High level of written communication skills• Excellent ability to work independently and as part of a team• Good interpersonal skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained (for record linkage study) <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> Tanyana Jackiewicz (08) 6456 4616 Tanyana.Jackiewicz@telethonkids.org.au	

Resilience in Type 1 Diabetes: a pilot feasibility study of the Promoting Resilience in Stress Management (PRISM) Intervention for parents of newly diagnosed young children

Research Focus Area	Chronic & Severe Diseases Brain & Behaviour
Research Group	Diabetes and Obesity
Start Date	January 2021
Chief Supervisor	Dr Keely Bebbington (Telethon Kids Institute)
Other Supervisors	Professor Timothy Jones (Telethon Kids Institute/Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute/Perth Children's Hospital) A/Professor Ashleigh Lin (Telethon Kids Institute)
Project Outline	The period surrounding the diagnosis of a child with type 1 diabetes (T1D) is incredibly stressful as parents grapple with the loss of their once healthy child and attempt to rapidly learn a complex daily treatment regime. Research shows that many parents experience symptoms of post-traumatic stress disorder in the aftermath of diagnosis, with high levels of psychological distress persisting for at least 12 months post-diagnosis. The construct of resilience describes an individual's capacity to maintain physical and/or psychological wellbeing in the face of stress.
	The Promoting Resilience in Stress Management (PRISM) intervention has been shown to effectively reduce distress and enhance wellbeing in adolescents and young adults with cancer.
	This project aims to pilot this intervention with parents of newly diagnosed young children to determine if it has the capacity to enhance wellbeing in this vulnerable population.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in psychology • Excellent communication skills • 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 • Ability to work independently and as part of a team • Good interpersonal skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Tanyana Jackiewicz

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(08) 6456 4616

Validation of Routine Physical Activity Measures as the Standard of Care in Type 1 Diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Craig Taplin (Perth Children's Hospital, Telethon Kids Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Cardiovascular disease is the major driver of shortened life expectancy in type 1 diabetes (T1D), but little is known about how active youth with T1D are. It is known, however, that children with T1D are less fit than their peers, but evidence for how to change this situation is lacking.</p> <p>Currently, no validated methods exist for in-clinic assessment of physical activity (PA) in youth with Type 1 Diabetes (T1D). We propose to validate a method to measure physical activity in youth with type 1 diabetes and incorporate this into routine clinical care for all youth with T1D in Western Australia.</p> <p>PA data will be collected prospectively alongside traditional measures such as HbA1c and body mass index to assist in the prediction and prevention of diabetes complications and reduced life expectancy. It is anticipated that if we can accurately measure the levels of physical activity, clinical teams can intervene if PA levels are low, or decline.</p> <p>Three previously developed questionnaires for use in the general paediatric population (children and adolescents) will be tested for validity in youth with type 1 diabetes against the gold standard measure of 3 dimensional wearable accelerometry. 152 youth aged 8-17 will be recruited and will complete three activity surveys after a 7-day period of wearing an accelerometer.</p> <p>The student will be expected to:</p> <ol style="list-style-type: none"> 1. Conduct a literature review 2. Assist with recruitment and data collection 3. Perform data analysis <p>Future studies will include testing for feasibility in regional and metropolitan clinical settings and development of randomised controlled intervention trials in those youth not meeting national guidelines for physical activity, or in those youth whose activity levels fall with age.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • High level of 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	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Impact of Early Morning Exercise on Post-Prandial Glycaemic Control and Risk of Nocturnal Hypoglycaemia in Youth with Type 1 Diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Craig Taplin (Perth Children's Hospital, Telethon Kids Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Exercise provides many benefits for people with type 1 diabetes (T1D), including improved insulin sensitivity and the possibility of improved glucose control. Most studies of the glycaemic effects of exercise in youth with T1D have focused on afternoon exercise, which mimics the typical after-school activities.</p>

Importantly, however, exercise late in the day carries well known risks of overnight hypoglycaemia and it remains unclear whether exercise early in the day lessens this risk. Furthermore, achieving target overall glycaemic control requires both fasting and post meal glucose levels to be in the target range.

For these reasons, our aim is to test the hypothesis that early morning exercise in youth with T1D will improve overall and post meal glucose time in range (TIR) over the subsequent 24 hours while not increasing the risk of overnight hypoglycaemia. To assess this, participants will be asked to exercise on a stationary bike in-clinic at PCH in the morning before going home after lunch. Participants will continue to wear a continuous glucose monitor at home which will be used in data analysis for overnight glucose levels.

The student will assist with the literature review, recruitment and data collection, data analysis and reporting findings.

Suitable For	<input checked="" type="checkbox"/> Honours	<input checked="" type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of 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	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Improving transition from paediatric to adult services for emerging adults with Type 1 Diabetes

Research Focus Area	Chronic & Severe Diseases Brain & Behaviour
Research Group	Diabetes and Obesity
Start Date	January 2021
Chief Supervisor	Dr Keely Bebbington (Telethon Kids Institute)
Other Supervisors	Professor Timothy Jones (Telethon Kids Institute/Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute/Perth Children's Hospital) A/Professor Ashleigh Lin (Telethon Kids Institute)
Project Outline	<p>For emerging adults with type 1 diabetes (T1D) the transition from paediatric to adult health care services presents a unique set of challenges. Transition occurs at a stage of immense physiological, emotional, and social development and it is now well documented that this population are at elevated risk for psychological disorders than their peers without diabetes.</p> <p>Poor mental health is known to be associated with a reduction in self-management behaviours and worsening glycaemic control, a phenomenon known as “diabetes burnout”. In addition to these significant challenges, the transition from paediatric to adult healthcare services requires the patient to assume greater autonomy for their diabetes management and to form new relationships with the clinical team, often in unfamiliar surroundings. As a result, many emerging adults disengage with healthcare services during this vulnerable stage, increasing their risk for poor physiological and psychological outcomes.</p> <p>This program of work aims to examine current practice and identify modifiable targets for improving transition outcomes, with a view to testing interventions designed to enhance transition readiness.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Excellent communication skills • 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 • Ability to work independently and as part of a team • Good interpersonal skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

Tanyana Jackiewicz

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(08) 6456 4616

How is maternal Vitamin D sufficiency during pregnancy associated with the risk of islet autoimmunity development in children at risk of type 1 diabetes?

Research Focus Area	Chronic & Severe Diseases					
Research Group	Diabetes and Obesity					
Start Date	March 2020					
Chief Supervisor	Dr Aveni Haynes, Children's Diabetes Centre, Telethon Kids Institute					
Other Supervisors	Mr Grant Smith, Children's Diabetes Centre, Telethon Kids Institute Professor Elizabeth Davis, Diabetes & Endocrinology, Perth Children's Hospital					
Project Outline	<p>Early environmental determinants of pancreatic islet autoimmunity: a pregnancy to early life cohort study (ENDIA) in children at risk of type 1 diabetes (T1D) is a multi-centre study involving researchers in South Australia, Victoria, New South Wales, Western Australia, and Queensland. (www.endia.org.au). Over 1,300 pregnant women who have T1D or where their unborn child has a first degree relative with T1D have been recruited to the study and the children are being followed up from birth to 10 years of age.</p> <p>There are numerous observational epidemiological studies reporting an association between low Vitamin D levels with increased risk of childhood T1D. ENDIA has the unique opportunity to further examine the influence of vitamin D levels on the development of islet autoimmunity by analysing the association between prenatal vitamin D levels and modifiable environmental factors such as dietary intake during pregnancy and infancy, compliance with supplementation or treatment if vitamin D deficiency is diagnosed, and the risk of islet autoimmunity in children at risk of T1D.</p>					
This study aims to:						
<ol style="list-style-type: none">1. Determine the prevalence of vitamin D deficiency during pregnancy in the ENDIA study cohort2. Investigate the association between vitamin D deficiency and antecedent factors being evaluated in the ENDIA study cohort3. Investigate the association between vitamin D deficiency during pregnancy and the development of persistent islet autoimmunity in the ENDIA study cohort						
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD		
Essential Skills & Qualifications	<ul style="list-style-type: none">• Outstanding undergraduate in Health Science, Public Health• Use of SPSS/STATA/R or other statistical package• Good communication and organisational skills					
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained				
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group					
<i>For more information, please contact:</i>						
Tanyana Jackiewicz Tanyana.Jackiewicz@telethonkids.org.au (08) 6456 4616						

Managing Type 1 Diabetes during Exercise – A descriptive study of competitive athletes with type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital) Dr Wayne Soon (Telethon Kids Institute)
Project Outline	<p>Type 1 Diabetes Mellitus (T1DM) is a chronic auto-immune disease affecting the pancreas's insulin production, causing high-blood sugar levels (hyper-glycaemia). Its primary age of onset is in childhood and adolescence. The primary intervention for T1DM is insulin therapy, strongly supported by healthy diet and regular exercise and physical activity (P-A). The benefits of P-A and exercise for all people are extensive, and is associated with greater cardiovascular health, muscle and bone strength, improved mood, and self-esteem, and reducing the risk of cardiovascular disease, depression, osteoporosis and other chronic diseases. This is particularly relevant to individuals with T1DM, as disease complications are associated with poorer diabetic control and management. Although exercise is a mainstay of T1DM management, children and, in particular adolescents, with T1DM have been shown to spend less time being physically active than their non-diabetic peers.</p> <p>This is often due to difficulties faced in managing their condition including:</p> <ul style="list-style-type: none"> • variability of blood glucose levels before, after and during exercise • planning and consumption of appropriate foods • practical difficulties associated with the testing of blood glucose levels • utilising new technologies in diabetes care • understanding social or community perceptions about exercising with T1DM, as well as managing their own self-confidence. <p>Historically, athletes with T1DM are highly proficient at managing their condition independently and are their own 'expert' or 'physician'. Therefore, clinicians can often learn valuable lessons from this patient cohort. The aim of this study to describe the strategies used by young (13-30 years of age) competitive athletes with T1DM to manage their condition while performing. This information will be used to inform clinic and community interventions to improve physical activity rates in young people with T1DM. This survey research project will collect information from young (13-30 years of age) competitive athletes with T1DM across a variety of sports and athletic pursuits.</p> <p>This descriptive study is also expected to reveal areas of future research regarding T1DM and physical activity.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate in health sciences, public health, exercise science or other relevant area • Interest in survey and qualitative research • Good communication skills
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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(08) 6456 4616

Impact of environmental stresses on the hypoglycaemia risk associated with exercise in people with type 1 diabetes mellitus

Research Focus Area	Chronic & Severe Diseases			
Research Group	Diabetes and Obesity			
Start Date	February 2021			
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)			
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)			
Project Outline	<p>The guidelines for type 1 diabetes (T1D) management encourage people with T1D to exercise when their plasma insulin is near basal level so as to decrease the risk of hypoglycaemia, a condition that can cause premature death in youngsters and adults. Little information is provided about the effect of exercise on hypoglycaemia risk in the face of environmental variability.</p> <p>This is because of a lack of research to inform these guidelines about the response of blood glucose level (BGL) to exercise performed at high and low temperature, high relative humidity, and high altitude in T1D. For this reason, we are offering several Honours projects that aim (a) to determine whether exercise under these environmental conditions increases the risk of hypoglycaemia when exercise is performed in a basal insulinaemic state, and (b) to evaluate the extent to which the benefit of ingesting of carbohydrate (CHO) to decrease such a risk is impaired under these conditions.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• 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	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input type="checkbox"/> Top-up scholarship offered by project group	<input type="checkbox"/> Full scholarship offered by project group		
<i>For more information, please contact:</i> Tanyana Jackiewicz Tanyana.Jackiewicz@telethonkids.org.au (08) 6456 4616				

Effect of high blood glucose levels on executive function, attention and driving performance on a driving simulator in people with type 1 diabetes

Research Focus Area	Chronic & Severe Diseases				
Research Group	Diabetes and Obesity				
Start Date	February 2021				
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)				
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)				
Project Outline	<p>It is well established that several years of exposure to high blood glucose levels in people with type 1 diabetes mellitus (T1D) can be detrimental to the central and peripheral nervous systems. In particular, reaction time, cognitive function (e.g. executive function and attention), and driving performance have been reported to be adversely affected by T1D. What is still unclear, however, is the impact that an acute increase in blood glucose levels (e.g. after a meal) may have on driving performance and cognitive function.</p> <p>Although a small number of studies have investigated the effects of acute hyperglycaemia on cognition, some cognitive abilities essential to everyday tasks, such as driving, have not been thoroughly assessed; namely, executive functions, attention, and driving ability. For these reasons, the primary aim of this proposed project is to test the hypothesis, in people with T1D, that an acute exposure to high blood glucose levels will impair their driving performance in a driving simulator. We also hypothesise that both attention and executive function will be impaired upon exposure to acute hyperglycaemia.</p>				
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD	
Essential Skills & Qualifications	<ul style="list-style-type: none">• 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	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group				
<i>For more information, please contact:</i> Tanyana Jackiewicz Tanyana.Jackiewicz@telethonkids.org.au (08) 6456 4616					

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

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>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, several 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.</p> <p>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.</p>

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • 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	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> 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 Focus Area	Chronic & Severe Diseases						
Research Group	Diabetes and Obesity						
Start Date	February 2021						
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)						
Other Supervisors	Professor Tim Jones and Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)						
Project Outline	<p>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.</p> <p>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.</p>						
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD			
Essential Skills & Qualifications	<ul style="list-style-type: none">• 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	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained					
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group						
<i>For more information, please contact:</i> Tanyana Jackiewicz Tanyana.Jackiewicz@telethonkids.org.au (08) 6456 4616							

Developing and trialling a peer support program for students with type 1 diabetes in schools

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	January 2021
Chief Supervisor	Dr Leanne Fried, Telethon Kids Institute
Other Supervisors	Professor Donna Cross, Telethon Kids Institute; Professor Elizabeth Davis, PCH;
Project Outline	Adolescents with diabetes can experience physical, emotional, and social stress due to the demands of a complicated medical regimen. These demands can sometimes result in non-compliance. As adolescents decrease their dependence on their parents, they often rely on peers for support. Although at times peers may be negative influences, they can also be important sources of constructive support. For example, peers are more likely than family members to provide companionship and emotional support in relation to diabetes care. A recent study found that more general positive relations with peers at one point in time predicted less diabetes distress a year later.

This project involves developing a group-based peer support program for adolescents with T1D and trialing this program in a school. The peer-support program will be developed with the help of adolescents with T1D.

The specific aims of the project are:

- To develop a group-based peer-support program for adolescents with T1D
- To determine the effects of this program on the adolescent's diabetes management, diabetes distress and social functioning.

The project will be conducted as a mixed methods study. Quantitative data will measure the effects of the intervention on diabetes management and social functioning while qualitative data will help to shape the intervention and determine its feasibility and adaptability.

The project will be conducted through the Child Diabetes Research Centre and with support from the Health Promotion and Education Research group. The two main phases of this project: developing and trialling the intervention will be suitable as separate student projects.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in psychology, health science, education, or related degree• Excellent communication skills			
Ethics Approval	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Leanne Fried

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Investigating the association of maternal smoking during pregnancy and childhood onset type 1 diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Aveni Haynes (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Mr Grant Smith (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	Childhood type 1 diabetes (T1D), thought to be the result of environmental and genetic factors, continues to increase in Western Australia (WA) but the cause of this increase unknown. In several populations, including WA and more recently SA, a lower risk of T1D has been observed in children born to mothers who smoked during pregnancy. Notwithstanding the well-established risks of maternal smoking during pregnancy for both mother and the developing baby, further investigation of this association could provide novel insights into immune/other mechanisms that could explain this association, and contribute important new knowledge on causal pathways to childhood onset T1D. In WA, >99% of children diagnosed with T1D <15 years of age are managed by the diabetes team at Perth Children's Hospital (PCH) and their data are stored in the Western Australian Children's Diabetes Database (WACDD). In addition, data are available on all births in WA from the Midwives' Notification System (MNS), a statutory data collection maintained by the Department of Health. Record linkage between these data collection enables identification of perinatal data for children diagnosed with T1D who were born in WA. A record linkage case-control study will be undertaken to analyse the association between maternal smoking during pregnancy and risk of the offspring being diagnosed with T1D aged <15 years in WA. Further analyses will be developed with collaborators to investigate immunogenetic mechanisms, including epigenetic signatures and systems biology approaches.
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Genetics/Molecular Biology• Use of SPSS/STATA/R or other statistical package• High level of organisation and time management skills• High level of written communication skills• Excellent ability to work independently and as part of a team• Good interpersonal skills
Ethics Approval	<input checked="" type="checkbox"/> Obtained (for record linkage study) <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group

For more information, please contact:

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Quality or Quantity: The Role of Carbohydrate in the Health of Children with Diabetes

Research Focus Area	Chronic & Severe Diseases
Research Group	Diabetes and Obesity
Start Date	February 2021
Chief Supervisor	Dr Amelia Harray (Telethon Kids Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	<p>Low carbohydrate (CHO) diets are heavily promoted online and in the mainstream media for weight loss in adults. There are an increasing number of families attending the Diabetes Clinic at Perth Children's Hospital (PCH) who are reporting the use of low CHO diets in an attempt to control blood glucose levels. However, little is known about what these children are eating and their overall nutritional status. There is also little evidence on the short and long-term impacts on their physical and mental health.</p> <p>This project will answer the research question- are children with T1D on low CHO diets at greater risk of poor nutritional status, cardiovascular disease, osteoporosis and poor psychosocial functioning, compared to those who meet the daily recommended CHO targets for children?</p> <p>WA is unique in that all children with T1D are under the medical management of PCH from diagnosis. This enables all children ≤10 years with T1D for ≥1 year to be invited to participate in the study. A population-based sample of 100 children will attend PCH on one occasion to measure: fasting bloods (to assess biomarkers for malnutrition, cardiovascular disease, kidney and liver function); height; weight; blood pressure; bone density and body composition (using dual energy X-ray absorptiometry) and; questionnaires to assess physical activity and psychosocial functioning. Participating families will complete a 4-day food diary to assess dietary intake, which will be entered into a nutrient analysis program. Statistical analyses will determine associations between proportion of energy from CHO, types of CHO-containing foods, nutritional status and risk factors for co-morbidities.</p> <p>The findings will directly inform clinical practice to benefit children with T1D in WA.</p> <p>Due to the number of measures collected, multiple students can be involved with this project. The student will be expected to perform or contribute to a literature review, recruitment, data collection, data analysis and reporting the findings.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• High level of 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	<input type="checkbox"/> Obtained <input checked="" type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i>	
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TELETHON KIDS RESPIRATORY RESEARCH CENTRE

Understanding the basophil response to acute wheezing/asthma exacerbations and their capacity to predict future exacerbations in children

Research Focus Area	Chronic & Severe Diseases			
Research Group	Exp. Immunology and Children's Respiratory Science Group within the Respiratory Centre			
Start Date	Feb 2021			
Chief Supervisor	Jonatan Leffler (Telethon Kids Institute)			
Other Supervisors	Ingrid Laing (Telethon Kids Institute) Emma de Jong (Telethon Kids Institute) Deborah Strickland (Telethon Kids Institute)			
Project Outline	<p>Background Frequent wheezy respiratory illness in childhood is associated with an increased risk of asthma, a substantial decline in quality of life and represents a significant financial burden for the Australian healthcare system. Early identification of children at high-risk of recurrent wheezing exacerbations would enable early and targeted interventions. However, no biomarkers that reliably identify these children currently exist. Our team investigates the mechanisms of wheezing exacerbations and asthma in children. We have discovered that the number of basophils in peripheral blood mononuclear cells (PBMC) can predict the risk of future persistent respiratory exacerbations in childhood. Importantly, we also found that this phenotype was already strongly associated with recurrent exacerbations in children experiencing their <u>first</u> exacerbation. We now aim to further investigate this basophil risk-phenotype to enable early identification of children at high risk of recurrent asthma exacerbations. We hypothesise that by characterising the phenotypical and functional profile of basophils collected during an acute wheezing illness, we will be able to identify a replicable biomarker of persistent respiratory exacerbations and consequently better understand what is driving the development of recurrent asthma in childhood.</p> <p>Project plan We have recruited children, taken blood samples and extracted their PBMC, when they presented to Perth Children's Hospital with a wheezing exacerbation. Using these biobanked PBMC, we can extract the circulating low density basophils. These basophils from children with acute wheezing as well as healthy controls will be phenotyped using our existing in-house basophil-specific flow cytometry panel. Basophils will also be sorted and used for in vitro activation and for transcriptomic analysis by RNA Sequencing. The aim of the project is to identify markers (phenotypical, functional, and transcriptional) that are associated with the persistent exacerbation phenotype. The number of respiratory exacerbations before and after study recruitment have already been determined using the public hospital clinical database.</p> <p>Role of Student As a student on this project, you will assist in processing and culturing primary immune cells from children. You will help to stain cells for flow cytometry analysis and run the samples through the flow cytometer. You will also get experience in flow cytometry assisted cell sorting and RNA extraction. A considerable part of the project will consist of data (flow cytometry) analysis with potential to learn transcriptomic analysis as well, depending on the time frame (Honours/PhD).</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in biomedical science, immunology, microbiology or similar • Theoretical foundation of flow cytometry • Excellent communication skills <p>Desirable</p> <ul style="list-style-type: none"> • Experience in laboratory work, including culture of human cells • Experience in using the statistical package R 			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group (Limited funds available through Respiratory Centre)			

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To treat or not to treat: Aspergillus infections in children with cystic fibrosis

Research Focus Area	Respiratory Centre; Chronic & Severe Diseases			
Research Group	Airway Epithelial Research			
Start Date	March 2021			
Chief Supervisor	Dr Luke Garratt, Telethon Kids Institute, UWA			
Other Supervisors	A/Professor Anthony Kicic, Telethon Kids Institute, Curtin Professor Stephen Stick, Telethon Kids Institute, UWA, Perth Children's Hospital			
Project Outline	<p>Our recent data show that <i>Aspergillus</i> species are one of the most prevalent organisms isolated from the lower airways of young children with cystic fibrosis (CF) and is not a benign organism in early disease. Children infected with <i>Aspergillus</i> species experience worse lung disease at the time of infection and a more rapid progression of structural lung disease in the years following the infection. As a fungus, <i>Aspergillus</i> requires specific antifungal therapies not typically applied in young children.</p> <p>This project seeks to identify the major pathways through which <i>Aspergillus</i> could drive lung disease. To do this, the candidate will systematically characterise in the laboratory the responses to <i>Aspergillus</i> by airway epithelial tissue, macrophages and neutrophils, key pillars of the innate immune system in the airway. Harmful host (protease release, oxidative stress) and pathogen (virulence factors, toxins) components produced during these interactions will be characterised and then validated in archived clinical lung samples from young CF patients with and without <i>Aspergillus</i> infection. This will refine our understanding of intermittent versus chronic <i>Aspergillus</i> infection. As <i>Aspergillus</i> is difficult to routinely culture from clinical samples, the candidate will also establish priority biomarkers of <i>Aspergillus</i> infection for post-treatment assessments.</p> <p>Our research team has been studying the innate immune system in CF for over a decade and have both reference and clinical <i>Aspergillus</i> isolates. The candidate will be involved with SynergyCF, a 5-year NHMRC grant to advance understanding of early CF disease through flow cytometry, scRNAseq, metabolomics and other high parameter approaches. They will have access to national and international collaborative expertise in all aspects of airway disease biology. Skillsets that will be gained include primary cell culture, immune cell isolation and differentiation protocols, fungal microbiology, flow cytometry and bioinformatics approaches to large datasets (ie BioPlex, gene expression).</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Bachelor of Science with Honours; • Basic familiarity with cell culture and flow cytometry techniques; • Above average written and oral communication skills; • Motivation and organisational skills to manage projects in a shared laboratory; • Able to work as part of a large team. 			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group <p>There are a limited number of scholarships (or top ups) available that will be issued at the Respiratory Centre's discretion, targeted to the most competitive (highest calibre) students that apply. There are also a limited number available through the SynergyCF project.</p>			

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Does altered airway mucin biology determine macrophage behaviour in cystic fibrosis?

Research Focus Area	Respiratory Centre; Chronic & Severe Diseases			
Research Group	Airway Epithelial Research			
Start Date	March 2021			
Chief Supervisor	Dr Luke Garratt, Telethon Kids Institute, UWA			
Other Supervisors	A/Professor Anthony Kicic, Telethon Kids Institute, Curtin Professor Stephen Stick, Telethon Kids Institute, UWA, Perth Children's Hospital			
Project Outline	<p>New technologies such as single cell RNA sequencing (scRNASeq) are revealing the true diversity of immune cell subsets in tissues. Cystic fibrosis (CF) lung disease begins in early life when lung myeloid populations throughout the respiratory system may still be establishing as part of normal immune development. Mucous accumulation in the CF airway environment is well known, but recent work has also revealed mucin structure is different in CF and associated with inflammation, independent of infection. This project will study clinical lung samples from young children with cystic fibrosis (CF) and non-CF respiratory disease, to understand the how mucins influence myeloid activity, particularly their inflammatory profile and scavenging capacity. The project will investigate new protocols to isolate macrophage subsets from clinical lung samples. In the laboratory, the candidate will advance our models of mucous producing airway epithelium by applying these subsets and studying their interactions with CF and non-CF epithelial mucus, the cross talk between macrophage and epithelium during pathogen challenge (virus, bacteria, fungi), and their ability to remove apoptotic cells.</p> <p>Our research team has been studying the innate immune system in CF for over a decade. The candidate will be involved with SynergyCF, a 5-year NHMRC grant with collaborators in Melbourne and the United States to advance understanding of early CF disease through flow cytometry, scRNASeq, metabolomics and other high parameter approaches. Having established new roles for neutrophil subsets in CF lung disease, we are now focused on the considerable diversity within the myeloid "macrophage" population of the lung. The student's main responsibility will be to drive the novel mechanistic models needed to interpret findings from the SynergyCF clinical studies. Skillsets that will be gained include primary cell culture, flow cytometry, monocyte/macrophage isolation and differentiation protocols, mucin biology and bioinformatics approaches to large datasets (ie BioPlex, gene expression).</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Bachelor of Science with Honours; • Basic familiarity with cell culture and flow cytometry techniques; • Above average written and oral communication skills; • Motivation and organisational skills to manage projects in a shared laboratory; • Able to work as part of a large team. 			
Ethics Approval	<input type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group <p>There are a limited number of scholarships (or top ups) available that will be issued at the Respiratory Centre's discretion, targeted to the most competitive (highest calibre) students that apply. There are also a limited number available through the SynergyCF project.</p>			

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The Impact of Climate Change on Children's Respiratory Health

Research Focus Area	Chronic & Severe Diseases – Respiratory Research Centre			
Research Group	Children's Respiratory Science Group			
Start Date	January 2021			
Chief Supervisor	Professor Peter Le Souëf (Telethon Kids Institute, UWA)			
Other Supervisors	Dr Ingrid Laing (Telethon Kids Institute, UWA) Professor Corey Bradshaw (Flinders University)			
Project Outline	<p>AIM: This project aims to predict the impact of climate change on the respiratory health of children on a local, national, and global scale, using the latest information on environmental changes and population dynamics.</p> <p>RESPIRATORY FOCUS: The research will have a strong focus on respiratory health issues, as the greatest health effects of climate change in children, and especially young children, are on respiratory health and even with major reductions in greenhouse emissions, these effects will continue to increase this century.</p> <p>SIGNIFICANCE: Climate change, through increases in ambient air temperature and pollution, can be expected to become the dominant risk factor for future children's respiratory health. That this is likely to occur is well-established, as there is excellent longitudinal evidence showing that increasing air temperature and pollution are strongly related to children's morbidity and mortality, as well as well-documented projections of the increases in these climatic variables over coming years. Importantly, these data sets have not been used to establish the timescale and magnitude of the effects of climate change on future children's respiratory health either locally or globally.</p> <p>OUTCOMES: The intention of the proposed project is to provide this essential information using advanced modelling to produce state-of-the-art timescale and magnitude predictions to stimulate the development of mitigation interventions to limit increases in respiratory ill-health in children. This information also has the potential to catalyse the required social and political changes to ensure the best possible health for future children in Western Australia, Australia, and globally.</p> <p>STUDENT ACTIVITIES: The project will utilise freely available environmental, geospatial, and human health and population datasets; the student is expected to have basic familiarity with the handling, analysis and statistical modelling of large-scale datasets. The student will work with the Children's Respiratory Science Group with the support of an established international, collaborative group of experienced researchers.</p> <p>There is a limited number of scholarships available that will be issued at the Respiratory Centre's discretion, targeted to the most competitive students that apply.</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Undergraduate degree in statistics or with a major in statistics • Experience in analysing environmental and population health data • Excellent communication skills 			
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by respiratory centre			

For more information, please contact:

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Preventing serious acute respiratory viral infections* (AVRIs) in children

Research Focus Area	Chronic & Severe Diseases – Respiratory Research Centre			
Research Group	Children's Respiratory Science Group			
Start Date	January 2021			
Chief Supervisor	Professor Peter Le Souëf, Telethon Kids Institute, UWA			
Other Supervisors	Dr Ingrid Laing, Telethon Kids Institute, UWA A/Professor Guicheng Zhang, Curtin University			
Project Outline	<p>AIM: To investigate the mechanisms by which an immunologically active agent prevents or reduces the severity of AVRIs in children.</p> <p>BACKGROUND: Young children are known to be exceptionally vulnerable to AVRIs. AVRIs are the most common cause of:</p> <ul style="list-style-type: none"> death in children < 5 years of age worldwide due to very high death rates in low-income countries (WHO-MCEE 2000-2017). hospital admission of children in high-income countries mainly due to AVRIs being the dominant cause of acute wheeze and asthma in young children. <p>PREVENTING AVRIs USING IMMUNOMODULATION: A promising new way of preventing or reducing the severity of respiratory viral infections is to use an 'immunomodulating agent' to change the immune systems response profile. OM-85 is such an agent and has already been shown to reduce or prevent the severity of acute respiratory viral infections, but its mechanism of action is still poorly understood. OM-85 is made up of a mixture of inactivated, naturally occurring bacteria, so it is essential to discover its mechanism of action for two important reasons: one is to gain crucial knowledge of how respiratory viruses produce serious infection; and the other is to allow the development of more refined agents that will prime the immune system to target respiratory viruses.</p> <p>SIGNIFICANCE: <i>Given the central importance of AVRIs in children's medicine, finding new strategies to either reduce or prevent respiratory virus* infection in children is one of the most important goals of children's medical research.</i></p> <p>METHODOLOGY and STUDENT EXPERIENCE: The PhD project will involve a subset of the POWER study, a larger, well-established NHMRC double-blind, randomised OM-85 trial designed to examine aspects of the mechanism of action of OM-85 in reducing or preventing AVRIs. The subset subjects will be investigated in much greater detail than the POWER subjects, with an intensive systems biology approach using state-of-the-art viral detection and load assessment, transcriptomics, genomics, metabolomics and microbiomics, allied with detailed immunological and physiological assessments. The project will allow the student to gain broad and valuable experience in a variety of the latest laboratory and analysis techniques, as well as the opportunity to gain experience with recruitment and follow-up of children and sample processing.</p> <p>* If COVID-19 occurs in WA children, they will be included. This will provide the possibility of discovering the effectiveness and mechanism of OM-85 as a COVID-19 treatment.</p> <p>There are a limited number of scholarships available that will be issued at the Respiratory Centre's discretion, targeted to the most competitive students that apply</p>			
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> Honours degree in science Excellent communication and team participation skills Proficient writing and presentation skills <p>Desired: Laboratory experience and/or proficiency in statistical analysis.</p>			
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained			
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group			

For more information, please contact:

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Aetiology of childhood acute wheezing and asthma

Research Focus Area	Chronic & Severe Diseases – Respiratory Research Centre		
Research Group	Children's Respiratory Science Group		
Start Date	March 2021		
Chief Supervisor	Dr Ingrid Laing, Telethon Kids Institute and University of WA (UWA)		
Other Supervisors	Professor Peter Le Souëf, Telethon Kids Institute, UWA A/Professor Guicheng Zhang, Curtin University		
Project Outline	<p>BACKGROUND: 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 also 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:</p> <ul style="list-style-type: none">- Persistence of type 1 interferon signatures in children with acute asthma- Stability of metabolomic signatures that predict disease persistence <p>AIM OF THE PROJECT: The 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.</p> <p>METHODOLOGY and STUDENT EXPERIENCE: 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.</p>		
Suitable For	<input checked="" type="checkbox"/> Honours <input checked="" type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD		
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in science• Excellent communication and team participation skills• Proficient writing and presentation skills		
Desired	<ul style="list-style-type: none">• Laboratory experience and/or proficiency in statistical analysis, as relevant to the project.		
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group		

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A Battle of Epigenetic Proportions – cross-platform comparison of methylomics technology

Research Focus Area	Early Environment
Research Group	Clinical Epigenetics / Respiratory Centre
Start Date	March 2021
Chief Supervisor	Dr David Martino, Telethon Kids Institute
Other Supervisors	Dr Yuliya Karpievitch
Project Outline	DNA methylation microarrays have been the platform of choice for epigenome-wide association studies, but declining costs have rendered targeted bisulphite sequencing a feasible alternative. Nonetheless, the literature for researchers seeking guidance on which platform to choose is sparse. To fill this gap, we conducted a comparison study in which we processed naïve CD4+T cells in different states of activation from healthy children using both the Illumina HumanMethylationEPIC BeadChip and the newly released Illumina TruSeq Methyl Capture EPIC Kit. This project will evaluate both platforms in regard to coverage, reproducibility, and identification of differential methylation related to T-cell biology. The goals of the project will be to identify whether targeted capture bisulphite sequencing offers significant gains over methylation arrays for cohort studies.
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in bioinformatics or computational biology or mathematics with computing backgroundExcellent communication skillsSolid problem solving and critical thinking skillsR and python programming ability preferred
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group
<i>For more information, please contact:</i> David Martino (08) 6319 1635 David.Martino@telethonkids.org.au	

Repeated rhinovirus infections on airway barrier integrity in children with viral-induced preschool asthma

Research Focus Area	Chronic & Severe Diseases, Respiratory Research Centre
Research Group	Chronic & Severe Diseases: Airway Epithelial Cell Research Group Children's Respiratory Science Group
Start Date	February 2021
Chief Supervisor	Dr Kevin Looi (Telethon Kids Institute/Curtin University)
Other Supervisors	Dr Ingrid Laing (Telethon Kids Institute/UWA) A/Professor Anthony Kicic (Telethon Kids Institute, Curtin University, UWA) Professor Stephen Stick (Telethon Kids Institute, PCH)
Project Outline	<p>Asthma is a lifelong illness affecting the respiratory airways and poses a significant health burden in Australia. The airway epithelium lines the respiratory tract to create a protective barrier from foreign pathogens, such as viruses, and plays an essential role in the state of health or disease. Research from our group has shown that these airway epithelial cells are inherently altered in children with asthma compared to non-asthmatics and that the protective barrier provided by these cells are modified by common-cold infections. Given that there is a relationship between the cell lining and the reaction to virus infection in asthma, we hypothesize that repeated rhinovirus infections in children with viral-induced preschool asthma results in the chronic alteration in barrier integrity, leading to increased permeation across the airway epithelial of viral particles and this results in more frequent, persistent and more severe exacerbations.</p> <p>To investigate this, we aim to assess the associations and changes in epithelial cell junction responses after virus infection and apply next-generation sequencing to identify new areas of research that will ultimately improve and strengthen the barrier provided by the airway cells in young children with asthma. There is now an opportunity for motivated students to help us explore and understand the consequences of repeated viral infections on the airway epithelium using a variety of downstream analytical techniques. Techniques involved may include, but are not limited to: ELISAs, protein extraction, immunoblotting, gene expression, next-generation sequencing bioinformatic analysis and confocal microscopy.</p>
Suitable For	<input checked="" type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Bachelor of Science in Molecular Biology, Biomedical Science or similar• Excellent written and oral communication skills• Able to work independently and as part of a team• Highly motivated and organized
Ethics Approval	<input checked="" type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group

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Characterizing the airway epithelial response to SARS-CoV-2 infection

Research Focus Area	Chronic & Severe Diseases					
Research Group	Airway Epithelial Cell Research					
Start Date	September 2020 onwards					
Chief Supervisor	Associate Professor Anthony Kicic (Telethon Kids Institute/Curtin University)					
Other Supervisors	Dr Kevin Looi (Telethon Kids Institute/Curtin University) Prof Stephen Stick (Perth Children's Hospital/Telethon Kids Institute/UWA) Dr Erika Sutanto (Telethon Kids Institute/Curtin University) Dr Luke Garratt (Telethon Kids Institute/Curtin University) Dr Thomas Iosifidis (Telethon Kids Institute/Curtin University) Dr Patricia Agudelo-Romero (Telethon Kids Institute)					
	NOTE: supervisory roles will be refined depending on the study undertaken					
Project Outline	<p>The coronavirus disease 2019 (COVID-19), is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Its clinical spectrum appears to be broad, encompassing asymptomatic infection, mild upper respiratory tract illness, and severe viral pneumonia. It targets the lungs causing them to stop working properly which cascades to other types of organ failure and death. Although infection appears indiscriminate occurring in both genders and across all ages (6 weeks - 101 years), there is emerging data to suggest that certain groups of individuals may be more susceptible to the effects of infection. Little is known about these 'at risk' populations and which treatment strategies could prevent the severe lung damage that COVID-19 causes in these cases. Using a systematic approach, we will assess how airways respond to SARS-CoV-2 infection, comparing this to the SARS-CoV1 strain as well as other viruses including rhinovirus and respiratory syncytial virus (RSV). We will then compare the airway responses to SARS-CoV-2 to individuals who are more 'at risk' to its effects across a spectrum of both paediatric (healthy children, those with allergies and asthma or cystic fibrosis, preschool kids who wheeze as a result of viral infections, preterm birth survivors) and adult populations (healthy, asthmatic, current and ex-smokers, those suffering chronic obstructive pulmonary discords [COPD]).</p> <p>Using our existing expertise and knowledge of three dimensional (3D) organotypic cell culture technologies, 3D models will be established of the airways of children and adults and which would then be infected with SARS-CoV-2 (as well as other viral comparisons). We will assess viral binding, epithelial susceptibility to infection, innate immune responses including cell death and inflammation, global transcriptomic responses as well as barrier integrity effects. We can also implement a screening pipeline to identify commercially available compounds with favourable safety profiles, that can reduce the harmful effects of infection, which can then be assessed in clinical trials. There is now an opportunity for a motivated student or several students to be part of this investigation in characterizing and understanding the impact of SARS-CoV-2 infection on airway barrier integrity using a variety of downstream analytical techniques.</p>					
Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD		
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Excellent written and oral communication skills • Able to work independently and as part of a team • Highly motivated and organized 					
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group					
<i>For more information, please contact:</i> A/Prof Anthony Kicic (08) 6319 1799 Anthony.Kicic@telethonkids.org.au						

Preclinical assessment of novel therapeutics for childhood asthma

Research Focus Area	Chronic & Severe Diseases			
Research Group	Airway Epithelial Research			
Start Date	October 2021 onwards			
Chief Supervisor(s)	Dr Thomas Iosifidis (Telethon Kids Institute/Curtin University)			
Other Supervisors	A/Prof Alexander Larcombe (Telethon Kids Institute/Curtin University) Dr Jonatan Leffler (Telethon Kids Institute/The University of Western Australia) Professor Stephen Stick (Telethon Kids Institute/The University of Western Australia) A/Professor Anthony Kicic (Telethon Kids Institute/Curtin University)			
Project Outline	<p>Asthma is a substantial global health care burden with more than 300 million sufferers worldwide. It is the most common chronic respiratory disorder in children and remains one of the main causes of their hospitalisation. Thus, there is a pressing need for identification of novel therapeutic strategies that target the principal cause of asthma in early life and not just its clinical sequelae. Work by our team and others has established that the airway epithelium of young children with asthma has intrinsic abnormalities relating to dysregulated responses to injury, infection, and inflammation. Furthermore, we have demonstrated global transcriptomic similarities between epithelial cells isolated from the upper and lower airways, as well as conservation of functional phenotypes including dysregulated repair of asthmatic airway epithelial progenitor cells. Significantly, we have compared the transcriptomic signature of dysregulated epithelial repair with other datasets and found it to relate to viral-induced wheeze recurrence and severity. Currently, identification of novel therapeutics that target the intrinsic airway epithelial abnormalities have been hampered due to the lack of pre-clinical animal models that reflect the asthma pathobiologic mechanisms, such as defective airway epithelial repair. Thus, there is a need for the identification of suitable <i>in vivo</i> preclinical models to expedite identification of novel therapeutics for childhood asthma. There is now an opportunity for a motivated student or multiple students to contribute towards the assessment of new therapeutics for childhood asthma using a range of preclinical cell culture and animal models.</p> <p>The project aims to test the efficacy of repurposed and novel therapeutics to enhance airway epithelial repair and improve lung health outcomes in a preclinical animal model of asthma. In addition, airway epithelial cell cultures will be established to validate drug efficacy <i>in vitro</i> using established assays. Some of the experimental techniques involved include expression of epithelial/mesenchymal cell markers by qPCR, ELISA and immunohistochemistry; cell proliferation, cell differentiation, wound repair and barrier integrity function using 3D differentiated airway mucosal epithelial cell models. In addition, the <i>in vitro</i> outcomes will be corroborated by assessment of lung function, airway epithelial barrier integrity and inflammation <i>in vivo</i>. This will be the first study to interrogate the role of airway epithelial repair in a preclinical model of asthma. This project will determine the efficacy of new medications for childhood asthma targeting the airway epithelium.</p>			
Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none"> • Excellent written and oral communication skills • Highly motivated and organized • Able to work independently and as part of a team 			
Ethics Approval	<input type="checkbox"/> Obtained		<input checked="" type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input type="checkbox"/> Full scholarship offered by project group			

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Unlocking mechanisms of age-relationships in rhinovirus-induced wheezing attacks in children

Research Focus Area Chronic & Severe Diseases, Respiratory Research Centre

Research Group	Airway Epithelial Cell Research Group Children's Respiratory Science Group
Start Date	February 2021
Chief Supervisor	A/Professor Anthony Kicic (Telethon Kids Institute, Curtin University, UWA)
Other Supervisors	Dr Ingrid Laing (Telethon Kids Institute, UWA) Dr Kevin Looi (Telethon Kids Institute/Curtin University) Professor Peter Le Souef (Telethon Kids Institute, PCH, UWA)
Project Outline	<p>From 2004-14 over 36 000 children presented to the former Perth Children's Hospital (Princess Margaret Hospital [PMH]) with a wheezing or asthma exacerbation and around half of those were admitted to hospital. Our research has established that the common cold virus, specifically rhinovirus species C (RV-C), is the most common virus causing acute severe wheezing and asthma in children and that it causes more severe wheezing than any other respiratory virus. Separately, we have shown that the age at which RV-C infection is most common in acutely wheezing children is between 2 and 6 years. Healthy children are much less often infected with RV-C. Collectively therefore, we have established that RV-C is an important pathogen that causes more severe wheezing and is the most common cause of severe wheeze in pre-school children, compared to other respiratory viruses and children from other age groups. We hypothesise that the pathogenicity of RV-C in pre-school wheeze compared to RV infection in children of other ages, is due to its ability to cause the immune response to over-react to its presence in the airway.</p> <p>This project will use a nasal epithelial cell culture model of RV infection to compare the epithelial response from children of different ages who have had acute wheezing. This project will also use RNA sequencing to reveal the components of the epithelial response that differ between children of different ages. Techniques involved will/may include but are not limited to: cell culture, ELISAs, protein extraction, immunoblotting, gene expression, next-generation sequencing bioinformatic analysis and confocal microscopy.</p>
Suitable For	<input type="checkbox"/> Honours <input type="checkbox"/> MD <input checked="" type="checkbox"/> Masters <input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in biomedical science, microbiology or similar• Excellent written and oral communication skills• Able to work independently and as part of a team• Highly motivated and organized
Desirable	<ul style="list-style-type: none">• Experience in laboratory work, including culture of human cells
Ethics Approval	<input type="checkbox"/> Obtained <input type="checkbox"/> Not Obtained
Funding	<input checked="" type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group

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PRECISION HEALTH CENTRE AT TELETHON KIDS

Genome editing: a tool for modelling and treating mitochondrial disease

Research Focus Area	Brain & Behaviour Chronic & Severe Diseases Early Environment
Research Group	Mitochondrial Disease and Therapy group
Start Date	Anytime
Chief Supervisor	Professor Aleksandra Filipovska
Other Supervisors	Dr Giulia Rossetti Dr Stefan Siira
Project Outline	<p>There are four projects on offer:</p> <ol style="list-style-type: none">1. Mitochondrial Gene Therapy The project will focus on mitochondrial diseases (MDs) which are the most common group of inherited metabolic diseases world-wide. These diseases affect as many as 1 in 5,000 live births. Although each individual mitochondrial disease is rare, taken together mitochondrial disease is almost as common as childhood cancer. MD affects young infants and children and has devastating consequences that include diminished growth, brain and nervous system failure, loss of hearing, motor function, liver dysfunction and heart attacks that result in premature death. Because of the multitude of symptoms in patient's mitochondrial disease often go undiagnosed or are misdiagnosed for long periods of time. Mutations in mitochondrial DNA (mtDNA) and nuclear genes encoding mitochondrial proteins can cause mitochondrial disease with varying age of onset and severity. Currently it is not known what causes the heterogeneity of mitochondrial diseases, hampering effective diagnosis in the clinic. Mitochondrial diseases most often affect young infants and children, where the symptoms can be progressive and fatal. Unfortunately, there are currently no effective treatments or cures for mitochondrial diseases and current therapies involve only supportive measures, such as palliative surgery or antiepileptic drugs. It is estimated that there are ~1,200 mitochondrial proteins encoded by the nuclear genome, and the disease-causing mutations remain unknown in a large proportion of patients with suspected mitochondrial disorders. Therefore, there is an urgent need for molecular diagnosis and development of cures and treatments for mitochondrial diseases. Our project is unique because we have developed tools that can specifically target genetic mutations to revert them from a mutated to normal condition. We will use protein-based therapeutics and target them specifically to mitochondrial gene mutations. We will develop a delivery system for these therapeutics to enter cells and mitochondria and test them for their ability to correct the mutations and reverse the disease condition.2. Developing new models of mitochondrial diseases using CRISPR/Cas technologies We will use CRISPR/Cas technologies to introduce specific mutations in genes that are implicated in mitochondrial disease. We will investigate the pathological consequences in an in vivo mouse model to identify molecular mechanisms that lead to disease that will enable us to identify targets for drug development. We use a range of cutting edge technologies to achieve our goals including: biochemical and molecular biology tools (northern and western blotting, proteomics, metabolomics), genetics (transcriptomics and ATAC-seq to study genome structure and function), functional genomics, protein structure and function relationships, synthetic biology and genome editing.

3. Engineering new tools to improve energy metabolism

This project will focus on using genome engineering technologies to improve energy utilization and production inside the powerhouses of the cell. The project will apply diverse techniques in cell biology (super resolution microscopy, confocal microscopy), genetics, biochemistry, genomics and transcriptomics, proteomics and metabolomics. There will be a scope to develop bioinformatics skills in omics data analyses and engineering of model organisms. Previous experience is not essential, although applicants with skills in computing are encouraged to apply.

4. Systems biology of mitochondrial diseases

This project will focus on new and cutting-edge development of methods and technologies for data integration, visualisation, and interpretation. The project will use unique data from cell biology, genetics, biochemistry, genomics and transcriptomics, proteomics, and metabolomics to obtain integrated answers about the regulation of gene expression and energy metabolism. There will be a scope to develop bioinformatics skills in omics data analyses and engineering of biomolecules with new functions. Applicants with skills in programming and computer science are encouraged to apply although applicants with computing interests and science background will be considered.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">● Undergraduate degree in psychology● Excellent communication skills● Undergraduate degree with 1st class honours in biochemistry, genetics or relevant biomedical degree● Excellent communication and written skills● Willingness to work with mouse models of disease● Team player● Hard working and passionate about science and discoveries● Full-time commitment to the PhD work			
Ethics Approval	<input checked="" type="checkbox"/> Obtained		<input type="checkbox"/> Not Obtained	
Funding	<input type="checkbox"/> Top-up scholarship offered by project group		<input checked="" type="checkbox"/> Full scholarship offered by project group	

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Maternal antibodies enhance infant immune responses to influenza vaccination

Research Focus Area	Early Environment
Research Group	Systems Vaccinology
Start Date	October 2021
Chief Supervisor	Dr. Tobias Kollmann (Telethon Kids Institute)
Other Supervisors	Dr. Mario Fidanza
Project Outline	Young children, particularly those younger than 6 months of age, are at heightened risk of severe influenza. Babies can be at least partially protected during this period of increased vulnerability by the presence of maternal antibodies. However, while the positive effect of this protective mechanism is evident in the reduction in infant hospitalisations and death following maternal vaccination against influenza, the presence of maternal antibodies is also believed to have a significant impact on primary humoral immune responses in the newborn.

The fact that maternal antibodies have been seen to decrease the magnitude of infant vaccine responses ('blunting') has led many experts to conclude that this impact was solely negative. However, emerging data suggest that:

- i)* blunting by maternal antibodies does not affect the antiviral effector functions induced in the infant.
- ii)* maternal antibodies do not inhibit the generation of memory B cells which are critical to subsequent protection from influenza
- iii)* immunisation under the cover of maternal antibodies may actually increase the breadth, longevity and protective capacity of infant vaccine responses.

We are seeking a highly motivated student to join our team to work on a project with the following objectives:

1. To assess how the presence of maternal (or mimic) antibodies influence influenza vaccine responses in newborn and juvenile mice.
2. To determine how the presence of maternal (or mimic) antibodies influence the pattern of "antigenic imprinting" based on differential antigen exposure patterns.

Suitable For	<input type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">• Undergraduate degree in molecular biology, immunology or related• Basic understanding of immunology• Basic wet lab skills• Willingness to learn essential analytical platforms including flow cytometry• Good problem-solving skills• Ability to effectively plan and implement a research strategy• Willingness to work with mouse models			
Ethics Approval	<input checked="" type="checkbox"/> Obtained	<input checked="" type="checkbox"/> Not Obtained		
Funding	<input checked="" type="checkbox"/>	Top-up scholarship offered by project group		
	<input checked="" type="checkbox"/>	Full scholarship offered by project group		

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Using synthetic biology to develop new gene therapies for childhood diseases

Research Focus Area	Chronic & Severe Diseases
Research Group	Mitochondrial Research
Start Date	February or March 2021
Chief Supervisor	Professor Oliver Rackham (Telethon Kids Institute & Harry Perkins Institute)
Other Supervisors	Doctor Giulia Rossetti (Telethon Kids Institute & Harry Perkins Institute)

Project Outline The ability to alter the genomes of living cells is key to understanding how genes influence all the functions of organisms and will be critical to modify living systems for useful purposes. However this has long been limited by the technical challenges involved in genetic engineering. Recent advances in gene editing have bypassed some of these challenges but they are still far from ideal. Our laboratory has previously established new protein-based therapies that can target single stranded DNA and RNA in a programmable manner, which are now moving towards clinical trials. In this project the successful applicant will build expertise in synthetic biology and capitalize on the established skills in the laboratory of Professor Oliver Rackham to engineer gene editing systems capable of efficient genetic modifications that are not possible with available systems to date.

Improved gene editing will be vital to basic science laboratories to reveal the genetic basis of molecular, organelle, cellular and organismal function. While in medicine, gene editing is poised to revolutionize pharmaceutical development, xenotransplantation, the development of gene and cell-based therapies, as well as approaches to control of insect-borne diseases and preventing the inheritance of disease causing mutations. The new gene editing approaches developed in this project will be focused on enabling new gene therapies for childhood neuromuscular diseases.

Suitable For	<input checked="" type="checkbox"/> Honours	<input type="checkbox"/> MD	<input checked="" type="checkbox"/> Masters	<input checked="" type="checkbox"/> PhD
Essential Skills & Qualifications	<ul style="list-style-type: none">Undergraduate degree in Biochemistry, Genetics, Bioinformatics, Molecular Biology, Microbiology or a related subjectA passionate student, interested in synthetic biology and the potential of gene editing for healthWillingness to learn new skillsGood problem solving skillsAbility to work well independently or in a team			
Ethics Approval	<input checked="" type="checkbox"/> Obtained			
Funding	<input type="checkbox"/> Top-up scholarship offered by project group <input checked="" type="checkbox"/> Full scholarship offered by project group			

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