Postgraduate Research Opportunities at the Telethon Kids Institute

Student project booklet 2024

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 families 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 1200 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 one roof to tackle the many complex childhood diseases and issues from a range of different angles.

In 2018, Telethon Kids moved to a 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 technology and research equipment.

Telethon Kids has strong affiliations with The University of Western Australia, Curtin University, and ANU. We additionally have strong relationships with a range of other universities as well as wide-reaching collaborations with leading research organisations around the world.

You can find out more about our current projects, research teams, and being a student with us by:

- Visiting our website: www.telethonkids.org.au
- Contacting the researchers listed within this booklet
- Contacting our Student Team at study@telethonkids.org.au
- **Attending the Prospective Student Evening**:
  4.30pm-7pm, Wednesday 23rd August
  The Manda - Level 6 (East), Telethon Kids Institute
  Northern Entrance, Perth Children's Hospital,
  15 Hospital Avenue, NEDLANDS, Western Australia, 6009

SCHOLARSHIPS

Stan & Jean Perron Top Up Award

A prestigious top up scholarship to recognise and support exceptional postgraduate students undertaking their research at the Institute. Successful applicants will receive:

1. A top-up of $10, 000 per year, paid in conjunction with the main university scholarship for the duration of the scholarship;
2. A one-off training allowance of $10, 000 to be expended over the life of the award.

Stan & Jean Perron Excellence Award

A one year, $20,000 top up award that recognises exceptional performance by a higher degree by research student over the previous 12 months.

Stan & Jean Perron PhD Career Launching Award

An award of $20,000 to support four exceptional final year PhD students or those who have submitted within the previous 6 months to make the transition from student to post-doctoral life. The funds will support students to finish papers, journals, manuscripts and attend conferences to build their track record.

Wesfarmers Centre of Vaccines & Infectious Diseases HDR Scholarship

A top-up scholarship of $10,000p/a to support exceptional PhD students undertaking research in the area of infectious diseases.

Rio Tinto Children's Diabetes Centre Scholarships

The Rio Tinto Children's Diabetes Centre offers the following scholarships on a competitive basis to outstanding candidates.

- Honours or 1-year Masters Scholarships ($5,000)
- Top-up PhD awards ($15,000 per annum for up to three years full-time).
- PhD Talent and Capacity Building Scholarships (up to $5,000 per annum for up to three years full-time).

INDIGENOUS SCHOLARSHIPS

STARS Student Scholarship

As part of the Institute's Commitment to Aboriginal children and families, the STARS student scholarship program has been developed to help build the foundation for the next generation of Aboriginal researchers. The successful recipient will receive a one-off payment of $30,000 to financially support and encourage Aboriginal and Torres Strait Islander students to undertake postgraduate studies within one of the Institute's research focus areas.

SNAP-PY Aboriginal PhD Scholarship

Telethon Kids Institute is excited to partner with medical research institutes, universities and many hospitals across Australia and the world to embark on the biggest research project completed in the Staphylococcus Aureus space. The research aims to inform best practice treatment of Staphylococcus aureus bloodstream infection across the life-course, with results from the trial expecting to see Aboriginal children spending less time away from Country and better long-term outcomes from complicated bone, skin, lung and heart infections from Staphylococcus aureus bloodstream infections.

Aboriginal Summer Scholarship

In line with the Institute's Aboriginal Employment and Career Development Strategy, Telethon Kids Institute is excited to announce for the first time, two paid summer work placement opportunities for Aboriginal undergraduate students interested in getting experience in research over the November – February University break.

RESEARCH THEMES

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

INDIGENOUS HEALTH

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

Aboriginal people experience greater disadvantage than the rest of the population on almost all of the determinants of health, social and emotional wellbeing including employment, education and housing.

As there are specific cultural, social and economic contexts that require more specialised investigation in collaboration and consultation with Aboriginal families, this Research Theme is unique in that it provides advice, technical and cultural support across the Institute to all programs of research.

BRAIN AND BEHAVIOUR

Brain and Behaviour is a Research Theme which focuses on the core of many issues affecting the ongoing health and wellbeing of children and young people.

Our research investigates the developmental, genetic, family and environmental determinants of child wellbeing, and how clinical, educational and community practices can provide every child with the best opportunity for optimal health and development.

At the 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 Theme which focuses on diseases in children that require a very different investigation and treatment to similar conditions in adults.

Childhood cancers, diabetes, respiratory conditions and rare diseases can be debilitating and often life threatening. Effective intervention and prevention 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 Theme which focuses on the ways that environments early in life can affect a child's life-long health and development.

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

At the 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.

Contents

INDIGENOUS HEALTH

Primary Care and Genomics – ATSICCHO and genetic health services' capacity building and service integration

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Indigenous Genomics - Australian Alliance for Indigenous Genomics
Start Date	1/07/2023
Chief Supervisor	Professor Alex Brown
Other Supervisors	Ms Louise Lyons, Telethon Kids Institute; Mr Gregory Pratt, QAIHC; Dr Gareth Baynam, WA Health; Dr Julie McGaughran, GHQ
Project Outline	Project: Indigenous people underutilise genomic testing compared to non-Indigenous Australians. With genomic testing becoming standard practice, there is a growing need to strengthen referral pathways and coordinated care between primary and tertiary healthcare providers. This requires accessible, culturally safe, responsive, integrated and family-centred approaches. Aboriginal and Torres Strait Islander Community Controlled Health Organisations are central to this agenda. This project will explore the readiness, barriers and opportunities of Aboriginal and Torres Strait Islander health services nationally to implement the "Integrated Genetic Health Care" (IGHC) model developed or supported by QIMR, QAIHC, Queensland Genomics and the Queensland Govt. The project will include: * Engaging with NACCHO and the jurisdictional peak bodies to assess readiness to review and implement IGHC model; * Identifying barriers to and opportunities for increasing access for Aboriginal and Torres Strait Islander people to genetic and genomic health services; Identifying ATSICCHO staff and service capacity building requirements implement the IGHC model; * Identifying jurisdictional modifications to the IGHC model to better suit the ATSICCHO sector and Community requirements; * Identify or develop culturally appropriate genetic and genomic health resources for ATSICCHOs and genetic health services/clinicians; * Develop a culturally appropriate evaluation and impact framework that can measure the success of the IGHC's implementation; and * Develop policy and advocacy briefs to support ATSICCHO funding and resourcing requirements.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	* Masters degree in a relevant field (e.g. Public/population health, research ethics, Aboriginal health) * Ability to work as part of a team. * Experience working with Aboriginal health. * Good interpersonal and communication skills.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group
For more information, please contact: Professor Alex Brown alex.brown@anu.edu.au	

Developing culturally-appropriate genomics data systems for a new-era of Indigenous Genomics

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Indigenous Genomics - Australian Alliance for Indigenous Genomics
Start Date	1/07/2023
Chief Supervisor	Dr Sam Buckberry, Telethon Kids Institute and Australian National University
Other Supervisors	Associate Professor Jimmy Breen, Telethon Kids Institute and Australian National University; and Professor Alex Brown Telethon Kids Institute and Australian National University
Project Outline	The vast amount of genomics and personal data collected across the Australian healthcare system has an enormous potential to improve the lives of Indigenous Australians. Recent, very public, examples of data breaches at Australian Healthcare and Telecommunications companies only highlight the importance of storing identifiable information safely and securely. Given the lack of genomics information on Indigenous Australians, data breaches may incur an extreme risk to the identity of Aboriginal and Torres Strait Islanders, having implications in law enforcement and community protection. The mitigation of this risk is a major aim of ALIGN's mission, crafting culturally appropriate, ethical genomic data storage and management practices that promote precision medicine for Indigenous Australian populations. This project will be an enormous opportunity to work across multi-institutions including ANU, CSIRO, database management start-up company Pacific Analytics and TKI's Indigenous Genomics Data Science teams, working on a variety of projects focusing on data sharing protocols and methods, cryptography and file compression and biocultural and indigenous knowledge labelling.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	* First-class honours or Masters degree in a relevant field (e.g. population/ public Health, Medical science, Epidemiology, Bioinformatics, Statistics or Computer Science) * Pre-existing bioinformatics and/or data analysis skills are not essential but would be highly valued. * Ability to work as part of a team. * Good interpersonal and communication skills.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:
Dr Sam Buckberry sam.buckberry@telethonkids.org.au

Investigating the sex differences in Cardiovascular and Type-2 Diabetes disease risk in Aboriginal and Torres Strait Islanders

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Indigenous Genomics - Australian Alliance for Indigenous Genomics
Start Date	1/07/2023
Chief Supervisor	Associate Professor Jimmy Breen, Telethon Kids Institute and Australian National University
Other Supervisors	Dr Stevie Pederson, Telethon Kids Institute and Australian National University; and Dr Liza Kretzschmar Telethon Kids Institute and Australian National University
Project Outline	Complex diseases impact Indigenous people disproportionately compared to non-Indigenous people. Up to 30% of the adult Indigenous population have T2D and suffer nine times the mortality, >10 times the rates of T2D-related end-stage kidney failure, three times the rates of heart disease and 38 times the rates of lower limb amputations than non-Indigenous Australians. Interestingly, disease risk varies significantly between biological sexes within Indigenous people, which impacts how individuals are treated in the clinic. In this study, we aim to quantify and investigate the sex differences in T2D and CVD disease risk using the Aboriginal Diabetes Study (PROPHECY) cohort. Using multiomics profiles of 1,245 individuals and reference datasets from the Genotype-Tissue Expression (GTEx) project, we will investigate the genetic impact of sex on adipose tissue and other related tissues within Indigenous participants. We aim to establish predictive models to accurately define CVD and T2D risk in Indigenous Australians and establish computational tools that could be implemented within a primary healthcare setting.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	* First-class honours or Masters degree in a relevant field (e.g. population/ public Health, Medical science, Epidemiology, Bioinformatics, Statistics or Computer Science) * Pre-existing bioinformatics and/or data analysis skills are not essential but would be highly valued. * Ability to work as part of a team. * Good interpersonal and communication skills.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group
For more information, please contact: Associate Professor Jimmy Breen Jimmy.Breen@telethonkids.org.au	

Equity in Genomics – defining future genomics research and care to reduce health inequality

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Indigenous Genomics - Australian Alliance for Indigenous Genomics
Start Date	1/07/2023
Chief Supervisor	Professor Alex Brown
Other Supervisors	Ms Louise Lyons, Senior Manager, Strategy and Policy - Indigenous Genomics, Telethon Kids Institute; and Ms Tiffany Boughtwood, Australian Genomics
Project Outline	This research will be to define equitable pathways for Aboriginal and Torres Strait Islander peoples to engage in genetic and genomic health systems, services and research. Equitable access to genetic health services and research requires heath professional commitment, health systems changes and opportunities that allow to Indigenous Australians to envision, lead and create the governance and service models that will deliver equitable health services and improved health outcomes for all Indigenous peoples. Readiness for change will be assessed along with barriers and opportunities that need to be addressed. This project scope will require Community and ATSICCHO consultations, and close collaboration with investigators undertaking research within the Indigenous Genomics research platform. Addressing health systems barriers and opportunities will also include emerging technologies and infrastructure (eg NAGIM), data governance and sovereignty models, commercial market, Intellectual property protections, and national policy gaps. Project aims include: * An international/national systematic review of genetic health systems barriers to Indigenous peoples seeking and retaining essential health services; *Identifying strategies that strengthen referral, diagnostic and treatment pathways between primary health care and genetic health service providers; * Identifying evidence-based and best practice models that successfully and measurably address health service access barriers; * Developing an evaluation and impact framework that demonstrates benefits to Indigenous Australians and the mainstream genetic health services; * Developing a national policy framework that addresses existing genetic and genomic health access gaps and identifies actions and resources that require government and mainstream service providers commitment to effect equitable access for Aboriginal and Torres Strait Islander people.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	* Masters degree in a relevant field (e.g. Public/population health, research ethics, Aboriginal Health) * Ability to work as part of a team. * Experience working with Aboriginal health. * Good interpersonal and communication skills.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group
For more information, please contact: Professor Alex Brown alex.brown@anu.edu.au	

Indigenous Cultural Understandings of Kinship and Inheritance as a Basis for Communicating Genomics

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Indigenous Genomics - Australian Alliance for Indigenous Genomics
Start Date	1/07/2023
Chief Supervisor	Professor Alex Brown, Professor of Indigenous Genomics, Telethon Kids Institute and Australian National University
Other Supervisors	Ms Louise Lyons, Senior Manager, Strategy and Policy - Indigenous Genomics, Telethon Kids Institute; Associate Professor Azure Hermes, Deputy Director, National Centre for Indigenous Genomics; and Ms Cheryl Bridge, Head, Kulunga, Telethon Kids Institute
Project Outline	Genomic and precision medicine represent a critical step change in health and medical sciences. Elucidation of the human genome has exposed the underlying biological architecture of human development and functioning, however diverse populations are not yet represented in, engaged with, nor do they have equitable access to, the benefits of genomic research. This is particularly true for Indigenous Australians, where much of this is due to a lack of engagement with Aboriginal and Torres Strait Islander peoples, and limited investment in enabling their leadership in genomics. Greater attention to self-determination in genomic science is long overdue, and the continued failure to respectfully engage and empower Indigenous communities runs the risk of further widening already significant health inequalities. This project will involve deep engagement with Indigenous communities across multiple jurisdictions within Australia to explore cultural understandings of kinship, relatedness, inheritance and genetics as a foundational step in seeking common ground between Indigenous culture and genomic sciences. The goal will be to guide the development of educational and engagement resources and methods that: raise awareness of the utility and benefits of genomics for Indigenous people; explore and document Indigenous understandings of genetics and inheritance; improve and evaluate genetic literacy in communities and conversely, understanding among the genomics community of Indigenous knowledge systems and ethical approaches to genetic research; utilise Indigenous knowledge systems as a foundation to empower communities in genomic research and clinical care; and develop best-practice models or policies that increase Community participation and retentions within the genetic health service pathways.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	* Undergraduate degree in sociology or anthropology. * Interest in Aboriginal health and wellbeing. * Strong communication skills. * Experience in conducting qualitative research.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:
Professor Alex Brown alex.brown@anu.edu.au

STopping Acute Rheumatic Fever Infections to Strengthen Health (STARFISH)

Research Theme	☒Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒Early Environment
Research Program	END Rheumatic Heart Disease
Start Date	Semester 1 2024
Chief Supervisor	A/Professor Asha Bowen
Other Supervisors	TBC
Project Outline	Rheumatic heart disease (RHD) is the leading cause of cardiovascular inequality between Indigenous and non-Indigenous Australians. It occurs as an autoimmune complication of acute rheumatic fever (ARF), triggered by preventable group A streptococcal (Strep A) infections. There is a critical evidence gap about how to prevent repeated or chronic recurrences of ARF, which lead to RHD. The key question of the STARFISH project is 'What are the most effective environmental health initiatives to reduce Strep A infections and prevent ARF among communities with the greatest risk?' Thus, the focus of the STARFISH program is on Strep A transmission and environmental risk factors. STARFISH comprehensively integrates a complementary and diverse team with skills in • research with Indigenous communities • infectious diseases • molecular microbiology • public and environmental health • housing; architecture • anthropology • primary health care • modelling • clinical trials • spatial demography • data linkage STARFISH (STopping Acute Rheumatic Fever Infections to Strengthen Health) is funded by the National Health and Medical Research Council Australia. The project is being led by researchers from the Telethon Kids Institute, University of Queensland, Harvard, Menzies, Peter Doherty Institute, and others, in partnership with Aboriginal and Torres Strait Islander communities.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	As a comprehensive multidisciplinary team, STARFISH is looking for candidates from across various science disciplines and fields (including social sciences). • Undergraduate degree in areas as listed above. • Excellent communication skills. • Become part of a highly innovative team with extensive support and mentorship. • Be willing to work in partnership with communities. • Have strong data analysis skills, writing skills and clinical experience. • Aboriginal people are strongly encouraged to apply.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
Ainslie Poore
STARFISHProgram@telethonkids.org.au

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

Research Theme	☒Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒Early Environment
Research Program	Healthy Skin & ARF Prevention, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	Semester 3 2023 / Semester 1 2024
Chief Supervisor	A/Professor Asha Bowen (Telethon Kids Institute)
Other Supervisors	Dr Anita Campbell (Telethon Kids Institute)
Project Outline	Staphylococcus aureus bacteraemia (SAB) is common, is not vaccine-preventable and optimal treatment has not been determined for children or adults. Each year, approximately 400 Australian children are hospitalised with SAB, remaining for an average of 2 weeks for treatment. This means time away from family, school and sometimes travelling a long way from home to hospital. Aboriginal children have double the rate of SAB compared to non-Aboriginal children (Campbell et al 2021). Treatment of Staphylococcus aureus bloodstream infection requires hospitalisation, prolonged antibiotics through an intravenous line, and frequently surgical management. Many different antibiotics are used to treat S. aureus infections, and currently doctors rely on guidelines or personal preference to decide which antibiotic to treat with, rather than evidence from clinical trials. The S. aureus Network Adaptive Platform (SNAP) is the most ambitious clinical trial for bloodstream infection globally to date, involving 11 countries, 58 sites and 7000 patients. SNAP aims to identify which antibiotic treatment options result in the least patients dying and improved outcomes. In contrast to a traditional clinical trial, the SNAP trial will examine multiple different antibiotic treatment options at the same time. By using an innovative, adaptive platform trial design, we hope to find treatments that save lives, reduce morbidity, are cost-effective and for the first time include newborns to the elderly in the same study. By including children, this will inform best practice treatment of S. aureus bloodstream infection across the life-course. There are currently limited Aboriginal and Torres Strait Islander triallists working directly in infectious diseases research at present in Australia. SNAP-PY has a range of projects for an Aboriginal clinician to undertake a research within the team. A scholarship to support an Aboriginal or Torres Strait Islander student is available.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	• MBBS/MD. Qualification if seeking PhD • Excellent communication skills. • Become part of a highly innovative team with extensive support and mentorship. • Have strong data analysis skills, writing skills and clinical experience.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☒ Full scholarship offered by project group
For more information, please contact: A/Prof Asha Bowen Asha.Bowen@telethonkids.org.au	

Knowledge Tree: Unlocking the voice of Indigenous people and communities for equitable and precise health care

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Indigenous Genomics - Australian Alliance for Indigenous Genomics
Start Date	1/07/2023
Chief Supervisor	Professor Gareth Baynam, Medical Director Rare Care Centre and Honorary Research Fellow, Telethon Kids Institute
Other Supervisors	Professor Timo Lassmann, Program Head, Precision Health, Telethon Kids Institute; Professor Alex Brown, Professor of Indigenous Genomics, Telethon Kids Institute and Australian National University; Associate Professor Azure Hermes, Deputy Director, National Centre for Indigenous Genomics; Libby Massey, Director Research and Education, Machado-Joseph Foundation; Professor Tudor Groza, Lead of Phenomics, Rare Care Centre; Professor Tom Gedeon, Curtin University, Director Optus Centre for AI; Dr Richard Palmer, School of Earth and Planetary Sciences, Lead Developer Cliniface; Professor Peter Robinson, Professor of Computational Biology, the Jax Laboratory; Mr Yarlalu Thomas, Precision Public Health Fellow and Inaugural Lyfe Languages Champion
Project Outline	Phenotyping is critical and cross-cutting for all genomics research, its translation and implementation. In a clinical context, phenotyping is a practitioner's daily work i.e., performing history, examination and investigations to diagnose and to inform culturally appropriate and safe implementation of treatment and care and its monitoring. Addressing phenotyping in a socially and culturally appropriate way is also key to diversity, equity, inclusion and scale. Phenotypic Standards (Phenopackets) have been progressed by the Global Alliance for Genomics and Health, the International Rare Diseases Research Consortium and others, and some precision phenotyping initiatives (Cliniface 3D facial analysis software and Lyfe Languages) have focused on addressing Indigenous inequity. At the level of geography tools such as Mappa (Mapping care closer to home) are advancing clinical care and integrating knowledge of Country, Lore, climatic conditions and language. However, compared to a primary focus on genotyping and other omics, a dedicated focus on phenotyping and phenomics (deep and precision phenotyping) has received comparatively little attention. Starting through the lens of rare diseases, and then expanding to more common disorders, the overarching aim is to progress phenotypic standards (Phenopackets, pedigree tools), ontologies (Human Phenotype Ontology, MAxO), and related technology interoperability and integration (omics, imaging, spatial analysis) to ensure the perspective of what communities want answers to guides and informs (gen)omic analyses to unlock pathways in health and disease.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Bachelor degree with Honours focused in one of the following areas: computer science, data science, statistics, biomedical science, linguistics or anthropology
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:
Professor Gareth Baynam
Gareth.Baynam@health.wa.gov.au

Understanding cancer in Indigenous kids

Research Theme	☒ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Cancer Centre
Start Date	Flexible, available immediately
Chief Supervisor	Dr Jessica Buck
Other Supervisors	Clinical or Indigenous Health researchers - depending on project
Project Outline	Very little is known about cancer in Indigenous children. Research has shown that Aboriginal kids with some types of cancer, such as leukaemia, have worse outcomes. Our clinicians believe that Aboriginal kids are more likely to experience side effects from their cancer treatment, though currently we have no evidence of this. This research aims to study cancer in Indigenous kids, including cancer biology, genomics, and community attitudes to research. Projects can be designed to suit your experience and interests. No previous experience in research or knowledge of cancer biology is required. For a med student or clinician, an ethics approved project is available immediately which involves reviewing clinical records of patients treated for cancer to determine side effects and long-term outcomes. For an honours or masters student interested in qualitative, community-based research, a project is available which involves developing workshops and surveys to understand the Indigenous community's attitudes and opinions to laboratory-based cancer research, including genomics and precision medicine. For PhD candidates with an interested in bioinformatics, genomics or cancer biology, a project could be designed around understanding the genomics of cancer and long-term side effects in Indigenous children. This research is Aboriginal-led, and preference will be given to Indigenous students, though all students will be considered.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Aboriginal people are strongly encouraged to apply - Motivated and enthusiastic individual - Ability to work in a multi-disciplinary team - Good organisational skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

Jessica Buck
Jessica.buck@telethonkids.org.au

BRAIN & BEHAVIOUR

Brain & Behaviour is a Research Theme which focuses on the core of many issues affecting the ongoing health and wellbeing of children and young people.

Our research investigates the developmental, genetic, family and environmental determinants of child wellbeing, and how clinical, educational and community practices can provide every child with the best opportunity for optimal health and development.

At the 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.

The Raine Study: Enabling research into the developmental origins of health and disease from pre-pregnancy into adulthood and older age

Research Theme	☒Indigenous Health ☒Brain & Behaviour ☒Chronic & Severe Diseases ☒Early Environment
Research Program	
Start Date	2024
Chief Supervisor	A/Prof Rebecca Glauert, Prof Romola Bucks (others dependent upon area of interest)
Other Supervisors	Other supervisors available at UWA, UND, Murdoch University; Curtain University, ECU; TKI
Project Outline	The Raine Study is one of the largest longitudinal, observational and multigenerational pregnancy cohort studies globally. It was established in Perth, Western Australia (1989-1991) to investigate the effect of perinatal health on childhood and adult health. It aims to improve human health and well-being by studying the life-course of a cohort of 'Western Australians' considering the multifaceted interactions of genetics, environment, phenotype, behaviour and other developmental outcomes. Generation 2 (Gen2) are the index participants of the cohort (n=2868), born to the 2900 women (Gen1) recruited into a randomised controlled trial of the influence of serial fetal ultrasounds on birth outcomes. The index participants (Gen 2) have been comprehensively phenotyped via physical assessments and questionnaires in 17 follow-ups over 33 years, including a set of "core measure" that have been habitually collected over the 17 follow-ups. Extensive data have been collected on health, mental health, behaviour, environment, social, educational, and work outcomes, accruing over 30,000 phenotypic data points, 30 million genetic data points [per person], and over 170,000 biosamples [in total], as well as linked data to WA government sources. Gen1, have been indirectly involved and assessed for essential demographics and health parameters; anthropometric, sociodemographic, and biological parameters, across 12 follow-up studies. A targeted Gen1 follow-up, known as the Gen1-26-year Follow-up Study (636 mothers/462 fathers), assessed sleep, obesity and activity. The Raine Study has become a 4 generational study with the additional participation of 109 grandmothers of the original Raine Study babies (Gen0) and more than 700 babies (Gen3) born to the Gen2 participants. The Raine Study is currently undergoing its 18th and largest ever follow-up, inviting Gen 1, 2 and 3 participants in for assessments, over the next 3 years and expecting over 5000 participants. As part of the follow-up we are collecting phenotypical data via questionnaires, physical assessments, matched biological measures and obtaining consents to link participants' Raine Study data to the Commonwealth and WA administrative datasets. AREAS OF RESEARCH FOCUS: This unique longitudinal cohort has been aiding researchers and policy makers to better understand the causes of human health and well-being for more than 30 years, influencing clinical practice, policies and programs. The Raine Study key datasets are organised within four overarching pillars of health research: 1. Physical Health (cardiometabolic, hearing, reproductive health, hormones, respiratory health, immunology, musculoskeletal, vision) 2. Mental Health (mood, psychology, mental health, cognition), 3. Lifestyle (environmental exposures, physical activity, sleep, diet, education and work, health risk behaviour) 4. Genetics (genetics, epigenetics, telomere length). There is an additional Biological Resources group, able to investigate areas of human biology (body composition, measures of aerobic and muscular fitness, facial

	characteristics (3D photos), nutrients levels (e.g. iron, vitamin D), infectious diseases, dental health, and skin (e.g. tattoos and skin age) The rich phenotypic data is complemented by available biosamples (antenatal serum for Gen1; cord blood samples and placenta tissue; whole blood; serum; plasma; faecal samples) collected throughout the follow-ups. Researchers from Australia and international collaborators have utilised the rich data sourced from the Raine Study to power breakthrough discoveries across all aspects of human health. This is an excellent opportunity for students to access rich and valuable sources of evidence about the developmental origins of health and disease from pre-pregnancy into adulthood and older age and continue to contribute to scientific discoveries. A number of potential supervisors are available, please contact the Science team at rainestudyscience@uwa.edu.au to discuss your interests and they will further direct you. More details on the available data can be viewed at https://rainestudy.org.au/
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in public health/biomedical science/nursing/medicine or related disciplines; biology/biostatistics Good statistical skills Highly developed written, verbal and communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
For more information, please contact: rainestudyscience@uwa.edu.au blagica.penova-veselinovic@uwa.edu.au	

The Design of a Trauma-Informed Parenting Program

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	28/02/2024
Chief Supervisor	Dr Alix Woolard
Other Supervisors	Dr Maryam Boutrus, Dr Louise Delane
Project Outline	This study aims to develop a trauma-informed parenting program in WA, focusing on parents whose newborns have been admitted to the neonatal intensive care unit (NICU). Trauma from NICU experiences can have long-lasting effects on parents' mental health and their child's wellbeing. Early intervention during the child's first years is crucial for improving parent-infant relationships, parenting skills, and overall mental and emotional wellbeing. This project is part of the Child Trauma Group. The Group is part of the Youth Mental Health research team and is supported by Embrace @ Telethon Kids Institute. It is an interdisciplinary Group with a mission to improve the health and wellbeing of people exposed to traumatic events in childhood.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	If Masters: Honours degree in psychology, public health or a related field If PhD: Masters degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Refugee Experiences of Cultural Safety in Mental Health Services

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	28/02/2024
Chief Supervisor	Dr Alix Woolard
Other Supervisors	Tamara Lipscombe, Dr Louise Delane
Project Outline	Many refugees have experienced significant life adversity before, during, and after migration. In 2022, an unprecedented 108.4 million people were forcibly displaced worldwide (United Nations High Commissioner for Refugees, 2023). Developing trauma-informed cultural safety practices within mainstream mental health services is necessary for refugees' recovery, healing, and resilience. In this study, you will develop a mixed-method survey to explore refugees' experiences of cultural safety within mental healthcare. The findings from this study may assist in identifying more culturally relevant ways of working with refugee families for improved mental health outcomes. This project is part of the Child Trauma Group. The Group is part of the Youth Mental Health research team and is supported by Embrace @ Telethon Kids Institute. It is an interdisciplinary Group with a mission to improve the health and wellbeing of people exposed to traumatic events in childhood.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	If Masters: Honours degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Analysis of Mental Health Content on TikTok

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	28/02/2024
Chief Supervisor	Dr Alix Woolard
Other Supervisors	N/A
Project Outline	Young people view the accessible health information available online as simple and accurate, meaning it can be an effective medium for education. In recent years, TikTok has become an increasingly popular source of advice, validation and information. TikTok is widely used to disseminate both personal experiences of users and mental health education and information. This project will explore and analyse the content related to mental health on TikTok. This project is part of the Child Trauma Group. The Group is part of the Youth Mental Health research team and is supported by Embrace @ Telethon Kids Institute. It is an interdisciplinary Group with a mission to improve the health and wellbeing of people exposed to traumatic events in childhood.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	If Masters: Honours degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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The Design of a Self-Directed Trauma Program

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	28/02/2024
Chief Supervisor	Dr Alix Woolard
Other Supervisors	Click or tap here to enter text.
Project Outline	This project aims to develop a primarily self-directed and trauma informed program for children and adolescents in WA who have experienced a burn injury. Burn injuries may be traumatic and young people who experience them have an increased risk of poor mental health post-injury. Our research has already shown the benefits of a six-week intervention to promote mental health recovery in children and adolescents who have sustained a burn injury. We developed this intervention in consultation with focus groups of caregivers, young people and researchers/clinicians. The six-week intervention was delivered by a researcher in weekly sessions with each participant. This project will develop a primarily self-directed intervention to promote mental health recovery in children and adolescents who have sustained a burn injury. As such, this intervention will be less resource-intensive than the current model of weekly sessions with a researcher. It is anticipated that self-directed intervention could become a routine part of clinical practice for young people that experience a burn injury. This project is part of the Child Trauma Group. The Group is part of the Youth Mental Health research team and is supported by Embrace @ Telethon Kids Institute. It is an interdisciplinary Group with a mission to improve the health and wellbeing of people exposed to traumatic events in childhood.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Masters degree in psychology, public health or a related field Ability to conduct quantitative and qualitative research Excellent writing and communication skills Ability to work as part of a team Experience collaborating with community members, stakeholders and young people
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Promoting Early Self-Regulation

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Development and Disability
Start Date	1/01/2024
Chief Supervisor	Dr Amy Finlay-Jones
Other Supervisors	Jack Brett
Project Outline	Child self-regulatory difficulties (sleeping, settling, and managing emotions and behaviour) are one of the most common reasons parents seek support in early childhood. 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. This project may comprise some or all of the following objectives, depending on the level of study: Conducting discrete choice experiments to determine the ideal characteristics of interventions to promote self-regulation. Testing a model of co-regulation effectiveness. Understanding variation in co-regulation practices across cultures. This project is part of a broader program of work conducted by the Early Neurodevelopment and Mental Health team examining self-regulation difficulties in infants and toddlers. There is the potential to develop PhD ideas with the project team.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	All students are expected to have an interest in infant mental health and a commitment to anti-racist and equity-promoting practice.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Raising Compassionate Kids

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Development and Disability
Start Date	1/01/2024
Chief Supervisor	Dr Amy Finlay-Jones
Other Supervisors	Click or tap here to enter text.
Project Outline	Self-compassion refers to the capacity to treat oneself with kindness and understanding during times of difficulty, while compassion refers to sensitivity towards others' suffering and the motivation to alleviate it. Compassion and self-compassion are cornerstones of emotional wellbeing, relational health, and prosocial behaviour. However, little is understood about how children develop compassion for themselves or others during early childhood. There are several options for student projects in this space, including observational and experimental studies to determine antecedents and consequences of parent/child compassion and/or developing and trialling interventions to promote these outcomes. NB Dr Finlay-Jones is a certified instructor of several compassion and self-compassiontraining programs and can guide interested students on the use of these in the research.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	All students are expected to have an interest in early childhood mental health and a commitment to anti-racist and equity-promoting practice.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Pregnancy to Parenthood: Promoting better perinatal and infant mental health outcomes in Western Australia

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Development and Disability
Start Date	1/01/2024
Chief Supervisor	Dr Amy Finlay-Jones
Other Supervisors	Ms Rochelle Matacz
Project Outline	Pregnancy to Parenthood is a community organisation working to deliver perinatal and infant mental health services to those in our community who need them most. An opportunity exists to work with the service to evaluate their outcomes data, support co-design and analysis of workforce development initiatives, and contribute to creating systems change for perinatal and infant mental health in Western Australia. The specific details of a project in this space will be defined in consultation with the organisation and the project team.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	All students are expected to have an interest in early childhood mental health and a commitment to anti-racist and equity-promoting practice.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Predicting outcomes in early-stage mental health disorders (PRE-EMPT) - a data driven project

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	1/02/2024
Chief Supervisor	Professor Ashleigh Lin
Other Supervisors	Blake Caave, Professor Stephen Wood
Project Outline	There is an exciting opportunity for students to be part of a NHMRC Centre of Research Excellence (CRE) which is focused on predicting outcomes in early-stage mental disorders ('PRE-EMPT'). This project aims to use existing databases across Australia, the Netherlands, United Kingdom, and Germany to better understand the predictors and mechanisms associated with onset of a range of mental disorders in young people. Perth is specifically focused on using birth cohort data (Raine Study and ALSPAC), applying a range of analytical techniques to longitudinal data to develop prediction models of mental health outcomes. However, there are opportunities for working on clinical datasets. This project would suit a student with a strong interest in mental health who has excellent data analytic skills. The student should have a desire to gain experience in epidemiology and learn new predictive modelling techniques. This project will provide excellent opportunities for co-authorship and collaboration across Australia and Europe, with potential for extended visits to European collaborators. The specific project can be tailored to the interest of the student.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in fields related to Psychology, Public Health, or Statistics • Excellent statistical skills • Excellent written and communication skills • Ability to work with, accept and respect diverse peoples
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Investigating the popularity and use of online food delivery platforms (e.g., Uber Eats, Menu Log, Deliveroo)

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Food and Nutrition
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp (Telethon Kids Institute)
Other Supervisors	Dr Alexia Bivoltsis (Telethon Kids Institute), Frith Klug (Telethon Kids Institute)
Project Outline	Online food delivery platforms, such as Uber Eats, Menu Log and Deliveroo, offer consumers a convenient and fast delivery service of foods and drinks sourced from foodservice partners (e.g. restaurants, quick service restaurants). There is a need to assess the impact of this emergent segment of the foodservice sector on diet and diet-related health. The aim of this student project is to perform a detailed review of the scientific peer-reviewed literature and summarise what research has been done to-date on online food delivery platforms, both within Australia and overseas. A secondary aim is to design and conduct a survey to ascertain the popularity and use of online food delivery platforms among Australian teenagers, young adults and adults. Further work and methodologies could be employed for larger sized research projects (i.e., PhD).
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in nutrition, public health or related field. 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	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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An investigation of population-level trends in nutrition knowledge, attitudes and behaviours

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Food and Nutrition
Start Date	Negotiable
Chief Supervisor	Dr Gina Trapp, Head of Food and Nutrition, Telethon Kids Institute
Other Supervisors	Dr Gina Ambrosini, WA Department of Health
Project Outline	The Western Australian Nutrition Monitoring Survey Series (health.wa.gov.au) (NMSS) is the only ongoing population nutrition survey in Australia. The NMSS was designed to investigate Western Australian adults' nutrition knowledge, attitudes and behaviours related to the Australian Dietary Guidelines. It was first deployed in 1995 and then in 1998, 2001, 2004, 2009, 2012, 2015 and 2022. In addition to dietary intake, the NMSS collects unique information on: attitudes to food and nutrition policies and interventions; perceived access to healthy food; enablers of healthy eating; attitudes to breastfeeding; self-rated food preparation skills; nutrition knowledge; sources of nutrition information; and attempts and methods used to lose weight. A large amount of cross-sectional data has been collected in the NMSS through the 8 surveys conducted between 1995 and 2022. However, relatively few peer reviewed publications or evidence briefs have come out of these datasets. It's largely untapped, providing a unique opportunity for a PhD or Master's project.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Quantitative data analysis - 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	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Capacity of community-based sport organisations to support participation of young people with chronic conditions

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Early Neurodevelopment and Mental Health
Start Date	Early 2024 (January-March)
Chief Supervisor	Dr Hamsini Sivaramakrishnan (Telethon Kids Institute)
Other Supervisors	Dr Amy Finlay-Jones (Telethon Kids Institute) Dr Bonnie Furzer (University of Western Australia)
Project Outline	Children and young people with chronic health conditions have different experiences depending on their diagnosis and symptoms. Physical activity and sport participation have several physical and mental health benefits for children and young people with chronic conditions. However, a key barrier to participation is the lack of appropriate opportunities that are able to sufficiently cater to the specific requirements of chronic conditions. There is a need to upskill providers of community-based physical activity programs to better support the engagement of children and young people with chronic conditions. This project seeks to gain an understanding of the readiness or capacity of community-based physical activity organisations to support participation of children and young people with chronic conditions.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Interest in child well-being, health promotion, and chronic conditions research Excellent interpersonal, written, and oral communication skills Ability to conduct quantitative research and statistical analysis (SPSS)
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Associations between sport participation and social belongingness in children with chronic health conditions

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Early Neurodevelopment and Mental Health
Start Date	Early 2024 (January-March)
Chief Supervisor	Dr Hamsini Sivaramakrishnan (Telethon Kids Institute)
Other Supervisors	Dr Amy Finlay-Jones (Telethon Kids Institute) Dr Bonnie Furzer (University of Western Australia)
Project Outline	Social connectedness is a key component of a child's quality of life. Children with chronic health conditions are more vulnerable to experiencing isolation and social exclusion than their healthy peers. Participation in sport is known to provide a means to develop a social network and experience a sense of belongingness. There is a need to understand the experiences and associations of sport participation and social connectedness in children with chronic conditions. There are several options for student projects in this space, including qualitative and quantitative studies, and the potential to use existing datasets.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Interest in child well-being and chronic conditions research Excellent interpersonal, written, and oral communication skills Ability to conduct quantitative research OR qualitative research and analysis
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Physical activity participation in children with chronic conditions: understanding parent anxiety

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Early Neurodevelopment and Mental Health
Start Date	Early 2024 (January-March)
Chief Supervisor	Dr Hamsini Sivaramakrishnan (Telethon Kids Institute)
Other Supervisors	Dr Amy Finlay-Jones (Telethon Kids Institute) Dr Bonnie Furzer (University of Western Australia)
Project Outline	Parents play an important role in in children's experience of chronic conditions. While physical activity has several physical and mental health benefits for children with chronic health conditions, parental attitudes can influence their child's ability to participate in physical activity. Prior research indicates that parents of children with chronic conditions are hesitant to involve their children in physical activities due to concerns of worsening their child's symptoms. There remains a need to gain a deeper understanding of parent anxiety regarding their child's participation in physical activity. There are several options for student projects in this space, including qualitative and quantitative studies to better understand parent anxiety for their child's participation in physical activity.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Interest in child well-being and chronic conditions research Excellent interpersonal, written, and oral communication skills Ability to conduct quantitative OR qualitative research and analysis
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Family Friendly Environments: Understanding neighbourhood influences on early child health and development

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity, Health and Development (PLAYCE Team): Healthy Behaviours & Environment Neighbourhood
Start Date	Flexible: 2023-2024
Chief Supervisor	Associate Professor Hayley Christian
Other Supervisors	Dr Andrea Nathan
Project Outline	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. The Australian Research Council Centre of Excellence for Children and Families over the Life Course (the Life Course Centre) is an international collaboration of 21 organisations working to identify the drivers of deep and persistent disadvantage and develop innovative solutions to address it. The successful HDR candidate will also be a student member of the Life Course Centre, which qualifies them to apply for travel grants and attend professional development courses. A full PhD scholarship and top-up scholarship is available for a suitable candidate.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	• Ability to conduct quantitative and qualitative research • Excellent writing skills • Statistical analysis (SPSS/SAS/STATA/R) • 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, Data Science or related
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:
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BEACHES - Longitudinal data study of built environments and child risk factors for non-communicable disease

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity, Health and Development (PLAYCE Team); Healthy Behaviours & Environment Neighbourhood; and the ORIGINS Project
Start Date	Flexible 2023-24
Chief Supervisor	Associate Professor Hayley Christian (Telethon Kids Institute & UWA)
Other Supervisors	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	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	• 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, Data Science or related
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Health and Development Benefits of Pet Ownership

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity, Health & Development (PLAYCE Team): Healthy Behaviours and Environment Neighbourhood
Start Date	Flexible: 2023/2024
Chief Supervisor	Associate Professor Hayley Christian
Other Supervisors	Emma Adams
Project Outline	This research forms part of the PLAYCE program of research: Play Spaces and Environments for Children's Physical Activity. PLAYCE examines the influence of the physical, social, and policy environments on young children's physical activity, sedentary behaviour, weight status, and development. Students will be able to work on the PLAYCE Cohort study, which has information on children's movement behaviours and development captured at three time points from early to middle childhood. Pet ownership, and in particular dog ownership, has been positively associated with increased physical activity and improved developmental outcomes in children. This project involves quantitative research investigating the role of dog ownership on children's health and development outcomes and exploring in what contexts dog ownership is associated with these outcomes. Research questions may include: longitudinal effects on movement behaviours of family dog acquisition in early childhood; factors associated with children's dog walking behaviours (e.g., neighbourhood perceptions, features of the built and natural environments, socio-demographics); comparing children's independent mobility in dog owning vs. non-dog owning families. This project will provide information on how to best leverage dog ownership to promote children's health.
Suitable For	☐ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	-Ability to conduct quantitate analysis -Excellent writing skills -Statistical analysis (SPSS/SAS/Stata) -Ability to work as part of a team -Good interpersonal and communication skills For Masters candidates: -Degree in Public Health, Epidemiology, or related
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Impact of Nature on Young Children's Health

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity, Health & Development (PLAYCE Team): Healthy Behaviours and Environment Neighbourhood
Start Date	Flexible 2023-2024
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)
Other Supervisors	Phoebe George (Telethon Kids Institute, UWA), Emma Adams (Telethon Kids Institute)
Project Outline	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 nature is an emerging field of research with most studies conducted in the last 5 years. Overall, studies have shown that natural spaces (green and blue spaces) are associated with several physical and mental health benefits. Furthermore, planetary health, through pro-environmental behaviours are potential outcomes of children's interaction with natural blue and green spaces. This project will examine how time spent in natural spaces could impact child health, development and environmentally friendly behaviours. 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 scope to examine the effects of climate change/planetary health on experiences of climate worry and the ways in which this is managed and mediated in children and young people. This project's findings have the potential to advance understanding of the relationship between natural spaces and health in the local context. In the longer term, the research will inform recommendations to ensure people continue to receive health benefits from natural spaces as well as protecting these natural spaces for generations to come.
Suitable For	☒ Honours ☒ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	-Ability to conduct quantitative and qualitative research -Excellent writing skills -Statistical analysis (SPSS/SAS/R) -Ability to work as part of a team -Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Play Active Program - national

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity, Health and Development (PLAYCE Team): Healthy Behaviours & Environment Neighbourhood
Start Date	Flexible 2023-2024
Chief Supervisor	Associate Professor Hayley Christian
Other Supervisors	Dr Andrea Nathan
Project Outline	Physically active play is critical during the early years of life for physical and mental health. Young children enjoy being active while playing. Yet, many young children do not get enough daily physical activity to support their health and development. With our national and state partners we are scaling-up the Play Active program to evaluate the benefits and costs of supporting childcare services throughout Australia to boost 100,000's of children's daily active play. Our multi-sector partner organisations include major stakeholders in the childcare sector. We are working closely with Goodstart Australia, Australian Childcare Alliance, Early Childhood Australia, state governments and our other partners to adapt our evidence-informed Play Active program for scalable delivery. Play Active is part of the Australian Research Council Centre of Excellence for Children and Families over the Life Course (the Life Course Centre) - an international collaboration of 21 organisations. The successful HDR candidate will also be a student member of the Life Course Centre, which qualifies them to apply for travel grants and attend professional development courses. A full PhD scholarship and top-up scholarship is available for a suitable candidate.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Ability to conduct quantitative and qualitative research Excellent writing skills An interest in knowledge transfer Good interpersonal, communication and team skills Desirable: Statistical analysis (SPSS/SAS/STAT/R) For PhD candidates: Minimum 2A Honours degree For Masters candidates: Degree in Public Health, Epidemiology, Data Science or related
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Physical Activity Health & Development (PLAYCE Team): Healthy Behaviours and Environment Neighbourhood
Start Date	Flexible: 2023-2024
Chief Supervisor	A/Professor Hayley Christian (Telethon Kids Institute, UWA)
Other Supervisors	Click or tap here to enter text.
Project Outline	This research forms part of the PLAYCE program of research – Places Spaces & Environments for Children's Physical Activity. PLAYCE examines the influence of the physical, social and policy environment on young children's physical activity, sedentary behaviour, eating behaviour, weight status, sun exposure and development: at home, around the neighbourhood 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. 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. 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).
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	-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 For PhD candidates: -Minimum 2A Honours degree For Masters candidates: -Degree in Public Health, Epidemiology, or related
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing a school-built environment audit tool to prevent bullying behaviour and improve the mental health of primary and secondary school students

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Food & Nutrition
Start Date	1/03/2024
Chief Supervisor	Dr Jacinta Francis (Telethon Kids Institute)
Other Supervisors	Dr Julie Saunders (The University of Western Australia)
Project Outline	Peer bullying and aggression are key contributors to mental illness among children, contributing to loneliness, distress, and poor academic performance. Although a number of school-based prevention and intervention approaches to prevent bullying have been developed internationally, many of these cease to be effective after Year 9, with some programs inadvertently increasing bullying behaviour. New approaches to prevent bullying are needed. This project aims to develop and validate primary and secondary school audit tools to measure features of the school indoor and outdoor built environment associated with bullying behaviour and mental health. The audit tool will be developed and informed by a review of existing audit tools used in schools, parks and child-care centres and a Delphi survey sent to stakeholders to confirm, add or delete priority audit items. The audit tools will be assessed to determine and enhance their psychometric properties and once validated, used to scan Western Australian schools.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Undergraduate degree in public health, health promotion, psychology, education, nursing or similar discipline. - For Masters and PhD: First-class Honours or equivalent.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Harnessing the power of nature prescriptions to enhance the mental health of paediatric hospital patients, staff, and families

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Food & Nutrition
Start Date	1/03/2024
Chief Supervisor	Dr Jacinta Francis (Telethon Kids Institute)
Other Supervisors	Dr Gina Trapp (Telethon Kids Institute); Dr Paula Hooper (The University of Western Australia)
Project Outline	Exposure to greenspace in paediatric hospital settings has the potential to improve the mental health and wellbeing of patients, staff, and patients' families. Nature prescription programs require health practitioners to prescribe experiences in nature for people living with health conditions. While such programs have been linked to better mental health outcomes, few studies have explored their effectiveness in paediatric hospital settings. A Perth Children's Hospital (PCH) greenspace renovation commenced in June 2023 to include spaces for nature play, natural learning, entertainment, and relaxation. This study aims to i) explore the impact of the greenspace renovation on the health and wellbeing of hospital patients, staff, and families; and ii) develop and pilot test a nature prescription program for paediatric patients. This innovative natural experiment has significant implications for healthcare and urban planning and will support nature-based initiatives that improve the health and wellbeing of patients, staff, and families in paediatric hospital settings.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Undergraduate degree in public health, health promotion, psychology, nursing or similar discipline. - For Masters and PhD: First-class Honours or equivalent.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Does neighbourhood cohesion and physical activity mediate the relationship between green space and mental health?

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Food & Nutrition
Start Date	1/03/2024
Chief Supervisor	Dr Jacinta Francis (Telethon Kids Institute)
Other Supervisors	Dr Julie Saunders and Dr Paula Hooper (The University of Western Australia)
Project Outline	Investigations into green space and mental health have gained momentum in recent decades, with numerous studies linking green space attributes to both mental illness and wellbeing. While more research is needed into the pathways between greenspace and mental health, greenspace has the potential to improve mental health by reducing stress, facilitating physical activity, and fostering positive social ties. The How Areas in Brisbane Influence healTh And activity (HABITAT) study is a multi-level study of over 8,000 adult participants and 200 neighbourhoods. This project involves the secondary analyses of a longitudinal dataset to explore pathways between neighbourhood greenspace and mental health, specifically the potential mediators of social relations, physical activity, and stressful life events across four timepoints. Objectives include: i) exploring the role of social ties, physical activity, and stressful life events on the relationship between the built environment and mental health; ii) identifying key park attributes that influence mental health by different sub-populations (i.e., age, gender, parents, grandparents, children living at home, and age of children living at home); and iii) identifying thresholds for key park attributes that influence mental health for different sub-populations and socio-economic areas.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Undergraduate degree in public health, health promotion, psychology, or similar discipline. - Experience conducting statistical analyses. - For Masters and PhD: First-class Honours or equivalent.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Mental health moments for children with intellectual disability

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	1/03/2023
Chief Supervisor	Dr Jacinta Saldaris
Other Supervisors	A/Professor Jenny Downs Dr Nicole Hill
Project Outline	It is estimated that approximately 190,000 children across Australia have intellectual disability. Cognitive and communication impairments and poor coping skills lead to poor self-esteem, increased anxiety and other mental health challenges in this population. This can interfere with interpersonal skills and community inclusion. Public health strategies to improve mental health and wellbeing in children with intellectual disabilities are needed to support within a public health framework. This project will conduct interviews with children with neurodevelopmental disorders and intellectual disability and their parents to explore mental health experiences, challenges, and management. The goal is to uncover the mental health moments or strategies that enable relief from mental distress, resulting in better mood, reduced anxiety or calmer behaviours. This qualitative study will inform the development of future interventions.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	- Excellent interpersonal and communication skills - Interest in disability and family wellbeing - Interest in qualitative research - Ability to work independently and as part of a team
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Supporting health literacy in parents of children with disability-related health needs

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	1/03/2024
Chief Supervisor	A/Prof Jenny Downs
Other Supervisors	Dr Rachel Skoss, Ms Jess Keeley
Project Outline	Health literacy is a broad term for a range of capacities that are required for people to effectively navigate to, negotiate and engage with health, disability and community services. Importantly, health literacy is not only about the capacity of the family seeking services, but also about the responsiveness and capacity of organisations to effectively respond to the varying needs of their clients. Health literacy is a useful lens to understand how services can be better designed, how families can be better supported to achieve good health, and to identify opportunities where capacity can be built in both front-line practitioners and families. This project will (1) investigate variation in health literacy profiles of parents of children who experience disability; (2) conduct interviews or focus groups with specific consumer, clinician and service provider groups to understand strategies to address health literacy; and in response, (3) develop capacity building resources and evaluate their effectiveness.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in an area of health sciences Excellent communication skills Interest in disability and family wellbeing Interest in qualitative and quantitative research skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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What does better look like for children with Developmental Epileptic Encephalopathies?

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	1/03/2024
Chief Supervisor	A/Prof Jenny Downs
Other Supervisors	Ms Jess Keeley, Dr Jacinta Saldaris
Project Outline	Developmental Epileptic Encephalopathies (DEE) are a group of rare and severe epilepsy syndromes, characterised by refractory seizures, often early onset, and developmental impairments. They are usually genetically caused. New therapeutics are being developed that have potential to reduce seizures. Other new treatments will be gene therapies that have potential to improve the fundamental aspects of the condition such as developmental impairments. This project will involve interviews with parents and analyses to explore what differences in functioning that could be achieved with the new therapeutics that are important for the child and family, and the factors that influence the trade off between the risks of testing new medicines and gains.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in an area of health sciences Excellent communication skills Interest in disability and family wellbeing Interest in qualitative research skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Profiles and patterns of community participation in children with intellectual disability

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	1/03/2024
Chief Supervisor	A/Prof Jenny Downs
Other Supervisors	Dr Marie Blackmore, Dr Jacinta Saldaris
Project Outline	Community participation is an important determinant of quality of life in children with intellectual disability yet the amount of participation is lower than for children in the general community. We have an extensive cross-sectional dataset that describes attendance and involvement in opportunities for community participation and potential influencing factors in children with intellectual disability. For this study, the student will analyse this dataset, using descriptive statistics to document participation profiles and mutlivariate linear regression to estimate how the child's community participation varies by different child, caregiver and family factors.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in an area of health sciences Excellent communication skills Interest in disability and family wellbeing Interest in qualitative research skills
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Pandemic prepardness and the careplans for families of children and young people with rare diseases

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	TBA
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Jess Keeley (Telethon Kids Institute) Dr Marie Blackmore (Telethon Kids Institute)
Project Outline	Rare diseases affect less than 1 in 2000 people, they are chronic, complex, often progressive, and most have a genetic origin. While individual diseases are rare, they are common as a group with between 3.5% and 5.9% of the world's population being affected. People with rare disease experience additional risk factors during pandemic events that can significantly impact an individual's health, well-being, and increase mortality rates. It is imperative that families, communities, and government plan now to protect people with rare disease in future pandemic events and one way that families can prepare is to create a care plan. This project would involve interviewing clinicians and parents about the physical and mental health needs of children and young people with rare diseases during pandemic events. This qualitative analysis would be complemented by a review of literature regarding care plans for people with disability in Australia and around the world. An evidence-informed accessible resource would be developed for families of children and young people with rare disease to assist in creating a care plan for future pandemic events.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	-Undergraduate degree in an area of health sciences -Excellent communication skills -An interest in disability and family wellbeing -Interest in qualitative research skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Pandemic preparedness and the resilience of children and young people with rare diseases and their families

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	TBA
Chief Supervisor	A/Professor Jenny Downs (Telethon Kids Institute)
Other Supervisors	Jess Keeley (Telethon Kids Institute) Dr Marie Blackmore (Telethon Kids Institute)
Project Outline	Rare diseases affect less than 1 in 2000 people, they are chronic, complex, often progressive, and most have a genetic origin. While individual diseases are rare, they are common as a group with between 3.5% and 5.9% of the world's population being affected. People with rare disease experience additional risk factors during pandemic events that can significantly impact an individual's health, well-being, and increase mortality rates. It is imperative that families, communities, and government plan now to protect people with rare disease in future pandemic events. Recent research conducted at Telethon Kids Institute found that some families of children and young people with rare disease benefited from the resilience they experienced due to caring for someone with complex care needs. This project would involve interviewing children and young people with rare disease and their families to understand the role of resilience and other protective behaviours in maintaining health and wellbeing during the COVID-19 pandemic. This qualitative analysis would be complemented by a review of literature on resilience and COVID-19 experiences of people with rare disease and their families. An evidence-informed accessible recourse would be developed for children and young people with rare disease and their families to enhance resilience and other protective behaviours in future pandemic events.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	-Undergraduate degree in an area of health sciences -Excellent communication skills -An interest in disability and family wellbeing -Interest in qualitative research skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Evaluation of the Early Years Partnership: The Impact of Family and Domestic Violence on Children's Early Childhood Development and Health

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Population Health (Human Development and Community Wellbeing)
Start Date	1/02/2024
Chief Supervisor	Dr Jon Sae-Koew
Other Supervisors	Dr Lynne Millar, Dr Renee Teal, Patricia Lewis
Project Outline	The Early Years Partnership (EYP) is a partnership between the WA State Government, Minderoo Foundation and Telethon Kids Institute as the evidence and evaluation partner. Our four partner communities are in metropolitan, regional, remote and very remote areas. With a commitment to listen and work collaboratively with communities, the Partnership aims to create lasting change for WA children (aged 0-4). We're doing this by increasing awareness about the importance of early development, strengthening whole-of-community governance and collaboration, providing the best data and evidence and mobilising resources at the community, state, and federal levels. The detrimental effects of children's experiences of family and domestic violence (FDV) have been consistently documented in the research literature across various developmental dimensions - psychological, social, physical and cognitive. One of the partner communities, the Central Great Southern, has identified FDV as a priority issue. Understanding the drivers and experiences of families experiencing FDV is crucial to the development of strategies for addressing the issue. They key aim of this project will be to examine the effect of FDV on early childhood developmental outcomes through a quantitative or qualitative exploration of data. Moreover the project may also involve investigating the core elements that comprise the successful dissemination and implementation of FDV programs (particularly in regional and remote settings). The project may involve a scoping review of up-to-date research, a qualitative exploration of key community stakeholders in relation to FDV or a quantitative analysis of FDV data.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	• Interest in FDV and child development • Excellent communication skills • Ability to work autonomously, with some direction • High level written and oral communication skills • High level organisational and time management skills • Interest in quantitative and/or qualitative mixed methodological research • Relevant undergraduate degree • Eligible for Honours at a University or enrolled in Masters degree by coursework
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Evaluation of the Early Years Partnership: Investigating the Socioeconomic Impacts of Housing Affecting Early Childhood Health and Development

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Population Health (Human Development and Community Wellbeing)
Start Date	1/02/2024
Chief Supervisor	Dr Jon Sae-Koew
Other Supervisors	Dr Lynne Millar, Dr Renee Teal
Project Outline	The Early Years Partnership (EYP) is a partnership between the WA State Government, Minderoo Foundation and Telethon Kids Institute as the evidence and evaluation partner. Our four partner communities are in metropolitan, regional, remote and very remote areas. With a commitment to listen and work collaboratively with communities, the Partnership aims to create lasting change for WA children (aged 0-4). We're doing this by increasing awareness about the importance of early development, strengthening whole-of-community governance and collaboration, providing the best data and evidence and mobilising resources at the community, state, and federal levels. A child's access to safe, stable and adequate shelter is recognised as a basic human need and is crucial for children's physical and mental health and development. Factors related to the provision of and access to adequate shelter (e.g., cost of rent, insufficient housing availability, and poor housing conditions) may play a major role in the context of early childhood development. Understanding the drivers of housing quality, affordability, conditions and tenure will inform strategies that the EYP can undertake to address this issue. The focus of this project will be to examine the most-up-to-date research literature on the factors that impact and influence the context of housing in relation to early child health and development (aged 0-4) and the kinds of supports and strategies used to address them. In this project you will develop a scoping review specifically looking at systemic, community and institutional contextual factors. Moreover, this project will also examine the best practice supports or programs that have been applied or have worked to address various aspects of housing within communities. This project may also include quantitative data analysis of housing factors in relation to early childhood health and development or interviewing and engaging with key community leaders about their experiences and knowledge of housing in communities within WA.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	• Excellent communication skills • Ability to work autonomously, with some direction • High level written and oral communication skills • High level organisational and time management skills • Some statistical skills and knowledge • Relevant undergraduate degree • Eligible for Honours at a University or enrolled in Masters degree by coursework
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Poor sleep in children with rare disorders: Caregiver and service provider perspectives

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	1/03/2024
Chief Supervisor	Dr Marie Blackmore
Other Supervisors	A/Prof Jenny Downs, A/Prof Gabby Rigney
Project Outline	Children with rare diseases have more sleep problems (ranging from 11 to 79% across rare diseases) than typically developing children, particularly insomnia (chronic and frequent difficulties falling and staying asleep). Their sleep problems are complex and likely to be due to combinations of biological (e.g., epilepsy, medication side-effects, pain, challenging behaviours), and environmental factors (e.g., sleep habits and heavy reliance on parent involvement for settling). Accordingly, treatments for poor sleep are complex and address biological (medical) and non-biological (environmental) causes of sleep problems. Poor sleep is a top priority for parents of children with rare disorders because it is a critical determinant of the child's quality of life and parent and family wellbeing. To directly address insomnia, behavioural treatments are the first line of management yet evidence for behavioural treatments is very poor in children with rare diseases. This study will use qualitative interviews for data collection. The student will explore with parents the nature of the child's sleep difficulties, the impacts on the child and family, and helps, hindrances and strategies to managing poor sleep. Additional interviews could be conducted with clinicians to explore their perspectives on helps, hindrances and strategies to managing poor sleep in children with rare disorders. Data will inform the content of a behaviour modification program to manage insomnia in children with a rare diseases.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Click or tap here to enter text.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Impact for Tourette's: National Survey Evaluating the Unmet Needs of Children with Tourette Syndrome in Australia

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Disability
Start Date	1/03/2024
Chief Supervisor	Dr Melissa Licari
Other Supervisors	Prof Valsamma Eapen A/Prof Jenny Downs
Project Outline	Tourette syndrome is a common neurodevelopmental disorder (1 in 100 children) characterised by uncontrollable movements and vocalisations (tics). Currently there is no uniform approach or national guideline for the assessment of Tourette syndrome or care pathways. Wait times to gain a diagnosis are 3-4 years and access to therapies are lacking because there are limited clinicians and allied health professionals who specialise in the condition. In addition, Tourette syndrome is not currently recognised as a disability by the NDIS, despite the significant functional impact the condition has physically, academically, socially and emotionally. Children with Tourette syndrome and tic related conditions are falling through the gaps and this is negatively impacting on quality of life. Impact for Tourette's will bring together the voices of consumers, families, researchers, service providers, clinicians and the Tourette Syndrome Association of Australia. We will co-develop and deliver Australia's first national survey to provide large-scale evidence of the unmet needs of this community. Findings and key recommendations from the survey will be delivered in a national report that will inform a clinical guideline.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in psychology/science/public health/related discipline Excellent writing skills Ability to work as part of a team Good interpersonal and communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The effectiveness of Youth Sanctuary for young people who have experienced a suicidal crisis

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	1/01/2024
Chief Supervisor	Dr Nicole Hill
Other Supervisors	Professor Ashleigh Lin
Project Outline	This project will investigate the effectiveness of Youth Sanctuary, a 5-night, 5-day therapeutic intervention for young people who have experienced chronic suicidal ideation. The project will examine the impact of intentional peer support models for young people who attend the Youth Sanctuary on suicidal ideation outcomes. The project will involve the collection and analysis of survey data and qualitative interviews with young people who attend the youth sanctuary.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	A minimum of a bachelors degree in education, psychology, or other relevant field. Excellent interpersonal skills Highly organised with demonstrated ability to manage projects and meet deadlines Ability to work independently Excellent written skills The candidate will be provided with training to develop their skills in data collection and analysis.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Averting suicide contagion using big data

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	1/01/2024
Chief Supervisor	Dr Nicole Hill
Other Supervisors	TBD
Project Outline	This project will use national linked data from the Multi Agency Data Integration Project (MADIP) to investigate the impact of household exposure to suicide on health and social outcomes in Australians. The project will involve a large linked dataset comprising mortality outcomes from all Australians, spanning multiple Census periods. The impact of exposure to different causes of death (e.g., suicide and accidental death) will be examined. The PhD will equip the student with skills in big data analysis and epidemiology.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	A minimum of a bachelors degree with honors in a scientific discipline. Confident learning and applying statistics technics Demonstrated experience using R statistical software Highly organised with demonstrated ability to manage projects and meet deadlines Ability to work independently Excellent written skills The candidate will be provided with training to develop their skills in data collection and analysis.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Evaluation of the Early Years Partnership: Dental Health Among 0-4 Year Olds in the Central Great Southern.

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Population Health (Human Development and Community Wellbeing)
Start Date	1/02/2024
Chief Supervisor	Patricia Lewis
Other Supervisors	Dr Lynne Millar, Dr Renee Teal, Dr Jon Sae-Koew
Project Outline	The Early Years Partnership (EYP) is a partnership between the WA State Government, Minderoo Foundation and Telethon Kids Institute as the evidence and evaluation partner. Our four partner communities are in metropolitan, regional, remote and very remote areas. With a commitment to listen and work collaboratively with communities, the Partnership aims to create lasting change for WA children (aged 0-4). We're doing this by increasing awareness about the importance of early development, strengthening whole-of-community governance and collaboration, providing the best data and evidence and mobilising resources at the community, state, and federal levels. Dental issues are the second largest cause of preventable childhood hospital admissions in WA. Accessibility factors and lack of caregiver knowledge regarding primary prevention are recognised as barriers to good oral health in young children under five. The Early Years Partnership in collaboration with multiple agencies bridged the research – practice gap. A paediatric dental team visited the Central Great Southern three times in 2023 to screen and/or provide treatment to children aged 0-4. Data collection was undertaken by the EYP evaluation team (via surveys and interviews) each time to understand parental practices and knowledge regarding child dental health. This project would suit a student interested in mixed methods approaches. There is an opportunity to use qualitative analysis and/or quantitative cross sectional data analysis.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	• Excellent communication skills • Ability to work autonomously, with some direction • High level written and oral communication skills • High level organisational and time management skills • Relevant undergraduate degree • Knowledge of qualitative or quantitative analyses
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Evaluation of the Early Years Partnership: Examination of Factors Influencing Food Insecurity for Children's Health and Early Development

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Population Health
Start Date	1/02/2024
Chief Supervisor	Patricia Lewis
Other Supervisors	Dr Lynne Millar, Dr Renee Teal
Project Outline	The Early Years Partnership (EYP) is a partnership between the WA State Government, Minderoo Foundation and Telethon Kids Institute as the evidence and evaluation partner. Our four partner communities are in metropolitan, regional, remote and very remote areas. With a commitment to listen and work collaboratively with communities, the Partnership aims to create lasting change for WA children (aged 0-4). We're doing this by increasing awareness about the importance of early development, strengthening whole-of-community governance and collaboration, providing the best data and evidence and mobilising resources at the community, state, and federal levels. Having reliable and affordable access to adequate and nutritious food is essential for the positive health and early development of children. Food insecurity has been identified as a key issue by the EYP partner communities. An understanding of the drivers of food insecurity will inform strategies that the EYP can undertake to address this issue. The task of this project will be to scope out the most up-to-date research literature on the factors that impact and influence food insecurity in relation to early child health and development (aged 0-4) and the kinds of supports used to address them. In this project you will develop a scoping review specifically looking at systemic, community, institutional and family factors. Moreover, this project will also examine the best practice supports or programs that have been applied or have worked to address food insecurity in communities. This project may also include interviewing and engaging with key community leaders about their experiences and knowledge of food insecurity in communities in WA.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	• Excellent communication skills • Ability to work autonomously, with some direction • High level written and oral communication skills • High level organisational and time management skills • Relevant undergraduate degree • Eligible for Honours at a University or enrolled in Masters degree by coursework
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Suicide prevention in LGBTQA+ young people

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental health
Start Date	1/02/2024
Chief Supervisor	Dr Penelope Strauss, Telethon Kids Institute
Other Supervisors	Professor Ashleigh Lin, Telethon Kids Institute Dr Yael Perry, Telethon Kids Institute
Project Outline	The Youth Mental Health team at Telethon Kids Institute is working on improving the mental health and wellbeing of LGBTQA+ young people. We have several opportunities to conduct research projects on preventing suicide in LGBTQA+ young people. Potential new projects are: • Creating interventions to decrease suicide risk in LGBTQA+ young people • Projects with parents or families of LGBTQA+ young people The project may focus on a specific subgroup of LGBTQA+ young people, or LGBTQA+ 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	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	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 people
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Chest Binding + Physical Activity Participation: behaviours and barriers to activity, and evidence-based recommendations

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Chest Binding + Physical Activity Participation: behaviours and barriers to activity, and evidence-based recommendations
Start Date	1/02/2024
Chief Supervisor	Dr Bonnie Furzer, University of Western Australia/Telethon Kids Institute Dr Penelope Strauss, Telethon Kids Institute
Other Supervisors	UWA Mental Health + Exercise Research Group
Project Outline	Chest binding refers to the practice of compressing breast tissue to create the appearance of a flat chest. This is a very common practice amongst trans and gender diverse (henceforth; trans) people presumed female at birth. Binding is beneficial to the mental health of trans people by assisting to alleviate gender dysphoria and affirm their experienced gender. Global trans community and health organisations provide the advice that exercise should not be done while wearing a chest binder. However, there is no research to substantiate this advice. As such, trans people who bind are facing an unnecessary barrier to participation in physical activity (incl. recreationally, occupationally and sport-based activity). This is in addition of the already lower levels of physical activity compared to cisgender peers, and activity levels below those recommended for health. Proposed study(ies): 1. Investigate the experiences, usage, fears/beliefs and barriers to physical activity related to chest binder [cross-sectional survey study] 2. Investigate the impact of chest binding physiological function (e.g., heart, lung and exercise capacity) during physical activity [experimental trial - comparing physical function with and without a binder]
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Exercise Physiology/Sport Science, Psychology, Health Sciences or a related field. Excellent written and communication skills Ability to work with, accept and respect diverse peoples
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Understanding global impact of emerging chemoprevention and vaccine strategies using mathematical and statistical malaria models

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Health Analytics
Start Date	1/02/2024
Chief Supervisor	Tasmin Symons
Other Supervisors	Peter Gething
Project Outline	Overview: Malaria is a preventable and curable disease transmitted by mosquitos. Despite the wealth of interventions at our disposal, malaria continues to kill around half a million children in Africa annually. In recent years new tools have emerged with the explicit aim of reducing severe illness and death in children living in areas of seasonal malaria transmission. These new tools – seasonal chemoprevention (SMC) and new vaccines (e.g. RTS,S) – have shown promising performance in trial settings, but their impact on malaria morbidity and mortality when used in real-world conditions has yet to be evaluated in full. Understanding this real-world impact is crucial to refining our understanding of when to apply these seasonal interventions for maximal effectiveness. This PhD will develop the analytic framework necessary to (i) understand the real-world impact of seasonal interventions on malaria prevalence and incidence and (ii) create counterfactual analyses about when and where seasonal interventions can do more to avert malarial illness and death. The World Health Organisation recently recommended two seasonal interventions for children living in areas of seasonal transmission (where this seasonality is driven by the effects of temperature, humidity and surface water on the mosquito and parasite life cycle). The first of these is the intermittent administration of antimalarial medicines, regardless of infection status. This intermittent treatment (SMC) showed marked reductions in malaria prevalence and incidence in study settings. An emerging addition to intermittent treatment in seasonal settings are malaria vaccines. Currently the WHO recommends the RTS,S vaccine, and suggests a dosing strategy coinciding with peak transmission in highly seasonal settings. Trials suggest that co-administration of RTS,S with SMC leads to substantial reductions in malaria morbidity (63%), and mortality (73%) compared to children receiving SMC alone. Achieving this impact in practice will be dependent on the timing of administration, so that maximal efficacy of both tools coincides with peak transmission. But the physical and biological relationships between rainfall, transmission, illness, and intervention impact are complex and context dependent. Mathematical and statistical models abstract and simplify these processes, allowing us to interrogate the sensitivity of the system to input parameters (such as timing of seasonal interventions), and undertake scenario analyses to determine routes to optimal intervention impacts. The Malaria Atlas Project (MAP) is the world-leading geospatial malaria modelling group. Geospatial models analyse spatial (and spatio-temporal) patterns in data and, as such, are particularly relevant for understanding intrinsically geographic features of malaria dynamics, including variations in spatio-temporal impact of seasonal interventions.

Aims:
This PhD project will extensively refine MAP's existing geospatial models of malaria risk to capture the effect of seasonal interventions across multiple metrics – the prevalence of infection, the incidence of clinical illness, and case mortality.

Objectives:
1. Understand the impact of seasonal chemoprevention on malaria prevalence and incidence using semi-mechanistic risk-mapping
Semi-mechanistic models – loosely defined as models which combine statistical learning with explicit description of (some) context-specific dynamics – offer a 'best of both worlds' approach to statistical modelling, where data-driven estimates are constrained by biological reality. This project will extend an existing semi-mechanistic framework to include these new intervention strategies, thus identifying their impact on reducing case incidence.

2. Understand the consequences of seasonal chemoprevention on the relationship between prevalence and incidence
Current official estimates of malaria burden in Africa are generated using a mathematical conversion of (modelled) cross-sectional prevalence. The relationship between prevalence (proportion of a population carrying malaria parasites) with clinical incidence (the rate of malarial illness) is non-linear due to the effects of (i) natural immunity, (ii) seasonality, and (iii) access to effective treatment. This project will use mathematical models of malaria to understand the consequences of seasonal interventions on the prevalence-incidence relationship in targeted populations, and thus improve global burden estimates in these seasonal settings.

3. Estimate the realised and potential impact of chemoprevention strategies on PfPR and case incidence: are current rubrics optimal?
The above efforts to link the effect of seasonal interventions to the environment using geospatial models will provide the ability to conduct (counterfactual) analyses on the impact of timing of seasonal interventions, producing vital evidence to support national malaria programs and WHO in the continuing roll-out of these new tools.

Significance:

SMC and the malaria vaccine are exciting new tools in the fight against malaria, with current evidence suggesting their co-administration leads to profound reductions in morbidity and mortality. This project will generate both evidence about the optimal rollout of these interventions, and, importantly, the capacity to capture the impact of seasonal interventions on official estimates of malaria burden used to track our progress towards elimination.

Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Degree in mathematics, statistics or a similarly quantitative field Some familiarity with both mathematical and statistical modelling techniques (ODEs/PDEs; Bayesian statistical modelling; computational linear algebra). Proficient in at least one of R, Python or C++ Prior knowledge of malaria epidemiology is useful but not required.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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How predictable is malaria? Using model-free methods to assess predictability of malaria incidence time-series

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Health and Analytics
Start Date	1/02/2024
Chief Supervisor	Tasmin Symons
Other Supervisors	Peter Gething
Project Outline	Malaria is a preventable and curable disease caused by Plasmodium parasites and transmitted via mosquito vectors. In 2021, there were an estimated 234 million cases of malaria world-wide leading to over half a million deaths, disproportionately in African children. A key but underutilised intervention against malaria is the health system itself – both its strength on the ground in treating disease, but also – crucially – its unique capacity to provide decision makers with almost-real-time situational awareness. In recent years, malaria endemic countries in Africa have invested in digital platforms recording detailed time-series of incidence collected via routine interactions with the health system. This project addresses a central question – how predictable are these time-series? Could they support intervention planning? Simply applying out-of-sample statistical tests to model predictions is insufficient – the realised predictive ability of any given model is not the same as the inherent predictability of the system under study. This project will apply novel statistical methods, assessing the inherent statistical ability of routinely collected malaria data to support intervention planning. Completing this project means 1. Applying existing methods for assessing intrinsic predictability of time-series to routine malaria case data 2. (Optional) extending the methods to leverage spatially correlated data
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Students should have taken courses in time-series analysis and Bayesian statistics, and be very interested in developing skills in statistical modelling. Experience of R/Python (or similar) essential. Courses in dynamical systems will be helpful but are not essential prerequisites. Knowledge of malaria epidemiology is helpful not required
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Improving LGBTQIA+ mental health through enhanced inclusive practice training

Research Theme	☐ Indigenous Health ☒ Brain and Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Youth Mental Health
Start Date	1/02/2024
Chief Supervisor	Dr Yael Perry
Other Supervisors	Prof Ashleigh Lin Dr Penelope Strauss
Project Outline	Lesbian, gay, bisexual, trans, queer or questioning, intersex and asexual (LGBTQIA+) individuals experience significant mental health disparities compared to their heterosexual, cisgender peers. This is largely due to experiences of stigma and discrimination and is compounded by poor access to, and quality of, health services. Health professionals report a lack of knowledge, confidence, and competence in supporting LGBTQIA+ individuals and identify inadequate training on LGBTQIA+ identities, experiences, and health as the core reason for these deficits. The overarching aim of this project is to improve the mental health of LGBTQIA+ individuals through enhanced inclusive practice training for health professionals. This will be achieved through; i) an audit of LGBTQIA+ inclusive practice currently included within tertiary medical and psychology education curricula across Australia ii) collaborative development of tailored LGBTQIA+ curriculum for medical and professional psychology students with partners from LGBTQIA+ organisations, universities, and professional associations and iii) an evaluation of the inclusive practice curriculum in tertiary education programs to assess knowledge, competence, and confidence of students to work with LGBTQIA+ individuals.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in Health Sciences, Psychology, Public Health, Education or a related field - Excellent written and communication skills - Ability to work with, accept and respect diverse peoples
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Women empowerment for consistent use of condoms among married African women

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Child Health Analytics
Start Date	Negotiable
Chief Supervisor	Dr Yalemzewod Gelaw
Other Supervisors	Dr Kefyalew Alene
Project Outline	HIV remains a significant global public health concern, particularly in low- and middle-income countries. As of the end of 2021, approximately 38.4 million [33.9–43.8 million] people were living with HIV worldwide, with the WHO African Region accounting for two-thirds of the total (25.6 million individuals). Certain behaviours and conditions, such as sexual violence and engaging in condomless sex, increase the risk of HIV transmission. Consistent condom use is crucial in reducing the risk of HIV and other sexually transmitted diseases (STDs). It is essential to empower women and enhance their decision-making ability and autonomy in negotiating or jointly deciding to use condoms to effectively minimize the risk of HIV infection associated with condomless sex. Previous research has highlighted the strong relationship between women's empowerment, social determinants of health, and their impact on health outcomes. However, no studies have explored the correlation between social determinants of health and women's empowerment regarding consistent condom use. This proposed project aims to examine the relationship between social determinants of health and women's empowerment in condom use during their most recent sexual intercourse among married and cohabiting African women.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	• Undergraduate degree in health sciences • Experience and interest in statistical analysis/data management • Excellent writing skills • Ability to work as part of a team.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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LIFE COURSE CENTRE

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

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☐ Chronic & Severe Diseases ☐ Early Environment
Research Program	Life Course Centre
Start Date	Flexible 2023-2024
Chief Supervisor	Associate Professor Hayley Christian
Other Supervisors	Dr Andrea Nathan
Project Outline	The Life Course Centre is funded by the Australian Research Council and collaborating partner organisations. The Life Course Centre has its headquarters at The University of Queensland, with nodes at The University of Western Australia, and the universities of Melbourne and Sydney. The Life Course Centre aims to produce and empower precision methods and adaptive social interventions to optimise support for disadvantaged children and families, helping them to achieve their full potential. The successful HDR candidate will also be a student member of the Life Course Centre, which qualifies them to apply for travel grants and attend professional development courses. The LCC UWA node has a PhD scholarship available for research project related to one of these topics: - Influence of the built environment on early child health and development - Disadvantage and child health in early childhood learning settings - Other topics related to deep & persistent disadvantage in Australia will be considered.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Ability to conduct quantitative and qualitative research Excellent writing skills An interest in knowledge transfer Good interpersonal, communication and team skills Desirable: Statistical analysis (SPSS/SAS/STAT/R) For PhD candidates: Minimum 2A Honours degree
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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CHRONIC & SEVERE DISEASES

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

Childhood cancers, diabetes, respiratory conditions and rare diseases can be debilitating and often life threatening. Effective intervention and prevention 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.

Systematic review of Indigenous Health relative to non-Indigenous populations, controlling for socio-economic factors.

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health
Start Date	1/02/2024
Chief Supervisor	Dr Melinda Judge (Telethon Kids Institute/University of Western Australia)
Other Supervisors	Professor Peter Le Souëf (Telethon Kids Institute/University of Western Australia) Professor Corey Bradshaw (Flinders University)
Project Outline	Future Child Health group Climate change has been recognised as the greatest threat to human health, with children being most affected. Furthermore, disadvantaged children will disproportionately bear the brunt of poor health outcomes due to climate change, as they have the least resources for mitigation and adaptation strategies. Our research aims to be the first to quantify how current and future environmental changes affect child health. We lead a multi-disciplinary team with the expertise to establish this ground-breaking area of research. It is widely accepted that Indigenous children experience higher rates of chronic illness compared to non-Indigenous children, globally. They may also be especially vulnerable to the effects of climate change. This project will involve undertaking a systematic review of the literature (and possible meta-analysis) to identify which factors contribute to poorer child health for Indigenous populations, controlling for socio-economic factors, on a global scale. This information must be known to identify how the changing climate will further impact the health of Indigenous populations.

Suitable For	☒ Honours	☐ MD	☐ Masters	☐ PhD
Essential Skills & Qualifications	• Undergraduate degree in science • Excellent communication skills			
Ethics Approval	☐ Obtained		☒ Not Obtained	
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group			

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Using synthetic biology to develop new gene therapies for childhood diseases

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Precision Health - Mitochondrial Research
Start Date	1/03/2022
Chief Supervisor	Professor Oliver Rackham
Other Supervisors	Doctor Giulia Rossetti
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	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Undergraduate degree in Biochemistry, Genetics, Bioinformatics, Molecular Biology, Microbiology or a related subject - Interest in synthetic biology and the potential of gene editing for health - Willingness to learn new skills - Good problem-solving skills - Ability to work well independently or in a team
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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

Research Theme	☐ Indigenous Health ☒ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Future Child Health
Start Date	2/01/2024
Chief Supervisor	Prof Peter Le Souef (Telethon Kids Institute/University of Western Australia)
Other Supervisors	Dr Melinda Judge (Telethon Kids Institute/University of Western Australia) Prof Corey Bradshaw (Flinders University)
Project Outline	Climate change scientists predict with high confidence that without an immediate and comprehensive change in human behaviour, the Earth's climate will reach a 'tipping point' whereby climate will rapidly deteriorate and render much of the planet unliveable, especially for children. Prof Bill Rees has proposed that the major obstacle stopping humans acting decisively is intransigent 'social constructs'. A 'social construct' is defined as a set of beliefs that compel an individual to think in simplistic ways about complex issues. A ubiquitous, incorrect and exceedingly dangerous social construct is the belief that human ingenuity can develop technologies to reverse climate change while preserving high living standards for a global population of 8+ billion people. The student will explore ways in which individuals with the above social construct can be educated to adopt the more accurate understanding that only massive reversals in economic and population growth have any chance of preventing catastrophic environmental destruction that will endanger all future children. Initially, a survey will establish the scale of the problem of 'dangerous environmental social constructs' in the general population, those with a tertiary education, senior scientists and politicians. A series of educational approaches will then be developed and tested in the above population groups with the aim of changing social constructs from 'dangerous' to 'demanding' (of immediate, decisive action). The successful approaches will then be tested for efficacy in large population groups using multi-media strategies. This project has the potential to make a major contribution to saving the planet and its inhabitants, including humans and especially children, from the ghastly future that we are accelerating towards. We will assist and support selected candidates in obtaining a competitive or philanthropically funded scholarship
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Honours - undergraduate degree in science PhD - 1st class honours degree (or equivalent) in science
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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CRISPR editing for rapid diagnosis of rare genetic diseases in children

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Genetic and Rare Diseases Program, Translational Genetics
Start Date	1/02/2024
Chief Supervisor	Dr Vanessa Fear
Other Supervisors	Dr Nicole Shaw
Project Outline	Rare diseases collectively affect more than 190,000 Western Australians, including 63,000 children, and have been identified as a public health priority. Approximately 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 identified using WES has previously been functionally characterised, validated and reported. Consequently, 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. CRISPR technology provides a new way to rapidly validate the effects of rare genetic variants found in patients. This project will use CRISPR/Cas9 gene-editing to integrate the SNV of interest into human induced pluripotent stem cells (iPSCs). The impact of these SNVs on relevant mesoderm, endoderm and ectoderm iPSC differentiation pathways will then be investigated using RNAseq, flow cytometry and protein analysis. This project will add to our genetic and rare disease studies that aim to reduce the time to diagnosis for paediatric patients with variants of unknown significance. This is highly valuable as an early, accurate diagnosis may alleviate disease progression, reduce complications and co-morbidities, and improve patient quality of life.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Honours: Undergraduate degree in Biochemistry, Molecular Biology or similar PhD: Minimum 2A Honours degree Excellent communication and writing skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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DIABETES & OBESITY RESEARCH

The Rio Tinto Children's Diabetes Centre

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

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	1/02/2024
Chief Supervisor	Dr Aveni Haynes (Telethon Kids Institute)
Other Supervisors	Mr Grant Smith (Telethon Kids Institute) Dr Matthew Cooper (Telethon Kids Institute) Adult Endocrinologist supervisor TBD
Project Outline	Childhood diabetes is associated with significant long term health complications and an average 14-year reduced life expectancy. Major cardiovascular complications including heart disease and stroke are a significant contributor to the high morbidity and mortality associated with childhood diabetes. Previous research from our group, led by Dr Cooper, investigated the incidence of hospitalisations and risk factors for vascular complications experienced during early adulthood in children diagnosed with type 1 diabetes in Western Australia between 1992-2012, reporting a higher incidence in women and those with higher average glycaemic control in childhood. This project aims to determine the incidence of major cardiovascular outcomes and premature mortality in children diagnosed with type 1 and type 2 diabetes in Western Australia from 1992 to 2022, including an additional 10 years of new onset cases and follow-up period for those included in the previous study. Children with diabetes will be identified from the Western Australian Children's Diabetes Database (WACDD) maintained at Perth Children's Hospital and record linkage conducted by the Western Australian Data Linkage Unit (https://www.datalinkage-wa.org.au/) to the Hospitalisations and Morbidity Data System (HMDS) and Mortality Register to determine the incidence of cardiovascular outcomes in this cohort (Cooper et al, J Diabetes Complications (2017) 31(5):843-849). The findings of this study will be not only be novel but also make a significant impact on informing future models of care for children diagnosed with diabetes which aim to minimise the risk of long-term adverse effects for individuals affected by this lifelong condition so that they can be prevented in future generations.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	- Undergraduate degree in Health Science, Epidemiology/Public Health related area - Excellent communication, team work and organisational skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Investigating geospatial patterns in the occurrence of childhood onset type 1 diabetes in Western Australia

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☒ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	1/02/2024
Chief Supervisor	Dr Aveni Haynes (Telethon Kids Institute)
Other Supervisors	A/Prof Ewan Cameron (Telethon Kids Institute) Song Zhang (Telethon Kids Institute)
Project Outline	Childhood type 1 diabetes remains one of the commonest chronic conditions of childhood, affecting over 600,000 children aged <15 years worldwide. Type 1 diabetes is an autoimmune condition, with a peak age of onset in 10-14 year olds, requiring daily insulin replacement therapy in order to survive. Despite intense efforts, the cause of type 1 diabetes remains unknown. In Western Australia, all children newly diagnosed with type 1 diabetes are admitted to hospital for commencement of insulin therapy and diabetes related education and are then routinely followed by the diabetes team at Perth Children's Hospital in metropolitan and State-wide outpatient clinics every 3 months until the age of 18 years. Data on these children are available from the Western Australian Children's Diabetes Database (WACDD) maintained at Perth Children's Hospital, which has an estimated case ascertainment rate of >99.9%. This population-based complete data provides a unique opportunity for investigating the incidence and trends in type 1 diabetes in Western Australia and identify potential environmental risk factors involved in its cause. This project aims to investigate the association between newly available covariates from the "digital WA" project, led by A/Prof Cameron and the incidence of type 1 diabetes in the State, which has been shown to have spatial and temporal patterns which have yet to be explained. Examples of such area level covariates now available include traffic flux, number of playgrounds/ovals or fast-food outlets, amount of greenspace. These factors have previously been associated with either type 1 diabetes in other populations e.g. Finland/Scandinavia or immune-mediated conditions (asthma/atopy), as well as the microbiome and hence there is sufficient rationale for conducting exploratory analyses.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Undergraduate degree in e.g. Health/Environmental Science/Epidemiology/Public Health or related area; - Excellent communication, teamwork and organisational skills - Interest in GIS, geo-coding/spatial analysis and data modelling
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Pre-natal exposure to environmental chemicals and pollutants in the Australian Environmental Determinants of Islet Autoimmunity (ENDIA) pregnancy-childhood cohort study

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☒ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	2024
Chief Supervisor	Dr Aveni Haynes
Other Supervisors	Environmental Science/Toxins/Pollutants Expert - TBD
Project Outline	Childhood type 1 diabetes is an autoimmune disease, characterised by immune-mediated destruction of the pancreatic beta-cells and resulting insulin insufficiency. Once diagnosed with type 1 diabetes, children need daily exogenous insulin replacement therapy in order to survive, for the rest of their lives. Although natural history has become better understood over past decades, the cause(s) of type 1 diabetes remain unknown. Both genetic and environmental factors are thought to play a role, with a significant role for environmental factors supported by epidemiological studies reporting an ongoing increasing trend in incidence in most populations that is too rapid to be explained by genetic changes; rapid increases in incidence following urbanisation/westernisation in Eastern Europe following the fall of the Berlin wall and discordant incidence in neighbouring populations such as Russian Karelia and Finland who are genetically similar but who live in very different environments. Evidence for the health impacts of environmental chemicals such as pthalates, BPA, per-/poly- fluroalkylated substances (PFAS) and other pollutants continues to build. Could environmental chemicals which are related to our modern world have a role in increasing the incidence of type 1 diabetes? What is the level of exposure to such chemicals in the Australian populations? And in particular, how does exposure in utero to such chemicals influence early childhood immunity and metabolism? This project aims to explore these questions with biological samples being collected in the ENDIA study (www.endia.org.au). Specifically, this project will involve conducting an extensive scoping review of the current evidence on environmental chemicals and pollutants related to type 1 diabetes and/or coeliac disease and prioritise which targeted analyses to conduct on maternal serum/urine samples collected in each trimester as well as breast milk. The ENDIA study investigators are conducting comprehensive 'omics studies on e.g. immunophenotype, microbiome, proteome and data generated from this project will be integrated with these 'omics studies providing novel and relevant exposure data from the pre-natal period.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in e.g. Health/Environmental Science/Epidemiology/Public Health or related area; Excellent communication, team work and organisational skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Sleep in children with Type 1 Diabetes and their parents.

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Keely Bebbington
Other Supervisors	Dr Cele Richardson, University of Western Australia
Project Outline	Existing research has demonstrated that children and adolescents with type 1 diabetes (T1D) experience poorer sleep quality than their healthy peers, characterised by shorter sleep duration and increased sleep disturbances. Poorer sleep quality in children with T1D is associated with poorer glycaemic control, reduced insulin sensitivity as well as impaired executive functioning and poorer psychological wellbeing. Sleep is frequently reported as a key source of stress for parents of children with T1D, whose own sleep is interrupted due to nighttime caregiving behaviours and anxiety associated with the risk of nocturnal hypoglycaemia. To date, there is mixed evidence about the role that diabetes-related technology may play in ameliorating these concerns. In this program of work, we hope to better understand sleep for families with a child living with T1D across various ages and stages. This broad area of research includes consideration of predictors of poor sleep quality and the impact on physical and psychological wellbeing, methods for differentiating normative sleep from problematic sleep at various ages and potential interventions to improve sleep. Potential students have the opportunity to gain experience working with clinical populations.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, or related field. Initiative and dedication Strong written communication skills High level of organisation and time management skills Excellent ability to work independently and as part of a team Good interpersonal skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Exploring management of hypoglycaemia in day-to-day life in children with Type 1 diabetes

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Mary Abraham
Other Supervisors	Dr Tim Jones
Project Outline	Hypoglycaemia is an inevitable occurrence of Type 1 diabetes. All families are provided hypoglycaemia education at diagnosis, aligning with the recommendations of international guidelines. However, in clinical practice, a wide variation in treatment plans are observed. This project aims to revisit the understanding of how families concur and adapt the current hypoglycaemia education. This includes reviewing the cut-off used for hypoglycaemia treatment and the treatment options. This provides an opportunity to learn from families about their experiences and what works best for them. To address this aim, we will administer an on-line questionnaire with open-ended questions to help families voice their opinion on the current management guidelines.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Health Science, Biomedical Science or related degree High level of organisational skills and time management skills Ability to work as a team with good interpersonal skills Good communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	1/02/2024
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)
Other Supervisors	Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	Physical activity increases the risk of hypoglycaemia in individuals with Type 1 Diabetes (T1D), with the associated increased fear of hypoglycaemia contributing to their lower participation rates in regular exercise and lower than average fitness levels. For this reason, a number of recommendations have been published to reduce such risks of hypoglycaemia. Unfortunately, one major limitation with these recommendations is that they generally overlook the impact that some environmental conditions may have on blood glucose response to exercise. Since cold water immersion increases glucose oxidation rate and may inhibit the production of glucose by the liver, this raises the issue of whether upright immersion or swimming in cold water increases hypoglycaemia risk in people with T1D. This is a clinically important issue given the increased risk of drowning associated with hypoglycaemia. Since this issue has not been investigated before, the primary aims of this proposed research project are to test the hypotheses that (a) head out of water immersion in cold (20oC) compared to thermoneutral water (32oC) is associated with a faster rate of fall in blood glucose level; and (b) exercising in cold water causes a greater rate of fall in blood glucose level compared to exercising under thermoneutral conditions.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Initiative and dedication High level of written communication skills High level of organisation and time management skills Ability to complete projects on time Willingness to learn new skills Excellent ability to work independently and as part of a team Good interpersonal skills Good communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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Effect of Yoga on glycaemic control and mental health in young people with Type 1 diabetes

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre
Start Date	1/02/2024
Chief Supervisor	Dr Vinutha Shetty (Telethon Kids Institute, Perth Children's Hospital)
Other Supervisors	Professor Paul Fournier (School of Human Sciences, University of Western Australia) Dr Shaun Teo (Telethon Kid's Institute) Dr Craig Taplin (Telethon Kid's Institute, Perth Children's Hospital)
Project Outline	Type 1 diabetes (T1D) is one of the most prevalent chronic diseases in children in Australia. As compared to their healthy peers, children living with T1D not only have poorer glycaemic control, but they also have an increased risk of developing cardiovascular disease, mental health difficulties and a known reduction in life expectancy. Hence, strategies to optimise the management of T1D, reduce mental health difficulties, and improve cardiovascular health is critically important. Despite physical activity (PA) being a key factor in T1D management to help improve glycaemic control and cardiovascular health and its other well reported health benefits, children with T1D are engaging in less PA than their healthy peers due to the complexity of managing exercise in TID. Thus, an effective exercise intervention strategy that is simple and easy to follow to help not only optimise the management of T1D but also promote mental emotional well-being is currently lacking. Few physical activity programs incorporate mind–body skill approaches like yoga, which is known to provide effective self-regulatory and stress management skills to help bring balance and health to the physical, mental, emotional, and spiritual dimensions of an individual. Current evidence suggest that yoga provides some benefits in the management of type 2 diabetes relating to improvements in glucose control, along with growing evidence that the practice of yoga can have protective physical and mental health benefits. However, limited to no research has been completed to examine the benefits of yoga in T1D. Given the importance PA and good glucose control at reducing the risk of developing cardiovascular complications for adolescents living with T1D later in life, it is important to identify potential strategies that not only help improve physical activity levels but to also provide individuals with cardiometabolic benefits and reductions in psychosocial stress. Therefore, it is vital to assess the benefits of a holistic physical activity approach such as Yoga, to help improve overall health and potentially reduce the risk of developing cardiovascular disease in youth living with T1D. Hence the project aims to pilot a 12-week yoga intervention in young people with Type 1 diabetes (T1D) to assess its effect on glycaemic control and mental health. The findings arising from the proposed study will help inform the design of a future full-scale randomised control trial (RCT) to explore further the impact of Yoga on long-term glycaemic control and mental health in young and older individuals with T1D.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	1. Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree 2. Excellent communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Exploring the associations between exercise variables and glycaemic variability in children and adolescents with Type 1 Diabetes

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Craig Taplin (Telethon Kid's Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kid's Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kid's Institute, Perth Children's Hospital) Dr Shaun Teo (Telethon Kid's Institute)
Project Outline	Glycosylated haemoglobin (HbA1c) has generally been an important tool for monitoring glucose control, and its association with physical activity (PA) levels has been investigated widely in the Type 1 Diabetes population. However, HbA1c does not provide information on daily glucose variability, which is crucial in the efforts to improve health outcomes of people with Type 1 Diabetes. Given the fact that PA can result in large blood glucose fluctuations, exercise prescription for Type 1 Diabetes management in adolescents remain a complex and dynamic process. By identifying the associations of the different components of PA and glucose variability, this may assist healthcare professionals in the development of individualised prescriptions that aid increments in physical activity levels safely. Hence, the project aims to observe and explore the associations between PA components (i.e. exercise frequency, intensity and duration) and glucose control in youth with Type 1 Diabetes as measured by triaxial accelerometry (Actigraph GT3x).
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree. Excellent communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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A formative evaluation of healthcare professionals' level of knowledge and confidence relating to physical activity and Type 1 Diabetes

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Shaun Teo (Telethon Kid's Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kid's Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kid's Institute, Perth Children's Hospital) Dr Craig Taplin (Telethon Kid's Institute, Perth Children's Hospital)
Project Outline	Despite the key role that exercise plays in both the management of Type 1 Diabetes (T1D) and prevention of T1D associated cardiovascular complications, children and adolescents with T1D are less active than their healthy peers. Healthcare professionals have been identified as playing an important role in promoting exercise in children and adolescents with T1D. However, research has indicated that there is less confidence and consensus among healthcare professionals regarding the promotion of exercise when compared to the level of confidence in prescribing medication, treatment and diet interventions for people with T1D. Thus, the aim of the project is to conduct a formative evaluation of healthcare professionals working with children and adolescent with T1D, around physical activity knowledge and confidence. The evaluation will provide critical information relating to the characteristics, decisions and behaviours of healthcare professionals, to inform and develop future education and training programmes for this group, will consequently improve T1D service provision in respect of physical activity and exercise.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree. Excellent communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The impact of early morning exercise performance on acute post-prandial glucose time in range and 24h glycaemic control in youth with Type 1 Diabetes

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Craig Taplin (Telethon Kid's Institute, Perth Children's Hospital)
Other Supervisors	Professor Elizabeth Davis (Telethon Kid's Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kid's Institute, Perth Children's Hospital) Dr Shaun Teo (Telethon Kid's Institute)
Project Outline	Although regular physical activity (PA) is a key recommendation for the management of Type 1 Diabetes (T1D), participation in exercise presents unique challenges for children living with T1D. These challenges result in them having significant barriers towards exercise-related diabetes management, with the most frequently reported barrier being fear of hypoglycaemia. Consequently, previous research has focused on the manipulation of exercise variables such as: i) exercise type; ii) intensity and; iii) duration, to provide the evidence needed to address the concerns relating to PA and T1D management. However, despite the availability of these evidence, PA levels in children remain lower than their non-T1D peers. As such, new contemporary methods of manipulating exercise variables are needed to help improve upon exercise prescription for children and adolescents living with T1D. The diurnal timing of exercise could be an important factor that has started to gain attention in recent times and may play a crucial role in T1D management during exercise performance. Hence, the overarching aim of the project is to explore the effect of a morning exercise session on acute glycaemic control measures when compared to a no-exercise control session in youth with T1D. This study will involve working with the team to recruit participants, supervise participants during in-clinic exercise sessions, and collect and analyse data.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree. Excellent communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Assessing physical activity levels and patterns of healthcare professionals and parents of children living with Type 1 Diabetes.

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Shaun Teo (Telethon Kid's Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kid's Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kid's Institute, Perth Children's Hospital) Dr Craig Taplin (Telethon Kid's Institute, Perth Children's Hospital)
Project Outline	Healthcare professionals (HCPs) play an important role in promoting a physically active lifestyle by prescribing regular physical activity (PA) to children and adolescents living with Type 1 Diabetes (T1D), to improve their health and intervene in their T1D management. In this regard, HCPs possess the knowledge that puts them in a key position to advise on PA and T1D. Previous research has shown that HCPs lifestyle habits can potentially influence the attitudes and counselling of their patients. Additionally, previous research indicate that parents strongly determine the social and physical environment of their children and this influence may also provide an unexplored, but potentially important link between parents' PA levels and that of their children. As such, the overarching aim of the project is to assess both the HCPs' and parents' physical activity levels as measured by triaxial accelerometry (Actigraph GT3x). In addition, the project will examine the associations between HCPs/parental PA with that of their patient/child living with T1D.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree. Excellent communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Professor Paul Fournier (School of Human Sciences, University of Western Australia)
Other Supervisors	Professor Tim Jones (Telethon Kids Institute, Perth Children's Hospital) Professor Elizabeth Davis (Telethon Kids Institute, Perth Children's Hospital)
Project Outline	Current guidelines recommend that people with type 1 diabetes (T1D) should reduce their basal insulin dose by 25-50% prior to exercise to minimise their risks of hypoglycaemia both during and after exercise. However, these recommendations are challenged by our recent findings that when exercise is performed under basal insulin conditions, with no prior insulin dose adjustments, blood glucose levels remain stable or change little. These findings suggest that reducing basal insulin levels prior to a bout of high intensity exercise might be conducive to a marked increase in blood glucose levels, and thus be detrimental to blood glucose management. For this reason, our aim is to test the hypothesis that the recommendation to reduce basal insulin dose by 25 or 50% prior to engaging in a bout of high intensity exercise is conducive to a high increase in blood glucose levels in people with T1D.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Initiative and dedication High level of written communication skills High level of organisation and time management skills Ability to complete projects on time Willingness to learn new skills Excellent ability to work independently and as part of a team Good interpersonal skills Good communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

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Developing educational resources to improve awareness and knowledge of Type 1 Diabetes within community sport settings

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Diabetes and Obesity Research, The Rio Tinto Children's Diabetes Centre.
Start Date	1/02/2024
Chief Supervisor	Dr Shaun Teo (Telethon Kid's Institute)
Other Supervisors	Professor Elizabeth Davis (Telethon Kid's Institute, Perth Children's Hospital) Dr Vinutha Shetty (Telethon Kid's Institute, Perth Children's Hospital) Dr Craig Taplin (Telethon Kid's Institute, Perth Children's Hospital)
Project Outline	Physical activity (PA) is a key factor in T1D management to help improve glycaemic control and cardiovascular health. Despite its well reported health benefits, children with T1D are engaging in less PA than their healthy peers due to barriers such as a fear of hypoglycaemia or inadequate information on diabetes management around exercise. Previous research by our team at the Children's Diabetes Centre found that one of the main challenges identified by adolescents and youth is the lack of knowledge and awareness around T1D by the community, particularly in community sport settings. Community sport is one of the most common settings in which youth exercise. Currently, there are a lack of educational exercise resources available in Western Australia, therefore, community sport coaches feel they lack the knowledge, confidence and understanding to provide adequate support for youth with T1D. Our current research is working on bridging this gap to provide support to both coaches and players with T1D. We have completed semi-structured interviews to determine the essential information our youth with T1D want and need their sport coaches to know, and from our community sport coaches and parents, what T1D information is needed for them to safely and respectfully support their players. As such, by building on our previous research findings, the overarching aims of the proposed work are to: i) develop a series of educational resources based on the needs of the T1D and sporting community, ii) explore the acceptability and usability of our educational resources and iii) implement the educational resources in community sport settings through a nationwide launch.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in Psychology, Health Science, Education, Health Promotion or related degree. Excellent communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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TELETHON KIDS CANCER CENTRE

Developing new immune based therapies for neuroblastoma

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Telethon Kids Cancer Centre - Cancer Immunology and Biology
Start Date	1/03/2024
Chief Supervisor	Dr Alison McDonnell
Other Supervisors	Omar Elaskalani
Project Outline	Neuroblastoma is a childhood cancer of the nerve cells and the most common solid tumour in children outside of the brain. The average age of diagnosis is 1-2 years and tragically 50% of children with high-risk neuroblastoma lose their battle within five years. Children who do survive, suffer detrimental life-long side-effects that are unavoidable consequences of current toxic radiotherapies and chemotherapies. There is an urgent, unmet need for more effective and less toxic treatments to improve outcomes for children with high-risk neuroblastoma. In adults, immunotherapy has revolutionised the treatment of cancer by unleashing the immune system to attack tumours. However, immunotherapy has shown limited success against childhood cancers, including neuroblastoma. Successful immune intervention is met with several challenges in high-risk neuroblastoma including low immunogenicity and immune evasion strategies resulting in a poor anti-tumour immune response alongside limited information regarding how the paediatric immune system detects, controls and attacks cancer cells. Using our unique childhood-specific mouse models of high-risk neuroblastoma together with high-dimensional spectral cytometry, RNA sequencing and immunohistochemistry we are investigating the following research questions: 1. How does standard of care chemotherapy interact with the tumour immune microenvironment in high-risk neuroblastoma and how can we harness this for effective therapy? 2. When and where does the paediatric immune system detect cancer? Using this information, we aim to develop new immune-based treatment strategies for children with high-risk neuroblastoma.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	1. Greater than credit average for Hons; BSc (Hons) or equivalent in biological discipline for Masters or PhD 2. Good organisational skills, motivation and dedication
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
For more information, please contact:	

Local immunotherapies to fight sarcoma

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Sarcoma Translational Research
Start Date	1/03/2024
Chief Supervisor	Dr. Ben Wylie / Dr. Tao Wang, Telethon Kids Institute
Other Supervisors	A/Professor Joost Lesterhuis, Telethon Kids Institute
Project Outline	Surgery remains a first line therapy for solid cancers. However, if the tumour cannot be completely removed during surgery it will often regrow, causing recurrence of the cancer. Sarcomas are a group of cancers derived from muscle, fat or connective tissue that are often characterised by aggressive local growth. Soft tissue sarcomas in particular have a high risk of local recurrence. Sarcomas are the third most common cancer in children and adolescents and current treatments do not provide significant benefits for patients, if they suffer a recurrence after the initial surgery. The Sarcoma Translational Research group believes all kids with sarcoma deserve to live happy, healthy lives. To achieve this, we aim to discover and develop safer and more effective treatments, through innovative and rigorous research. We apply our knowledge of cancer immunology to develop new immunotherapies using bioinformatics, molecular and cell biology and unique preclinical cancer models. We are currently developing RNA-based immunotherapeutics (dsRNA & mRNA), to activate anti-tumour immunity and modify the tumour miroenvironment. To deliver these RNA-based therapies we developed a novel approach to applying immunotherapy locally, during surgery using a unique biomaterial that releases drugs slowly in the surgical area. Now we need to: 1. Understand how best to activate the immune system locally to stop cancer cells coming back after surgery. 2. Design improved RNA adjuvants to activate anti-tumour immunity against cancer. 3. Develop new mRNA-based therapies to modulate the tumour microenvironment. 4. Determine the best way to combine new local therapies with current systemic immunotherapies. To do this we employ a range of skills and techniques including: Systems biology (bulk & single cell RNASeq), immunoengineering (biomaterial chemistry for drug delivery), cellular and molecular biology (cell culture, flow cytometry, ELISA, immunohistochemistry, CRISPR, PCR and cloning). We currently have projects available for self-motivated and enthusiastic students with a keen interest in cancer immunology/immunotherapy and invite you to meet with us to discuss specific projects.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in biomedical science or related discipline 2A+ Honours or equivalent for PhD Good organisational skills, motivation and dedication Keen interest in the immunology Excellent communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing innovative treatments for paediatric brain cancers

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Brain Tumour Research
Start Date	Flexible, available immediately
Chief Supervisor	Dr Jessica Buck
Other Supervisors	Dr Raelene Endersby
Project Outline	The Brain Tumour Research team at Telethon Kids is co-directed by Dr Nick Gottardo and Dr Raelene Endersby. The overarching goals of our group are to define the poorly understood basic biology of several types of childhood brain tumours and improve therapies. We achieve this in the following ways: • Determining the molecular basis of different brain tumour types, including medulloblastoma, ependymoma, and rare childhood brain cancers, through the analysis of primary patient specimens. • Improve understanding of the molecular events contributing to these diseases, by analysing the impact of altered signaling 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 tumours • 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. We currently have a project opportunity for a self-motivated and enthusiastic individual. We invite you to meet with us to discuss specific projects. The student will develop expertise in a wide range of technologies including: • Animal techniques • Histology such as paraffin sectioning and immunohistochemistry • Cell/tissue culture from mouse and human specimens • Molecular techniques including DNA/RNA analysis, PCR and cloning • Biochemical techniques such as protein extraction, western blotting and IP Students are expected to have or develop excellent writing and oral presentation skills
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- 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 - Greater than credit average For PhD candidates - First-Class Honours
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Finding new cures for childhood leukaemia

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Translational Genomics in Leukaemia (TGL)
Start Date	1/02/2024
Chief Supervisor	Sebastien Malinge
Other Supervisors	N/A
Project Outline	Leukaemia is the most common type of cancer in children. Remarkable therapeutic advances have been made over the past sixty years. Despite this success, it remains the second cause of death by Cancer in Australia. Current therapeutic approaches have reached their maximum potential and specific subtypes of leukaemia continue to have a poor prognosis due to treatment toxicity and relapses. This highlights the need for new efficacious treatments. 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. Our group is focused on finding new key vulnerabilities in the leukaemia cells to develop novel and less toxic targeted therapies. To achieve this, we are using primary patient samples from which we developed sophisticated and clinically-relevant models named Patient-derived Xenografts (PDX). Using those, our projects are focused on 1- understanding the molecular bases of leukaemia development and response to standard of care treatments to, 2- develop new approaches that target key weaknesses of the tumour cells. During this project, the student will be introduced to: - Flow cytometry and cell sorting, - Animal handling, tissue preparation and drug testing, - Tissue culture and molecular biology, - CRISPR/Cas9 technology and screening strategies. Ultimately, our goal is to develop new strategies to improve prevention, diagnosis, long-term survival and quality of care for children with leukaemia.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	* BSc or BSC (Hons) * Good oral and written communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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WAL-YAN RESPIRATORY RESEARCH CENTRE

Join the Wal-yan Respiratory Research Centre

The Wal-yan Respiratory Research Centre is looking for new Higher Degree Research Candidates to join our teams from 2024. We look for the best and brightest to join our world leading experts in children's respiratory research. We want to make our student training programs as unique as you! ***We will build bespoke research projects with our candidates.*** Plus, we are always on the lookout for innovative new ideas that we can add to our Centre.

About us:

The Wal-yan Respiratory Research Centre is made up of collaborative teams who are driven to understand respiratory health over the entire life-course, for example: how the early environment (from pre-pregnancy, birth, infancy and childhood) impacts long term respiratory outcomes.
We integrate our understanding of lifestyles and fundamental biology with interactions in our community and environment to develop novel solutions that protect our kids and change how we deliver care to those who develop respiratory complications.
The Wal-yan Centre aims to achieve international breakthroughs in paediatric respiratory health that will improve, extend and save the lives of children suffering from cystic fibrosis, asthma, the effects of being born premature, respiratory infections and viruses, the consequences of our environment and other chronic respiratory diseases.

Strategic Research Areas:

- Beating Chronic Lung Disease
    - Research examples: antimicrobial resistance and 'phage therapy; early drug discover and fast-tracked drug pipelines
- Early Life Influences
    - Research examples: pregnancy and early life influences on respiratory infections; lung health trajectories of those born premature
- Respiratory Infections and the Immune System
    - Research examples: "First contact" – susceptibility and resilience to viruses; role of the immune system in asthma development
- Lungs and the environment
    - Research examples: climate change and lung health; environmental exposures, toxicology and lung health
- Indigenous Health
    - Research examples: prevalence and management of wet cough and bronchiectasis; lung function testing in Indigenous populations
- Implementation into Clinics
    - Research examples: management of cystic fibrosis; novel device development for drug and medicine delivery

In our day-to-day activities we:

- Use cutting edge platforms, models, cohorts, bioengineering and state of the art technology to solve questions,
- Translate new tools, therapies and artificial intelligence into clinical use for the treatment of respiratory conditions,
- Work side by side with our clinical teams to deliver work where it is needed,
- Strive to develop community partnerships in all the work we do, ensuring that the voices are heard from the people that matter most.

We can give you:

- Access to our cohorts, databases, samples, expertise, training, platforms and equipment,
- Development of your skills both as a scientist and as a professional,
- The opportunity to be a part of a Centre with a 35-year legacy of creating significant, positive outcomes for our kids, our communities and our scientific networks, globally.

For more information on our research focus areas, please visit: walyanrespiratory.telethonkids.org.au

For general enquiries, please contact: Wal-yan.Respiratory@telethonkids.org.au

We will team you up with leaders across our Centre to start talking about your project goals.

Wal-yan
RESPIRATORY RESEARCH CENTRE
Healthy lungs for every child, for life
A Powerhouse Partnership
TELETHON KIDS INSTITUTE
Perth Children's Hospital Foundation
Perth Children's Hospital

Exploring the mechanisms underpinning severe viral infection after preterm birth

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Respiratory Health
Start Date	1/02/2024
Chief Supervisor	Associate Professor Anthony Kicic
Other Supervisors	Associate Professor Shannon Simpson, Ms Denby Evans
Project Outline	On a global scale, over 2 million babies are delivered very preterm (<32 weeks gestation) every year. Evidence suggests that the respiratory complications of preterm birth continue well beyond discharge from the neonatal unit. A leading cause of respiratory complications following preterm birth is acute respiratory infection. In the first year of life, approximately 25% of those born preterm will require rehospitalisation because of respiratory illness, compared to just 1.5% of term infants. Of those admitted to hospital for respiratory infection, nearly half will be due to respiratory syncytial virus (RSV). Respiratory syncytial virus is not uncommon in young children; nearly all children will have been infected by two years of age. However, morbidity from RSV infection is skewed towards those born preterm. Not only is the risk of initial hospitalisation greater, both the length of stay and likelihood of readmission is elevated. These early life infections have lasting effects on respiratory health, with studies in adolescents and young adults reporting persistent wheezing phenotypes and reduced lung function in those who had a severe RSV infection in early life. It is unknown why those born preterm are more susceptible to a severe viral response. One possibility is abnormalities in the airway epithelium. The airway epithelium is a key component of our viral defence system, providing a physical barrier to prevent pathogen entry into the airway submucosa. Our research team has established a cell culture model of the preterm airway epithelium using nasal cells collected from survivors of very preterm birth. Preliminary findings from this model suggests that the barrier function of the airway epithelium is altered by preterm birth, including increased permeability and an inability to repair. There is now the opportunity for a motivated student to help us explore and understand how the preterm airway epithelium responds to infection by foreign pathogens, including RSV. Techniques involved may include but are not limited to: primary cell culture using stringent aseptic technique, ELISAs, protein extraction, gene expression analysis and immunocytochemistry. This project has scope to be tailored to the interests of the right applicant, including potential expansion to include additional clinical components and virus-bacteria interactions.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Self-motivated - Excellent time-management and organisational skills - Comfortable working both individually and as part of a large team - Above average communication skills - Ability to adapt/problem-solve Previous experience in cell culture and/or microbiology is desired but not essential.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Exploring the therapeutic potential of phage therapy to treat lung infections

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Airway Epithelial Cell Research Group
Start Date	2024
Chief Supervisor	Anthony Kicic (Telethon Kids Institute/Curtin University)
Other Supervisors	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 Patricia Agudelo-Romero (Telethon Kids Institute) Dr Kak-Ming Ling (Telethon Kids Institute, Curtin University) Dr Daniel Laucirica (Telethon Kids Institute) Dr Samuel Montgomery (Telethon Kids Institute) Dr Douglas Foresster (Curtin University) NOTE: supervisory roles will be refined depending on the study undertaken
Project Outline	Antimicrobial-resistant bacteria are a threat worldwide, and there are now very limited options for treating infections caused by these bacteria. In this proposed project, our assembled team of world-recognized experts will be using a precision medicine approach to develop effective and safe bacteriophage (phage) treatments for first-in human use. Bacteriophages (phages or viruses that infect and kill bacteria) are natural predators of bacteria. They attach to the bacterial wall using specialised molecular keys or receptors, invade the bacterium, take over the cellular machinery, replicate and then burst from the cell, killing the bacterium. Since phages do not invade host cells, they do not cause cell damage nor are they likely to invoke a significant immunological response. Despite recent case reports, there has been no coordinated, standardised approach to assess the utility of phage therapy to treat pulmonary infections with multi-resistant organisms in humans. Using chronic lung disease as the initiating platform, specifically those with antimicrobial resistant pulmonary infections, we will isolate and characterise phage (from in-house repositories) specific to these bacteria. In vitro and in vivo safety and efficacy profiles will be established, endotoxins removed, and effects of inhaled delivery determined in preclinical models. With national ethics approval in place, patients experiencing chronic, recurrent lung infection with antimicrobial-resistant Pseudomonas aeruginosa will be identified and recruited. Effective phages will be identified, and formulations tailored to the individual. Participants will then be treated with inhaled phage and safety, tolerance and efficacy will all be monitored post-delivery.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	• Honours degree in science • Excellent communication and team participation skills • Proficient writing and presentation skills Desired: Laboratory experience and/or proficiency in statistical analysis.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Phage training to overcome resistance during phage therapy

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Phage Program
Start Date	1/02/2024
Chief Supervisor	Associate Professor Anthony Kicic
Other Supervisors	Dr Kak-Ming Ling, Ms Renee Ng
Project Outline	Antimicrobial-resistant bacteria are a threat worldwide, and there are now limited options for treating infections caused by these bacteria. In this proposed project, our assembled team of world-recognized experts will be using a precision medicine approach to develop effective and safe bacteriophage (phage) treatments for first-in human use. Bacteriophage (phage) therapy is currently being explored as an experimental treatment determined by the Australian Therapeutic Goods Administration (TGA) under special access schemes based on compassionate grounds. One of the anticipated challenges with phage therapy is the development of phage resistance, which can emerge during phage therapy, resulting in poor microbiological clearance. This project provides an opportunity to enhance the efficacy of phage therapy via a novel strategy called "phage training". Phage training uses natural selection and coevolution to preadapt a phage to evolve simultaneously with a bacterial host. These trained phages will then be able to anticipate bacterial evolution and prevent the rise of resistance to phage therapy and improve efficacy against MDR pathogens.
Suitable For	☐ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	• Honours degree in science • Excellent communication and team participation skills • Proficient writing and presentation skills Desired: Laboratory experience and/or proficiency in statistical analysis.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Does timing of endogenous circadian rhythm development in preterm infants influence susceptibility to respiratory infection and inflammation?

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Chronobiology
Start Date	8/01/2024
Chief Supervisor	Prof Jane Pillow (Telethon Kids Institute/UWA)
Other Supervisors	Dr Luke Garratt (Telethon Kids Institute/UWA) Dr Thomas Iosifidis (Telethon Kids Institute/UWA) TBA (will depend on final project
Project Outline	Circadian rhythms are a fundamental part of our existence – the daily rhythmic changes in our physiology that govern normal behaviour and functioning. What many people don't understand is that circadian rhythms are encoded in our genetic make-up. At least 80 % of cells in the body have at least 20 % of their molecular expression controlled in a circadian manner. Importantly, loss of circadian rhythmicity in gene expression may have significant adverse impacts on function. As an example, we are increasingly aware that disrupted circadian rhythms may increase susceptibility to infection and impair immune responses. Delayed development of endogenous circadian rhythms is a potentially major issue for premature infants, most of whom don't develop their own circadian rhythm until after they have been discharged home from hospital. For some infants, this delay can extend for months and potentially puts the infant at risk of harmful consequences of disrupted circadian rhythm, including increased susceptibility to infection. An NHMRC funded and Telethon Kids Institute sponsored multicentre randomised controlled trial (the CIRCA DIEM study) is aiming to ensure that preterm infants can develop their own circadian rhythms soon after birth, by cycling them through an artificial day and night. This trial gives us a unique opportunity to learn about how circadian rhythms control susceptibility to respiratory infections and immunity in premature infants. Projects on offer will explore the role of circadian rhythmicity on the epithelium and immune cells through a substudy of infants enrolled in the CIRCA DIEM study. Projects in the laboratory would involve use of processing of primary tissues and cell cultures, as well as a number of techniques such as immunofluorescence and confocal microscopy, flow cytometry, protein quantification (ELSA, Bioplex), nucleic acid extraction and next generation sequencing and bioinformatics data analysis. The objective of this project is to evaluate whether early restoration of circadian rhythms after preterm birth reduce risk of hospitalisation for respiratory infection over the first 2 years of life – and the molecular and cellular biological basis for any outcome. Through our collaborative group there is also opportunity to undertake projects on the CIRCA DIEM study cohort relating to respiratory and gastrointestinal microbiome.
Suitable For	☐ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Honours/BMedSci or equivalent for PhD - preferably with prior laboratory experience and experience with data linkage/molecular biology Excellent communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Evaluating the effect of azithromycin on the lung virome

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Wal-yan Respiratory Research Centre
Start Date	1/09/2023
Chief Supervisor	Dr Jose A Caparros-Martin
Other Supervisors	Dr S Patricia Agudelo-Romero; Prof Stephen Stick
Project Outline	Azithromycin is a macrolide antibiotic, with anti-inflammatory properties that has been shown to reduce respiratory exacerbations in several chronic lung disorders (1-3). Although the exact mechanism of action of azithromycin is unknown, there are in-vitro and in-vivo studies showing that azithromycin has also anti-viral activities against several respiratory viruses including rhinovirus (3), which are major triggers of exacerbations in patients. A recent clinical trial (COMBAT-CF) has shown than in infants with Cystic Fibrosis, azithromycin treatment from diagnosis reduces BAL inflammatory markers and morbidity in the form of exacerbations and hospitalisations (4). Using BAL samples from the COMBAT cohort collected at year 1, we have shown that azithromycin does not change bacterial burden and diversity in BAL, and it does not affect the likelihood of recovering viable microorganisms from BAL (5). These observations suggest that at least 12 months, any positive effect of azithromycin in the COMBAT-CF cohort is independent of its antimicrobial properties. In this project, we propose to evaluate whether azithromycin has any effect on the BAL-associated virome (total collection of viruses). This project takes full advantage of genomic and computational techniques to characterise the viral component of the lung microbiota in respiratory samples from infants with Cystic Fibrosis enrolled in a unique placebo-controlled clinical study. The successful candidate will be trained in state-of-the-art genomics and computational techniques. References: 1. Albert RK et al., (2011). Azithromycin for prevention of exacerbations of COPD. N Engl J Med. 365:689-698. 2. Gibson PG et al., (2017). Effect of azithromycin on asthma exacerbations and quality of life in adults with persistent uncontrolled asthma (AMAZES): a randomised, double-blind placebo-controlled trial. Lancet. 390(10095):659-668. 3. Oliver ME and Hinks TSC (2021). Azithromycin in viral infections. Rev Med Virol 31(2):e2163. 4. Stick SM et al., (2022). The effect of azithromycin on structural lung disease in infants with cystic fibrosis (COMBAT CF): a phase 3, randomised, double-blind, placebo-controlled trial. Lancet Respir Med 10(8):776-784. 5. Caparros-Martin JA et al., Detection of bile acids in bronchoalveolar lavage fluid defines early pathobiological events in infants with Cystic Fibrosis. Microbiome 11(1):132.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Strong organisational skills and ability to meet deadlines. Excellent communication and interpersonal skills.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Developing a mix-and-read assay for rapid detection of antimicrobial resistance determinants

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Wal-yan Respiratory Research Centre
Start Date	1/09/2023
Chief Supervisor	Dr Jose A Caparros-Martin
Other Supervisors	Dr S Patricia Agudelo-Romero; Prof Stephen Stick
Project Outline	Infections that can be currently treated will become incurable in 30 years, killing more than 10 million people annually (1). These estimations are based on the current increase rate in antimicrobial resistance in bacteria, a matter that requires urgent action globally. Because of the high infection burden and the consequent high prescription rate of antibiotics, antimicrobial resistance constitutes a significant problem in Australian rural areas(2). One strategy to control the spread of antibiotic resistance is to know what the right antibiotic is, and for how long must be taken to kill one specific pathogen. For example, over 40% of the clinical Staphylococcus aureus isolates are methicillin resistant, ~20% are clindamycin resistant, and ~5% carry resistant genes to sulfamethoxazole-trimethoprim(3). Thus, prescribing the wrong antibiotic will not improve the health of the patient but it will be more likely for pathogens to infect other people. This project aims to establish a novel assay for rapid and specific detection of cell-free bacterial DNA, that will facilitate pathogen identification and characterization of antimicrobial resistance genetic determinants. References: 1. Thompson T (2022). The staggering death toll of drug-resistant bacteria. Nature. doi: https://doi.org/10.1038/d41586-022-00228-x 2. Cuningham W et al., (2019). High burden of infectious disease and antibiotic use in early life in Australian Aboriginal communities. Aust N Z J Public Health. 43(2):149-155. 3. Wozniak TM et al., (2020). Geospatial epidemiology of Staphylococcus aureus in a tropical setting: an enabling digital surveillance platform. Sci Rep. 10:13169.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Excellent communication and interpersonal skills. Strong organisational skills and ability to meet deadlines. A genuine interest in microbial genetics and computational biology.
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Decoding host-microbiota cross-talk in health and disease

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Wal-yan Respiratory Research Centre
Start Date	1/09/2023
Chief Supervisor	Dr Jose A Caparros-Martin
Other Supervisors	Dr S Patricia Agudelo-Romero; Prof Stephen Stick
Project Outline	The microbial communities inhabiting the human body are collectively known as the microbiota. These microbial communities have been involved in the maintenance of human health and organ homeostasis, particularly those communities inhabiting the gastrointestinal tract or gut microbiota. The gut microbiota has emerged as an important contributor in the pathogenesis of many human conditions, and it is considered a causal pathological factor through the production of bioactive metabolites. Because of the potential role of the gut microbiota in regulating host homeostasis, a number of communication axis between different body organs and the bacteria inhabiting the gastrointestinal tract has been proposed. Nevertheless, little is known about how the host participates in this cross-talk. We have discovered a number of host proteins that may be involved in the host-liver axis, which has been involved in the development of several chronic metabolic conditions including obesity and diabetes. This project aims at characterizing how these proteins "talk" with the gut microbiota to promote organ homeostasis.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Strong organisational skills and ability to meet deadlines. Excellent communication and interpersonal skills. A genuine interest in host-microbiota interaction.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Mining the lung virome using shotgun metagenomics data

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	P4 Respiratory Health for Kids team (Wal-Yan Respiratory Research Centre)
Start Date	29/01/2024
Chief Supervisor	Dr. Patricia Agudelo-Romero (Telethon Kids Institute)
Other Supervisors	Dr. Jose Caparros-Martin (Telethon Kids Institute) Prof. Stephen Stick (Telethon Kids Institute)
Project Outline	Although viruses are the most abundant organisms on Earth, they have been poorly characterized. This is a shocking situation considering the great impact that viral infections have in patients with chronic respiratory disorders. Shotgun metagenomics is a high-throughput technique that allows sequencing all the nucleic acids in a sample and, although viruses are present in those type of samples, not many tools are available to retrieve information about which viruses are present. To overcome this limitation, we have generated and validated a pipEline for Viral assEmbly and chaRactEriSaTion (EVEREST) to capture and characterize viral contigs from shotgun metagenomics datasets. This project will focus on implementing EVEREST pipeline to generate a catalogue of viral genomes associated with lung samples from children with chronic respiratory disease.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Have obtained an undergraduate degree in a relevant field (e.g., Public Health, Medical science, Epidemiology, Data science). Pre-existing bioinformatics and/or data analysis skills are not essential but would be highly valued. Ability to work as part of a team. Good interpersonal and communication skills.
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Multi-omics analysis of maternal imprinting in wheezing and asthma

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	P4 Respiratory Health for Kids team (Wal-Yan Respiratory Research Centre)
Start Date	29/01/2024
Chief Supervisor	Dr. Patricia Agudelo-Romero (Telethon Kids Institute)
Other Supervisors	Professor Stephen Stick (Telethon Kids Institute) Dr Jose Caparros-Martin (Telethon Kids Institute) Dr Thomas Iosifidis (Telethon Kids Institute) Dr Liz Starcevich (Telethon Kids Institute) Dr David Martino (Telethon Kids Institute) Dr David Hancock (Telethon Kids Institute) A/Prof Anthony Kicic (Telethon Kids Institute) NOTE: supervisory roles will be refined depending on the study undertaken
Project Outline	Viral-induced wheezing and asthma in children have a significant burden in families and healthcare, with around 20% of all children developing recurrent respiratory disorders during childhood. Our team have identified a vulnerable epithelial signature in young children susceptible to viral infections, which may have its developmental links in utero. Poorly controlled maternal asthma and prenatal exposures to smoke and viral infections in pregnancy have been identified as risk factors to the development of respiratory disorders. This project proposes to study the relationship of wheezing in early life with an in-utero reprogramming using cutting-edge technologies: multi-omics analysis plus machine learning. One of our objectives is to determine whether maternal imprinting due to smoke exposure is a risk factor for increasing the development of early life respiratory diseases. This project will have access to banked samples at birth in an established longitudinal cohort, the Airway Epithelium Respiratory Illnesses and Allergy (AERIAL).
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Have obtained an undergraduate degree in a relevant field (e.g., Public Health, Medical science, Epidemiology, Data science). - Pre-existing bioinformatics and/or data analysis skills are not essential but would be highly valued. - Ability to work as part of a team. - Good interpersonal and communication skills.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Exploring the role of the microbiome in human cancer

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Wal-yan Respiratory Research Centre
Start Date	1/09/2023
Chief Supervisor	Patricia Agudelo-Romero
Other Supervisors	Jose A Caparros-Martin
Project Outline	The microbial communities inhabiting in and on the human body have recently emerged as major homeostatic regulators in humans. The human microbiota has been associated with, and in some instances causally linked to, several chronic conditions in humans. These microbial communities have also been demonstrated to modulate drug response (efficacy and toxicity) to different therapeutics including anti-cancer medications. Because the microbiota is amenable to intervention (e.g. diet, pre/probiotic formulations), there is a growing interest in understanding how the different members of the microbiota and/or their products contribute to the development and prevention of human health and disease. This project aims at gaining insight into the microbial communities associated with human cancer and how they can prevent or promote the development of neoplastic lesions. To this end, publicly available high-throughput sequencing data from tumors will be used to interrogate the presence of viral and bacterial DNA. To capture and annotate the viral and bacterial genomes, we will use EVEREST (a pipEline for Viral assEmbly and chaRactEriSaTion). Results will be then integrated into clinical data and machine learning algorithms will be applied to predict signatures related to tumor development. Methods: The candidate will be exposed to advanced bioinformatics and statistical analysis including but not limited to i) how to retrieve sequencing data from public repositories, ii) how to work using supercomputing clusters (Pawsey), iii) how to handle, process and analyse sequencing data, iv) how to retrieve viral and bacterial sequences from sequencing data and perform de novo assembly and taxonomical classification.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	- A genuine interest in host-microbiota interaction, and modelling using computational tools. - Strong organisational skills and ability to meet deadlines. - Excellent communication and interpersonal skills.
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Improving the lung health for survivors of preterm birth

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Children's Lung Health
Start Date	1/02/2024
Chief Supervisor	A/Prof Shannon Simpson
Other Supervisors	Dependent on project chosen
Project Outline	Preterm birth is now a well-established risk factor in the development of life-long lung disease. Our group has previously identified that many survivors of preterm birth experience progressively increasing airway obstruction from childhood through to adolescence, with mounting evidence that many individuals within this population will develop early onset chronic obstructive pulmonary disease later in life. Unfortunately, we still have a limited understanding of what mechanisms are driving progression in underlying disease and how we can identify those at greatest risk of ongoing disease. This has stymied the development of clear guidelines for clinicians on how we can best follow up and treat survivors of preterm birth and alter the trajectory towards early lung function decline. We have a range of projects available within our team, all aimed at improving long-term health outcomes for children born prematurely. These include: - Understanding the role of day-care and early life infection on later lung health outcomes in children born preterm. - Understanding how lung structure (from Chest CT) relates to other aspects of lung health after preterm birth. - Developing novel phenotype profiles for survivors of preterm birth (suitable for those with a keen interest in bioinformatics). - Investigating the role of physical activity, using questionnaire data and wearable activity monitors.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	- Strong academic background - Self-motivated individual - Strong written and oral communications skills - Critical thinking and problem solving abilities - Must comply with CAHS policies relating to working in healthcare, as several of these projects are working with children within Perth Children's Hospital. Experience in conducting cohort studies and/or using lung function testing equipment would be a distinct advantage
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Vulnerable from the first breath - epithelial dysfunction and respiratory outcomes in children

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☒ Early Environment
Research Program	Airway Epithelial Research
Start Date	Negotiable
Chief Supervisor	Professor Stephen Stick (Telethon Kids Institute)
Other Supervisors	Dr Thomas Iosifidis (Telethon Kids Institute) Dr Patricia Agudelo-Romero (Telethon Kids Institute) Dr David Hancock (Telethon Kids Institute) Dr David Martino (Telethon Kids Institute) A/Professor Anthony Kicic (Telethon Kids Institute)
Project Outline	Our pioneering studies of airway epithelium from infants and children, have led us to the challenging proposal that asthma is an example of a condition arising from an intrinsic epithelial vulnerability to environmental exposures. To better understand how epithelium contributes to the development of respiratory conditions, we need to determine its pre-morbid characteristics. There is a need to understand the role of in utero exposures and epigenetic imprinting on epithelial programming and development of respiratory disease in early childhood. This study will address the following critical questions systematically in a well powered birth cohort study: • Is a vulnerable respiratory epithelium identifiable at birth? • Does a vulnerable respiratory epithelium contribute to respiratory outcomes? • What is the epigenetic topography of the vulnerable epithelium at birth? • What are the functional consequences of epigenetic imprinting on the airway epithelium? This project is incorporated within AERIAL, a birth cohort study nested under The ORIGINS Project. It combines access to well-characterised clinical phenotypes, biological samples, in vitro mechanistic models and cutting-edge single cell/bulk multi-omic sequencing applications. There are opportunities to incorporate bioinformatics analysis pipelines, such as integration of multi-omics datasets with clinical datasets. In addition, the project will involve processing of clinical samples, establishment of primary epithelial cell and induced pluripotent stem cell (iPSC) cultures to assess epithelial cell function (morphology, wound repair, viral responses) and assessment of epigenetic imprinting through CRISPR/dCas9 epigenetic editing of specific methylation sites. Through this project, you would contribute to novel method development, understanding susceptibility to respiratory infections and wheeze development and identify therapeutic target to module epithelial function in vivo.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Bachelor of Science or equivalent Excellent written and oral communication skills Ability to work with clinical samples Knowledge of, or interest to learn bioinformatics analyses (desirable)
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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Dr Thomas Iosifidis 08 6319 1807
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Programming of epithelial progenitors and the origins of respiratory disease

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☒ Early Environment
Research Program	Airway Epithelial Research
Start Date	Negotiable
Chief Supervisor	Dr Thomas Iosifidis (Telethon Kids Institute)
Other Supervisors	Professor Stephen Stick (Telethon Kids Institute) TBA depending on final project selection
Project Outline	Chronic respiratory diseases are a major healthcare burden in Australia with disease development originally thought to start in later life. We now understand that the early life environment, and even conditions during pregnancy such as maternal asthma severity, play an important role in determining risk to develop poor respiratory outcomes, such as wheeze and asthma in the offspring. Studies by our team on the airway epithelium from infants and children have led us to the hypothesis that a "vulnerable epithelium" endotype can contribute to poor clinical respiratory health, such as wheeze and asthma. Importantly, the prenatal environment may be a key modulator of epithelial vulnerability. Altered epithelial states have been identified in fetal-origin epithelial progenitor cells such as amniotic epithelium and characterised by markers of inflammation and impaired repair capacity. It remains to be determined the effect of prenatal exposures on reprogramming of amniotic and airway epithelia of newborns and respiratory disease development. This project combines access to well-characterised clinical phenotypes, biological samples, in vitro mechanistic models and cutting-edge single cell/bulk multi-omic sequencing applications. The project will include biological samples and clinical data collected from the AERIAL sub-study within The ORIGINS Project birth cohort. The project involves use of primary amniotic and airway epithelial cell cultures to assess cell morphology, proliferation, barrier integrity, repair rates and production of inflammatory cytokines, as well as epigenetic editing through a CRISPR/dCAS9 system. Ultimately, this project will characterise a novel mechanism explaining how exposures during pregnancy affect respiratory disease in the offspring. This project has access to additional biological samples and clinical data in early childhood collected through the AERIAL study to understand susceptibility to respiratory infections and wheeze development. Depending on student interest in this project, there are opportunities to incorporate bioinformatics analysis pipelines, such as integration of multi-omics datasets with clinical datasets.
Suitable For	☒ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Bachelor of Science or equivalent Excellent written and oral communication skills Ability to work with clinical samples
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☒ Full scholarship offered by project group (pending funding outcome in September)

For more information, please contact:
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Developing a new class of therapeutics to heal airway damage in asthma

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☒ Chronic & Severe Diseases ☐ Early Environment
Research Program	Airway Epithelial Research
Start Date	2024
Chief Supervisor	Dr Thomas Iosifidis (Telethon Kids Institute/Curtin University)
Other Supervisors	A/Professor Anthony Kicic (Telethon Kids Institute/Curtin University) Professor Stephen Stick (Telethon Kids Institute/The University of Western Australia) A/Prof Alexander Larcombe (Telethon Kids Institute/Curtin University) TBD (depending on final project selection)
Project Outline	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 children with asthma has intrinsic abnormalities relating to dysregulated responses to injury, infection and inflammation. Defective airway epithelial repair associates with symptom recurrence and poor respiratory outcomes. Our team is developing novel therapeutics that target the airway epithelial repair with the goal to improve health outcomes for children with asthma. There is now an opportunity for a motivated student/multiple students to contribute towards the assessment of new therapeutics for asthma that enhance airway repair. The project aims to test the preclinical efficacy of repurposed and novel therapeutics to enhance airway epithelial repair. Specifically, patient-derived airway epithelial cell cultures will be established to validate drug safety and efficacy in vitro. Also, preclinical mouse models of in vivo tracheal epithelial injury will be utilised to assess therapeutic efficacy to enhance epithelial repair. 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 differentiated airway epithelial cell in vitro and mouse in vivo injury models. This project will also determine the efficacy of new medications for childhood asthma targeting the airway epithelium.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Excellent written and oral communication skills Highly motivated and organized Able to work independently and as part of a team
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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EARLY ENVIRONMENT

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

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

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

Investigating immune function in transgender young people

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Immunobiology and Immunotherapeutic, Pregnancy and Early Life Immunology
Start Date	Early 2024
Chief Supervisor	Dr Jonatan Leffler (Telethon Kids Institute)
Other Supervisors	Ms Alice White (Telethon Kids Institute, University of Western Australia)
Project Outline	Background: There is a growing body of research demonstrating significant effects of sex hormones on immune function. This relates to sex-based differences in the burden of disease including: susceptibility to infections, effectiveness of vaccinations and autoimmune disease. However, it is currently unclear how these findings may relate to transgender (trans) people. The current scientific evidence suggests gender affirming hormones for trans young people are safe, effective, and beneficial to quality of life. However, since trans people who commence estrogen or testosterone commonly choose to remain on this treatment for life; there is still an unmet need for long-term trans health research. The aim of this study is to provide urgently needed scientific evidence on the effects of gender affirming hormones on immune function in trans young people. Approach: B cells are responsible for antibody mediated immune responses; sex hormones have been shown to affect B cell function. For example, oestrogen is immune activating, and positively correlates with IgG and IgA antibody concentration. Contrastingly, testosterone is suppressive to immune function and decrease antibody production. In this study, biological samples from trans young people seen at the Perth Children's Hospital, are collected pre and post commencement of gender affirming hormones. Samples from this unique cohort will be used to compare the abundance of B cell subsets, functional markers and antibodies in trans young people compared to age matched controls. This will provide an unparalleled analysis of immunological function in trans young people. Student's role: We are looking for a highly motivated student that is interested in immunology and trans health to join our team. As a student on this project, you will process samples from our clinical cohort using a specialised B cell flow cytometry panel. By completing this project, you will gain valuable lab experience, learn advanced flow cytometry techniques, quantitative research skills and statistical analysis techniques including R.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	- Undergraduate degree in biomedical science, immunology, microbiology or similar -Theoretical understanding of flow cytometry -Excellent communication skills Desirable: -Experience in laboratory work -Data analysis experience -Scientific writing skills
Ethics Approval	☐ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

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Protecting newborns from infectious mortality

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Early Life and Lifecourse Health
Start Date	1/03/2024
Chief Supervisor	David Martino
Other Supervisors	n/a
Project Outline	Newborn mortality is still sadly common in many parts of the world. While childhood mortality has reduced substantially since the advent of vaccines, equivalent gains have not been forthcoming in newborns that die in the first week of life. This is because the newborn immune system is developmentally unique and many of the vaccine strategies we have do not offer protection in the first week of life. This project will investigate whether novel vaccine strategies that evoke a new kind of 'trained immunity' protection could boost non-specific immunity in vulnerable newborns. You will analyse blood genomes and epigenomes from a clinical trial conducted in the Gambia to identify novel markers of immune protection.
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Bachelors degree with first grade honours in science/medicine. Bioinformatics experience highly desirable.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
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The ORIGINS Project: Assess the impact of father's support groups on the family unit

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, Edith Cowan University
Other Supervisors	
Project Outline	Fathers have historically been considered as secondary to the child rearing process. Despite this, fathers have unique and profound impacts on the development of their children, spanning from the pre-conceptive period to when the child reaches adulthood. Recent social shifts have prompted an increase in father's involvement with their children, however fathers frequently report feeling unsupported in their new roles, and suggest that current services are not always appropriate. This gap in service availability has prompted the development of several 'father's groups'. The impact that membership in these groups has on father's perception of their partners and children, and the ability for them to foster positive parenting practices is largely unknown. The current project seeks to understand the needs of ORIGINS fathers and therefore the suitability of employing support groups within the cohort, and to develop a program accordingly. The project will then seek to assess the impact of attending father's support groups on the family unit.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in relevant discipline Proficient writing skills Interest in child health and development Basic qualitative and quantitative analysis skills Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:

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

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	The ORIGINS Project
Start Date	Available now
Chief Supervisor	Dr Lisa Gibson (Telethon Kids Institute, Edith Cowan University)
Other Supervisors	
Project Outline	Excess gestational weight gain is known to have a negative impact on the health of women (e.g. high blood pressure, diabetes, and caesarean section) and their infants (e.g. high birth weight, trauma at birth, asphyxia). In addition, excess weight gain in pregnancy is strongly related to child overweight/obesity and maternal postpartum weight retention. Despite these short and long term risk, further work is needed to understand women's awareness of weight gain guidelines in pregnancy and their adherence to the guidelines. This project will to seek to use existing quantitative and qualitative data collected as part of The ORIGINS Project to understand pregnant women's perceptions and experiences of weight gain in pregnancy. This research will be important in identify barriers and enablers to assist in the promotion of weight gain in pregnancy.
Suitable For	☒ Honours ☒ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree in relevant discipline Proficient writing skills Interest in maternal and child health Basic qualitative and quantitative analysis skills Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
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Developing a prediction model for preterm infants to determine the true burden of hospitalisations due to respiratory syncytial virus

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Infectious Diseases Epidemiology
Start Date	Available now
Chief Supervisor	Minda Sarna
Other Supervisors	Belaynew Taye, Hannah Moore
Project Outline	Respiratory syncytial virus (RSV) infection is a leading cause of illness and death in young children worldwide. In Australia, for every 100,000 hospitalised children, 418 will be hospitalised due to an RSV infection. Furthermore, infants born preterm bear a disproportionate burden of severe RSV infection. The true burden of RSV infection is likely to be higher. Previous work by our team has also shown that more than half of children who are hospitalised are not tested for viruses. We've previously developed a prediction model to determine the degree of under-ascertainment (number of infections missed) in a cohort of children born in WA over a 10 year period. Our prediction model showed that between 30-57% of RSV infections are missed. We'd like to repeat this work to develop a prediction model focused solely on preterm infants to obtain more accurate estimates. In the last two years, several vaccine and monoclonal antibodies for RSV have been developed and are close to being licensed. Knowing the true burden of RSV in preterm infants is important to inform the decision-making process about the rollout of these prevention products in a high risk vulnerable group.
Suitable For	☐ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in a relevant discipline Knowledge of quantitative research methods Proficient writing skills Basic statistical analysis skills (STATA/R) Good interpersonal and communication skills
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Functional status associated with respiratory syncytial virus infection in infants

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Infectious Diseases Epidemiology Team
Start Date	1/01/2024
Chief Supervisor	Minda Sarna
Other Supervisors	Caroline Alexander, Hannah Moore
Project Outline	Respiratory syncytial virus (RSV) infection causes severe respiratory illness in infants, particularly young infants and infants born preterm. While we know more about the respiratory impacts of RSV on infants, both acute and chronic, little research has been conducted on non-respiratory impacts. Research in older adults shows RSV infection can result in acute functional decline that may be prolonged. However, measuring functional capacity in at-risk babies before the age of 2 years has up till now been unreliable. Researchers at the Telethon Kids Institute are using a smartphone application that has been developed in Australia to assess a short video taken by parents to measure general movements in infants. General movements are distinct spontaneous movements in a baby, and there is growing evidence for their use to detect motor or cognitive impairment. This information can be analysed to identify babies at risk of both temporary and longer-lasting functional impairment. We will use this technology to conduct an initial feasibility study in a cohort of term and preterm infants with and without RSV infection to determine if RSV infection results in functional, non-respiratory impacts. Results from this study would then inform a larger study. Identifying the degree of impairment will allow early intervention within critical developmental windows to enable these infants to have the best possible start to life. It also provides a greater understanding of the burden of RSV infection to the infant, family, and on the health system.
Suitable For	☐ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in a relevant discipline Knowledge of quantitative research methods Proficient writing skills Basic statistical analysis skills (STATA/R) Good interpersonal and communication skills
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Unlocking the Secrets of B cells in Multiple Sclerosis

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Pregnancy and Early Life Immunology Inflammation Team
Start Date	1/03/2024
Chief Supervisor	Dr. Stephanie Trend, Dr. Jonatan Leffler
Other Supervisors	
Project Outline	The Inflammation Team seeks to understand the basic biology that underlies autoimmune diseases like multiple sclerosis (MS), and the roles that Epstein-Barr Virus infection and low UV exposure in childhood play in the development of autoimmunity. MS is a chronic condition affecting around 1 in 1000 Australians, where the immune system, particularly B and T lymphocytes attack the central nervous system. While the cause of MS is not defined, and there is no cure, our team have found a number of changes in B cells that occur in people with MS around the time of onset of symptoms. B cells are an important immune cell in humans, able to carry out a variety of functions such as antigen presentation to T cells to initiate immune responses, production of cytokines, and more adaptive immune responses such as differentiation to antibody secreting cells. B cells can be infected by, but also respond to, EBV infection, and we are currently investigating multiple avenues of research related to B cell-EBV interactions. Our team utilise innovative technologies to study the immune system such as single cell RNA-sequencing, B cell clonal analyses, and full spectrum flow cytometry to investigate the causes of MS. We have opportunities for motivated individuals to contribute to this extremely rewarding field of research and learn a variety of skills within our team. We invite you to discuss specific projects that are available.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	-Excellent communication skills - Problem-solving abilities -Self motivation For PhD candidates -1st class Honours in a related discipline of Science For Honours candidates -Undergraduate degree in biomedical sciences or related biological disciplines -Experience with coding is desirable
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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The ORIGINS Project: Reduce non-communicable diseases through a 'healthy start to life'

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

For more information, please contact:
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WESFARMERS CENTRE OF VACCINES & INFECTIOUS DISEASES

Infectious Diseases Epidemiology

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

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Estimating the impact and costs of antimicrobial resistance in tertiary paediatric practice

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Infectious Diseases Epidemiology, Wesfarmers Centre of Vaccines & Infectious Diseases
Start Date	TBD
Chief Supervisor	Prof Chris Blyth
Other Supervisors	A/Prof Anthony Kicic, Dr Jeffrey Cannon, Anita Williams
Project Outline	Background: Antimicrobial resistance (AMR) is a naturally occurring phenomenon in bacteria, viruses, fungi, and parasites, where organisms become resistant to drugs used to treat them. AMR is a rapidly growing challenge and has been identified as one of the World Health Organizations top 10 global health threats, with the potential to undo many of the health gains observed over the last century. AMR is associated with longer time in hospital, prolonged antibiotic treatments, and poorer outcomes. However, there are a lack of data on the impact of resistance infection on children and their families and cost to the healthcare system and community. In Australia, the brunt of AMR is felt by vulnerable populations including newborns, Aboriginal children, children with chronic medical conditions, and those from migrant or refugee backgrounds. Methodology: In this study, we will compare the impact and healthcare costs of children with resistant infections, comparing these to children with a non-resistant infection and to healthy children. The cost of infections will include length of stay, number of drugs given, and additional interventions required because of the resistant infection. We are looking for students who can assist with data collection and cleaning, using RedCAP and R Studio.
Suitable For	☐ Honours ☒ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	- Health-related degree being undertaken or complete (Medical, nursing, biomedical science, microbiology) - Demonstrated ability to work both independently and as a member of a team - High level of interpersonal, verbal and written communication skills - Good organisational skills and high personal motivation - Attention to detail is key
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Global paediatric bacteraemia - a systematic review and meta-analysis

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

For more information, please contact:
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Infection transmission in Early Childhood Education and Care: a study to inform future interventions

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Infectious Diseases Epidemiology
Start Date	5/02/2024
Chief Supervisor	Dr Samantha Carlson
Other Supervisors	Professor Chris Blyth and Associate Professor Hannah Moore
Project Outline	Background: Respiratory infections are the most common causes of morbidity in children. Early Childhood Education and Care (ECEC) centres are a crucial environment for the interaction of young children but are also where significant transmission of childhood infections occurs. Although infections are often self-limiting and do not warrant hospitalisation, the disruption of care, parental time off work and secondary transmission to other household members results in a significant health, economic and social burden. This study will generate baseline evidence on the knowledge, attitudes and practices of ECEC centre owner/managers, educators/staff and parents/carers on infections in the post-COVID-19 ECEC environment. Methods: Semi-structured qualitative interviews will be conducted with ECEC owner/managers, educators/staff and parents/carers. Interviews will explore: 1) key concerns regarding the frequency and impact of common infections on the daily business of ECEC centres and the daily life of households, 2) participants' broad understanding of infection transmission in ECEC and knowledge around key infections in young children, and 3) participants' broad understanding and application of pharmaceutical and non-pharmaceutical intervention strategies. Data collected will be thematically analysed in NVivo.
Suitable For	☒ Honours ☐ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	- Undergraduate degree in a relevant field (e.g. Population Health, Epidemiology, Social Science, Psychology, or another relevant degree). - Knowledge of qualitative research methods - Demonstrated ability to work both independently and as a member of a team - High level of interpersonal, verbal and written communication skills - Good organisational skills and high personal motivation
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Characterising antibody responses to Strep A antigens

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	END RHD
Start Date	Negotiable (or Semester 1 2024)
Chief Supervisor	Dr Alma Fulurija
Other Supervisors	Michael Morici (Telethon Kids Institute) Dr Hannah Frost (Murdoch Children's Research Institute)
Project Outline	Streptococcus pyogenes (group A Streptococcus, Strep A), a Gram-positive bacterium, is among the deadliest infections on the planet and is one of the most neglected infections in terms of burden of disease. Strep A infections cause a wide range of diseases and significant morbidity and mortality globally, estimated at 0.5 million deaths annually. Disease ranges from mild superficial infections such as throat and skin infections to severe disease including acute rheumatic fever (ARF), rheumatic heart disease (RHD) and acute post-streptococcal glomerulonephritis. Australia has some of the highest rates of ARF and RHD in the world disproportionately affecting young Aboriginal and Torres Strait Islander populations. There is a clear unmet need for more effective disease prevention strategies. Despite the large global burden of disease, there is still no safe and effective vaccine against Strep A. The Australian Strep A Vaccine Initiative (ASAVI) seeks to address this by contributing to the development of safe and effective Strep A vaccines. This laboratory-based project will involve developing fit-for-purpose serology assays to accurately measure and characterise immune responses to natural infection, and to Strep A vaccines during clinical trials to determine their efficacy. Leveraging a robust assay platform (Meso Scale Discovery), the project will develop methods to quantify antibodies to Strep A antigens after natural infection or in response to vaccines. The student will be part of the ASAVI lab at Telethon Kids Institute, and the project will provide valuable hands-on experience in: - Experimental design - Immunoassay development - Biospecimen preparation and handling - Data analysis - Industry-standard documentation and reporting
Suitable For	☒ Honours ☒ MD ☒ Masters ☐ PhD
Essential Skills & Qualifications	Undergraduate degree in medical or biological sciences (e.g. immunology, cell biology) Interest in vaccines and vaccine development Excellent organisational skills, motivation, and dedication
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Healthy Ears: A randomised-controlled trial of a health promotion intervention to resolve otitis media with effusion in children

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Ear Health
Start Date	29/01/2024
Chief Supervisor	A/Professor Christopher Brennan-Jones (TKI, PCH, Curtin)
Other Supervisors	A/Professor Dayse Tavora-Veira (FSH) Dr Lydia Timms (TKI, Curtin) Dr Robyn Choi (UWA/TKI)
Project Outline	Overview: The prevalence of persistent OME is estimated to affect over a quarter (26.8%) of children in Western Australia by three years of age. In Australia, a simple, low-cost, family-led health promotion intervention was developed to promote resolution of OME without surgical intervention. Known as the 'Blow, Breathe, Cough' program (or 'BBC'), it encourages children to breathe deeply, blow their nose and cough to clear secretions from the lungs and nose, and practice good hand hygiene. It is hoped that the BBC program facilitates spontaneous resolution of middle ear effusion in children, improving their hearing levels without the need for surgical intervention. Objectives: This study will recruit children with OME into a randomised-controlled trial to assess the effectiveness of the BBC program. Aims: The primary aim of the trial is to assess the speech and hearing outcomes for children in both the intervention and control arm of the clinical trial. Methods: A two-arm, blinded outcome assessment, randomised-controlled adaptive design. Intervention arm participants will undertake the BBC intervention twice daily for a 4-6 week period. The BBC program includes the hand hygiene (HH) component. Control arm participants will undertake a HH component only, twice daily for 4-6 weeks. The primary outcome is resolution of OME, assessed with tympanometry (type A or C tympanograms), measured at 4-6 weeks and 6-8 months post-randomisation. Hearing and speech outcomes for children in the BBC intervention arm will be compared to controls at 6 weeks and 8 months post-intervention. Significance: This is the first trial to assess effectiveness of the BBC program. If efficacious, there is potential for the program to become standard practice for the management of OME, reducing risks and costs associated with surgical intervention. This project is externally funded by the WA Future Health and Research Innovation Fund and the National Health and Medical Research Council (NHMRC).
Suitable For	☐ Honours ☐ MD ☒ Masters ☒ PhD
Essential Skills & Qualifications	We are looking for a PhD candidate with excellent organisational and project management skills to join our team for the Healthy Ears trial. Candidates with an interest in health promotion or public health are strongly encouraged to apply. Previous clinical experience or experience in clinical research is desirable, but not required. The candidate will be well-supported in a dynamic team that includes a number of PhD students, project co-ordinators and clinical researchers. Prospective candidates must be eligible to enrol in the PhD program at Curtin University.
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☒ Top-up scholarship offered by project group ☒ Full scholarship offered by project group

For more information, please contact:
A/Professor Christopher Brennan-Jones chris.brennan-jones@telethonkids.org.au

WA EarMap: Geospatial proximity of ear and hearing services across Western Australia for children with otitis media

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Ear health
Start Date	1/02/2024
Chief Supervisor	A/Prof Chris Brennan-Jones
Other Supervisors	Tamara Veselinovic, Melinda Edmunds, Jennifer Rozier
Project Outline	Otitis media (ear infections) affect 1 in 4 Western Australian children, with a 1 in 2 prevalence among urban Aboriginal children. Access to ear and hearing services is required for timely diagnosis and treatment of otitis media. However, the waiting time in the public system for specialist care can be very long (>2 years), which can have lasting effects on developmental outcomes. Currently, little is known about the distribution of ear and hearing services across WA, which is vital in ensuring that all children, particular Aboriginal children at a higher risk of otitis media, have access to the required services. This project will involve developing the first WA EarMap, to determine the distribution of WA's child population, the key geospatial areas of OM prevalence and the distribution of ear and hearing services across the state. QGIS software mapping will be used to undertake this project, and engagement with ear and hearing service providers across the state.
Suitable For	☒ Honours ☒ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Bachelor of Science or equivalent degree.
Ethics Approval	☐ Obtained ☒ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

For more information, please contact:
Tamara.veselinovic@telethonkids.org.au

Deciphering the protective immune response to Strep A infection in children

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	END RHD Program
Start Date	1/01/2024
Chief Supervisor	Dr Janessa Pickering
Other Supervisors	Click or tap here to enter text.
Project Outline	In Australia, there is a disproportionate and overwhelming burden of Strep A infections in remote-living children. Preventing sore throats remains critically important to reducing this burden of heart disease. Recent findings from our unique school-based Kimberley surveillance cohort identified a high burden of infections that can be classified into three distinct groups: 1. Children with repeated infections; 2. Children with one infection and a long period of protection from another infection; 3. Children with no evidence of Strep A infection in the skin or throat. We hypothesise that natural mechanisms of protection prevent some children from being infected with Strep A, and these mechanisms can be exploited for new therapies and treatments. This project will profile the natural antibody responses to Strep A in children, at epitope level resolution. Our approach has the potential to define long sought after 'correlates of Strep A protection', identification of which would vastly transform current vaccine development, future implementation and measurements of efficacy.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree with training in Microbiology or Immunology
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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Characterising inhibitory microbes from the oropharynx of children for therapeutic Strep A prevention

Research Theme	☐ Indigenous Health ☐ Brain & Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	END RHD Program
Start Date	1/01/2024
Chief Supervisor	Dr Janessa Pickering
Other Supervisors	Click or tap here to enter text.
Project Outline	Strep A is important bacterial pathogen. Recurrent Strep A infections predisposes individuals to post-infectious complications including acute rheumatic fever and rheumatic heart disease. Primary prevention of Strep A infection, in school aged children is highly sought after. An efficacious, child-friendly therapeutic could strongly support healthy environments for children and have a major impact on primary Strep A prevention. Resident microbiota can protect hosts from pathogen colonisation, although this is best understood in the gut niche. We hypothesise oropharyngeal flora from children who do not experience Strep A infections will harbour effective microbial strains capable of inhibiting Strep A. We propose they can be developed into microbiome-based therapeutics or prophylactics. This lab-based project involves functional characterisation of microbial communities collected from school aged children. This project will enable advanced training in microbiological, molecular and bioinformatic skills.
Suitable For	☒ Honours ☐ MD ☐ Masters ☒ PhD
Essential Skills & Qualifications	Undergraduate degree with training in Microbiology or Immunology
Ethics Approval	☒ Obtained ☐ Not Obtained
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group
For more information, please contact: Janessa.pickering@telethonkids.org.au	

Spritz-OM product formulation optimisation

Research Theme	☐ Indigenous Health ☐ Brain and Behaviour ☐ Chronic & Severe Diseases ☒ Early Environment
Research Program	Wesfarmers Centre of Vaccines & Infectious Diseases | Bacterial Respiratory Infectious Disease Group (BRIDG)
Start Date	1/02/2024
Chief Supervisor	Dr Kelly Martinovich
Other Supervisors	A/Prof Lea-Ann Kirkham
Project Outline	Most children experience a middle ear infection by their 2nd birthday. Globally, ear infections are the main reason for antibiotic use and surgery in pre-school children. Annual treatment costs for otitis media (antibiotics and grommet surgery) cost ~US$5billion in the USA alone. Wait-time for grommet surgery can be up to 2 years - an unacceptably long time to suffer ear pain and reduced hearing, which can negatively affect learning outcomes and overall wellbeing. Our solution is Spritz-OM, a low-cost nasal therapy to prevent childhood ear infections. Spritz-OM acts like a probiotic for the nose, guarding the ear from infection with nontypeable Haemophilus influenzae (NTHi), the pathogen responsible for the majority of the 700 million annual ear infections worldwide. With strong preclinical data, untied funding, patents pending, and interest from Pharma, we are working with industry to manufacture Spritz-OM to the regulatory requirements for a Phase 1 trial. Part of the manufacturing pipeline requires further optimisation of the product's formulation. We have several projects available that will involve the following: Cell culture, Microbiology, flow cytometry, immunological assays, microscopy, animal work (if desired). These projects will directly contribute to the development of a novel therapeutic that has the potential to prevent millions of ear infections globally.
Suitable For	☒ Honours ☐ MD ☐ Masters ☐ PhD
Essential Skills & Qualifications	Bachelor of Science or equivalent Excellent written and oral communication skills Highly motivated with good organisational skills Ability to work independently and as part of a diverse team Strong desire to work in the lab (some experience preferred)
Ethics Approval	☐ Obtained ☒ Not Obtained (Not Required)
Funding	☐ Top-up scholarship offered by project group ☐ Full scholarship offered by project group

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