Government of Western Australia
Child and Adolescent Health Service

Perth Children's Hospital Foundation

The KIDS RESEARCH INSTITUTE AUSTRALIA

2024

Child Health Research Symposium

Empowering Futures: Advancing Child Health

4-8 November

Wandju wandju, nidja

Acknowledgement of Country

The Child and Adolescent Health Service acknowledges the traditional custodians of the land on which our health service is based, the Whadjuk Noongar people (Whadjuk Noongar Country) and the Aboriginal children, young people and families of the many traditional lands and language groups of Western Australia to whom we provide health care.

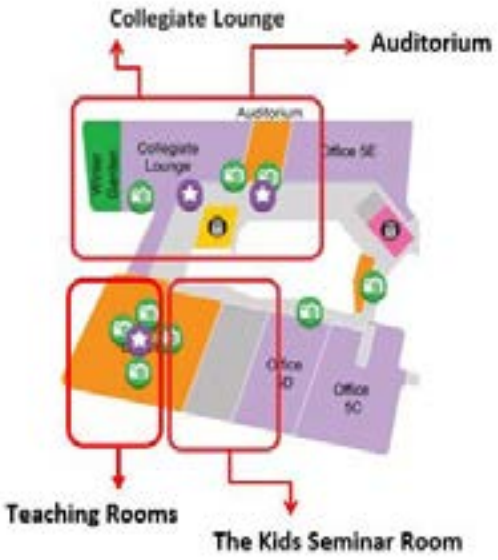
We acknowledge the wisdom of Aboriginal Elders both past and present, and pay respect to them and Aboriginal communities of today. We also acknowledge their continued connection to Country, ceremonies and identity, ensuring that Australia will always be Aboriginal land.

We gratefully acknowledge the Perth Children's Hospital Foundation for their support of this year's Symposium.

We also extend our thanks to our partner The Kids Research Institute Australia and to the Child Health Research Symposium Organising Committee and all those who contributed to the prizes, planning, organisation and running of the Symposium.

Locations

- Level 5, Perth Children's Hospital
  - Auditorium
  - Collegiate Lounge
  - Teaching Rooms
  - The Kids Seminar Room
- Level 6, Manda, The Kids Research Institute Australia



Legend of abbreviations used in this program

Child and Adolescent Community Health	CACH
Child and Adolescent Health Service	CAHS
Child and Adolescent Mental Health Services	CAMHS
Curtin University	Curtin
Edith Cowan University	ECU
Fiona Stanley Hospital	FSH
Perth Children's Hospital	PCH
Perth Children's Hospital Foundation	PCHF
The Kids Research Institute Australia	The Kids
The Royal Children's Hospital	RCH
University of Newcastle	UoN
University of Western Australia	UWA

Foreword

On behalf of the Child and Adolescent Health Service and The Kids Research Institute Australia, it is our pleasure to present the 2024 Child Health Research Symposium, generously supported by the Perth Children's Hospital Foundation.

This year's theme – Empowering Futures: Advancing Child Health – reflects recent technological developments that are opening new frontiers for child health research.

The rise of machine learning has created exciting possibilities for accelerating research. Several artificial intelligence-themed activities, including a lunchtime session, will provide delegates with the chance to learn more about this rapidly growing field of applied science.

Once again, we have assembled an outstanding program of presenters to showcase the breadth and excellence of child health research underway across Western Australia and the multi-disciplinary make-up of our research workforce.

Complementing the main event, this year's symposium will also incorporate 4 satellite sessions, capturing research developments in Allied Health, Nursing, Child and Adolescent Mental Health Services, and Child and Adolescent Community Health.

There will also be a strong focus on clinical trials, with a session dedicated to innovative trial methodologies, as well as a panel discussion on increasing clinical trials capacity for Western Australia's youngest patients.

While kicking off with our ever-popular poster event, we're ending on a double high with our inaugural Great Debate followed by the presentation of prizes for the most outstanding presentations of the week.

The symposium is not just a chance to discover great research happening in WA and beyond. It is also a wonderful opportunity to make new friends and renew old acquaintances.

We thank all our presenters who are so generously sharing their time and expertise and invite all friends and colleagues to join us for this celebration of child health research.

Valerie Jovanovic
Chief Executive
Child and Adolescent Health Service

Professor Jonathan Carapetis
Executive Director
The Kids Research Institute Australia

A word from our sponsor

As part of our ongoing commitment to innovation and excellence in paediatric healthcare in Western Australia, we are delighted to again sponsor this important symposium.

Perth Children's Hospital Foundation is the official and largest fundraiser for Perth Children's Hospital (PCH) and the statewide Child and Adolescent Health Service (CAHS) and is proud to fund 20% of the projects being presented at this year's event.

In the 2023/2024 financial year, we provided $7.19 million in grant funding to PCH and CAHS to ensure WA children have access to world-class care. Of this, more than $3.2 million was directed to transformational and translation research.

Over the years, we have funded **Clinical Research** focussing on the speciality areas of cancer, anaesthesia, cardiology, infectious diseases, palliative care, neonatal intensive care and mental health; **Research and Expertise** through the Rare Care Centre, Centre of Excellence for Childhood Burns, Professorial Chairs of Psychiatry, Radiology and Nursing; **Early Career Research Awards** to foster the next generation of researchers – with current recipients making an impact through ground-breaking diabetic and respiratory disease research; and **PhD Pathways** for University of Western Australia candidates.

Our focus is on pioneering research aiming to change the landscape of children's health care in Western Australia and beyond. An example of which is support for the development of world-leading clinical trials, giving WA children access to cutting-edge treatments right here at home.

Working collaboratively with organisations like The Kids' Research Institute, Wal-yan Respiratory Research Centre and respected universities, we support world-class research that is putting PCH on the global medical research map.

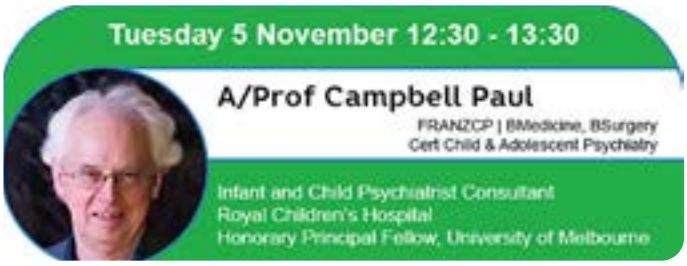
Together we are making a lasting impact and improving the health and wellbeing of sick children not just in WA, but across the country and around the world.

Carrick Robinson
Chief Executive Officer
Perth Children's Hospital Foundation

Program Overview

Monday, 4 November	17:00 - 19:00	Poster Opening Event	Collegiate Lounge
Tuesday, 5 November	10:00 - 12:00	Workshop: Lived Experience with Shannon Calvert	The Kids Seminar Room
	12:30 - 13:30	Keynote presentation: A/Prof Campbell Paul - Inner World of the Baby	Auditorium
	13:30 - 14:45	Aboriginal Health, Early Intervention and Prevention	Auditorium
	15:00 16:15	Partnering for Impact	Auditorium
	15:00 - 18:00	Allied Health Satellite Session	The Kids Seminar Room
Wednesday, 6 November	8:30 - 10:45	Early Career Researchers	Auditorium
	10:00 - 12:00	Workshop - Project Management with Melanie Wright	The Kids Seminar Room
	11:00 - 12:00	Lightning Talks	Auditorium
	12:30 - 13:30	Keynote presentation: Dr Joseph A. Carpini - Teamwork and Communication Insights and Strategies for Effective Collaboration	Auditorium
	13:30 - 14:30	The Kids lunch session: RSV Immunisation - lessons and impact from the first year of the WA RSV Immunisation Program	The Kids Manda
	13:40 - 16:00	Nursing Satellite Session	Teaching Rooms
	14:00 - 16:00	Workshop - Grants with PCHF, The Kids and CAHS	The Kids Seminar Room
	14:00 - 16:30	Child and Adolescent Mental Health Services Satellite Session	Auditorium
Thursday, 7 November	8:30 - 10:15	Innovation and Advancing Child Health Outcomes	Auditorium
	9:00 - 12:00	Child and Adolescent Community Health Satellite Session	The Kids Seminar Room
	10:30 - 12:00	Clinical Trials Session	Auditorium
	12:30 - 13:30	Keynote presentation: Prof Steve Webb - The biggest advance in trial science in 75 years	Auditorium
	13:30 - 14:25	Panel Discussion: Clinical Trials	Auditorium
	13:30 - 14:30	The Kids lunch session: Artificial Intelligence	The Kids Manda
	14:30 - 15:30	Great Debate: Artificial Intelligence	Auditorium
	15:30 - 16:00	Awarding of Prizes	Auditorium
Friday, 8 November	12:00 - 13:30	RACP WA Paediatric Trainee Research Awards	Auditorium

Keynote Speakers



A/ Prof Campbell Paul is a Consultant Infant Psychiatrist at the Royal Children's and Royal Women's Hospitals Melbourne and Honorary Principal Fellow in the Department of Psychiatry at the University of Melbourne. With colleagues at the University of Melbourne he has delivered postgraduate courses in Infant and Parent Mental Health since 1992. These courses developed out of longstanding experience in paediatric consultation-liaison psychiatry and infant-parent psychotherapy. He has a special interest in the understanding of the inner world of the baby, particularly as it informs therapeutic work with infants and their parents. With colleagues, he has developed models of working in therapeutic groups with troubled parents and infants.

He has established the Australian training centre for the Newborn Behavioural Observation at the Royal Women's Hospital Melbourne. Through engaging the baby, the NBO provides a powerful intervention to support the developing infant -parent relationship.

Dr Joseph Carpini is a Senior Lecturer of Human Resource Management and Organisational Behaviour in the Management and Organisations Department at the University of Western Australia Business School. His research rests at the intersection of workplace performance, mental health, and diversity. Joseph has published over 40 academic entries including in some of the most prestigious in the field of management and applied psychology (e.g., Academy of Management Annals, Journal of Organizational Behavior, and Human Resource Management). Joseph has received a number of awards including the UWA Business School Early Career Research Award, the UWA Excellence in Teaching Award, the Taylor-Hammond Research Scholarship (RANZCOG) and the Lim Kim San Fellowship (Singapore Management University, LKCSB). His research has attracted over $1 million in competitive and industry-sponsored research.

Dr Steve Webb is an Intensive Care specialist, a Professor of Critical Care Research at Monash University, Director of Research for St John of God Healthcare,and immediate past Chair of the Australian Clinical Trials Alliance. He is a past-Chair of the ANZICS Clinical Trials Group and previously co-chair of the federal Government's Clinical Trials Collaborative Forum. In 2014, when the federal Government established the Australian Academy of Health and Medical Sciences, he was one of 14 fellows who were selected to establish the Academy.

He has been an investigator on trials with an accumulated sample size of more than 60,000 patients, is a named investigator on more than $165 M of competitive research funding and has published more than 250 manuscripts, including multiple manuscripts in NEJM (11) and JAMA (12), that have been cited more than 65,000 times. He has experience with Bayesian adaptive platform trials and other innovative designs such as cluster cross-over trials. He was the global leader of the REMAP-CAP platform trial that reported the treatment effect of 18 different interventions for patients with severe COVID-19 infection. Results from his trials have been incorporated rapidly into international guidelines and implemented into clinical practice saving many lives.

Monday 4 November

17:00 - 19:00 **Poster Opening Event** PCH Collegiate Lounge

Tuesday 5 November

Join us for lunch at 12pm

12:30 - 13:30 **Keynote presentation** PCH Auditorium

A/Prof Campbell Paul - Inner World of the Baby Microsoft Teams

Infant and Child Psychiatrist Consultant, The Royal Children's Hospital and Honorary Principal Fellow, University of Melbourne

Chair: Jill Pascoe, CAHS, Executive Director CAMHS

13:30 - 14:45 **Aboriginal Health, Early Intervention and Prevention** PCH Auditorium

Microsoft Teams

Chairs: Mel Robinson, CAHS, Director Aboriginal Health and Associate Professor Glenn Pearson, The Kids, Director of First Nations Strategy and Leadership

Speaker	Institution	Title
Dr Bernadette Ricciardo, Jacinta Walton	The Kids	Eczema in urban-living Aboriginal Children: community-led skin health research informing a health promotion resource
Chelsea Kelly	Curtin	Health professional experiences assessing deterioration in dark-coloured skin: Nurse perspectives
Maheshwar Bhasin	UWA	Non-exclusive colostrum feeding is associated with increased risk of food allergy in one year old infants
Savannah Machado	UWA	Colostrum - the missing link for successful food allergy prevention?
Professor Asha Bowen	CAHS	SToP (See, Treat, and Prevent) activities for skin disease control in remote Western Australia: a randomised trial

15:00 - 16:15 **Partnering for Impact** PCH Auditorium

Microsoft Teams

Chairs: Tony Dolan, CAHS, Executive Director PCH & Neonatology and Mitch Messer, The Kids, Community Involvement Coordinator

Speaker	Institution	Title
Tim Wakeling (Parent Representative), Joanna White	CAHS	Understanding paediatric post-sepsis care needs in Western Australia through co-design qualitative research
Anita Williams	The Kids	Trends of AMR in Paediatric Bloodstream Isolates from Across Australia, 2013-2021
Dr Denby Evans	The Kids	Investigating inflammatory biomarkers and lung function after preterm birth
Dr Claire Bowden	CAHS	Demonstrated Impact of the Rare Care Centre's Cross-Sector Model of Care *(proudly supported by PCHF)*
Charlie Holland	The Kids	Off-target effects of respiratory vaccines on hospitalisation for respiratory infections and associated outcomes in children

Wednesday 6 November

8:30 - 10:45 **Early Career Researchers** PCH Auditorium

Chairs: Professor Ben Jackson, The Kids, A/Director Research and Professor Tim Jones, CAHS, Area Director Research Microsoft Teams

Speaker	Institution	Title
Dr Harriet Crabtree	CAHS	IGE and eosinophil count at 6 years predicts long-term risk of ABPA in CF patients
Jess Keeley	The Kids	A grey literature scoping review of online health literacy resources for people with intellectual disability
Anita Williams	The Kids	Not Little Adults: Differences in AMR in Bloodstream Isolates between Children & Adults
Arielle Jolly	CAHS	Exploring family grief and bereavement needs following unexpected child death in PICU *(proudly supported by PCHF)*
Dr Dimple Goel	CAHS	Prevalence of Neurodevelopmental Impairment in Children with Robin Sequence *(proudly supported by PCHF)*
Dr Robyn Choi	UWA	Exploratory research into the effects of exercise, rhythm, and music on Central Auditory Processing Disorder in children.
Dr Shobana Maruthayanar	CAHS	A Snap shot of Perth Children's Hospital Down Syndrome Clinic
Kunjal Panchal	The Kids	Panchal Efficacy of novel targeted therapies to prevent relapse in childhood leukaemia
Dr Ushma Wadia	CAHS	REVIVE (REspiratory syncytial Virus Immunisation program - eValuating Effectiveness and impact) *(proudly supported by PCHF)*
Dr Linda Wijaya	The Kids	Unveiling Leukemia-Bone Marrow Cell Interactions within the Bone Marrow Microenvironment
Dr Rachelle Pretorius	The Kids	High maternal bread and thiamine intakes associated with increased infant allergies
Dr Penelope Strauss	The Kids	Upskilling service providers on LGBTQA+ suicide prevention

11:00 - 12:00 **Lightning Talks** PCH Auditorium

Chair: Carrick Robinson, PCHF, Chief Executive Officer Microsoft Teams

Speaker	Institution	Title
Tiffany Bradshaw	The Kids	Identifying phenotypes and treatable traits of lung disease following preterm birth
Nivedithaa Divakara	The Kids	The role of colostrum in skin development
Crystal Bourke	CAHS	BRIGHT Cohort: Improving health outcomes for children with bronchiectasis lung disease
Craig Schofield	The Kids	Aspects of lung immune cell biology that relate to disease aetiology and progression in patients with bronchiectasis
Dr Thomas Drake-Brockman	CAHS	A qualitative study of the phenomenology of pain in children
Jodi Renshaw-Todd	UWA	Introducing a parent-infant relational intervention into the community nursing service: A feasibility study
Dr Saumil Desai	CAHS	Plasma cortisol in infants with respiratory distress during neonatal transport *(proudly supported by PCHF)*
Karen Twyford	UWA	Music Therapy in Paediatric Neurodisability: Results of a Scoping Review

12:30 - 13:30 **Keynote presentation** PCH Auditorium Microsoft Teams

Dr Joseph A. Carpini - Teamwork and Communication: Insights and Strategies for Effective Collaboration

Senior Lecturer, Human Resource Management and Organisational Behaviour, University of Western Australia

Chair: Clare Dobb, CAHS, Executive Director People, Capability and Culture

13:30 - 14:30 **The Kids lunch session** The Kids Manda

RSV Immunisation - lessons and impact from the first year of the WA RSV Immunisation Program

2024 was the first year of the RSV WA immunisation program. Hear how the program started based on research conducted within The Kids and CAHS and what the impact has been in the first year of the program. This symposium will include short presentations on implementation, evaluation and impact from clinicians, laboratory scientists and mathematical modellers from across the campuses of The Kids, PathWest Laboratory Medicine and Perth Children's Hospital.

Chaired by A/Prof Hannah Moore
Speakers include Prof Chris Blyth, Dr Avram Levy, Ms Fiona Giannini and Dr Ushma Wadia

Thursday 7 November

8:30 - 10:15 — **Innovation and Advancing Child Health Outcomes** — PCH Auditorium, Microsoft Teams

Chair: Lindsay Rowe, CAHS, Manager Innovation

Speaker	Institution	Title
Fiona Giannini	The Kids	Modelling the impact of WA's first RSV immunisation program for all infants
Hilary Hii	The Kids	Testing craniospinal irradiation and DNA-damage response inhibitors in preclinical models of medulloblastoma
Keerthi Anpalagan	The Kids	Cost of hospitalisation for children with staphylococcus aureus bacteraemia in Western Australia
Assoc Professor Neil Hauser	CAHS	Improving Safety for young children with Asthma undergoing General Anaesthesia (SAGA)
Dr Natalie Anderson	UWA	Methods of inhaled nebulised adrenaline delivery in children *(proudly supported by PCHF)*
Dr Farah Musbah	CAHS	Understanding Systemic Juvenile Xanthogranuloma in Paediatric Patients: A Multi-Institutional Retrospective Study in Australia
Harry Smallbone	CAHS	Introducing MERLIN: a research platform for artificial intelligence at Perth Children's Hospital

10:30 - 12:00 — **Clinical Trials** — PCH Auditorium, Microsoft Teams

Chair: Debbie Palmer, The Kids, Program Head, Early Life & Life-Course Health

Speaker	Institution	Title
Dr Madeline Ong	The Kids	Impact of probiotics on infections, gut colonisation, & vaccine responses in PNG infants
Professor Asha Bowen	CAHS	Staphylococcus aureus network adaptive platform - paediatrics and youth (SNAP-PY) *(proudly supported by PCHF)*
Dr Ushma Wadia	The Kids	Pertagen is a safe and effective stand-alone pertussis vaccine
Cormac O'Brien	The Kids	High-flow nasal oxygen for children's airway surgery: a randomised controlled trial
Juliet Schreurs	The Kids	mRNA based immunotherapeutics for paediatric cancers *(proudly supported by PCHF)*
Dr Michael O'Sullivan	CAHS	Peanut oral immunotherapy is effective and safe in preschool-aged children

12:30 - 13:30 — **Keynote presentation** — PCH Auditorium, Microsoft Teams

Professor Steve Webb - **The biggest advance in trial science in 75 years**

Intensive Care Specialist, Professor of Critical Care Research, Monash University and Director of Research, St John of God Healthcare

Chair: Dr Simon Wood, CAHS, Executive Director Medical Services

13:30 - 14:25 — **Clinical Trial Panel - Discussion** — PCH Auditorium, Microsoft Teams

Innovative clinical trial methodologies; building capacity and creating an enabling research environment in WA

Moderator: Alexandra Robertson
Panel: Professor Jonathan Carapetis AM, Mitch Messer, Dr Charlie McLeod, Professor Anna Nowak, Dr Stacey Waters and Professor Steve Webb

13:30 - 14:30 — **The Kids lunch session** — The Kids Manda

Bringing AI into your research: Concepts, Compliance, Creativity

Chair: Debbie Palmer, The Kids, Program Head, Early Life & Life-Course Health

Speaker	Institution	Title
Matt Cooper	The Kids	AI: How it works, daily use, and can we trust it?
Helen McLean	The Kids	AI & Research: Legal considerations
Harry Smallbone	CAHS	Not just a magic trick! On site AI research with MERLIN
Thomas Drake-Brockman	CAHS	Humans × AI in qualitative research: Applying Whisper and SentenceTransformers to accelerate results

14:30 - 16:00 — **Great Debate** — PCH Auditorium

Artificial Intelligence is revolutionising child health outcomes through research

Join us for a light-hearted great debate with clinicans and researchers across CAHS and The Kids

Moderator: Professor Jonathan Carapetis AM
Panel: Dr Sam Brophy-Williams, Dr Tina Carter, Dr Matt Cooper, Dr Rob Lethbridge, Dr Mark Lyttle and Professor Desiree Silva.

Followed by the Prizes and Closing of the 2024 Child Health Research Symposium

2024 Workshops

Tuesday 5 November

10:00 - 12:00 — **Workshop - Lived Experience** — The Kids Seminar Room

Presenter: Shannon Calvert
Advancing practice and improving outcomes - co-producing research design and implementation with lived experience

This workshop is a great opportunity to share insights on lived experience co-design in research and explore effective strategies for involving and partnering with lived experience in the research process.

Register

Wednesday 6 November

10:00 - 12:00 — **Workshop - Project Management** — The Kids Seminar Room

Presenter: Melanie Wright
Fundamentals of project management in research projects

This workshop will discuss basic project management techniques that can be applied to all types of research projects and provide expert tips to set you up for project success.

Participants will have the opportunity to discuss current or future planned projects, and any risks, issues and barriers arising within them.The format will be a formal presentation, interspersed with group work.

Register

14:00 - 16:00 — **Workshop - Grant Writing** — The Kids Seminar Room

Presenters: Emma Hall, Claire McIlroy, Tegan McNab, Deepa Sharma and Erika Sutanto
An introduction to grant writing for competitive and philanthropic funders.

This workshop covers the types of research funders out there, the differences between them and strategies for putting together a high-quality grant application. It also focuses on understanding the grant review process.

Register

2024 Satellite Sessions

Tuesday 5 November

15:00 - 16:20 — **Allied Health Satellite Session** — The Kids Seminar Room

Chair: Anna Hilyard — Microsoft Teams

Speaker	Institution	Title
Jizelle Kenworthy-Groen	CAHS	Behaviour change interventions to target sputum sample collection in children with cystic fibrosis
Jasmin Wademan	CAHS	Additional foods in exclusive enteral nutrition for Crohn's Disease
Sue-Anne Davidson	CAHS	Health professional perspectives of barriers to early detection of cerebral palsy *(proudly supported by PCHF)*
Jasmine Ting	CAHS	Bridging to Better Health: Dysphagia Management Post-Supraglottoplasty
Rebecca Mondello Caitlin Smith	CAHS	Perth Children's Hospital Behavioural Health Clinic - Supporting families in crisis
Isaac Wedderburn	CAHS	Hospital in the Home Physiotherapy for Respiratory Admissions: A service expansion
Tanya Collins	UWA	Evaluating dietary modifications in children with Inflammatory Bowel Disease
Michelle Saetre-Turner	CAHS	Cochlear implant sound processor usage and re/habilitation outcomes in children with single-sided deafness

16:40 - 18:00 — **Allied Health Satellite Session** — The Kids Seminar Room

Chair: Anna Hilyard — Microsoft Teams

Speaker	Institution	Title
Nadine Smith	CAHS	A core outcome set of chronic pain assessment tools for young people with cerebral palsy: consensus from key stakeholders *(proudly supported by PCHF)*
Samantha Harris	CAHS	A comparison of Mechanical Insufflation: Exsufflation devices. Perspectives from young users and their families.
Natalie Cavallo	CAHS	Early detection of Cerebral Vision Impairment in children at risk of Cerebral Palsy *(proudly supported by PCHF)*
Dr Avisha Hamilton	CAHS	PCH Refugee Health Rehab Rapid Assessment Pathway: Culturally Responsive Innovation

Wednesday 6 November

13:40 - 16:00 **Nursing Satellite Session** PCH Teaching Rooms, Microsoft Teams

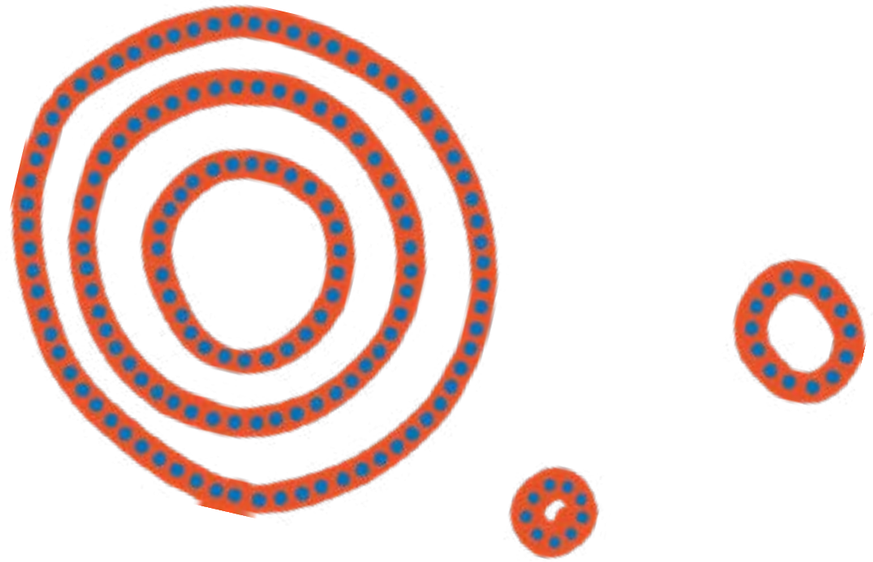
Welcome to Nursing Research Symposium: Nicky van Someren, A/Executive Director Nursing Services CAHS

Speaker	Institution	Title
Nursing PhD presentations Chair: Prof Fenella Gill, CAHS & Curtin University and Meghan Knowles, Staff Development Nurse, CAHS Nursing Education		
Arielle Jolly	CAHS, Curtin	Exploring family grief and bereavement needs following unexpected child death in PICU *(proudly supported by PCHF)*
Jodi Renshaw-Todd	CAHS, UWA	Strengthening parent-infant relationships through introducing a relational intervention in a community nursing service
Chelsea Kelly	CAHS, Curtin	Creating a framework to support nurses' detection of clinical deterioration in children with dark-coloured skin
Enhancing Health Outcomes in Specific Populations Chair: Sarah Botcher, Coordinator of Nursing, Neonatology		
Maria Xavies	CAHS	Improving Immunisation Rates of Aboriginal Children at Perth Children's Hospital
Dr Eileen Boyle and Arizona Galbraith	CAHS, Curtin	Strengthening Aboriginal Family Involvement in the Paediatric ESCALATION System
Clinical Pathways and Specialist Nursing Roles Chair: Sarah Botcher, Coordinator of Nursing, Neonatology		
Natalie Middleton	CAHS	Road to recovery - post-sepsis care for children and their families: a scoping review
Anna Thetford and Elizabeth Thomas	CAHS	Uncovered: The Hidden Activity of Specialist Nurses
Family and Community-Centred Care Chair: Jody Wallace, Nurse Educator Surgical Directorate, Perth Children's Hospital		
Dr Esther Adama	CAHS, ECU	Integrated Family Involvement in the Paediatric ESCALATION System: Experiences of Health Professionals
Professor Fenella Gill	CAHS, Curtin	Integrated Family Involvement in the Paediatric ESCALATION System: Experiences of Families
Dr Helen Nelson	CAHS, Curtin	Co-design of a Facilitated Playgroup to Build Relationships and Access to Specialist Health Support in the Early Years
Closing Nursing Research Symposium: Prof Fenella Gill		

Wednesday 6 November

14:00 - 16:30 **CAMHS Satellite Session** PCH Auditorium, Microsoft Teams
Chair: Dr Laura Dondzilo

Speaker	Institution	Title
Keynote Talk		
A/Prof Campbell Paul	RCH	Meeting and assessing infants and parents in iCAMHS: what did you see and what do you feel?
Oral Presentations		
Dr Leartluk Nuntavisit	CAHS	Influence of Therapist Adherence to Multisystemic Therapy Model on Treatment Outcomes of Adolescent with Antisocial Behaviours
Sarah Stanton, Alexandria Kenyon, Paul Philpott	CAHS	Group therapy is not a dirty word: Challenges and successes of running a group therapy program in a community CAMHS setting
Dr Cayla Bellagarda	CAHS	Evaluating CAMHS Crisis Connect: Patient outcomes and hospital resource utilisation
Georgia Chaplyn	CAHS	Pathways of paediatric gender-affirming clinical care at Gender Diversity Service, Perth Children's Hospital
Zoe Young	Curtin	Differences Between Anorexia Nervosa and Atypical Anorexia Nervosa in Adolescents
Maria Garland	CAHS	A Brief Early Intervention for Paediatric Eating Disorders
Dr Laura Dondzilo	CAHS	Factors influencing cognitive behavioural therapy implementation in community CAMHS



Thursday 7 November

9:00 - 10:15 **CACH Satellite Session** The Kids Seminar Room / Microsoft Teams

Welcome to CACH Research Symposium: A/Professor Yvonne Anderson

Keynote Talk		
Prof Rhonda Marriott AM	Murdoch	First 1,000 days
Speaker	**Institution**	**Title**
Oral Presentations		
A/Prof Michelle Gray	CAHS, UoN	Examination of the transfer of care of vulnerable families from maternity services to child health nursing in Western Australia
Dr Stephen Paull	CAHS	Aboriginal community perspectives on adapting a healthy lifestyle program
Dr Sarah Whalan	The Kids	The ORIGINS project: nutrition profile of pregnant women in a longitudinal birth cohort in Western Australia

10:30 - 12:00 **CACH Satellite Session** The Kids Seminar Room / Microsoft Teams

Speaker	Institution	Title
Oral Presentations		
TBC	TBC	What the research tells us about screen use in kids
Prof Peter Gething	The Kids	Leveraging Analytics for Early Childhood Development: Optimising Identification for Support
Navdeep Brar	CAHS	A continuous quality improvement project to improve breastfeeding rates for Aboriginal babies
Lightning Talks		
Karen Nitsche	CAHS	Are we making a difference? Creating and validating a caregiver self-efficacy outcome tool
Dr Katy Burley	CAHS	'What Matters to You" study
Anne Welch	CAHS	Evaluation of the effectiveness of behaviourally informed SMS appointment reminders
Dr Siu Min Tay	CAHS	Investigating Paediatric Injuries from Motor Vehicle Accidents in WA
Guest Presentation		
Alex Jenkins	Curtin	Clinical examples of AI in healthcare, the possibilities for research

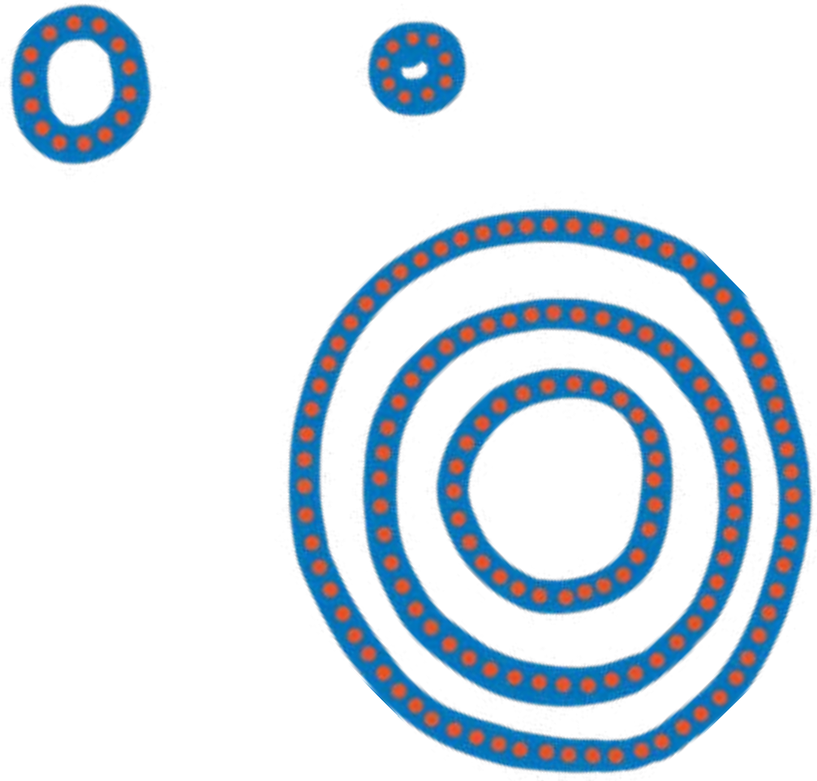
Symposium Close: A/Professor Yvonne Anderson

Friday 8 November

Join us for lunch at 11.30am

12:00 - 13:30 **RACP WA Paediatric Trainee Research Awards** PCH Auditorium

Speaker	Title
Dr Wei Hao Lee	Child protection medical assessments in Western Australia 2017-2022: a 6-year retrospective cross-sectional study
Dr Katy Burley	"What Matters to You" Study: Three Years In. Lessons and outcomes from a multi-site, national project to develop patient and family reported outcome measures
Dr Emily Rice	Influenza Vaccine Effectiveness and Coverage in Australian Children: 2019-2022
Dr Joo Anne Chiam	What is the Role of Chest Ultrasound in Differentiating Bacterial and Viral Pneumonia in Patients with Acute Bronchiolitis?



Tuesday 5 November

Aboriginal Health, Early Intervention and Prevention

Eczema in urban-living Aboriginal Children: community-led skin health research informing a health promotion resource

Bernadette Ricciardo[1,2,3,4], Heather-Lynn Kessaris[4], Noel Nannup[1,3], Dale Tilbrook[3,6], Jacinta Walton[2,3], Carol Michie[3], Brad Farrant[1,3], Ainslie Poore[2,3], Richelle Douglas[7], Nadia Rind[7], Jodie Ingrey,[8] Ingrid Amgarth-Duff[2,3] Hannah Thomas[2,3], Janessa Pickering[2,3], Prasad Kumarasinghe[1], Jonathan Carapetis[1,2,3,5], Roni Forrest Natasha Kickett, Larissa Jones, Annette Garlett, Delys Walton, Sally Smith, Joanne Hill, Kristy Jetta, Asha C. Bowen[1,2,3,5]

[1]University of Western Australia, [2]Wesfarmers Centre for Vaccines and Infectious Diseases, Telethon Kids Institute, [3]Telethon Kids Institute, [4]Fiona Stanley Hospital, [5]Perth Children's Hospital, [6]Maali Mia Aboriginal Cultural Centre, [7]Derbarl Yerrigan Health Service, East Perth, [8]South West Aboriginal Medical Service, Bunbury

Background: Eczema is the most common inflammatory skin condition affecting children globally, yet little is known about eczema prevalence in urban-living Western Australian (WA) Aboriginal children. Culturally relevant health promotion resources for Aboriginal children with eczema are lacking.

Objective: To describe the burden of eczema in urban-living WA Aboriginal children 0-18 years).

Methods: The Koolungar (children) Moorditj (strong) Healthy Skin project is a Noongar Elder co-designed study prioritising a research-service model facilitated through partnership with two urban Aboriginal Community Controlled Health Organisations (ACCHOs). Three observational cohort studies were conducted: at community, primary care and specialist dermatology levels. Eczema results were workshopped with the project's Aboriginal Community Advisory Groups (CAGs) to develop a culturally relevant health promotion resource for Aboriginal children with eczema.

Results: In our community studies, eczema had a point prevalence of 17% the most prevalent non-infectious skin condition. 18% displayed secondary bacterial skin infection (BSI) and 43% reported symptoms of severe eczema (sleep disturbance). High caregiver diagnostic accuracy (89%) was seen, with results suggesting undertreatment of eczema. Within primary care, eczema accounted for 13% of all skin conditions, with a 16% eczema lifetime prevalence identified, <5-years most frequently presenting and peakingin the Noongar season of Kambarang (Oct-Nov). Within paediatric dermatology clinics, 26% of referrals were for eczema, median age 3y (IQR: 1-7). 21% had secondary BSI and 26% significant post-inflammatory dyspigmentation. Informed by these results, CAGs led development of the first-ever eczema storybook representative of and relevant to Aboriginal families: Kaal Tackles Eczema.

Conclusion: We present a research-informed, community-developed health promotion resource on eczema to support children and their families feel more knowledgeable and confident managing eczema

Health professional experiences assessing deterioration in dark-coloured skin: Nurse perspectives

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Background: Observable signs of clinical deterioration may present differently in children who have dark-coloured skin. Our scoping review on the assessment of clinical deterioration in children with dark-coloured skin showed a deficit in high-quality literature. Recent research has established there is a lack of diverse skin representation in medical and nursing texts and education. The impact on assessment skills is unclear.

Aim: To describe how health professionals identify clinical deterioration in children with dark-coloured skin, including perceived barriers and facilitators to detecting clinical deterioration.

Methods: The research is informed by a health consumers research advisory group. Data collection involves semi-structured focus groups with health professionals at a paediatric hospital and a regional hospital. Participants are nurses and doctors with experience caring for children with dark-coloured skin. Reflexive thematic analysis is being used to analyse data.

Results: To date, 39 nurses working in the Emergency Department and inpatient units at the paediatric hospital participated in four focus groups. Preliminary findings revealed nurses were concerned they may miss signs of deterioration in children with dark-coloured skin. Some nurses reported using alternative assessment techniques. There was a focus on involving the patient's family to support recognition of changes from normal. In addition, objective signs of deterioration not impacted by skin colour were described such as vital sign monitoring and blood results. A lack of resources to support assessment was recognised.

Conclusion: Preliminary findings support the need for greater guidance on assessment of clinical deterioration in children with dark-coloured skin, and further resource development.

Non-exclusive colostrum feeding is associated with an increased risk of food allergy in one-year-old children

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Globally, one in every three infants receives formula supplementation within the first three days of life, which may deprive the infants of receiving full doses of colostrum (first milk produced by lactating mother). We hypothesize that non-exclusive colostrum feeding (NECF) will impact major infant health outcomes including allergy. Feeding practice data for 666 ORIGINS cohort (Western Australia) mother-term infant dyads were extracted from hospital records. Food allergy at one year of age was defined by a positive skin prick test and a maternal-reported child's immediate reaction to the food. The prevalence of NECF was 46%(n=309). Compared to ECF, NECF infants were more likely to develop an egg allergy [aOR (95% CI): 3.41 (1.10, 10.54)] or a peanut food allergy [aOR (95% CI): 5.66 (1.08, 29.82)] at by 12-18 months. We further analysed whether NECF modified the risk of developing food allergy when allergens were introduced into the diet before the median age of introduction (≤ 7 Months) or after (> 7 Months). NECF infants with late introduction of allergens had the highest odds of developing egg [aOR (95% CI): 9.50 (2.29, 39.38)] or peanut [aOR (95% CI): 7.57 (1.35, 42.46)] allergy compared with ECF infants with earlier introduction of allergens. This study shows that formula supplementation during the colostrum feeding period increases the risk of developing food allergies and compromises the allergy prevention efficacy of early introduction of allergens in the infant diet. This observation may lead to a paradigm shift where food allergy prevention requires the promotion of colostrum feeding.

Colostrum – the missing link for successful food allergy prevention?

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Background: Animal and observational clinical studies emphasise two critical risk factors for food allergies: high skin permeability and inefficient oral tolerance. Colostrum, the first food for the newborn and rich in bioactive factors, could promote gut immunity and healthy skin development. We hypothesise that colostrum is critical for preventing allergic sensitisation via the skin and successful oral tolerance at weaning, contributing to food allergy prevention.

Method: Using a mouse model of colostrum deprivation, at weaning pups received orally either 1mg egg antigen (OVA) or water daily for 5 days to induce oral tolerance. We then induced OVA food allergy to evaluate tolerance efficacy. To determine peanut sensitisation via the skin, 1-week old pups were exposed to peanut extract via the skin for 6 weeks and then challenged with peanut to assess for anaphylaxis.

Results: Compared to control mice, colostrum-deprived mice showed reduced responsiveness in developing oral tolerance to OVA-induced allergic symptoms, with a marked increase in allergic diarrhea (60% in colostrum-deprived mice vs 10% in ctrl mice). Additionally, macroscopic examination revealed distinct skin abnormalities in colostrum-deprived mice, including increased scaliness and reduced hair growth. Ongoing experiments are evaluating the sensitisation risk associated with these skin changes, and data will be presented at the symposium.

Conclusions: Our data suggests that colostrum intake at birth may be crucial for preventing food allergies through early allergen exposure and promoting a healthy skin barrier. This is particularly significant given widespread suboptimal colostrum feeding in newborns and increased food allergy risks early in life.

SToP (See, Treat, and Prevent) activities for skin disease control in remote Western Australia: a cluster randomised, stepped wedge Trial

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Background: Skin infections affect physical and, through stigma, social-emotional health. When untreated, they can cause life-threatening conditions. We aimed to assess the effect of a holistic, co-designed, region-wide skin control program.

Methods: The SToP Trial was a cluster-randomised, stepped-wedge Trial, involving participants aged 0-18 years in nine remote communities of the Kimberley, Western Australia. SToP involves programmatic interventions in three domains: 'See' (skin checks, skin infection recognition training), 'Treat' (skin infection treatment training, cotrimoxazole for impetigo, ivermectin for scabies), and Prevent (co-designed health promotion and environmental health). Four community clusters were randomised in two steps to receive activities over 10 visits. The primary outcome was the proportion of school-aged children (5-9 y/o) with impetigo.

Results: 915 children were consented and 777 (85%) had skin checks. A decline in impetigo was observed across all clusters, with the greatest decline during the observational period prior to commencement of activities. The mean (95% credible interval) for the conditional posterior odds ratio for observing impetigo in the intervention compared to the control period was 1.13 (0.72-1.72). The probability that the intervention reduced the odds of observing impetigo was 0.33.

Conclusion: Decreased impetigo prevalence during the observational period was sustained across the trial, attributable to the trimodal skin health initiative. While impetigo prevalence reduced, there is no direct evidence to attribute this to the individual effects of the activities. Routine surveillance was perceived as one of the most impactful activities, pointing to a need for the integration of skin assessments where impetigo burden is high.

Tuesday 5 November

Partnering for Impact

Understanding paediatric post-sepsis care needs in Western Australia through co-design qualitative research

Natalie J Middleton[1], Kathleen Anastasas[1], Joanna White[1], Cathy Pienaar[1,2], Joanne Harvey[1,2], Tenielle Bale[3], Timothy Wakeling[4], Bernard McCarthy[1,5], Christopher C Blyth[1,2,6,7,8], Fenella J Gill[1,9] on behalf of the CAHS Post-Sepsis Care Working Group

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Objectives: To understand the impact of a hospital admission with sepsis and care needs after discharge from Western Australian children and their carers to inform development of a post-sepsis care service.

Methods: The qualitative study was co-designed with four parents of children with lived experience of sepsis. Fifteen parents were interviewed, four parents participated in a focus group, and 23 professionals contributed to two focus groups over a two-month period. Interviews and focus groups were audio-recorded, transcribed verbatim, anonymised, and analysed using inductive descriptive thematic analysis.

Findings: Two major themes, 'the impact of sepsis' and 'supportive care after sepsis', were identified, along with eight subthemes. The impact of sepsis varied between individuals with the potential to affect multiple aspects of family life. Families highlighted the profound physical and psychosocial consequences of sepsis, emphasising the need for individualised support, communication, and follow-up after discharge. Professionals outlined gaps in current post-sepsis care practices and suggested additional support measures for children and their families. Care coordination, described as a holistic, cross-sector healthcare model, was identified as a key need to ensure seamless collaboration across health, education, disability, and community sectors while providing families with education, information, and resources.

Conclusions: Interviews and focus groups with families and professionals revealed consistent themes across both groups. Sepsis, for children and their families, is a life-altering illness with far-reaching psychosocial and physical impacts. The study identified key components for a coordinated, individualised follow-up care process, with ongoing clinical support for families after discharge.

Trends of AMR in Paediatric Bloodstream Isolates from Across Australia, 2013-2021

Anita Williams[1], Geoffrey W Coombs[2,3,4], Jan Bell[5], Denise A Daley[3,4], Shakeel Mowlaboccus[2,3,4], Penelope A Bryant[6,7], Anita Campbell[1,9,10], Louise Cooley[11,12], Annaleise Howard-Jones[13,14], Jon Iredell[14-17], Adam D Irwin[18,19], Brendan McMullan[20,21], Morgyn S Warner[22,23], Phoebe Williams[14,16,21,24], Christopher C Blyth[1,9,10,25]

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Bloodstream infections are associated with significant morbidity and mortality in children. The Australian Group on Antimicrobial Resistance (AGAR) is a national hospital-based bloodstream infection surveillance program reporting on Staphylococcus aureus, Enterococcus spp. and key gram-negative pathogens.

This study aims to investigate antimicrobial resistance trends in paediatric bacteraemia isolates between 2013 and 2021. Time trends were assessed in three-year periods (2013-15, 2016-18, 2019-21). Data analysis and MIC interpretation per EUCAST 2022 rules were completed using the AMR R Package (v2.0).

Overall 3,266 Gram-negative, 2,107 S. aureus, and 543 enterococci isolates were reported; 18% of all isolates were from neonates.

Resistance in gram-negatives increased to fluoroquinolones (15.7 to 20.8%; p: <0.01) but did not change to gentamicin/tobramycin (8.1% to 10.4%; p: 0.16) and piperacillin-tazobactam (11.6% to 11.5%; p: 0.89). Enterobacterales resistance to third-generation cephalosporins increased (8.5% to 13.1%; p: <0.01). Cefepime/ceftazidime resistance in Pseudomonas spp. remained constant (14.1% to 15.9%, p: 0.53).Methicillin resistant S. aureus (MRSA) remained steady (13.9 to 15.1%; p: 0.69). There were no changes in erythromycin or ciprofloxacin resistance, however clindamycin resistance increased (7.9% to 12.1%; p: 0.01). Resistance was more frequent in MRSA (23.2%, 16.3%, and 14.7% respectively).E. faecalis was more frequently reported (75.1%) than E. faecium (21.0%). Resistance in enterococci to ampicillin significantly increased (8.1% to 20.9%; p: <0.01), but not to vancomycin (3.4% to 5.5%; p: 0.48) or teicoplanin (0.6% to 2.5%; p: 0.19).

There have been specific increases in resistance in bacteraemia in children, highlighting the need for paediatric antimicrobial surveillance.

Investigating inflammatory biomarkers and lung function after preterm birth

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Introduction: Chronic respiratory symptoms in survivors of preterm birth may be underpinned by active pulmonary inflammation, however limited evidence exists to support this theory. Our study aimed to assess if inflammatory biomarkers were correlated to lung function in those born very preterm (<32 weeks GA).

Methods: Exhaled breath condensate (EBC), urine samples and spirometry data were collected from children and young adults during a routine research visit. Concentrations of biomarkers for inflammation (interleukin-8, leukotriene B4, cysteinyl leukotriene), epithelial injury (clara cell protein) and oxidative stress (8-isoprostane) were measured via ELISA. Concentrations were normalised to specific gravity and Spearman's correlation used to assess relationship with lung function (FEV1, FVC and the FEV1/FVC ratio).

Results: Samples were analysed from participants born very preterm (n=197; 13.7 ± 4.8 years) and at term (n=61; 14.3 ± 5.5 years). Biomarker concentrations were below detection limits in EBC samples. Urinary concentrations of 8-isoprostane were significantly elevated in those born preterm (562 [59 – 2252] vs 771 [60-2340] pg/ml; p=0.02) but did not differ between those with (n=83) or without (n=114) a BPD diagnosis and showed no correlation to spirometry outcomes. All remaining urinary biomarkers showed no statistical difference between cohorts and no correlation to pulmonary function (p>0.05).

Conclusion: Spirometry data was not correlated to systemic inflammation; however pulmonary inflammation was unable to be directly assessed. Systemic findings of elevated 8-isoprostane highlight the ongoing role of oxidative stress in those born preterm.

Demonstrated Impact of the Rare Care Centre's Cross-Sector Model of Care

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The Rare Care Centre (the Centre) clinical service at PCH, established in October 2022, is a pioneering initiative designed to support children with rare and undiagnosed diseases (RUD). Through the cross-sector care coordination model, which was co-designed with clinicians, families and other sectors, the Centre addresses fragmented care, communication gaps and difficulties accessing services through navigation, coordination, integration and advocacy. The service is time-limited, and patients remain under existing care teams to avoid duplication of services.

Over the first 16 months of service delivery, the Centre accepted 126 patients, with 40 reaching the three-month post discharge milestone. The service was evaluated through service outcome measures, patient reported outcome measures (PROMS) and patient reported experience measures (PREMS). The evaluation highlights a significant reduction in hospital utilisation, with a decrease of 82% in bed days, 16% in outpatient appointments, and 50% in emergency department visits within the first three months post-discharge. These reductions translate to substantial cost savings, projecting an annual saving of $942,000 for a cohort of 120 patients.

Additionally, the Centre facilitated increased access to mental health support, genetic counselling, and NDIS funding, with a total of $395,000 secured in additional NDIS funding across the 40 discharged families. Independent evaluation demonstrated an economic and social rate of return of $4 for every $1 spent.

The Centre's model has demonstrated both improved patient outcomes and significant cost savings and positions itself as a sustainable and replicable model for the future of rare disease care.

Off-target effects of respiratory vaccines on hospitalisations for acute lower respiratory infections and associated outcomes in young children

Charlie Holland[1,2]; Daniel Oakes[1,3]; Minda Sarna[1,2]; Kevin Chai[2]; Leo Ng[4]; Hannah C Moore[1,2]

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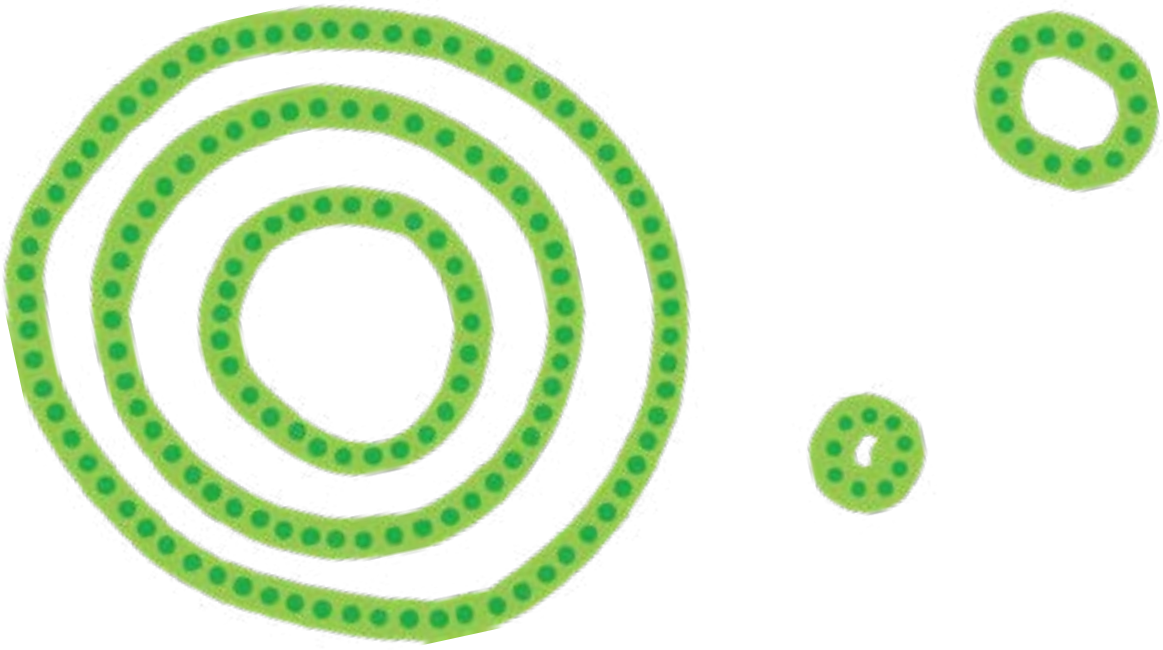
Background: We undertook a systematic review to capture indirect effects of respiratory vaccines on acute lower respiratory infection (ALRI) hospitalisations and associated outcomes in children < 5 years. The review also aimed to assess the broader effects of respiratory vaccines, including antimicrobial prescribing patterns.

Methods: We searched online databases for Medline, Embase, CINAHL, Scopus and ClinicalTrials.gov from inception to 24th January 2024. We included human studies involving non-specific/indirect/off-target effects of respiratory vaccines and excluded studies investigating the Bacille Calmette-Guérin vaccine. We used Research Screener, a machine learning tool, to semi-automate the abstract screening process and Covidence, a management and streamlining software for full-text reviews and data extraction. Two reviewers screened abstracts and full-text reviews independently with a third reviewer resolving conflicts.

Results: After de-duplication, 9,727 articles were included in the review. Of those, 289 were selected for full-text review. Preliminary findings indicate that majority of articles focus on the impact of pneumococcal conjugate vaccine on all-cause pneumonia and all-ALRI. Additionally, many articles examined antimicrobial prescribing patterns following vaccination. Beneficial, neutral and negative indirect effects of both bacterial and viral vaccines have been captured.

Conclusion: This review will help determine if vaccines impact more than one disease, as well as reduce the burden of antimicrobial resistance. This has a huge implication for investments in vaccines and should be assessed in the full value of vaccines.



Wednesday 6 November

Early Career Researchers

IGE and eosinophil count at 6 years predicts long-term risk of ABPA in CF patients

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Background: Allergic bronchopulmonary aspergillosis (ABPA) in people with cystic fibrosis (PwCF) is often diagnosed once lung damage has occurred. ABPA is screened for annually in most CF specialist centres.

Aims: To determine if a diagnosis of ABPA is preceded by changes in total IgE and eosinophil (Eo) levels measured annually.

Methods: A retrospective analysis of data on PwCF 0-18yo in Western Australia 2000-2020. Total IgE, Asp-RAST and Eo levels were investigated over the time preceding ABPA diagnosis and compared with age- and gender-matched controls. A threshold-based analysis evaluated the optimal cutoffs for predicting future ABPA diagnosis. A survival analysis assessed biochemical markers as predictors of future diagnosis.

Results: 353 PwCF were identified receiving care over the study period. 342 (96.9%) had annual IgE and Eo data. 17/342 (4.8%) children developed ABPA, with 14/17 (82.3%) having data preceding diagnosis. Only 1 child developed ABPA <6yo and had rapidly rising IgE levels in the year preceding diagnosis. All ABPA diagnosed ≥6yo were preceded by total IgE, Asp-RAST, and Eo levels above 273 IU/mL, 4.7 IU/mL, and 0.25b cells/L, respectively, in the 6-18 months preceding diagnosis. No child with an IgE level <200 and Eo level < 0.4 at 6yo developed ABPA by 18yo.

Conclusion: IgE and Eo levels are predictive of APBA risk in the years preceding diagnosis. PwCF ≥6yo with CF and normal total IgE and Eo levels are extremely unlikely to develop ABPA by the age of 18yo, bringing into question the need for annual screening for this group.

A grey literature scoping review of online health literacy resources for people with intellectual disability

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Background: Young people with intellectual disability experience poorer health outcomes than those without intellectual disability. Health literacy, that is the ability to access, understand, appraise, and apply health information can improve health outcomes. Therefore, it is important to understand the characteristics of available health information. The aim of this study is to identify online health information for people with intellectual disability and understand how it maps to health literacy domains.

Methods: This study was guided by two parents of children with intellectual disability. Arksey and O'Malley's methodological approach for scoping reviews was modified to account for the inclusion of online resources. Two searches were conducted: a targeted search of disability organisation websites and a key terms search in Google. Health information for people with intellectual disability in English was included.

Results: The search is being finalised; however, preliminary results are presented. The information primarily covers physical health issues, is directed at family caregivers, and addresses the access and understanding components of health literacy. The more complex health literacy components (appraise and apply) are included less. The health of young people was most often covered in age specific content.

Conclusions: This scoping review appears to be the first to exclusively include online health resources. As such, this study presents an innovative approach and informs future research. These results will inform the development of a guide for people with intellectual disability and their families to access relevant, accessible, and quality health information with the aim of improving health literacy for these individuals.

Not Little Adults: Differences in AMR in Bloodstream Isolates between Children & Adults

Anita Williams[1], Geoffrey W Coombs[2,3,4], Jan Bell[5], Denise A Daley[3,4], Shakeel Mowlaboccus[2,3,4], Penelope A Bryant[6,7], Anita Campbell[1,9,10], Louise Cooley[11,12], Annaleise Howard-Jones[13,14], Jon Iredell[14-17], Adam D Irwin[18,19], Brendan McMullan[20,21], Morgyn S Warner[22,23], Phoebe Williams[14,16,21,24], Christopher C Blyth[1,9,10,25]

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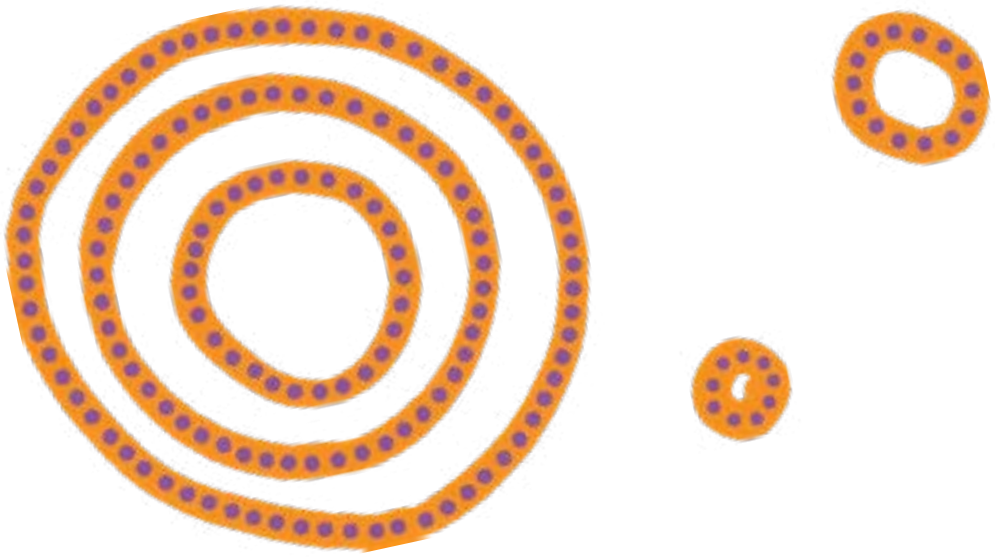
The Australian Group on Antimicrobial Resistance (AGAR) is a national hospital-based bloodstream infection (BSI) surveillance program reporting on Staphylococcus aureus, Enterococcus spp. and key gram-negative pathogens. We aimed to compare the incidence, risk factors and resistance patterns of bacteria causing BSI in children and adults (2020-21).

25,958 isolates were assessed (children: 1,679; adults: 24,279). The most common organisms in children and adults were Escherichia coli (20.9 vs 39.1%) and S. aureus (36.2 vs 20.9%). E. faecalis and non-typhoidal Salmonella spp. were more frequent in children (7.3% and 4.4% of surveyed organisms in children vs 5.1% and 0.5% in adults). BSI were more often community onset (69.0% children; 76.4% adults). 30-day mortality was significantly lower in children (3.3% vs 9.8%).Enterobacterales resistance was more common in children: e.g. to gentamicin/tobramycin (11.6% of child isolates; 8.5%, adult isolates; rate ratio [RR]: 1.4 [95%CI: 1.1-1.7]) and piperacillin-tazobactam resistance (11.2%; 8.6%; RR: 1.3 [1.0-1.6]). However, there was no difference observed in Enterobacterales resistance to cephalosporins, ciprofloxacin, meropenem or multi-drug resistance status. AMR prevalence in Pseudomonas and Acinetobacter spp isolates were also similar between children and adults. Methicillin-resistant S. aureus isolates were less common in children (13.2 vs 17.7%; RR: 0.7 [0.6-0.9]). Rates of clindamycin and cotrimoxazole resistance in S. aureus were similar to adults.Children had a lower proportion of E. faecium infections (24.1 vs 39.8%) and the rate of vancomycin-resistant E. faecium in children was half that in adults (19.5 vs 37.2%; RR; 0.5, [0.2-1.0]).

Analysis of national AMR data identifies unique trends in children.



Exploring family grief and bereavement needs following unexpected child death in PICU

Arielle Jolly,[1,2] Simon Erickson,[2] Kelly Higgins,[2] Deborah Atkinson,[3] Jacqueline Reid,[3] Linda Thomas,[3,4] Leisa Wilson,[2] Nick Williams,[2] Kristen Gibbons,[5] Kylie Davies,[1,2] Ashleigh Butler,[6] Fenella Gill,[1,7] the Australian and New Zealand Intensive Care Society Paediatric Study Group, the FOOTPRINTS Working Party

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Background and aims: The death of a child is a catastrophic event, and to experience this loss within the complex environment of a PICU is highly traumatic for parents. With current bereavement literature heavily focused on children with known life-limiting conditions, the unique grief experience of unexpected child death is poorly understood. This project aims to explore bereaved family members' grief experience after losing a child unexpectedly in a PICU, gaps in support they received, and to understand their bereavement care needs.

Methods: Two focus groups and two interviews were conducted with adult family members who considered themselves close relatives of children who had died unexpectedly in the PCH PICU six months – five years prior. Sessions were semi-structured discussions, guided by meaning reconstruction framework as the theoretical paradigm. Data were analysed thematically.

Results: There were 15 participants, including 4 fathers, 10 mothers, and one family friend. Participants shared vivid and emotional recollections of their bereavement experiences, touching on care that was well received as well as support that was lacking. Key themes included the special significance that families placed on having choice over meaningful time periods at end-of-life, as well as the timing, method, and content of communication from clinical staff. Gaps highlighted included guidance for parenting bereaved siblings, practical assistance with the complexities of an unexpected death, and unmet bereavement needs of fathers.

Conclusion: Insights into the family experience of unexpected child death in PICU and bereavement care needs thereafter provides new evidence to guide improved PICU bereavement care.

Prevalence of Neurodevelopmental Impairment (NDI) In Children with Robin Sequence (RS)

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Background: Many factors place children with Robin sequence (RS) at risk of significant neurodevelopmental impairment (NDI). Some of those factors are hypoxia, sleep disruption, feeding issues and associated anomalies.

Objective: To estimate the global prevalence of neurodevelopmental impairment (NDI) in children with RS.

Methods: A systematic search of PubMed, Embase, CINAHL, PsycInfo, Emcare, MedNAR and Cochrane library databases was conducted till May 2024. Studies reporting on the neurodevelopmental outcomes (global, cognitive, and motor) in children with RS were included. Random-effects meta-analysis was used to estimate the prevalence (with 95% CIs) of NDI.

Results: A total of 2919 records were screened, of which 17 were included in systematic review of which data from 16 studies (n=1008) was pooled with meta-analysis. Twelve studies reported NDI in children with isolated RS (n=535), and nine studies included children with syndromic and RS plus (n=319). The overall prevalence of NDI was 19% (95% CI, 12-26). The prevalence in isolated RS was 10% (95% CI, 5-16) and non-isolated RS (syndromic and plus) was 35% (95% CI, 22-49). Most used developmental assessment tools were BSID, Denver II, WISC, Griffith, WPPSI, K-ABC or school assessments.

Conclusions and relevance: This is first meta-analysis to report on the global prevalence of NDI in children with RS. The findings suggest that children with RS are at high risk of NDI. The risk is higher if they have associated syndrome or congenital anomalies. All these information will be helpful for counselling families, to assess treatment effectiveness, and to allocate resources.

Exploratory research into the effects of exercise, rhythm, and music on Central Auditory Processing Disorder in children

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Central auditory processing disorder (CAPD) refers to difficulties in the perceptual processing of auditory information in the central auditory nervous system. CAPD affects 3 to 7% of children in the general population and 9 to 15% of children in Aboriginal populations. CAPD can lead to social, emotional, mental health and academic problems, that can persist into adulthood. There are currently limited effective treatment options for CAPD and associated mental, social and academic development. Of options that do exist, many are costly, complex and do not treat co-occurring challenges, resulting in CAPD being left untreated. This study aimed to investigate whether a novel treatment using auditory cued exercise therapy (ACET) could improve auditory processing abilities in children with CAPD. ACET uses a custom designed rhythmic movement (exercise) to music to promote specific brain circuitry development, which could improve the auditory processing ability of a child while also addressing other co-morbidities such as mental health. Movement with music has been shown to improve communication, emotional regulation and temporal processing needed to understand speech and environmental sounds. Auditory-motor training has been shown to improve phonological skills important for reading and cognitive functions such as attention and memory. Exercise more generally has been shown to positively influence the brain and physical and mental health. ACET as CAPD treatment can engage children in a positive environment with benefits for physical and mental health. Preliminary analyses indicate that children show improvements in binaural integration, auditory closure and auditory word memory after attending an 8-week ACET program.

A Snap shot of Perth Children's Hospital Down Syndrome Clinic

S. Maruthayanar[1], F. Frazer[1], L. Loweth[1], E. Rice[1], E. Taylor[1]

[1]Perth Children's Hospital

Background: The Perth Children's Hospital Down Syndrome clinic started in 2017 to provide holistic clinical care for complex patients with at least two subspeciality teams involved.

Objectives: To improve clinical care provided at the Down Syndrome clinic by understanding the clinical needs and service utilisation patterns of children who attend the clinic.

Methods: All children seen at the Down Syndrome clinic in a one-year period from January 2023 to December 2023 were included and data was collected from their medical record.

Findings and Conclusions: 34 children were seen in the Down Syndrome clinic in 2023 from 0 to 14 years of age, 53% female and 47% male. The subspecialities most involved (50 percent or more) in patient care were ophthalmology (27, 79.4%), ENT (27, 79.2%), respiratory and sleep (26, 76.5%), cardiology (25, 73.5%), audiology (22, 64.7%) and anaesthetics (17, 50%).

Nutritional deficiency was the most common co-morbidity (20, 58.8%), followed by congenital heart disease (17, 50.0%), constipation (14, 41.2%), OSA (13, 38.2%), ophthalmology (11, 32.4%), Thyroid disease (10, 29.4%) and chronic otitis media (10, 29.4%).

There are multiple competing health needs in this complex cohort of children with Down Syndrome. A multi-subspeciality clinic and care pathway would be valuable to manage the high health care needs demonstrated.

Efficacy of novel targeted therapies to prevent relapse in childhood leukaemia

Kunjal Panchal[1,2], Carlos Aya-Bonilla[1], Maryam Simad[1], Vivien Nguyen[1], Grace Chua[1], Richard Francis[1], Jesse Armitage[1], Hannah Smolders[1], Helen McGuire[3], Laurence Cheung[1,2], Rishi Kotecha[1,4], Sebastien Malinge[1,2]

[1]Telethon Kids Institute, [2]Curtin University, [3]University of Sydney, Sydney NSW, Australia, [4]Perth Children's Hospital

Outcomes for paediatric leukaemia have significantly improved in recent decades, however it remains the second leading cause of cancer-related death in children, largely due to relapse. The prognosis for children experiencing relapse remains poor (<50% survival beyond five years), and survivors face life-long side effects caused by intensive and predominantly non-targeted treatments. These poor outcomes are exemplified in children with Down Syndrome who develop B-cell acute lymphoblastic leukaemia (named DS-ALL), a community of children that have higher rates of treatment related mortality and relapse, added to many other health issues. Here, we hypothesized that characterizing DS-ALL at transcriptomic, phenotypic, and functional levels will help to uncover new actionable targets that may be targeted therapeutically in children with DS, and beyond DS-ALL.

To test efficacy of better and safer therapies, we recently developed a unique preclinical cohort of DS-ALL patient derived xenograft (PDXs) animal models from primary patient collected Australia-wide and established the world-first DS-ALL cell lines. These models have been validated phenotypically, transcriptionally, and functionally. We used the DS-ALL cells to screen libraries of compounds that target key cellular functions (epigenetic, cell cycle, survival, etc). The most potent drug candidates are currently validated in dose-response assays. Ultimately, the best compounds will be tested in the patient derived xenografts, alone and in combination with conventional treatments. Our long-term goal is to translate the most promising targeted therapies, with better efficacy and less toxicity, into the clinic, to improve quality of care and survival for all children that develop ALL.

REVIVE (REspiratory syncytial Virus Immunisation program - eValuating Effectiveness and impact)

Ushma D Wadia[1,2,3], Peter C Richmond[1,2,3], Hannah C Moore[1,4], Avram Levy[5], Paul Effler[6], Lana Bell[7], Christopher C Blyth[1,2,3,5]

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Respiratory syncytial virus (RSV) is the most common cause of acute respiratory infection (ARI). One in 50 infants are hospitalised with RSV in the first year of life with many more presenting for care to Emergency Departments (ED) or primary care. Registration of Nirsevimab in Australia in November 2023 and evidence from clinical trials coupled with real-world effectiveness studies in the Northern Hemisphere prompted launch of a state-funded Nirsevimab program. Nirsevimab is recommended for all Western Australian infants < 8 months and children at higher risk of severe RSV infection in their second year of life, starting in April 2024.

With an established paediatric hospital-based respiratory virus surveillance program (PAEDS-FLuCAN) and a prospective ED acute respiratory infection registry (PATRIC), REVIVE (REspiratory syncytial Virus Immunisation program - eValuating Effectiveness and impact) investigators are uniquely placed to evaluate roll out of this Australian-first RSV immunisation program against RSV associated ARI admissions (Perth Children's Hospital (PCH), Joondalup Health Campus (JHC) and Fiona Stanley Hospital (FSH)) and ED presentations (PCH) using a test negative design.

The study has started enrolling hospitalised children with ARI at three WA hospitals and preliminary results of the immunisation effectiveness against RSV associated ARI admissions will be available to be presented at the Child Health Research Symposium.

Given the potential impact of RSV prevention programs on paediatric care in Australia, these data will be used to inform state, national and international strategies for the 2025 winter RSV season and beyond.

Unveiling Leukemia-Bone Marrow Cell Interactions within the Bone Marrow Microenvironment

Linda K Wijaya[1,2,3], Gavin Tjin[4], Sajla Singh[1], Vincent Kuek[1,2], Joyce Oomen[1,2], Rishi Kotecha[1,5], Louise Purton[4], Laurence Cheung[1,2]

[1]Telethon Kids Institute, [2]Curtin University, [3]University of Western Australia, [4]St Vincent Institute of Medical Research, [5]Perth Children's Hospital

Growing studies highlight the crucial role of the tumour microenvironment in tumour initiation, progression, and relapse. In leukemia, the bone marrow microenvironment (BMM), comprised of bone cells, blood vessels, adipocytes, immune cells, and stem cells, is vital for leukemia development and recurrence. Despite its significance, our understanding of the BMM's role in leukemia remains limited. Gaining insights into this BMM is essential for identifying novel therapeutic targets to enhance treatments for paediatric leukemia, especially for patients in highrisk groups. We have developed a unique method utilizing highly-multiplexed immunostaining technology to study the BMM. This advanced technique allows us to stain and visualize multiple cell types simultaneously, surpassing traditional immunohistochemistry and immunofluorescence methods. This study aims to investigate the BMM's role in leukemia by visualizing the spatial distribution of leukemia cells within the BMM at various disease stages and predicting interactions between leukemia cells and normal bone marrow cells based on their proximity. We collected femurs from a preclinical model of high-risk leukemia (BCR::ABL1 B-ALL) at different stages of the disease. Bone sections were stained using a panel of seven antibodies targeting different blood vessels, immune cells, leukemia cells, and bone cells. These slides were imaged using a slide scanner, and image analysis was conducted using QuPath software. The outcomes of this study will provide valuable insights into the interactions between leukemia and healthy cells within the BMM, revealing how leukemia shapes the BMM to support its growth. These findings could lead to new therapeutic strategies for treating high-risk paediatric leukemia.

High maternal bread and thiamine intakes associated with increased infant allergies

Rachelle A. Pretorius[1,2], Elizabeth McKinnon[1], Debra J. Palmer[1,2]

[1]Telethon Kids Institute, [2]School of Medicine, University of Western Australia

Background: In Australia, at least 20% infants will be diagnosed with eczema and 10% infants with food allergy. A mother's diet during pregnancy is thought to be an important influence on infant immune development and allergic disease risk.

Methods: Dietary intake data was collected from pregnant women using a validated semi-quantitative food frequency questionnaire to reflect their dietary intakes during 32-36 weeks' gestation. Maternal consumption of 12 food groups, 20 individual whole foods, 18 specific nutrients, and antenatal vitamin and mineral supplementation use were determined. Infant outcomes included eczema and IgE-mediated food allergy. Regression-based analyses with covariates adjustment were applied.

Results: In this high-risk (family history of allergic disease) cohort (n=639 infants), 33.9% infants had doctor-diagnosed eczema and 14.3% infants had IgE-mediated food allergy. Women with higher white bread intakes were more likely to have an infant with doctor-diagnosed eczema (adjusted relative risk (aRR) 1.16 (95% CI 1.08, 1.24), P<0.001) and IgE-mediated food allergy (aRR 1.14 (95% CI 1.02, 1.28), P=0.02). Higher maternal consumption of fibre-rich bread (aRR 1.14, 95% CI 1.04, 1.25, P=0.01) and legumes (aRR 1.11, 95% CI 1.02, 1.21, P=0.02) were also associated with infant doctor-diagnosed eczema. Higher maternal thiamine ingestion was associated with increased parent-reported infant eczema (aRR 1.08 (95% CI 1.04, 1.13), P<0.001).

Conclusion: As bread is fortified with thiamine, and legumes are also a rich-dietary source of thiamine, our results highlight a need for further investigation of potential effects of high thiamine maternal intakes (especially during pregnancy) on infant immune and allergic disease development.

Upskilling service providers on LGBTQA+ suicide prevention

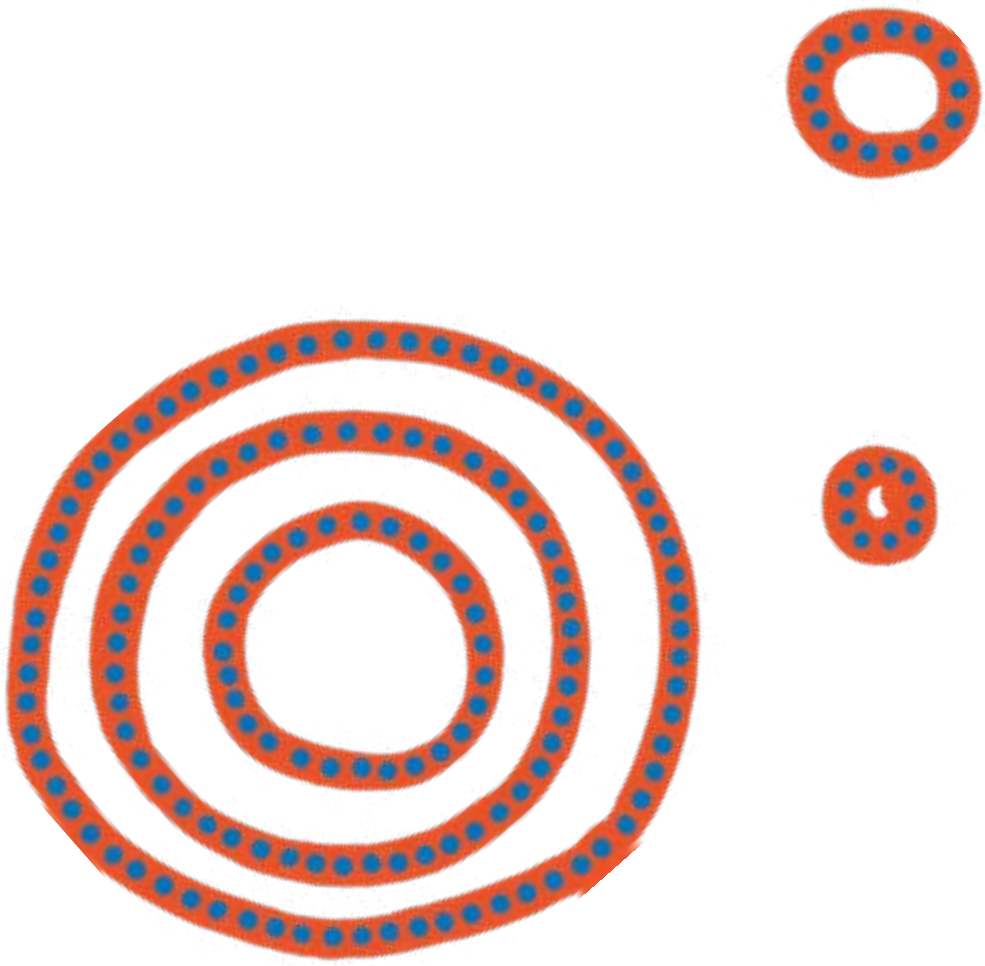
Penelope Strauss[1,2], Rikki Battersby-Coulter[1], Oliver Keane[1], Julia R. Bak[1], Kirsty Hird[1,3], Julia K. Moore[2,4], Yael Perry[1,2]

[1]Telethon Kids Institute, [2]University of Western Australia, [3] Curtin University, [4]Gender Diversity Service, Child and Adolescent Health Service – Mental Health

LGBTQA+ (lesbian, gay, bisexual, trans, queer/questioning, asexual and other diverse sexualities and genders) young people are up to six times as likely to report thinking about suicide, engaging in suicidal behaviour and/or having made a suicide attempt, compared to their heterosexual and cisgender peers. This population also experiences many barriers to accessing safe and inclusive mental health care. Thus, there is an urgent need for services to engage in appropriate and inclusive suicide prevention practices for this population.

We developed a set of guidelines outlining best practice for suicide prevention in LGBTQA+ young people within clinical and community settings using the Delphi consensus method. 290 items were included covering the following key areas: i) general principles for creating an affirming and inclusive environment for LGBTQA+ young people, ii) assessing suicide risk and working with suicidal LGBTQA+ young people, iii) considerations for specific LGBTQA+ populations and iv) advocating for LGBTQA+ young people. The guidelines are the first of their kind and provide practical guidance to service providers.

We are currently developing, trialling and evaluating a training program on the guidelines with services in Western Australia. The evaluation of the training will include an auditing and implementation framework for service providers to improve their professional practice, and their organisation broadly. This presentation will describe the development of the guidelines, provide an overview of our implementation plan and results from the evaluation of the training program.



Wednesday 6 November

Lightning Talks

Identifying phenotypes and treatable traits of lung disease following preterm birth

Tiffany K Bradshaw[1,2], Elizabeth F Smith[1,2], Sanja Stanojevic[3], Shannon J Simpson[1,2]

[1]Children's Lung Health, Wal-Yan Respiratory Research Centre, Telethon Kids Institute, [2]Curtin School of Allied Health, Faculty of Health Sciences, Curtin University, [3]Department of Community Health and Epidemiology, Faculty of Medicine, Dalhousie University, Halifax, Canada

Globally, an estimated 13.4 million babies are born preterm (<37 weeks gestation) each year, with 15% of those births occurring ≤32 weeks gestation (very or extremely preterm). Prematurity-associated lung disease is common in individuals born very-preterm. Abnormal lung function, structural lung damage and respiratory symptoms can persist across the lifespan and lung health deteriorates in a subset of the preterm population. Prematurity-associated lung disease is complex and heterogenous, with individuals displaying phenotypic traits that mimic both asthma and COPD. There are currently no clinical guidelines on how best to follow-up and treat these individuals, however a multidimensional model to determine individual phenotypes of lung diseases has been proposed as a first step in optimising the management of prematurity-associated lung disease.

Cluster analysis can be used to group data together based on similar characteristics forming clusters or phenotypes. This study aims to develop respiratory phenotypes in very-preterm individuals, using a comprehensive dataset collected from the Western Australian Lung Health in Prematurity (WALHIP) cohort.

Cluster analysis methodologies will be initially evaluated and assessed to find the most suitable data-driven technique for our population. Physiological (e.g. lung function), structural (e.g. emphysema), clinical (e.g. respiratory symptoms) and biological (e.g. inflammatory markers) variables from 200 very-preterm individuals and 67 term-born controls will be used to elucidate clusters/phenotypes of individuals based on similar traits.

By deeply phenotyping individuals born very-preterm, we can identify phenotypic traits early-on that can potentially be targeted using a precision medicine approach; ultimately improving their lung health and well-being.

The role of colostrum in skin development

Nivedithaa Divakara[1,2], Savannah Machado[1,2], Adrian Lowe[3], Nicola Gray[4], Mark Fear[5,6], Valerie Verhasselt[1,2]

[1]LRF centre for immunology and breastfeeding, University of Western Australia, [2]Telethon Kids institute, [3]University of Melbourne, Victoria, [4]Australian National Phenome centre, Harry Perkins Institute of Medical Research (South), [5]Harry Perkins Institute of Medical Research (North), [6] University of Western Australia

Background: Infant skin is still developing during the first 2 years of life, making the newborns vulnerable to infections and allergies. Diet plays a major role in priming skin development. Colostrum is the first milk produced as food for newborns during the first 3 days. It is extremely rich in bio-active components such as growth factors, vitamin-A, antibodies, and microbiota shaping molecules, suggesting a role in imprinting healthy development. However, the knowledge on the role of colostrum in skin development is limited. Preliminary data shows that mice deprived of colostrum have macroscopic skin abnormalities and increased inflammatory cells. Hence, we hypothesise that colostrum intake at birth is crucial to ensure healthy skin development.

Aim: To determine the role of colostrum in skin development

Methods: Skin development will be compared in colostrum-deprived mice (nursed from birth by dams at an advanced stage of lactation) with control mice. Skin histology, barrier functions, gene expression, immune cell representation and blood metabolites will be analysed at different time points in both groups.

Results: Preliminary results show changes in skin morphology, more results will be presented at the talk

Significance: Globally, 1/3 newborns don't receive the full dose of colostrum, making them vulnerable to infections and food allergies. This project will provide evidence for a causal role of colostrum in healthy skin development. It may lead to the discovery of new therapeutic compounds to treat high-risk newborns (preterm, impetigo, psoriasis, allergies) and foster new research to treat them, therefore providing evidence to promote colostrum feeding.

BRIGHT Cohort: Improving health outcomes for children with bronchiectasis lung disease

Crystal Bourke[1,2], Julia Casella[1], Marina Kakuda Ng[1], Craig Schofield[1], Yuliya Karpievitch[1,3], Luke Garratt[1,4], Anne Chang[5], Peter Richmond[6], Andre Schultz[1,6,7], Kathryn Ramsey[1]

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Background: Bronchiectasis is a chronic lung condition characterised by frequent wet cough, respiratory exacerbations, reduced quality of life and reduced life expectancy. Currently there is only one evidence-based treatment for bronchiectasis in children. The lack of objective and robust measures to track disease progression has hindered the advancement of much-needed clinical trials.

Objectives: To investigate 1. Airway mucin, collected by sputum induction, as a potential treatment target, and 2. The multiple breath washout lung function technique as a measure for tracking bronchiectasis.

Methods: We have established the BRIGHT cohort based at Perth Children's Hospital, Western Australia, which is prospectively recruiting 150 participants with CT diagnosed bronchiectasis <18 years old. This is an observational five-year longitudinal cohort study. All children with bronchiectasis identified from hospital records are invited to participate. Prospective healthy controls will also be recruited and followed longitudinally.

Results: To date, 54 children with bronchiectasis have been recruited. Research data including multiple breath washout outcomes, mucus composition and viscoelasticity from sputum induction, and patient-reported outcomes (symptom, burden of disease, quality of life) are collected at quarterly outpatient visits or during hospitalisations. Clinical outcomes including exacerbations, hospitalisations, medications, lung function and lung imaging are also collated. Healthy controls are seen 6-monthly for lung function testing and sputum induction sampling.

Conclusions: This study will improve our understanding of bronchiectasis in children by elucidating the role of airway mucus in the pathophysiology of this disease, identifying novel methods to diagnose and monitor bronchiectasis, and evaluate whether these endpoints are prognostic for respiratory exacerbations and disease progression.

Aspects of lung immune cell biology that relate to disease aetiology and progression in patients with bronchiectasis

Craig J Schofield[1,2], Crystal Bourke[1,2,3], Julia Casella[1], Marina Kakuda Ng[1], Yuliya V Karpievitch[1,4], Peter Richmond[2,5,6], André Schultz[1,2,7], Kathryn A Ramsey[1,2], Luke W Garratt[1,2]

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Background: Bronchiectasis is a chronic lung disease defined by the widening of the bronchial tree. Bronchiectasis pathophysiology is complex and heterogenous, with multiple underlying aetiologies and risk factors leading to diverse patient outcomes. In addition, there are little data specific to childhood bronchiectasis pathophysiology. Together, these factors limit the capacity for developing targeted treatments, which are required to reduce the lifelong impact of bronchiectasis in children. Airway inflammation is likely a key driver of disease progression in paediatric bronchiectasis.

Aims: This project aims to characterise the underlying inflammatory and immune cell biology mechanisms in the bronchiectasis airway. We hypothesise that across the cohort, distinct inflammatory and immune mechanisms will be associated with underlying aetiologies and disease progression.

Methods: Airway samples through sputum induction (IS), clinical data and lung function results will be collected as part of the BRIGHT cohort, which is prospectively recruiting 150 participants with CT diagnosed bronchiectasis <18 years old. Cells from IS will be analysed using flow cytometry and single cell RNA sequencing (scRNAseq). Supernatant from IS will be analysed for cytokines and cell products using multiplex immunoassays . Clinical data and lung function will be used to determine aetiologies and investigate disease progression.

Results: To date, we have collected a total of 23 IS samples. For endpoint analyses, we have obtained 6 samples for scRNAseq, 15 samples for flow cytometry and 20 samples for cytokine immunoassay.

Conclusion: By characterising the underlying inflammatory mechanisms of the airway in children with bronchiectasis, this project aims to understand the heterogeneity of bronchiectasis pathophysiology, thus providing avenues for novel interventions and treatment targets.

A qualitative study of the phenomenology of pain in children

Thomas F E Drake-Brockman[1,2,3,4], Megan Dodd[1,2], Sarah Cooney[1], Bojana Stepanovic[1,3], David Sommerfield[1,2,3,4], Vance Locke[2], Aine Sommerfield[1,2,3,4], Britta S von Ungern-Sternberg[1,2,3,4]

[1]Perth Children's Hospital, [2] The University of Western Australia, [3] Institute for Paediatric Perioperative Excellence, The University of Western Australia, [4]Telethon Kids Institute

Accurate and timely assessment of pain is crucial for the safe and appropriate identification, investigation, and management of pain and delivery of quality care. Pain assessment can be challenging in children, particularly as they can struggle to describe their pain or to use scales developed for adults. Pain is both a dominant part of the recollection and the worst aspect identified of the experience of hospitalisation for children. To inform development of more effective and age-appropriate tools to assess pain, we sought to better understand children's and parents' experiences of children's acute pain in this qualitative study.

Qualitative interviews were completed with 27 children and parents, stratified for age, at Perth Children's Hospital. Interviews were recorded, transcribed, and subject to analysis following the Framework Method by a team of three researchers.

Children and parents demonstrated a range of insights and a wide diversity of ideas about pain. They key themes were: pain is familiar part of normal life that serves an important function, children communicate pain with others – both verbally and non-verbally, children relate pain to a range of other sensory experience with some common associations (e.g. colours red and black; spiky or irregular forms), existing pain scales are difficult for children due to limited experience of extremes of pain, and improved pain scales could use more familiar or attractive associations or use technology.

These findings can inform further mixed-methods research and co-design to capture a wide range of children's and parental perspectives in further paediatric pain scale development.

Introducing a parent-infant relational intervention into the community nursing service: A feasibility study

Jodi Renshaw-Todd[1,2], Ashleigh Lin[3], Fenella Gill[1,4], Jeneva Ohan[2,5]

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In Western Australia (WA), mental health concerns in young children are alarmingly high, and on the rise, prompting growing interest in the provision of mental health supports in the earliest years of life. Addressing mental health through interventions that can be delivered in existing community nursing services to strengthen early relationships, provides an opportunity for a strong public health approach that addresses known determinants of poor mental health. However, in WA, there are currently no standard interventions available in community nursing practice.

This project aims to fill this gap by identifying clinically effective interventions that can be delivered by community nurses to support the parent-child relationship. Additionally, the project will explore the acceptability and feasibility of introducing an intervention into existing service.

A multi-method design will include a systematic review of available interventions, to determine one that fits the unique needs of the service. Focus groups will further investigate the acceptability of delivering a relational intervention, including barriers and facilitators from qualitative data collected from both nurses as the implementers, and parents as the consumers. The intervention will then be trialled in community nursing clinics using a pre-post design to evaluate the feasibility of implementation.

This PhD project is significant in providing novel insight into the viability of introducing a relational intervention into a universal nursing service. This will advance clinical practice by building the capacity of community nurses in identifying and responding to early relational difficulties, empowering children to thrive, and reducing the need for more intensive support services.

Plasma cortisol levels in infants with respiratory distress during different phases of neonatal transport: A pilot prospective observational before-after study

Saumil Desai[1,2,3], Beth Hazeldine[2], Harshad Panchal[1,2,4], Peter Jacoby[5], Steven Resnick[3,4], Jason Tan[2,3], Jonathan W. Davis[1,3]

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Introduction: The transport of sick newborn infants with respiratory distress leads to unwanted stress at time of physiological instability. There is dearth of studies to evaluate these stress levels.

Methods: This pilot prospective observational before-after study aimed to evaluate the plasma cortisol levels (as surrogate marker of stress) in infants with respiratory distress during different phases of neonatal transport. Plasma cortisol was measured prior to transport, on arrival at tertiary hospital and 48 hours later. Perinatal demographics, retrieval and disease characteristics were collected from neonatal transport and NICU records. Neonatal transport factors that may affect the cortisol response were also evaluated.

Results: Fifty-five infants were recruited, of which forty infants who had cortisol levels measured in all the three phases of neonatal transport were included in the final analyses. Median (interquartile range) cortisol levels measured prior to transport, on arrival at tertiary hospital and 48 hours later were 520 (250-770) nmol/l, 315 (172.5-520) nmol/l and 125 (70-250) nmol/l. There was a reduction in the paired median cortisol levels between the sample taken prior to transport and arrival at a tertiary hospital by 24% (p=0.048) and at 48 hours by 73% (p=<0.001). Gestational age, gender, duration of respiratory support and transport duration did not alter the change in cortisol levels.

Conclusion: Neonatal transport does not appear to influence the fall in plasma cortisol levels post-birth in infants with respiratory distress. Future studies with larger sample size using both behavioral and physiological parameters for stress evaluation in neonatal transport are warranted.

Music Therapy in Paediatric Neurodisability: Results of a Scoping Review

Karen Twyford

Occupational Therapy Department and Kids Rehab WA, Department of Paediatric Rehabilitation, Child and Adolescent Health Service; School of Health and Medical Sciences, Paediatrics, University of Western Australia

The impact of a neurodisability can have long lasting consequences on an individual's ability to participate in all aspects of life. Multidisciplinary rehabilitation is therefore key to improving functional outcomes. Music therapy is considered a valuable intervention for children and adolescents with a neurodisability who access rehabilitation services. As a complex stimulus, music engages the global network of the brain and can provide a valuable foundation for recovery as it has the potential to induce brain plasticity due to the motivational and emotional role of musical experience. While empirical evidence demonstrates the effectiveness of music therapy for functional outcomes within adult neurorehabilitation, the extent of the emerging paediatric literature base on this subject is unclear. As part of a PhD research project, a scoping review was undertaken. This presentation will share the findings from this review, now under journal revision, and discuss implications for practice and further research. It will be of interest to medical and allied health professionals working in interprofessional teams to understand how music therapy can contribute to positive functional outcomes for children and adolescents with neurodisability during rehabilitation.

Thursday 7 November

Innovation and Advancing Child Health Outcomes

Modelling the impact of WA's first RSV immunisation program for all infants

Fiona Giannini[1], Alexandra Hogan[2], Peter Richmond[1,5,6], Christopher C Blyth[1,5,6,7], Kathryn Glass[3,1], Hannah C Moore[1,4], on behalf of the STAMP RSV investigator team

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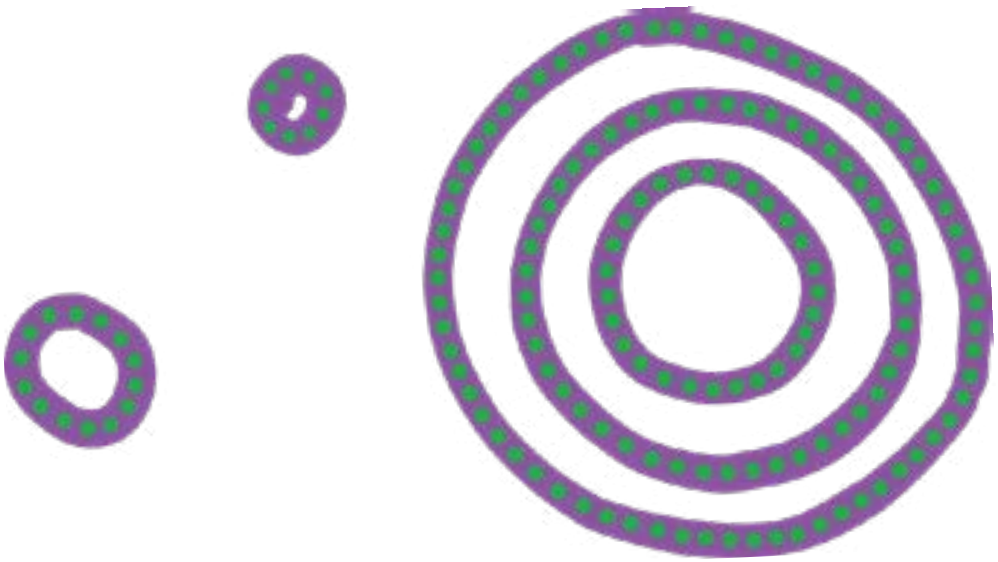
Introduction: In early 2024 Western Australia (WA) announced a funded RSV immunisation program for all infants aged under eight months at the beginning of the WA RSV season, and for infants at increased risk of severe RSV up to 19 months. We developed a dynamic transmission model of RSV that captures the differential impact of potential immunisation strategies on infants born full-term versus those born preterm and hence at a higher risk of severe RSV infection. Our aim is to predict the impact of WA's RSV immunisation program on RSV-related hospitalisations.

Methods: We fitted our model to population administrative health data from southern WA. The data provides RSV hospitalisations by age and gestational age at birth. The model is parameterised using efficacy trial data to simulate nirsevimab protection at a population level from time of administration.

Results: Using our model, we analysed the impact of the immunisation program under different assumptions of likely coverage levels, for the first year of implementation and considering future years where coverage levels may be higher. We show that the program can significantly decrease the number of hospitalisations over the RSV season.

Conclusions: This model can be used to explore the impact of possible future immunisation strategies, and hence be used to inform the further development of WA and national RSV immunisation programs. The model can be used to analyse the comparative impact of year-round immunisation versus immunisation prior to the RSV season, and the inclusion of a maternal vaccine.



Testing craniospinal irradiation and DNA-damage response inhibitors in preclinical models of medulloblastoma

Hilary Hii[1], Meegan Howlett[1,2], Hetal Dholaria[1,3,4], Jessica Buck[1,2], Jacqueline Whitehouse[1,2], Mani Kuchibhotla[1], Ranjith Palanisamy[1], Sally Larder[1], Brooke Carline[1], Jacob Byrne[1], Zahra Abbas[1], Martin A Ebert[5,6], Nicholas G Gottardo[1,3], Raelene Endersby[1,2]

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Purpose: Despite treatment intensification, survival for high-risk subgroups of medulloblastoma (MB) such as MYC-amplified Group 3 (Gr3-II) and p53-mutant SHH (SHH-3p53mut) have remained dismal. Our previous studies have shown that the DNA-damage response inhibitors (DDRis) prexasertib and ceralasertib enhance the effects of CSI using medulloblastoma cell line-derived orthotopic mouse models. However, patient-derived orthotopic xenografts (PDOXs) are considered superior models for preclinical testing. Here, we developed a CSI protocol for multiple PDOX models of high-risk medulloblastoma and tested the optimal protocol with concurrent DDRis.

Method: For our CSI optimisation studies, MED211FH (Gr3-II), MED813FH and MED314mCLFH (SHH-3p53mut) tumour-bearing mice were monitored for clinical symptoms of tumour before commencing treatment. Multiple, fractionated CSI dosing schedules were trialled based on our lab's previously established CSI protocols before a schedule of 10 x 0.5 Gy fractions (5.0 Gy total) proved optimal. This schedule was then used in all three PDOX models either alone or in combination with concurrent prexasertib or ceralasertib.

Results: MED211FH, MED813FH and MED314mCLFH mice treated with 5.0 Gy CSI plus concurrent prexasertib or ceralasertib showed significantly improved survival when compared to CSI alone for each model used. MED211FH: $p<0.01$ and $p<0.001$ respectively, MED813FH: $p<0.05$ and $p<0.005$ respectively and MED314mCL: $p<0.05$ for both DDRi combination groups.

Conclusion: Remarkably, concurrent use of prexasertib or ceralasertib with CSI significantly improved survival in fatal Gr3-II and SHH-3p53mut models. With these results, we provide robust preclinical evidence for radiosensitising use of DDRi in paediatric high-risk MB and recommend swift clinical translation.

Cost of hospitalisation for children with staphylococcus aureus bacteraemia in Western Australia

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Introduction: A post-hoc economic analysis including children aged <18 years with confirmed Staphylococcus aureus bacteraemia (SAB) admitted to Perth Children's Hospital between Jan 2017 to Dec 2018 was completed. This study is the first to evaluate hospitalisation costs in paediatric patients with SAB in Australia to better understand the economic burden of paediatric SAB.

Methods: Resource and cost data for each SAB patient were obtained from the Perth Children's Hospital Business Intelligence Unit (BIU) for all eligible children. For each patient, the BIU provided costs aggregated to the nationally standardised Cost Centre and Line-Item levels as defined by the National Hospital Cost Data Collection (NHCDC) cost bucket matrix. Statistical analysis was performed using STATA version 18.

Results: 60 patients with SAB were admitted to Perth Children's Hospital over 2 years and included in the analyses. The average cost per index admission was $68,078.34 and the total cost across all patients was approximately $4 million. The median cost of MRSA bacteraemia was $46,798 (interquartile range [IQR], $31,665-$71,938) which was nearly twice the median cost of MSSA bacteraemia ($26,485 [IQR, $12,387-61,456]). This was a statistically significant difference in the cost of MRSA bacteraemia (n=11) compared with cost of MSSA bacteraemia (n=46) (MSSA), p=0.031.

Conclusion: This study will play a pivotal role in informing and prioritising paediatric-specific intervention and prevention strategies. Further analysis to understand the differences in the MRSA vs MSSA bacteraemia costs must be conducted.

Improving Safety for young children with Asthma undergoing General Anaesthesia (SAGA)

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Introduction: Peri-operative Respiratory Adverse Events (PRAE) remain major causes of morbidity & mortality in children undergoing general anaesthesia. Children with a diagnosis or family history of asthma & active respiratory symptoms are at particular risk of PRAE. Fractional Exhaled Nitric Oxide (FeNO) is a marker of airway inflammation & has been used as a screening tool.

Aims: To determine whether pre-operative measurements of FeNO can predict the development of PRAE.

Methods: This single-centre pilot study recruited patients into two groups based upon the presence or absence of respiratory symptoms. Baseline measurements of FeNO as well as respiratory mechanics, as determined by a Forced Oscillation Technique (FOT), was recorded in both groups. The incidence of PRAE was noted through anaesthesia and into the Post-Anaesthetic Care Unit.

Results: A total of 120 patients were recruited (60 in each group). A greater proportion of PRAE (65% of events) occurred in the Respiratory group. Baseline FeNO measurements were obtained in 91% of patients. Forced Oscillation Technique measurements were obtained in 61% of patients. There was no difference in baseline FeNO across the two groups. The measurement of FeNO did not predict the occurrence of PRAE. In terms of FOT, the two groups differed significantly across limited recordings. The recording of respiratory mechanics similarly did not predict PRAE.

Conclusion: It is feasible to obtain FeNO & FOT measurements perioperatively in children, but measurements thereof do not reliably predict PRAE. A thorough pre-operative clinical history together with care by an experienced paediatric anaesthetist remain the most reliable means of reducing PRAE.

Methods of inhaled nebulised adrenaline delivery in children

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Introduction: Sometimes, there is an urgent need to administer inhaled adrenaline to children, awake, sedated or anaesthetised to treat asthma, bronchospasm, croup, and suspected laryngeal/pharyngeal oedema or stridor, which can become severe or even life-threatening.

Aims: To better inform emergency dosing and administration guidelines, we aimed to quantify the amount of adrenaline delivered for inhalation from a nebuliser, in a simulated experimental delivery set-up for spontaneously breathing children, either awake via facemask, or under anaesthesia using a Laryngeal Mask Airway (LMA) or Endotracheal tube (ETT).

Method: Adrenaline was delivered using a jet or vibrating-mesh nebuliser as per standard hospital protocols for each patient weight: 3, 12, 30 and 75 kg using age and weight appropriate LMA, ETT or facemask, and collected on a filter to represent the delivered dose. Adrenaline was rinsed from the filter and stored at 4 degrees Celsius until quantified using liquid chromatography.

Results: Facemask delivered a smaller percentage of the nominal dose compared to LMA with any patient weight ($p < 0.001$), and ETT delivered more than either LMA type ($p < 0.001$). The LMA delivered more than the facemask for both LMA types and all patient sizes ($p < 0.001$) except the adult ($p < 0.07$).

Conclusion: Delivered dose using an LMA was ~4 times that of the facemask for infants and young children. Future research should consider using the LMA to improve delivery efficiency of nebulised adrenaline for infants and children, in appropriate circumstances, and investigate improving drug delivery to children via facemask, as well as safety and efficacy of higher-dosage regimens.

Understanding Systemic Juvenile Xanthogranuloma in Paediatric Patients: A Multi-Institutional Retrospective Study in Australia

Farah Musbah[1], Sophie Jessop[2], Steve Foresto[3], Lorretta Lau[4], Julie Cayrol[5], Leanne Super[6], Dinisha Govender[7], Hetal Dholaria[1]

[1]Perth Children's Hospital, [2]Women and Children's Adelaide, [3]Queensland Children's Hospital, [4]Sydney Children's Hospital, [5]Royal Children's Hospital, [6]Monash Children's Hospital, [7]Westmead Children's Hospital

Systemic Juvenile Xanthogranuloma (SJXG) is a rare histiocytic disorder with potential for organ involvement in paediatric patients. Recent advancements have elucidated genetic mutations in the MAPK pathway and ALK translocations. Due to its rarity, there is a overall lack of understanding of the disease and its treatment. Here, we examine national experience to unravel patterns in disease presentation, treatment responses, and long-term prognosis.

Patients aged <18 years with SJXG were enrolled on this study. Patients with cutaneous only involvement or with clinical characteristics of Erdheim-Chester disease were excluded from analysis. A descriptive analysis detailing disease characteristics, laboratory and pathology results and treatment approaches is underway along with morbidities and effect on overall health. The study is established to procure data from all paediatric oncology centres across Australia.

Patient records were interrogated for seven patients at Perth Children's Hospital. Median age was 7-years-2-months while median age of presentation was 3-years-9-months with male:female distribution of 3:4. Systemic involvement included cortex, pituitary, pancreas, lungs, long bone, liver, spleen, eyes and bone-marrow. Two patients had ALK translocation, while two patients had MAPK pathway mutations. Lymphohematopoietic system involvement appears to be a poor prognostic marker for this disease in our preliminary analysis. Further analysis on varying treatment approaches and use of modern targeted agents is underway.

This first case series from Australia adds valuable information to sparse understanding of this very rare condition. Our analysis indicate that this disease is less likely to respond to chemotherapy and frontline targeted therapy may be a better alternative.

Introducing MERLIN: a research platform for artificial intelligence at Perth Children's Hospital

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Artificial intelligence (AI) is a crucial frontier in medical research, particularly as the advent of large language models (LLMs) has enabled researchers to interact with language as a research tool. This is especially important in paediatric research as language is a universally accessible non-invasive way to assess children's physical and mental health. Due to the rapidly evolving nature of AI, researchers often lack the expertise, easy access and mentorship to effectively use these new building blocks of research. Existing websites such as ChatGPT are not private, limiting their use in medical research.

The Paediatric Anaesthesia Research Team with funding from Stan Perron Institute and in partnership with PCH and UWA has created the MERLIN research platform in July 2024. MERLIN is a secure, private research platform physically located at PCH that can run state of the art AI models on real clinical data.

Our first project has been investigating whether LLMs can answer questions from parents with full clinician oversight using data from the RACUS study (RGS0000003157). In this study, parents used SMS to provide a pain score for each perioperative day following tonsillectomy. Text messages from 62 parents formed a corpus that is currently undergoing LLM training on the MERLIN platform. Preliminary findings are that LLMs can consistently and accurately extract data from SMS responses and flag and respond to concerning SMSs.

We are continuing to build MERLIN into a truly collaborative research platform that advances the state of paediatric research at PCH.

Thursday 7 November

Clinical Trials

Impact of probiotics on infections, gut colonisation, & vaccine responses in PNG infants

Madeline Ong[1], Anita van den Biggelaar[1], Rebecca Ford[3], Andrew Greenhill[4], Celestine Aho[3], Joycelyn Sapura[3], Birunu Nivio[3], Amelia Koata[3], Mary Dreyam[3], Tilda Orami[3], Wendy Kirarock[3], William Pomat[3], Peter Richmond[1,2]

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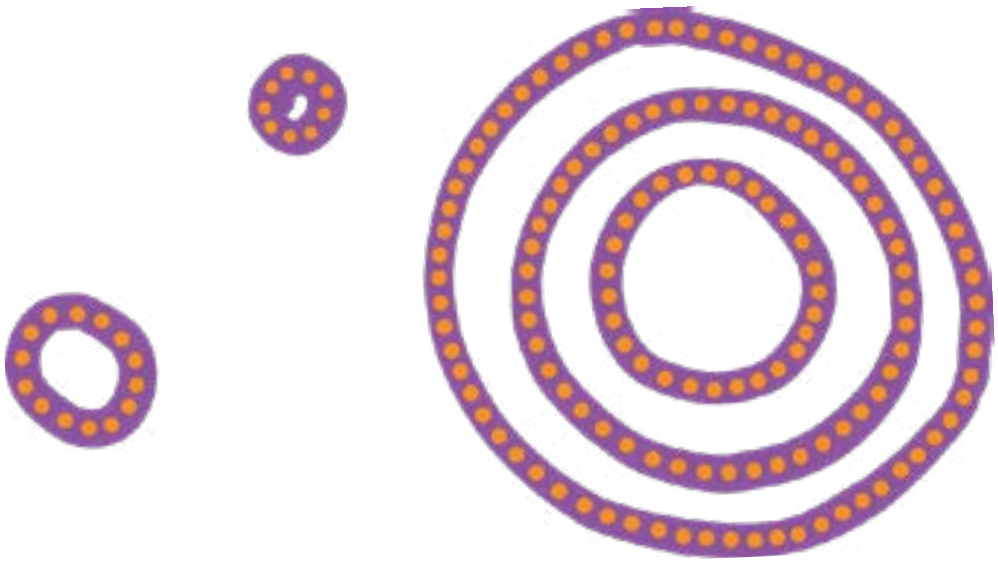
Introduction: Probiotic supplementation for one week in newborns may reduce episodes of infection. This double-blinded RCT investigates the safety, feasibility and impact of two symbiotic supplements on gut colonisation, infections, and vaccine responses in newborns in Papua New Guinea (PNG).

Methods: 244 healthy infants were enrolled <72 hours after birth and randomised 1:1:1 to receive B. infantis Bi-26+2´-FL or L. plantarum Lp202195+FOS or placebo for 7 days. Routine EPI vaccines (DTwP-HepB-Hib and PCV13) were administered at 1-2-3 months. Rectal swabs to assess gut colonisation and serum to measure vaccine IgG antibody responses were collected. We present preliminary safety, immunogenicity, and colonisation results.

Results: The three infant groups were demographically similar. Probiotics were well-tolerated with no treatment-related serious adverse events.B. infantis treatment produced the highest colonisation rate (93% at 1 month). However, other treatment groups also had high B. infantis colonisation. L. plantarum treatment produced only transient colonisation up to 40% on Day 7 and was rare in other groups.Infection rates were similar in all groups. The most common reported infection was moderate pneumonia (L. plantarum n=9, B. infantis n=7, placebo n=6). PCV13 specific IgG was generally lower in the L. plantarum treated group (significant only for 9V, $p<0.001$) and among those with persistent B. infantis colonisation (significant for 6B, 18C, 19F, $p<0.05$)

Conclusion: Probiotics supplementation is safe and well-tolerated among newborns in PNG. However, L. plantarum only resulted in low-level transient colonisation. In this preliminary analysis, neither synbiotic treatment nor colonisation reduced infection rates.



Staphylococcus aureus network adaptive platform – paediatrics and youth (SNAP-PY)

Asha Bowen[1,2,3] on behalf of the SNAP Trial Pediatric and Pregnancy Working Group

[1]Perth Children's Hospital, [2]Westfarmers Centre of Vaccines and Infectious Disease, Telethon Kids Institute, [3]School of Medicine, University of Western Australia

Aims: The Staphylococcus aureus Network Adaptive Platform (SNAP) trial aims to improve Staphylococcus aureus bacteraemia (SAB) management for patients of all ages.

Introduction: SAB is a major health problem, affecting 8.3/100,000 children/year, higher than any sepsis-causing vaccine-preventable bacterial infection. Globally, <300 children with SAB have been enrolled in a randomised controlled trial (RCT). There is little evidence to guide antibiotic treatment for SAB in children, with doctors relying on opinion and experience to inform patient care.

Methods: There are three active domains within SNAP: backbone antibiotic, adjunctive clindamycin and early oral switch. The primary endpoint (Day 90 mortality) is age inclusive, estimating treatment effects using combined data from adults and children.

Results: SNAP commenced in February 2022, and the first paediatric site opened in June 2022. To date (May 2024), 368 children have been screened at 18 (17%) of 108 sites: 120 (32.6%) children have been recruited, accounting for 212 paediatric randomisations, making this the largest SAB RCT for children ever. 210 (57.1%) children have been recruited to the registry only and 38 (10.3%) declined both. Paediatric recruitment in Australia, New Zealand, and Israel has commenced, with plans for expansion in 2024. Four pregnant women have been randomised.

Conclusion: Whole-of-life participation in a global, multi-site trial is rare. Paediatric recruitment has been slower than adults, due to lower incidence of SAB, population demographics and fewer sites recruiting children. Nonetheless, SNAP is the largest trial of its kind and will produce high-quality evidence to guide paediatric SAB management in the future.

Pertagen is a safe and effective stand-alone pertussis vaccine

Ushma Wadia[1,2,3], Heidi Hutton[1], Anita Van den Biggelaar[1,2,4], Leonard Goh[1], Librada Fortuna[4], Vilasinee Yuwaree[4], Souad Mansouri[4,5], Pham Hong Thai[4], Peter Richmond[1,2,3]

[1]Telethon Kids Institute, [2] School of Medicine, University of Western Australia, [3]Perth Children's Hospital, [4]BioNet Asia, BKK, Thailand, [5]Technovalia Eastern Innovation Business Centre, Mulgrave, Victoria

Context and Aim: Australia is facing a resurgence of Pertussis infection. It remains a contagious disease of major concern in Australia. Booster pertussis vaccination is recommended in adolescents, adults, and in each pregnancy due to waning immunity after 3 to 5 years. Since pertussis-only vaccines are not available in Australia, each pertussis booster vaccination is co-administered with doses of tetanus and diphtheria (Td) containing vaccines, despite the latter being unnecessary.

Methods and Research Findings: This phase 2/3 randomised observer-blind controlled clinical trial aimed to demonstrate safety and the non-inferior immunogenicity of Pertagen®, a stand-alone pertussis vaccine compared with Boostrix®, a Diphtheria, Tetanus, Acellular-pertussis vaccine in 102 healthy young adults aged 18-30 years. PT-IgG, FHA-IgG and PT neutralizing antibody titers were assessed 28 days and 1 year after vaccination. Participants were randomised in a 2:1 ratio to receive Pertagen® or Boostrix®. Safety and immunogenicity data up to 1 year were collected for 102 participants (mean age 20.6 years, 67.7% female, 84.3% Caucasian). At 1-month post-vaccination, Pertagen® was shown to be non-inferior to Boostrix™ with higher pertussis immune response on both PT and FHA IgG seroresponse rates, anti-PT and anti-FHA GMC and PT neutralising GMT. Persistence and significantly higher PT-IgG and anti-PT neutralising seroresponses in Pertagen® as compared to Boostrix® recipients at 1-year post-vaccination was demonstrated. Pertagen® was well tolerated and no vaccine-related serious adverse events were reported during the study.

Interpretation: Pertagen®, a stand-alone pertussis vaccine, is well tolerated and immunogenic and offers new opportunities to limit Pertussis resurgence where Td vaccination is not needed.

High-flow nasal oxygen for children's airway surgery: a randomised controlled trial

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Tubeless upper airway surgery in children is a complex procedure in which surgeons and anaesthetists share the same operating field. These procedures are often interrupted by the need for rescue oxygen therapy. This study aimed to determine the efficacy of nasal high-slow oxygen in reducing rescue interruptions during these surgeries. Five hospitals recruited children aged 0-16 years requiring tubeless upper airway surgery. Participants were randomised to nasal high-flow oxygen or standard oxygen therapy. The primary outcome was uninterrupted anaesthesia without rescue oxygenation, defined as an interruption to deliver positive pressure ventilation. Secondary outcomes included frequency of hypoxaemic events (SpO2 <90%). 581 procedures in 487 children were randomised to high-flow oxygen (297 procedures) or standard care (284 procedures). After exclusions, 528 procedures (267 high-flow, 261 standard care) in 483 children (293 male, 190 female) were included in the intention-to-treat analysis. The primary outcome of uninterrupted anaesthesia was achieved in 236(88%) of 267 procedures high-flow oxygen and 229(88%) of procedures on standard care (adjusted risk ratio [RR] 1.02, 95% CI 0.96-1.08, p=0.82). There were 51(19%) procedures with a hypoxaemic event in the high-flow oxygen group and 57(22%) in the standard care group (RR 0.86, 95% CI 0.58-1.24). No significant differences were found in other secondary outcomes. The incidence of adverse events was similar between groups. Nasal high slow oxygen did not reduce rescue oxygenation interruptions compared to standard care. These results suggest that both approaches, nasal high-flow or standard oxygen, are suitable alternatives to maintain oxygenation in children undergoing upper airway surgery.

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mRNA based immunotherapeutics for paediatric cancers

Neha Jain[1,2], Juliet Schreurs[2], Claudia Peh[2], Francois Rwandamuriye[2], Ben Wylie[2], Joost Lesterhuis[2]

[1]Child and Adolescent Health Service; [2]Telethon Kids Institute

Introduction: Childhood cancer remains the second leading cause of death in children. Current treatments for paediatric solid malignancies are associated with poor survival and high toxicity. Paediatric cancers are immunologically 'cold', characterised by an absence of immune cells and presence of local immunosuppression. Messenger RNA (mRNA), encoding key factors involved in immune activation and signalling have the potential to modulate the suppressive tumour microenvironment. Localised administration of mRNA to solid tumours may lead to both local and systemic anti-tumour responses. mRNA-based cancer therapies are currently in early phase trials for adult cancers. No such trials have been registered for paediatric cancer patients.

Aim: This project aims to develop mRNA-based therapies for paediatric patients. Predictive biomarkers for therapy response will be identified and validated. A combined understanding of the paediatric tumour-immune microenvironment and biomarkers will be used to identify mRNA candidates. mRNAs will be delivered to the tumour site during resection surgery via a biomaterial gel, and their ability to enhance anti-tumour activity and prevent disease relapse will be evaluated.

Methods: Cell based assays will be used to confirm mRNA expression and immune activation. Historic patient samples and publicly available databases will be used for biomarker discovery. Preclinical models will be used to establish proof of concept modelling prior to translation and application of mRNA-based therapeutics in age agnostic early phase trials for paediatric malignancies.

Results: Early results demonstrate mRNA therapy sensitises immune cells to subsequent activation with adjuvants, suggesting strong therapeutic potential.

Peanut oral immunotherapy is effective and safe in preschool-aged children

Michael O'Sullivan[1,2,3], Rachael Wallace[1], Samantha Thomas[1], Alyssa Godfrey[1], Jane Jones[3], Natasha Bear[1], Bhaumik Mevavala[1], Sarah Miller[3], Ingrid Roche[4], Samara Baldwin[1], Jessica Metcalfe[1,3]

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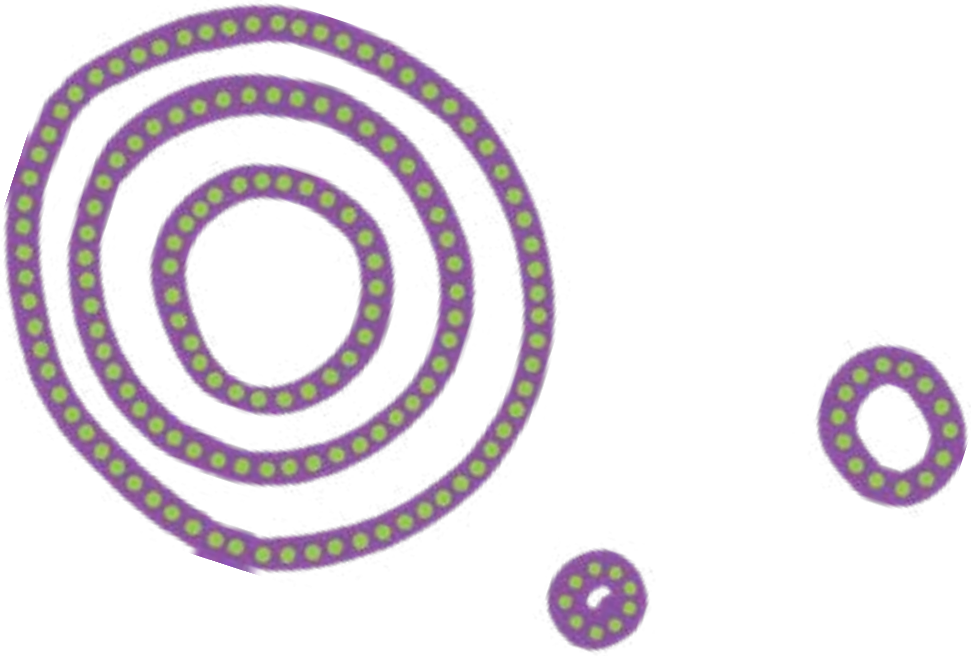
Background: Oral immunotherapy (OIT) is a potential treatment for children with peanut allergy. Few studies have prospectively examined a food-based pragmatic approach for peanut OIT in young children.

Objective: To determine the efficacy and safety of peanut OIT, using a food product (powdered peanut butter) with parent-measured daily doses, compared to avoidance.

Methods: Peanut allergic children from 1-4-years-old were randomised 1:1 to receive peanut OIT (maintenance dose 360mg) or avoidance for 12 months. All participants had a peanut challenge after 12 months to measure the primary outcome of desensitisation to >600mg peanut protein. Adverse events (frequency, severity and relatedness) were collected in the intervention group and all participants completed quality of life (QoL) questionnaires at baseline and 12 months.

Results: 23/27 in the peanut OIT and 25/27 in the avoidance group underwent peanut challenges after 12 months. An eliciting dose of >600mg peanut protein (cumulative 1040mg) was tolerated by 74% (20/27) in the OIT group compared to 11% (3/27) in the avoidance group, $p<0.001$. 41% of OIT and 7% of avoidance participants passed the challenge with no reaction. The OIT group reported significantly better QoL than the avoidance group after 12 months. Allergic reactions requiring any treatment (mostly antihistamine) occurred at a rate of 1.5 per 100 doses during the updosing phase, and 0.3 per 100 doses in the maintenance phase.

Conclusion: Pragmatic low-dose peanut OIT is effective and safe in preschool-aged children. Peanut OIT is associated with improved QoL compared to avoidance, supporting its implementation as a treatment option for young children with peanut allergy.



Tuesday 5 November

Allied Health Satellite Session

Behaviour change interventions to target sputum sample collection in children with cystic fibrosis (CF)

Jizelle Kenworthy-Groen[1], Crystal Bourke[1,2], Eloise Connell[1], Alison Stone[3], Charlotte Burr[3], Wendy Raphael[4], Sam Wallace[5], Paula Wallace[5], Andre Schultz[2,3,5], Julie Depiazzi[1]

[1]Physiotherapy Department, Perth Children's Hospital; [2]Telethon Kids Institute; [3]Respiratory and Sleep Medicine Department, Perth Children's Hospital; [4]Outpatient Clinics, Perth Children's Hospital; [5]Cystic Fibrosis Western Australia

It is challenging for children to produce sputum samples when well. Regular sputum sampling and surveillance is important to detect respiratory pathogens and monitor lung health.

This study describes behaviour change interventions to improve adherence to recommended sputum surveillance for children with CF. The Behaviour Change Wheel (COM-B) model hypothesises the interaction between a person's capability (C), opportunity (O) and motivation (M) can provide explanations for why a behaviour (B) is or isn't performed.

Aim: To improve frequency of independent sputum sample collection by 20%. Our secondary aim is to measure the success of a COM-B model.

Method: A 12-month targeted intensive multidisciplinary behavioural intervention commenced in July 2023 for children with CF, older than 6 years. The COM-B model guided the choice of interventions implemented by the CF multidisciplinary team. These included, improving capability using educational resources (audio-visual, one-on-one education, and handouts), increasing opportunity (improved access to sputum pots, pathology forms and education on processes of collection), and motivational incentives (sputum passports, certificates, and prizes). A retrospective medical record audit from July 2022 measured sputum sampling frequency, pathogen growth, age, location, and gender to help target education to specific populations based on results.

Results: 163 children with CF older than 6 years participated. Informal qualitative data collected has shown improvement in knowledge and positive changes in practice.

Conclusion: The data collection period ends June 2024. Results will be re-audited to be presented in November.

Additional foods in exclusive enteral nutrition for paediatric Crohn's disease

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[1]Nutrition and Dietetics – Perth Children's Hospital, [2] IBD Subcommittee – Auspen

Exclusive enteral nutrition (EEN) is the first line induction therapy for remission of active luminal Crohn's disease internationally. The overall combined remission rate for EEN in the literature is reported as up to 83%. However, EEN protocols vary internationally, and between gastroenterology units in Australia and New Zealand. One of the main differences between protocols is the allowance or not, of specific additional foods during EEN. It is known that if 10-25% of normal family foods are allowed during EEN, remission rate significantly decreases compared to no additional foods. However, in an effort to improve adherence many gastroenterology units, including PCH, allow a small amount of specific additional foods. No study has yet determined if the addition of these specific foods during EEN affects the remission rate for active luminal Crohn's disease. To address this gap in the literature a multicentre prospective observational study, in conjunction with the Auspen IBD subcommittee, will be conducted across 7 tertiary paediatric gastroenterology sites in Australia and New Zealand. This study aims to compare remission rates between sites either including additional foods or not. Poor adherence to EEN therapy is often cited by gastroenterologists as the reason for not offering EEN as a treatment option. This study will also ascertain adherence levels during EEN, and measure quality of life scores at the beginning and end of EEN, to determine if additional foods afford improved adherence and quality of life.

Health professional perspectives of barriers to early detection of cerebral palsy

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[1]Perth Children's Hospital, Child and Adolescent Health Service, [2]Telethon Kids Institute, [3]Curtin University, [4]University Western Australia

Background: High risk of cerebral palsy (CP) can now be detected at 12 weeks corrected gestational age (CGA) using standardised assessments, providing access to early intervention and parental support. However not all children at risk in Western Australia are referred within the recommended timeframe for early detection.

Aim: Explore the barriers and facilitators to accessing early detection and early intervention services from the Perth Children's Hospital Early Intervention service, from the perspective of health professionals.

Method: Qualitative reflexive thematic analysis of semi-structured interviews with health professionals providing services for children at risk of CP and neurodevelopmental disability. Interviews were conducted face to face or using Microsoft Teams, recorded and transcribed. NVivo 16 was used for data generation, which was coded by three investigators. Consumers and researchers acted as Critical Friends. Research design, data analysis and interpretation were done in collaboration with a Consumer Reference Group.

Results: Interviews with 22 health professionals generated data about barriers to accessing early detection services and suggestions for facilitating access and improving the patient journey. Three themes were developed: the need for patient centred pathways, culturally appropriate care, and increased workforce capacity.

Conclusions: Health professionals experience barriers which cause delays, confusion, and reduce professionals' and families' agency in the multidisciplinary teams caring for children at risk of CP and neurodevelopmental disability. Professionals believe clear referral and communication pathways, education and training, and using their local knowledge and expertise will address barriers at parent, clinician and health system levels and facilitate earlier access to care.

Bridging to Better Health: Dysphagia Management Post-Supraglottoplasty

Jasmine Ting[1], Basia Hamden[1], Caitlin Hitchcock[1], Shyan Vijayasekaran[1,2]

[1]Speech Pathology, Perth Children's Hospital, [2]The University of Western Australia

Dysphagia is a common sequalae of laryngomalacia (LM), impacting efficient suck-swallow-breathe coordination during feeding. Studies show that 50.3% to 90.1% of LM infants presented with dysphagia, 42.3% had aspiration, and 93% demonstrated silent aspiration. Furthermore, 5-30% of LM infants require surgical intervention, predominantly supraglottoplasty (SGP), to reduce airway obstructions and alleviate symptoms. However, SGP can lead to new-onset dysphagia and increase aspiration risks for a period postoperatively. This can result in poor neurodevelopmental growth, increased risks of pulmonary complications, and reduced quality of life. Despite the documented adverse effects of dysphagia, standardised, evidenced-based Speech Pathology (SP) management within this population is limited. To address this gap, this study evaluates the efficacy of the Speech Pathology Laryngomalacia Management Protocol (SPLMP) for LM infants following SGP within Perth Children's Hospital. It retrospectively compares targeted outcomes for infants under 12 months at the time of SGP during the pre-implementation period (June 2016-June 2018) and post-implementation period (July 2018-July 2020). Preliminary observations post-SPLMP implementation indicate a reduction in (1) duration of fluids modifications, (2) parental reports of dysphagia and respiratory infection symptoms, and (3) hospital readmission and Emergency Department presentation rates. We anticipate significant reductions in rates across the targeted outcomes. The expected implications include enhanced national and international SP workforce capability, improved health outcomes, stronger community support, and reduced economic impact on WA Health through increased service efficiency, and optimal resource utilisation.

Perth Children's Hospital Behavioural Health Clinic – Supporting families in crisis

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[1]Social Work, Child and Adolescent Health Service, [2]Occupational Therapy, Child and Adolescent Health Service

The Behavioural Health Clinic was formed in response to data identified by the Perth Children's Hospital (PCH) Emergency Department (ED) Social Work (SW) team regarding behavioural health presentations. The PCH ED SW team hypothesised a number of these presentations were related to undiagnosed or underdiagnosed neurodivergence, with lack of community pathways and support, resulting in repeated ED presentations. The SW team identified an opportunity to provide brief crisis interventions to support these children and families. A four-session clinic model was developed and is run by a Senior Occupational Therapist and Senior Social Worker.

The preliminary aims and objectives of the Behavioural Health Clinic are to:

- Reduce frequency of escalation
- Assist caregivers to understand and respond to their child's behaviour
- Reduce caregiver burnout by providing education to help caregivers understand behaviours; offering space for caregivers to express their emotions and the impact of these behaviours on them; and identifying when and what supports the caregivers require
- Repair fractured and stressed family units
- Ensure families have access to relevant community services
- Keep the child within the family unit and prevent entry to out of home care system
- Reduce ED repeat presentations

Measurement of clinic objectives include a pre and post clinic parent-report survey and number of repeat ED presentations. The initial 5 weeks of clinic have presented several challenges resulting in a modified format. Young person involvement in clinic is assessed on an individual basis.

Hospital in the Home Physiotherapy for Respiratory Admissions: A service expansion

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Introduction: The Hospital in the home (HiTH) physiotherapy expansion project has been designed to increase accessibility to physiotherapy services for patients at Perth Children's Hospital (PCH). This involves expanding the inclusion criteria from patients with a diagnosis of Cystic Fibrosis (CF) to patients with a variety of respiratory conditions such as Primary Ciliary Dyskinesia (PCD), Bronchiectasis and Chronic suppurative lung disease (CSLD).

Method & Analyses: A six-month quality improvement project was designed with a PDSA cycle length of 12 weeks. The first phase is currently accepting patients directly from the wards, with the second phase due to commence in early July 2024. Data collection is occurring through daily statistics, intake forms, webpas data and consumer feedback forms. Outcome targets were set at the commencement of the pilot to measure performance. We will also compare this data to the 2023 HITH service audit. The impact of the physiotherapy expansion is being measured through number of referrals received, in hospital length of stay, service delivery and consumer satisfaction. We have already collected data from the initial 8 weeks, with 10 participants included. Data will continue to be collected and analysed at the conclusion of the second phase in Mid-October 2024. Viability of the project will be determined by several outcomes including in-hospital length of stay, occasions of service, consumer satisfaction and how this compares to the previous year.

Conclusion: Performance will be analysed against the outcome targets to assess the acceptability and sustainability of the service expansion.

Evaluating dietary modifications in children with Inflammatory Bowel Disease (IBD)

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[1]University of Western Australia, [2]Perth Childrens Hospital

Food avoidance (FA) is common in adult patients, with IBD, and more in those with nutrition impact symptoms. Patient's report the use of elimination diets to control symptoms. We aimed to determine the frequency of dietary manipulation, sources of dietary advice and dietary modification patterns in children with IBD.

Using a mixed-methods study, a validated dietary beliefs and practices questionnaire was used to collect qualitative data in children with IBD attending Perth Children's Hospital. Quantitative assessment of clinical activity (PCDAI/PUCAI) recorded on the day of appointment was matched with simultaneously collected qualitative data.

64 children (34 males, mean age 13.3 years) with IBD participated in the survey. Surveys were filled out by patients (n=19), jointly by patients and parent (n=38), or by parents alone (n=7). Almost two-thirds (65%) attributed symptoms to certain foods including; Abdominal pain and cramps (55%), diarrhea(36%), nausea and bloating (34%). Females attributed symptoms to foods more than males (p=0.03). Food avoidance (FA) was reported by 50% of subjects, females practiced FA more than males (p=0.04). One in three subjects regularly skipped meals. FA was more common when disease was active (p=0.02). Most frequently excluded foods were milk products (29%) and confectionary (29%). Gastroenterologists and/or dietitians were the main source of dietary advice (40%), almost 1/3 patients modified their diet based on non-expert advice.

Over 50% of patients modify their diet post diagnosis, 1 in 3 skip meals regularly, females avoid foods more than males do. Almost 1/3rd of patients modified their diet based on non-expert advice.

Cochlear implant sound processor usage and re/habilitation outcomes in children with single-sided deafness

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[1]Department of Speech Pathology, Perth Children's Hospital, [2]Department of Otolaryngology, Perth Children's Hospital, [3]Division of Surgery, Medical School, University of Western Australia

Single-sided deafness (SSD) is a condition defined by severe-to-profound hearing loss in one ear and normal hearing in the other ear. Children with SSD often have difficulty localising sound and hearing speech in noise due to the loss of binaural hearing. Cochlear implantation (CI) is a relatively recent audiological treatment for SSD, and as such, there is limited research available on long-term outcomes. Further, device usage is very seldom reported on, despite its importance in determining audiological and re/habilitation success.

This study reported on the management of CI in children with SSD at Perth Children's Hospital, with a focus on long-term device usage and re/habilitation outcomes. A retrospective review of all children with SSD who had CI between January 2014 and December 2020 was conducted. The device usage of 15 children with SSD is included, along with discussion of the management and re/habilitation outcomes of three cases in detail.

Overall, children wore their sound processor for an average of 4.6 hours/day, with usage ranging from 0.5 to 12.8 hours/day. Usage was significantly greater in the first two years following CI, with a downward trend over time. Regular audiology and speech pathology follow up was conducted until 12 months post CI, with variability in outcomes observed across patients.

Further research is needed to better understand the long-term outcomes of CI in children with SSD, and the barriers and enablers to ongoing device use. The findings of this study have important implications for preoperative counselling and the provision of re/habilitation post CI.

A core outcome set of chronic pain assessment tools for young people with cerebral palsy: consensus from key stakeholders

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[1]Kids Rehab WA, Perth Children's Hospital; [2]Department of Physiotherapy, Perth Children's Hospital; [3]Division of Paediatrics, Medical School, The University of Western Australia; [4]Department of Paediatrics, The University of Melbourne; [5]Murdoch Children's Research Institute, Melbourne, [6]Telethon Kids Institute

Objective: Despite the high prevalence of chronic pain in young people with cerebral palsy (CP), assessment using a biopsychosocial approach is not routine practice. Many chronic pain assessment tools exist, however there is no consensus about which tools are feasible for young people with CP. This study aimed to develop a core outcome set of chronic pain assessment tools for young people with CP.

Design: Consensus study utilising stakeholder workshops and a modified electronic-Delphi survey.

Methods: Existing chronic pain assessment tools were identified from literature review. Workshops with key stakeholders refined the list of tools to present in an e-Delphi study. A purposeful and snowball sampling strategy was used to invite people with lived experience and clinicians to the e-Delphi survey. Participants rated the tools as 'very useful,' 'useful', 'not very useful') or 'I would not use it'. The consensus criteria were set at 75% agreement for very useful or useful.

Results: The review identified 75 assessment tools. Forty-two tools were presented in two workshops with 18 key stakeholders, resulting in a refined list of 27 tools for the e-Delphi. After two rounds, the final set of 19 tools included four observational tools for young people unable to self-report, six tools that assess the impact of chronic pain on emotional wellbeing, and nine assessing interference on daily life.

Conclusion: Consensus with key stakeholders identified 19 chronic pain tools that can be used to assess the impact of chronic pain on the lives of young people with CP.

A comparison of Mechanical Insufflation:Exsufflation devices. Perspectives from young users and their families.

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[1]Physiotherapy Department, Peth Children's Hospital, [2]Respiratory Department, Perth Children's Hospital

Background and aim: Children with severe neuromuscular weakness often require a mechanical insufflation:exsufflation device to assist with clearing their respiratory secretions and maintain respiratory health. The aim of this service improvement project is to formally evaluate children and their families' preferences of different mechanical insufflation:exsufflation devices.

Method and analyses: Children 5 years and older, have the cognitive ability to answer questions, regularly attend PCH and currently use a mechanical insufflation:exsufflation device in the home for respiratory maintenance will be invited to PCH to attend an outpatient appointment. We estimate 5 patients will meet inclusion criteria. The child's usual parameters will be trialled on different mechanical insufflation:exsufflation devices. Data will be collected using a standardised questionnaire on the child's perceptions of responses to changes in flow rates, features of the devices (eg. adding vibrations) and their perception of how well the device cleared their chest. Children and their care giver will also be asked which device they found more user friendly.

Discussion On completion of this project, we will have gained consumer informed feedback on children's preference of mechanical insufflation:exsufflation devices. This will improve our ability to tailor individual programs and advocate for specific devices to be available at PCH.

Early detection of Cerebral Vision Impairment in children at risk of Cerebral Palsy

Natalie Cavallo[1], Alison Salt[1,2,4], Sue-Anne Davidson[1,3,4], Jane Valentine[1,2,3,4], Taryn Ambrosi[1], PCH Early Intervention Team[1]

[1]Perth Children's Hospital, [2]University of Western Australia, [3]Curtin University, [4]Telethon Kids Institute

Background: Cerebral Vision Impairment (CVI), the leading cause of vision impairment in children, is caused by damage to the visual pathways in the brain and occurs in 60-70% of children with cerebral palsy (CP). Early intervention for infants with visual impairment leads to better outcomes and is advocated by parents. However, routine screening for CVI in infants at high risk of CP is not established.

Aim: Establish feasible routine screening processes for CVI in the Kids Rehab WA early intervention program (EIP) to identify infants at risk early and improve outcomes.

Methods: Infants referred to EIP between February 2024 and December 2024 are screened for CVI at their first appointment using the CVI screening tool to identify 'red flags' (ability to fix and follow, and atypical eye movements). If concerns are identified the infant is referred for visual assessment by an Occupational Therapist and Paediatrician, and to Ophthalmology. All infants are reassessed at 12 months post-assessment.

Results: Results from the first 6 months of screening will be presented. Ten of the 30 children screened to date had positive screening results; 6/8 identified by parents had a confirmed visual problem; 3/10 were reviewed by Ophthalmology and 7/10 were subsequently referred to Ophthalmology. Of the infants with identified 'red flags' 100% had difficulties fixing and following a standard target and 30% had atypical eye movements.

Conclusions: Routine CVI screening for infants at risk of CP is feasible and effective to identify CVI early and offer early intervention to achieve optimal visual outcomes.

PCH Refugee Health Rehab Rapid Assessment Pathway: Culturally Responsive Innovation

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[1]Refugee Health Service, Child and Adolescent Health Service; [2]Kids Rehab WA, Child and Adolescent Health Service; [3]Univeristy of Western Australia, [4]Telethon Kids Institute

Background: Clinical expertise, consumers and stakeholder input identified gaps in care for refugee children and adolescents with neurodevelopmental concerns and/or disability in Western Australia. Significant barriers to accessing health and disability pathways exist, with challenges around equity, language, health literacy, socioeconomic disadvantage and stigma.

Methods: State Government Election Commitment (Strengthening Multicultural Communities) funding was used to establish a collaborative tertiary Refugee Health Service (RHS): Kids Rehab WA Rapid Refugee Assessment pathway to meet the diagnostic and therapeutic intervention needs of this vulnerable patient cohort. Specific RHS Allied Health (Speech/Occupational/Physiotherapy), Clinical Psychology and Clinical Nurse Specialist roles were established to provide streamlined assessments, functional reports, culturally nuanced advocacy for community/service linkage and short-term therapy.

Results: Since May 2023, 57 referrals were received with 51 refugee patients assessed. Clinical Coordination, 193 allied health intervention sessions and medical/clinical psychology reviews have been delivered in 17 languages and across all ages (42% 3-6 years; 37% 6+ years). Most patients had undiagnosed neurodevelopmental or disability concerns requiring linkage to Child Developmental Services (CDS), Neurosciences Unit and/or State and National Disability Services (NDIS). Development of translated, culturally adapted standardised reports and recommendations have occurred.

Outcomes: This innovative culturally responsive, trauma informed RRA pathway is a national first and has transformed assessment and disability access for refugee families. Flexible, collaborative multidisciplinary and interdepartmental service engagement has been pivotal, empowering refugee families and advancing health outcomes. Challenges remain with short-term funding, CDS or NDIS access and community therapy delays. Development of culturally appropriate consumer feedback questionnaires is underway.

Wednesday 6 November

Nursing Satellite Session

Improving Immunisation Rates of Aboriginal Children at Perth Children's Hospital

Maria Xavier[1], Ushma Wadia[1], Melanie Robinson[2], Judy Mathews[1], Asha Bowen[1], Anita Campbell[1] on behalf of the Stan Perron Immunisation Service

[1]Department of Infectious Diseases, Perth Children's Hospital, [2]Director of Aboriginal Health, Child and Adolescent Health Service

The Immunisation Service at Perth Children's Hospital (PCH) appointed a Registered Nurse position in July 2023 with the goal of improving vaccination uptake by Aboriginal families. This project was externally funded by the Communicable Disease Control Directorate (CDCD), WA and is based at the Stan Perron Immunisation Centre (SPIC). This is a nurse-led walk-in clinic, open on weekdays, to provide immunisation services for all patients, their families, and visitors to PCH.

The project commenced in July 2023 and involves a dedicated Immunisation Nurse conducting daily immunisation reviews for all Aboriginal children attending PCH outpatient appointments, identified through an electronic database. Children who are due or overdue scheduled vaccines on the WA immunisation program including additional vaccines recommended for Aboriginal children are identified. The Immunisation Nurse has a yarn with the identified families, offers opportunistic education, and facilitates access to recommended vaccines through SPIC. This position also responds to internal enquiries about immunisations for Aboriginal children and supports immunisation through Koorliny Moort at PCH.

In the 12 months preceding the establishment of this role at PCH, Aboriginal patients comprised 5% (11/219, ± 2.94 standard deviation) of total SPIC attendances. In the first 6 months after commencement, attendance by Aboriginal children and families at SPIC increased to 26% (70/273, ± 10.5 SD). Nearly 10% of all SPIC attendances resulted in a parent being opportunistically vaccinated. Establishing a dedicated position to support families towards timely vaccination has improved culturally appropriate access to vaccinations and immunisation coverage across the Aboriginal patient cohort at PCH.

Strengthening Aboriginal family Involvement in the paediatric ESCALATION system

Eileen Boyle[1,2], Arizona Galbraith[3], Erica Thompson[4], Mikayla Garstone[4], Claudia Walton-McDermott[3,5], Melanie Robinson[1,3], Pamela Laird[1,4], Jon Howard[5], Scott Stokes[6], Gavin D Leslie[1], Fenella J Gill[1,2]

[1]School of Nursing Curtin University, [2]Nursing Research, Child and Adolescent Health Service, [3]Aboriginal Health, Child and Adolescent Health Service, [4]Telethon Kids Institute, Perth Children's Hospital, [5]WA Country health Service, [6] Kimberley Regional Paediatric Service, Broome Hospital, WA Country Health Service, Western Australia

Background and aim: The paediatric ESCALATION System promotes recognition and response to early signs of a child's deteriorating health in West Australian hospitals. A distinctive feature is integrated family involvement. Focusing on the unique cultural needs of Aboriginal families, the study aim is to empower Aboriginal families' involvement in identifying and addressing their child's deteriorating health.

Method: A 3 staged pre-post intervention design using Participatory Action Research. Stage 1 included surveys and interviews. Participants were Aboriginal families with experience of their child being a patient in an Emergency Department or inpatient units at a children's hospital. Interview data were analysed thematically.

Results: Twelve Aboriginal families participated in interviews between May-October 2023. Four preliminary themes were i) Family knows best with 3 sub-themes-Ways of knowing child is sick, Trusting gut instinct, Family always there ii) Feeling comfortable to speak up with 3 sub-themes-Respectful and trusting relationships, Talk to me so I understand, You are your child's voice, iii) Speaking up is not easy with 3 sub-themes-Language barriers, Family not close by, Reluctance to question health professionals, iv) Culturally sensitive approaches with 3 sub-themes-Poster limited impact, Cultural understanding shared responsibility, Get to know me.

Conclusions: Aboriginal families face unique challenges in voicing their concerns about their child's health in hospital. Stage 2 will involve co-design workshops to create customised solutions to enhance Aboriginal family involvement in raising concerns about their hospitalised child's deteriorating health. Stage 3 will involve evaluating the tailored solutions.

Road to recovery – post-sepsis care for children and their families: a scoping review

Emily Rice[1], Natalie Middleton[1], Cathy Pienaar[1,3], Joanne Harvey[1,3], Fenella Gill[1, 6], Kathleen Anastasas[1], Bernard McCarthy[1], Joanna White[1,2], Christopher Blyth[1,3,4,5]

[1]Perth Children's Hospital, Child and Adolescent Health Service; [2]School of Population and Global Health, The University of Western Australia, [3]Telethon Kids Institute, [4]Division of Paediatrics, School of Medicine, Faculty of Health and Medical Sciences, The University of Western Australia, [5]PathWest Laboratory Medicine, [6]School of Nursing, Faculty of Health Sciences, Curtin University

Background: Sepsis is the leading cause of childhood morbidity and mortality in Australia and globally, disproportionately impacting on vulnerable populations including the young, Aboriginal and Torres Strait Islander children and children with underlying medical conditions. The impact of sepsis continues for years after an acute episode, with more than one in three children experiencing ongoing disability.

Aim: To identify what has been reported about post-sepsis care and interventions for children and their families with lived experience following their discharge home after a diagnosis of sepsis.

Method: A scoping review following Joanna Briggs Institute Framework and reported using PRISMA Scoping Review checklist. Four databases, grey literature and key organisation websites and reference lists of eligible articles were searched. Data were charted using a predefined data collection tool and analysed through descriptive and content analysis.

Results: Of 1825 articles screened, two were included, and three authors identified through grey literature: Children's Health Queensland, Children's Hospital of Philadelphia and the Australian Commission on Safety and Quality in Health Care. The Children's Hospital of Philadelphia Pediatric Sepsis Survivorship program is led by a nurse coordinator who educates families about sepsis and provides post-discharge follow-up. The Queensland Children's Sepsis Program includes a website, an educational video series, and a Peer Mentor Program to link families affected by sepsis.

Uncovered: The hidden activity of specialist nurses

Anna Thetford[1] , Elizabeth Thomas[1], Stephanie Davis[1], Peta Watts[1], Ann Townley[1]

[1]Kids Rehab WA, Perth Children's Hospital

Background and aim: Nursing care coordination ensures that child and family needs are met with respect to accessing healthcare services. Coordinating care involves staff and resource management for the provision of safe and excellent care. The Perth Children's Hospital Kids Rehab WA specialist nurses identified a lack of capturing care coordination activities external to ward and outpatient activity. This study aimed to identify the type, time spent and clinical outcome of these care coordination activities.

Research methods: A prospective audit (GEKO registered) was completed from October to December 2023. Care coordination activity was recorded in RedCAP using the Modified Care Coordination Measurement Tool. Descriptive statistics were use to identify the:

1. Number and type of activity
2. Amount of time taken
3. Activity undertaken

Clinical outcome

Results: There were 509 care coordination activities (average 49.9 per week) across four clinical programs recorded, with 31% of patients with more than one activity. Activity type included Clinical/Medical management 73%, Education/School 7% and Medication Management 5% and Continence 5%. More than 15 minutes was taken for 69% of the activities. A total of 2367 activities were undertaken including 377 telephone and 516 email discussions, and 227 consultant and 249 nursing team contacts. Prevention of an adverse outcome was recorded in 276 of the 509 activities. An emergency visit was prevented in 36% of these 276 activities.

Conclusions: It is essential to record all nursing care coordination activities for effective caseload management and appropriate workload allocation to ensure best standard in patient care.

Integrated family involvement in the paediatric ESCALATION System: experiences of health professionals

Eileen Boyle[1,2], Esther Adama[2,3], Maggie Zgambo[2,3], Margie Lane[1,2], Maggie Harrigan[1,2], Huaqiong Zhou[1,2], Gavin D Leslie[1], Fenella J Gill[1,2]

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Background and aim: Challenges to family involvement in escalation of care in hospital include lack of family confidence or safety to raise concerns. A key component of the paediatric ESCALATION System is a family concern variable integrated as an additional vital sign to monitor for patient clinical deterioration. The study aim was to understand experiences and views of health professionals using the paediatric ESCALATION System at a children's hospital.

Methods: A sequential explanatory mixed-methods approach involved survey (adapted for our context) and focus groups. Participants were health professionals working in the Emergency Department or inpatient units. Data were analysed descriptively (survey) and thematically (focus groups).

Results: Surveys were completed by 326 health professionals (20% response rate). Most (88%) respondents were nurses, 55% had 0-5 years professional experience, 44% held postgraduate qualifications, 89% had experience with parents expressing concern. Responses indicated the family concern variable prompted engagement with families, promoted development of rapport and made children safer. Ten focus groups were held with 33 nurses and 32 doctors. Three themes were i) Enhancing clinical assessment (3 sub-themes; families know best, family concern is a prompt, empowering families) and ii) Skills to effectively engage families (3 sub-themes; managing expectations, asking the right questions, clinical expertise) iii) Improving family involvement opportunities (2 sub-themes; language and cultural considerations, standardised communication).

Conclusion: Integrated family involvement in ESCALATION is embedded in health professionals' practice in a children's hospital setting. Specific strategies to enable less experienced staff to engage with families will further optimise integration of family involvement.

Integrated family involvement in the paediatric ESCALATION System: experiences of families

Esther Adama[1,2], Eileen Boyle[1,3], Maggie Zgambo[1,2], Margie Lane[1,3], Maggie Harrigan[1,3], Huaqiong Zhou[1,3], Gavin D Leslie[3], Fenella J Gill[1,3]

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Background and aims: Challenges to family involvement in escalation of care in hospital include lack of family confidence or safety to raise concerns to health professionals. A key component of the paediatric ESCALATION System is a family concern variable integrated as an additional vital sign to monitor for patient clinical deterioration. The study aim was to understand experiences and views of families using the paediatric ESCALATION System at a children's hospital.

Methods: A sequential explanatory mixed-methods approach involved survey and interviews. A 15-item survey was co-designed with our health consumers research advisory group and tested for clarity, content validity and apparent internal consistency. Participants were families with experience of their child being a patient in the Emergency Department or in hospital. Data were analysed descriptively (survey) and thematically (interviews).

Results: Surveys were completed by 364 families. Families reported positive experiences of being involved in assessing their child overall but reported less involvement in the Emergency Department. Fifteen families were interviewed (including 2 whose child had experienced a Medical Emergency Team call). Two themes were i) Empowering families (with 3 sub-themes; family knows best, CARE Call maybe a lifeline, acknowledging emotional stress) and ii) Influences for escalation of care (with 4 subthemes; compassionate and empathetic communication, feeling ignored and unheard, you don't know who to ask, hesitance and guilt to raise concerns).

Conclusion: Using ESCALATION, family involvement appears embedded into practice. Specific strategies are required to further enable families to raise concerns and optimise integrated family involvement.

Co-design of a facilitated playgroup to build relationships and access to specialist health support in the early years.

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[1]Carey Community Resources, [2]Curtin School of Population Health, [3]Nursing Research CAHS, [4]Curtin School of Nursing and Midwifery, [5]Collaboration for Evidence, Research and Impact in Public Health

Background: Parents of children aged birth to 5 years spoke of feeling alone and experiencing long waitlists for child development services. They asked for a safe place to meet for coffee with a playgroup facilitated by specialists who have expertise in child health and development. Using a method of co-design, NGO Carey Community Resources began a playgroup in October 2023, facilitated by a specialist with a Master's degree in early child development, and supported by a nurse. Allied health support is provided by NGO Kids are Kids thanks to support from the Stan Perron Charitable Foundation.

Aim: To understand experiences and priorities of parents/carers and specialist service providers attending a facilitated coffee morning and playgroup in Armadale South.

Methods: Thematic analysis of focus group discussions to: understand benefits and challenges for families and specialist service providers attending the playgroup; identify shared vision for ongoing service delivery. Ethics approval through Curtin (HRE2021-0546).

Results: In June 2024 the playgroup had been attended by 67 families. Three(5%) identified as Aboriginal, and 12(18%) spoke a language other than English at home (9 languages). Access was supported by soft entry. Parents felt empowered through relationships, informal health education and support, and referral.

Discussion: In collaboration with families and stakeholders, this longitudinal research strengthens relevance of the playgroup to the community and ownership by the community, with the aim of increasing equity through health promotion action.

Conclusion: The method of co-design has ensured ongoing relevance of the playgroup to the community, supporting positive child health outcomes.

Wednesday 6 November

Child and Adolescent Mental Health Services Satellite Session

Influence of Therapist Adherence to Multisystemic Therapy Model on Treatment Outcomes of Adolescent with Antisocial Behaviours

Leartluk Nuntavisit[1,2], Mark Porter[1,2]

[1]Multisystemic Therapy Program Specialised Child and Adolescent Mental Health Service, [2]Department of Health

Treatment fidelity has proved crucial for successful implementation of the Multisystemic Therapy (MST) intervention, with prior research demonstrating a strong association with positive and enduring treatment outcomes. The Therapist Adherence Measure (TAM-R) is a standardised measure composed of 28 items based on the nine treatment principles of MST. The measure evaluates a therapist's adherence to the MST model as reported by the primary caregiver within the family. As part of MST operational quality assurance, TAM-R is collected monthly via a semi-structured telephone interview during the 5-month duration of the treatment. Several randomised control trials confirmed that therapist adherence to the MST model is a valid predictor for a reduction of antisocial behaviours in adolescents. However, there is a limited understanding of the mechanisms by which therapist model adherence is related to positive changes in family relations, and association with decreased adolescent emotional and behavioural problems. In this retrospective study, we evaluated effects of therapist adherence on parental factors (e.g., parental mental well-being, monitoring and discipline approach) which in turn were associated with decreased antisocial behaviours. We extracted data collected from 138 families engaged with the MST research program during 2018-2022. Data for TAM-R was collected monthly during treatment, and family outcome measures were collected at pre-treatment and post treatment. The finding highlights importance of clinicians maintaining treatment fidelity throughout MST intervention to ensure the desired therapeutic outcomes.

Group therapy is not a dirty word: Challenges and successes of running a group therapy program in a community CAMHS setting

Ali Kenyon[1], Sarah Stanton[1], Paul Philpott[1]

[1]Bentley Child and Adolescent Mental Health Services

Bentley CAMHS are committed to having a sustainable group therapy program which complements the individual work we do. Our most established group is the Parent Support Group and Adolescent Emotional Regulation Group which are run concurrently. The Parent Support Group is a parent centred forum focussing on Adolescent risk, attachment and improving parent confidence and competence. Similarly, the Adolescent Emotional Regulation Skills Group focusses on equipping Young Persons in recognising and managing their overwhelming emotions, which often result in increased risk behaviours, along with providing them with a (DBT informed) toolbox of skills to confidently manage these, particularly in crisis. We have also developed an adolescent only group Relate:IQ for young people experiencing struggles in understanding and maintaining relationships. This program aims to provide a space for young people to explore and navigate relationship difficulties in a safe and therapeutic manner through art and creativity. We believe that therapeutic groups provide many benefits to clients and clinicians such as improved parent/adolescent relationships, reduced isolation by the sharing of shared and lived experiences, enhanced client engagement and increased efficiency. We are refining our assessment and evaluation process and are using a variety of qualitative and quantitative evaluation methods to capture the effectiveness of our group interventions with preliminary data to support this. There have been many highlights and challenges to maintaining the group therapy program at Bentley CAMHS. We are continuing to refine the program based on these experiences to ensure sustainability, relevance, and excellence.

Evaluating CAMHS Crisis Connect: Patient outcomes and hospital resource utilisation

Bellagarda C[1], Dondzilo L[1], Padmanabhan V[1], Morris M[1], Macdonald S[1], Hegarty A[1], Pedro Z[1]

[1]Child and Adolescent Mental Health Services

Emergency Departments (ED) often serve as the first point of contact for paediatric mental health crises. ED's, however, tend to be ill-equipped to manage the unique needs of this population, and this "mismatch" of need vs available care results in increased hospital resource utilisation and negative impact on patient experience. CAMHS Crisis Connect (CCC) is a 24-hour multi-disciplinary mental health crisis service at Perth Children's Hospital Emergency Department (ED). CCC aims to provide access to education, assessment and intervention for young people seeking support for their mental health and improve the efficiency in the ED when young people do present to ED for mental assessment and support. CCC, and particularly CCC-Intervention, further aims to refer children on to the most appropriate support services, thereby reducing both ED representations and in-patient admissions.

This study compares patient outcomes and resource utilisation pre- and post-implementation of the service model to establish the efficacy of CCC with reference to these overarching service aims. While the efficacy of the individual components of the service has been established in the literature, CCC provides a unique opportunity to determine how the components interact with each other in a comprehensive stepwise model, and with consideration of patient demographics to identify what works when and for whom. Determining this is an important step in informing management of paediatric mental health emergencies in ED, and development of effective but efficient future services in paediatric emergency mental health care.

Pathways of paediatric gender-affirming clinical care at Gender Diversity Service, Perth Children's Hospital

Blake S. Cavve[1,2,3], Chaplyn, Georgia[3], Bickendorf, Xander[1], Ball, Jack[1], Saunders, Liz A.[2,3,1], Ganti, Uma[3], Siafarikis, Aris[2,3], Wiggins, Aaron[3], Strauss, Penelope[1,2], Lin, Ashleigh[2], and Moore, Julia K.[2,3]

[1]Telethon Kids Institute, [2]The University of Western Australia, [3]Gender Diversity Service, Child and Adolescent Health Service, Perth Children's Hospital

Objective(s): This study aimed to explore the care pathways of youth seeking gender affirming medical care in Western Australia.

Design: This study examined retrospective administrative data of referrals and treatment records (up to 2020) to determine patient care pathways of patients at the Child and Adolescent Health Service (CAHS) Perth Children's Hospital Gender Diversity Service (GDS).

Setting: The GDS is the state-wide outpatient specialist service for the assessment and treatment of gender dysphoria or incongruence in children and adolescents under 18-years in Western Australia.

Participants: Retrospective referral and treatment records of all patients referred to and subsequently discharged by the GDS before and during 2020 were examined (NClosed = 460). Just under half (49.31%; Ncomplete = 228) were born before 31 December 2002 and comprise the final over 18-years subset of referrals, whose final pathway through the paediatric service could be definitively determined.

Main outcome measures: This is an exploratory study of the treatment pathways of GDS patients. The main data used to determine these pathways were records of referral, treatment, and discharge dates, as well as referrals to other services upon discharge. Approximately one-third of patients commenced any medical gender-affirming treatment while attending the service.

Results: The findings illustrate individualised care pathways and timing. The majority of referrals originate with gender practitioners and the majority of service exit involve referral onto adult services or discharge back to referring doctor.

Conclusion(s): Information regarding these pathways may assist in family decision-making regarding gender-affirming medical treatment.

Differences Between Anorexia Nervosa and Atypical Anorexia Nervosa in Adolescents

Zoe Young[1], Emily Jones[2], Kate Tonta[1]

[1]Curtin University, [2]Child and Adolescent Mental Health Services

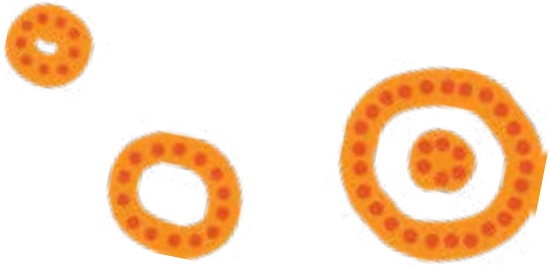
While atypical anorexia nervosa and anorexia nervosa share characteristics, they are conceptualised as distinct diagnoses based on weight. Despite significant weight loss, those with atypical anorexia nervosa have a body weight within or above the normal BMI range. By learning more about important differences (or indeed similarities) between these disorders, we can shift from weight-centric approaches to a more holistic understanding of eating disorder psychopathology. The present study will examine the moderating effect of eating disorder diagnosis (anorexia nervosa and atypical anorexia nervosa) on the relationships between eating disorder symptoms and the four core maintaining processes proposed in the transdiagnostic cognitive-behavioural model of eating disorders (perfectionism, self-esteem, mood intolerance, and interpersonal difficulties). Using a correlational cross-sectional design, adolescents with a diagnosis of Anorexia Nervosa or Atypical Anorexia Nervosa, completed measures of perfectionism, self-esteem, mood intolerance, interpersonal difficulties, and eating disorder symptoms as part of the intake assessment for the Child and Adolescent Mental Health Service, Eating Disorders Service at Perth Children's Hospital. A moderation analysis via PROCESS with bootstrapping procedures will be used to assess whether the strength of the relationship between the core maintaining processes and eating disorder symptoms is different for anorexia nervosa and atypical anorexia nervosa. Results are expected September 2024 following quantitative analysis of the data. These findings will be discussed, and implications and directions for future research explored. The findings from this research will contribute to the literature on diagnosis and treatment of paediatric eating disorders.

A Brief Early Intervention for Paediatric Eating Disorders

Maria Garland[1], Emily Jones[1]

[1]Eating Disorders Service, Child and Adolescent Health Service

The CAMHS Eating Disorders Service (EDS) experienced a surge in demand in 2020 in the context of COVID-19. Since this time, the EDS has not had capacity to offer outpatient assessments though referrals have continued to be received from GP's. This lack of timely access to specialist eating disorders services is a lost opportunity for effective early intervention. In response, the EDS will be introducing Focussed Recovery with Early Intervention (FREI). FREI is a brief, early intervention which will become the entry point for eating disorder treatment for families referred as outpatients. FREI will include various combinations of parent education, dietetics intervention, and multi-family therapy, designed to meet the needs of families referred. While there is an emerging body of evidence for brief, early intervention strategies in adults, implementation and evaluation of such strategies are limited in paediatric eating disorder settings. The aim of the present project is to implement and evaluate FREI. Evaluation will comprise of both quantitative and qualitative analysis, including medical information, self-report questionnaires, and service data (e.g., number of service activations). While preliminary results are not expected until mid 2025 following approximately 12-months of implementation of the program, the program rationale, implementation, and planned evaluation will be presented. The broader project will contribute to the literature on both brief and early intervention strategies for paediatric eating disorders.

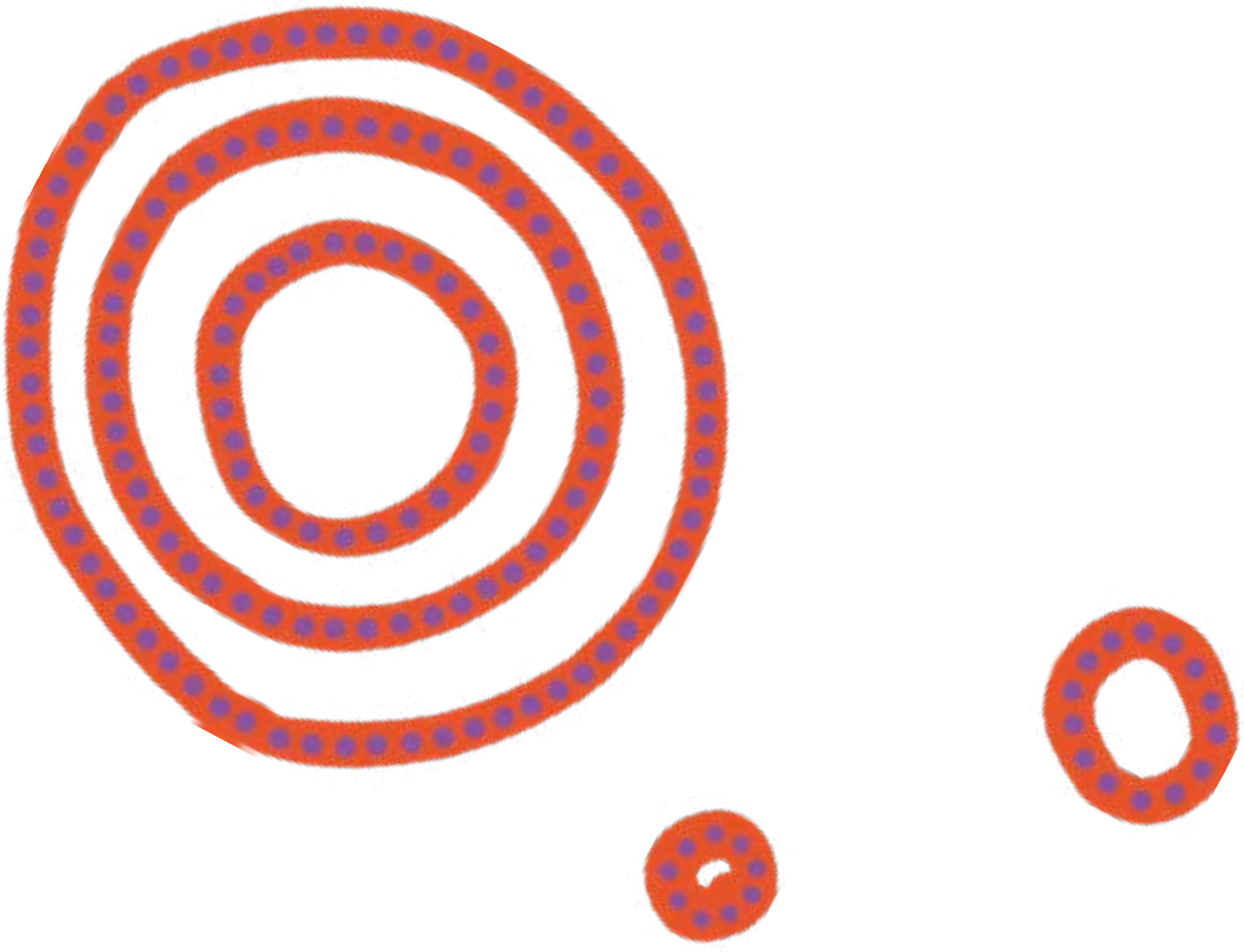


Factors influencing cognitive behavioural therapy implementation in community CAMHS

Dondzilo L[1,2], Padmanabhan V[1], Pedro Z[1,2], Davies S[1]

[1]Child and Adolescent Mental Health Service, [2]The University of Western Australia

Cognitive behavioural therapy (CBT) is arguably the most well-researched and efficacious psychotherapeutic intervention for child and young people's mental health conditions. In this study, a multi-level implementation framework approach is used to identify the factors which predict the successful implementation of CBT in community Child and Adolescent Mental Health Service (CAMHS) settings. Community CAMHS clinicians will complete questionnaire measures of the hypothesised predictor variables including patient-level factors (e.g., client characteristics), provider-level factors (e.g., clinician competency in using CBT), intervention-level factors (e.g., CBT characteristics), and organizational-level factors (e.g., organizational support). Measures will also be taken of two key implementation outcomes: adoption (i.e., the intention, initial decision, or action to try or employ CBT) and fidelity (i.e., the degree to which CBT was implemented as it was prescribed in the original protocol). It is hypothesized that predictor measures will correlate with implementation outcomes measures. It is also hypothesized that some of the predictor measures will contribute unique variance in implementation outcomes measures. Findings will serve to identify key predictors of CBT implementation outcomes in community CAMHS settings and may have implications for future research aimed at developing more effective implementation strategies.



Thursday 7 November

Child and Adolescent Community Health Satellite Session

Examination of the transfer of care of vulnerable families from maternity services to child health nursing in Western Australia

Michelle Gray[1,2,3], Pamela Saman[1,3]

[1]Child and Adolescent Health Service, [2]University of Newcastle, [3]ECU

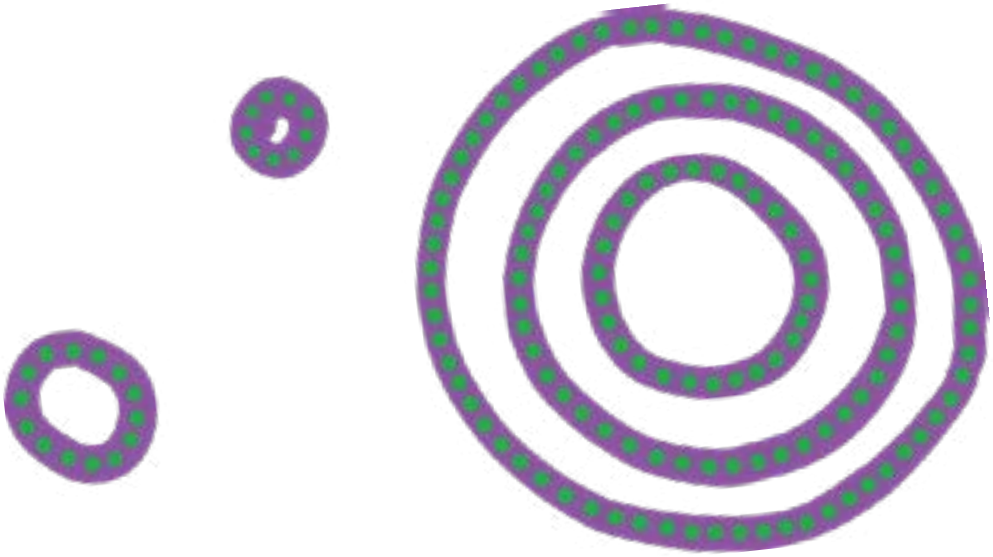
Background: The Sustainable Health report identified issues with the current process of transferring the care of infants with vulnerabilities between maternity and child health services.

Aim: To investigate the challenges and facilitators associated with the transition of care of families with identified vulnerabilities from maternity services to child health services in one jurisdiction in Australia.

Research Design: An exploratory qualitative investigation underpinned by constructivism was used for this study. Participants involved in the transfer of care included child health nurses, midwives, social workers, neonatal nurses, and data management personnel. Focus group interviews were selected as the most appropriate data collection approach to enable participants to share their experiences and perspectives to gain a deep insight into the research aim.

Findings: The main theme that emerged from the data was child health nurse's revelation that they felt people did not know the scope and boundaries of their role. Midwives' narratives confirmed that many did not understand and appreciate the role of the child health nurse. This theme: They don't know what we do, identifies child health nurse's belief that their role, responsibility or contributions may not be fully understood or appreciated by those outside their circle, both professionally and by the general public. There were five sub-themes identified to this main theme which will be described in the presentation.

Recommendations: Increased multidisciplinary education at initial entry to practice within universities with targeted education on the role of different health professionals. Continued collaborative Interdisciplinary education and communication between staff within health services.



Aboriginal community perspectives on adapting a healthy lifestyle program

Stephen Paull,[1,2,3] Tania Harris,[4] Jordan Bill,[1] Joanna C Moullin,[5] Yvonne Anderson,[1,2,3] Stephanie Smith[1,2,3]

[1]Child and Adolescent Community Health, Child and Adolescent Health Service; [2]Curtin Medical School, Curtin University: [2]Telethon Kids Institute, [4]Health Consumer's Council, [5]School of Population Health, Curtin University

Background: The prevalence of childhood obesity and childhood weight-related comorbidities is increasing, and Aboriginal children are overrepresented in these statistics. Multicomponent lifestyle and behavioural interventions are needed that are family-based and multi-disciplinary, developed with genuine partnership and co-creation. An equitable healthy lifestyle program from Aotearoa/New Zealand is being scaled out to pilot in East Metropolitan Perth with community partnership and key cultural considerations. The program includes a home-based weight-related health assessment, followed by 6 months of weekly community-based group sessions with education on nutrition, physical activity and wellbeing, and further health assessments at 6 and 12 months.

Aim: To determine the adaptations required to facilitate program implementation in Perth to increase acceptability and feasibility, based on the perspectives of Aboriginal community members.

Method: A workshop with 29 attendees from various Aboriginal community groups was conducted in April 2024 to explore perspectives of the program including barriers and how to enhance engagement. The workshop was recorded and will be transcribed verbatim and analysed using the Consolidate Framework for Implementation Research incorporating Framework Analysis.

Results: Preliminary findings have identified program barriers including time (busy lifestyle, lack of routine); location; conflict between participants; transport; financial and food insecurity; and trauma. Mitigation strategies include flexible programming and venue, clear participation guidelines, transport-sharing, dietitian-assisted meal planning, and healing circles.

Conclusion: Identified barriers and enablers for patient recruitment and retention within the program will inform program development. Ongoing adaptation of the Perth pilot healthy lifestyle program will be possible with continued Aboriginal engagement.

The ORIGINS Project: Nutrition Profile of Pregnant Women in a Longitudinal Birth Cohort in Western Australia

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[1]Telethon Kids Institute, [2]University of Western Australia, [3]Joondalup Health Campus

Background: The theory of Developmental Origins of Health and Disease (DOHaD) suggests that the foetal origins of adult diseases are determined by perinatal exposure. Therefore, maternal dietary intake during pregnancy is an opportunistic time to influence future disease susceptibility in infants. The ORIGINS Project is a longitudinal birth cohort study aimed to reduce the rising epidemic of non-communicable diseases through 'a healthy start to life.'

Methods: We aim to describe the dietary intakes of pregnant women in this cohort in Western Australia and compare this to the Nutrient Reference Values (NRVs) and Australian Recommended Food Score (ARFS). The usual food and nutrient intakes of women were collected using the Australian Eating Survey (AES), a semi-quantitative Food Frequency Questionnaire (FFQ). A total of 374 women completed the AES FFQ at both 18-weeks and 36-weeks' gestation between December 2016 and January 2023.

Results: Macronutrient, micronutrient and food group intake were explored at the two time points using descriptive statistics. Overall, it was found that participants were not meeting recommendations for micronutrient intake (calcium, iron, iodine and folate) at 18 or 36-weeks; and had low diet quality scores for all food groups.
Conclusions: These findings suggest that despite ongoing promotion of healthy eating during pregnancy, more support is required to assist pregnant women in achieving optimal dietary intake, not only for themselves, but also for the long-term health of their offspring.

Leveraging Analytics for Early Childhood Development: Optimising Identification for Support

Pete Gething[1, 2], Karen Forde[3]

[1]Telethon Kids Institute, [2] Curtin University, [3]Child and Adolescent Health Service

Background: Disparities in early childhood development is complex, intricately tied to social determinants of health and exacerbated by inequity. Early childhood is the optimal period when neurodevelopmental plasticity is amendable to early intervention for enhancing child development trajectories. Unfortunately for some children, timely access to early intervention does not occur, waiting until developmental delay become apparent.

Aim: To investigate the potential of predictive analytics to identify children at highest risk of adverse developmental trajectories and who may benefit to be prioritised for services during the transition from maternity services to community child health services.

Methods: The study utilises data that are routinely recorded by community health nurses when undertaking routine population child health and development screening and surveillance in the Perth metropolitan area. Study data are de-identified longitudinal 'trajectory' population data from late pregnancy up to two years old (approximately 80,000 children and 40 variables). Probability metrics will be generated to identify families with additional needs. Predictive accuracy will be optimised through blinded out-of-sample validation and nurse case-study testing.

Results: We will present findings from the initial phase of our project, to predict infant-mother pairs entering Child and Adolescent Community Health who may benefit from additional support. The study results aim to aid clinical decisions on family prioritisation and improve equity in access to early child development supports and interventions.

Conclusion: This study seeks to enhance nurses' ability to identify families needing additional support at the earliest as possible, ultimately aiming to improve equity in early child development

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A continuous quality improvement project to improve breastfeeding rates for Aboriginal babies

Navdeep Brar[1], Joelene Bosman[1], Kaya Clifford[1], Monique De Vries[1], Terri Lawrence[1], Anna Moore[1], Alice Richards[1], Tisha Waigana[1], Belinda Wedding[1], Derek Swe[2], Dan McAullay[2], Natalie Strobel[2]

[1]Aboriginal Health Team, Community Health, Child and Adolescent Health Service; [2]Maladjiny Research Centre, Kurongkurl Katitjin, Edith Cowan University

Introduction: The long-term benefits of immediate and sustained breastfeeding for the first six months of a child's life are well known. However, Australia falls short of breastfeeding goals, particularly for Aboriginal and Torres Strait Islander (Aboriginal) babies. This project aimed to address low rates, specifically among urban Aboriginal mothers, attending the Aboriginal Health Team (AHT) for health checks.

Aim: This project aimed to improve breastfeeding rates among Aboriginal babies attending Aboriginal Health Team (AHT) health checks.

Methods: The Plan-Do-Study-Act (PDSA) cycle framework guided a continuous quality improvement (CQI) initiative. The PDSA cycle included:

- Plan: Staff surveys were conducted to assess current practices and identify training needs. Mother surveys were conducted to gain a better understanding of breastfeeding practices of their clients.
- Do: Based on findings, new educational materials were developed and/or procured.
- Study: Client impact was measured through data collection.
- Act: Materials were rolled out or adapted based on results.

Presentation: This presentation will discuss the PDSA cycle implementation process, data analysis, and key learnings. It will highlight successful strategies and identify areas for improvement in using CQI initiatives to drive positive change within healthcare teams.

Are we making a difference? Creating and validating a caregiver self-efficacy outcome tool

Karen Nitsche[1], Bridget Pieterse[2], Nicky Lawrence[2]

[1]Research and Evaluation, Child and Adolescent Community Health; [2]Research and Evaluation, Child and Adolescent Community Health

Outcome measurement is essential to service improvement and research and allows services to demonstrate effectiveness of interventions and accountability for resourcing. The Child Development Service (CDS) identified that caregiver self-efficacy was a key outcome indicator that could be used to quantify the impact of capacity-building services on caregivers. A review of parental self-efficacy tools indicated that there was no existing tool that was specific to parenting a child with developmental difficulty that was suitable for use within the CDS setting. A ten-item scale was developed in close consultation with CDS staff and consumers and validated across CDS services through an online survey with 204 caregivers at point of discharge. Preliminary analysis indicated some redundancy within the tool resulting in one item being removed prior to full analysis. Results of exploratory factor analysis indicated that the tool was unidimensional. The tool demonstrated good construct validity as well as excellent internal consistency and test-retest reliability. The scale showed responsiveness to change, and distribution-based methods were used to determine a minimal clinically important difference (MCID) value of greater than 9. Minor ceiling effects were noted for some items of the scale. Future validation with a larger sample is needed to ensure greater representation of Aboriginal caregivers, and to further refine the MCID using anchor-based methods. Investigation with a larger sample would also provide more specific information about the validity of the tool on a discipline specific basis.excel

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'What Matters to You' study

Burley K[1], Black C[2], Meller T[3], Smith A[4], Jongeling B[1], Heussler H[2], Papadopoulos C[3], Roberts G[4], Butel F[5], Hines E[5], Fox C[6], Finley-Jones A[6]

[1]Child Development Service, Child and Adolescent Health Service; [2]Child Development Programme, Children's Health Queensland Hospital and Health Services; [3]Child Development Service, Royal North Shore Hospital Community Health Centre; [4] Centre for Child Community Health, The Royal Children's Hospital Melbourne; [5] Child Development Service, Gold Coast Hospital and Health Service ; [6]Telethon Kids Institute

Introduction: The What Matters to You study is a national research project which is currently being undertaken across multiple child development services (CDS). This project is attempting to explore what families want in accessing CDS, using qualitative research methodology speaking to the families who access our services and clinicians who work within them.

Methods: Phases 1&2: Families with children under 6 years of age with more than one area of developmental concern were recruited from each participating CDS for participation in online focus groups. Thematic analysis of transcribed focus groups using inductive coding is currently underway.Phase 3: All clinicians who identified as practicing developmental medicine in Australia were invited to participate in a Delphi survey, to reach consensus around 'what families want' in accessing a CDS.Phase 4: The key themes from focus groups and Delphi survey will be represented to the participants of the phase 1 and 2 focus groups to reach consensus.

Results: Preliminary results are emphasizing the importance of family education and support, and service navigation. Lessons learned have included the importance of collaboration as a fellow team, barriers to recruitment and the importance of adaptability.

Discussion: The aim of the project is to create a series of family reported outcome measures by which we can benchmark CDS service provision nationally. There is a current paucity of research specifically discussing children with developmental delay and patient/family reported outcome measures. This will likely impact on service delivery for CDS across the country.

Evaluation of the Effectiveness of Behaviourally Informed SMS Appointment Reminders

Anne Welch[1]

[1]Child and Adolescent Community Health

When families do not attend (DNA) their appointments with Child and Adolescent Community Health (CACH) an important opportunity to support families and address developmental concerns is lost. There are also cost implications for the service.

SMS appointment reminders are routinely sent to clients with eligible appointments in Child Health (CH) nursing and the Child Development Service (CDS). There is a growing body of research evidence that behaviourally informed SMS appointment reminders, which contain a behavioural 'nudge', are more effective in reducing the DNA rate than simple SMS appointment reminders.

The aim of this project is to evaluate the effectiveness of two behaviourally informed SMS appointment reminders in CACH. This study has received Ethics Committee approval from CAHS (RGS 5949).

Following extensive consultation with stakeholders, two intervention SMS appointment reminders were selected for use. Subsequently, a trial was completed comparing the DNA rate for appointments when behaviourally informed SMS appointment reminders were sent (intervention A and B) with a standard SMS appointment reminder (control). It is anticipated that behaviourally informed SMS appointment reminders will result in lower DNA rates than standard SMS appointment reminders in CACH.

The project has progressed to the point where data collection is complete. The next stage is to complete data analysis, including statistical analysis using generalised linear multilevel models. It is anticipated that the results of the study will be presented at the symposium.

Investigating Paediatric Injuries from Motor Vehicle Accidents in Western Australia

Siu Min Tay[1], Bernardette Jingfei Lee[1], Parshotam Gera[1]

[1]Child and Adolescent Health Service

Background: There were new laws introduced in Western Australia for restraint of children in vehicles in 2010, with the aim to reduce risk of injury caused by use of unsuitable restraints.

Aims: Primary aims were to determine prevalence and types of injuries sustained by children from motor vehicle accidents. Secondary aims were to examine outcomes for these children, including surgical intervention required and admission to Paediatric Intensive Care Unit.

Method: Retrospective study of paediatric admissions after motor vehicle accidents to Princess Margaret Hospital and Perth Children's Hospital from 1 January 1998 to 31 December 2021.

Results: There were 161 admissions to Princess Margaret Hospital after motor vehicle accidents from 1 January 1998 to 31 December 2008 and 262 admissions to Princess Margaret Hospital/Perth Children's Hospital from 1 January 2011 to 31 December 2021. There were reduced rates of injuries after introduction of new vehicle restraint laws including seatbelt bruising (0.15, 95% CI 0.04 – 0.22) and intra-abdominal injury (0.15, 95% CI 0.07 – 0.22). There were reduced rates of surgical intervention required (0.03, 95% CI -0.02 to 0.07) and admission to Paediatric Intensive Care Unit (0.08, 95% CI 0.03 – 0.13) after introduction of new vehicle restraint laws.

Conclusions: Since introduction of new vehicle restraint laws in 2010, there have been significantly reduced rates of paediatric injuries sustained after motor vehicle accidents. There were also reduced rates of surgical interventions required and admissions to Paediatric Intensive Care Unit.

Government of **Western Australia**
Child and Adolescent Health Service

This document can be made available in alternative formats on request.