



Annual Report 2021-2022

Faculty of Medicine,
Dentistry and Health Sciences

Department of Paediatrics

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Vision Strategy and Purpose

Department of Paediatrics – Strategic Priorities

1. Proactive in policy development
2. Engage with the community
3. Connect researchers with the University and its partners
4. Provide academic leadership
5. Engage lifelong learners



Mission Statement

“Improve the health of children, young people and their families through excellence in Academic Leadership, Education, Research and Advocacy”

Vision

“A healthier future for all children, young people and their families”

Message from the Head

The Department of Paediatrics sits within the Melbourne Medical School of the Faculty of Medicine, Dentistry and Health Sciences. It is one of the larger departments and integral to teaching, research, academic leadership and education in all aspects of Child Health within the University. We also consider ourselves to be a crucial academic partner on the Melbourne Children's Campus and custodian of education, leadership and pedagogy within that partnership. It is, therefore, my great pleasure to present in this annual report some of the exciting and innovative activities engaged in by our team of students, educators, researchers and leaders.

This year's report highlights the achievements of our academic and honorary staff, who continue to generate amazing successes in the face of a global COVID-19 pandemic and its aftermath. I cannot be prouder of our large and diverse community, which have contributed to advances in all facets of academia.

Over the past year, we have continued to operate a values-based approach toward our mission and have made significant progress in relation to our strategic priorities. I congratulate all those who have contributed to this work over a very busy year. I appreciate not just what has been achieved but also the way in which it has been achieved. This is our overarching aim: "Postera Crescam Laude" – to grow in the esteem of future generations. Leaving a legacy of achievement as a foundation for others

to build on is often more valuable and impactful than craving personal and individual successes. However, this only works when we are also able to recognise our great and diverse contributions and heap deserved praise on them and the people responsible. So, please join me in celebrating the outstanding work detailed in this Annual Report.

2021-2022

Department of Paediatrics at a glance

42

Masters and
Honours student

68

Adolescent Health
and Wellbeing
students

127

Masters of Genetics
and Genomics
students

150+

Graduate Research
Students

82

Professional and
Academic staff

447

Honorary
Staff

220+

CAH Enrolled
students

60

MD Research
Students

Department Summary

The Department of Paediatrics is the flagship representative of the University partnership with the Royal Children's Hospital, and is co-located with the hospital on Flemington Road, Parkville.

The Department of Paediatrics is a large department within the School of Medicine. The Department has responsibility for the Child and Adolescent (CAH) Health component of the Doctor of Medicine course. There are 82 academic and professional staff, 447 honorary academic staff, and more than 150 students pursuing research degrees from Honours to Masters and PhD. A further 220 students rotate throughout the year undertaking the CAH clinical studies, and 60 students undertake research in the Doctor of Medicine (MD) Research Project component of the MD course. Members of the Department authored more than 1162 peer reviewed publications.

The Department delivers a range of teaching across the clinical, biological and health sciences, and within the MD program, and is responsible for the teaching of child and adolescent health, mental health, paediatric surgery, and other specialties in relationship to children, adolescents and their families. Other programs include post-graduate

courses in Adolescent Health & Welfare, Genetic Counselling and Genomics & Health as well as Research Higher Degrees.

The Department of Paediatrics plays a pivotal role in the life of the Royal Children's Hospital with its members being actively involved in policy development and senior management. Members of the Department make major contributions to the development of child and youth health policy and broader aspects of health policy at a national and state level.

Working with its partners, The Royal Children's Hospital and the Murdoch Children's Research Institute, and supported by the RHC Foundation, the University's Department of Paediatrics' vision for the Royal Children's Hospital campus is to be an integrated research, teaching and clinical institute (and environment) with the overall aim of benefiting child and adolescent health.




Engagement with the Community

Children and Adolescent Health

Unimelb_health TikTok

Communication and community engagement initiatives of the medical students in the MD program have led to the development of a TikTok. The channel provides a range of health information in a fun and likeable way.

https://www.tiktok.com/@unimelb_health?lang=en

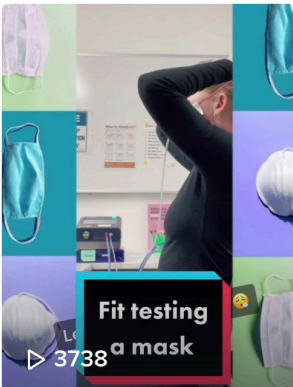


unimelb_health
@unimelb health students
Follow

16 Following 728 Followers 21K Likes

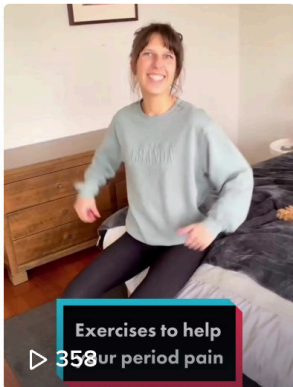
@unimelb students helping tiktok stay healthy

Videos Liked




Fit testing a mask
▶ 3738

How do you fit test a ma...



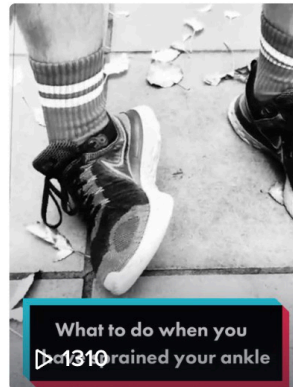
Exercises to help your period pain
▶ 358

Experiencing period pain...




How to help a friend who has drunk too much
▶ 2897

What do you do if your fri...



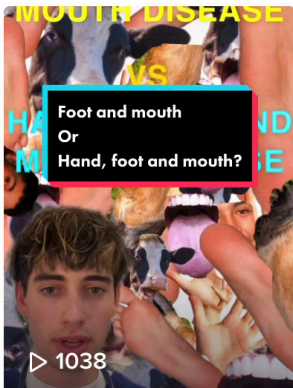
What to do when you have sprained your ankle
▶ 1310

What do you do when yo...



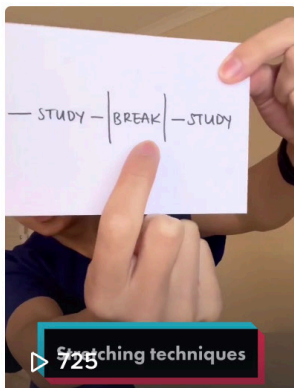
Inside a hospital kitchen
▶ 2252

Have you ever wondere...



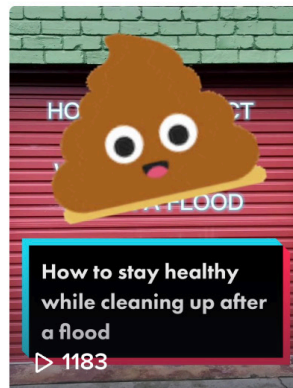
FOOT AND MOUTH DISEASE
Foot and mouth Or Hand, foot and mouth?
▶ 1038

Do you have hands or ho...



Stretching techniques
▶ 725

Do you start to feel stiff ...



How to stay healthy while cleaning up after a flood
▶ 1183

Flood water can contain ...



Teddy Bear Hospital

The Teddy Bear Hospital is a unique educational program for children and healthcare students.

Established in 2009, Teddy Bear Hospital is run by volunteer medicine, nursing, and allied health students at the University of Melbourne.

The program aims to provide children with:

- Positive health care experiences (Children bring a beloved teddy or soft toy to the mock hospital and act as the parents of a teddy with a problem and actively participate in the check-up with the assistance of student volunteers)

- Concepts of health and wellbeing
- Improvement of health literacy and encouragement of healthy habits such as nutrition and exercise

It also provides Medicine and allied health students with the opportunity to practise important paediatric communication skills necessary for successfully working with children.

Highlights for 2021-22

The Good Friday Appeal 2022 was the biggest Teddy Bear Hospital event to date, spanning over 2 levels at the Melbourne Convention and Exhibition Centre. With the help of over 1200 University of Melbourne student volunteers, more than 3600 kids and their teddies were attended to and a record \$55,000 was raised and donated to the Good Friday Appeal

Teddy Bear Hospital is also proud to announce that since 2021, we have been able to recruit and include students enrolled in the Master of Social Work to create a Social Work station in the hospital. Students from all departments across the Faculty are now involved

Teddy Bear Hospital Winter Check-up restarted in September 2022 at Chadstone – The Fashion Capital. It was the first time in 2 years we returned to Chadstone due to past COVID-19 related cancellations



Teddy Bear Hospital Committee 2022


In addition to their major annual events, the Good Friday Appeal and the Chadstone Winter Check-Up, Teddy Bear Hospital visits children at kindergartens, primary schools and community centres throughout the year.

For more information, visit <https://teddybearhospital.unimelb.edu.au/>


Twitter







From 2021, our Head of Department began announcing Graduate Completion seminars, staff awards and other significant department events via Twitter. Follow our activities and latest research related to child health via @SarathRanganath.



Sarath Ranganathan @SarathRanganath · 4 Aug

Congratulations to @DrJessHeerde on this paper and her leadership on strategies to prevent and mitigate homelessness





onlinelibrary.wiley.com
Life-course predictors of homelessness from adole...
Introduction Internationally, the prevalence of young adult homelessness is concerning. Few data on lif...


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  9
 






Sarath Ranganathan @SarathRanganath · 25 Aug


This program, led by Professor Christine Imms and people with lived experience of disability, will adopt new inter-sectoral and inter-disciplinary approaches to improve health, participation and productivity of a great many Australians through research.


Healthy Trajectories @h_trajectories · 15 Jul
Hello and welcome! Healthy Trajectories is now on Twitter.

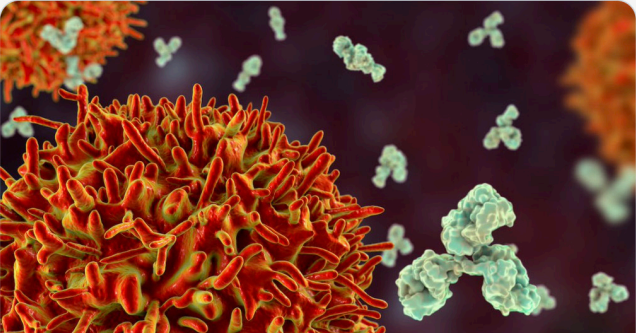


Healthy Trajectories
A Child and Youth Disability Research Hub






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  7
 


Sarath Ranganathan @SarathRanganath · 5 May

A study just published by Prof Paul Monagle from the UoM Department of Paediatrics and his fabulous team, describing protein changes in the blood of children with MIS-C and ARDS, described in this article in The Conversation.



theconversation.com
We've pinpointed blood proteins activated in the most severe cases of...
Most children who catch COVID have mild illness and recover quickly.
We identified key proteins in kids who'd had severe COVID with painfu...

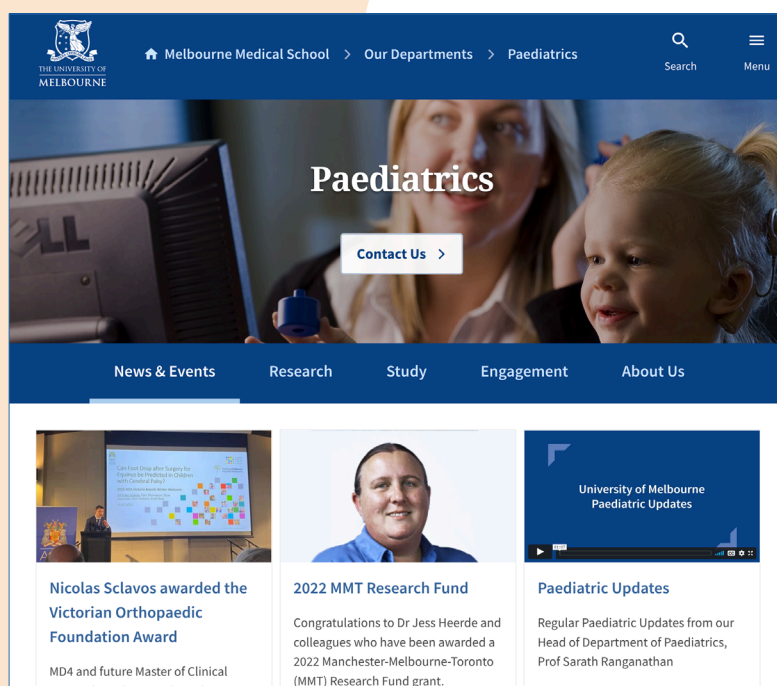


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Department of Paediatrics' Website

The Department of Paediatrics website (<https://medicine.unimelb.edu.au/school-structure/paediatrics>) is maintained throughout the year by Christa Lai-Wong. Major changes have occurred in the 'Engagement' site.

Please take some time to explore our website. In particular under the News section, we have regular updates from the 'Covid-19 Vaccines report' and 'Paediatric Updates from our Head of Department'.

Contact Christa Lai-Wong
christa.lai@unimelb.edu.au
for contributions to our website.



Indigenous Health

The Unit for Indigenous Child Development includes activities focused on the research, development, training and implementation of culturally appropriate development measures for Australian Aboriginal children.

The team has developed a culturally appropriate early childhood outcome measure for Australian Aboriginal children – the ASQ-STEPS for Measuring Aboriginal Child Development. In 2021, the ASQ-STEPS was piloted in a remote and an urban site. Now it will be implemented in sites across Australia to determine its validity and reliability in measuring child development in the Aboriginal and Torres Strait Islander population. The ASQ-STEPS Indigenous Reference Group (IRG) has been established to monitor the research work, and advise on engagement, research design, implementation, and community feedback processes. The ASQ-TRAK developmental screening tool has been implemented nationally to support culturally appropriate child health checks and provide education services for Aboriginal and Torres Strait Islander children in Australia.

For more details see the Indigenous Child Development page within this report.

Hands on HEADSS

The Hands on HEADSS program is an innovative teaching workshop delivered by the Department of Paediatrics as part of the MD program. It is based on the Learning Partnerships program (see below) which was first developed by Professor Helen Cahill, Deputy Director of the Youth Research Centre.

The program has established partnerships between local high schools and our MD students by providing opportunities for skills-building. Workshop activities are designed to enhance the capacity of medical students to communicate effectively with adolescents about social and emotional issues which impact health and wellbeing. The school students have gained confidence in speaking to doctors and have a better understanding of how and when to seek help for themselves and others.

The workshop generally takes place at the school and is facilitated by trained teachers and a paediatrician with expertise in adolescent health.

<https://medicine.unimelb.edu.au/school-structure/paediatrics/engagement/hands-on-headss>

The Melbourne Children's Campus



The beautiful Parkville location of the Royal Children's Hospital is the site of what is known as the Melbourne Children's Campus: this is a co-located partnership of the Department of Paediatrics, The Murdoch Children's Research Institute and the Royal Children's Hospital.

Unique in Australia and internationally renowned, Melbourne Children's is a precinct with a vision to provide and support innovative, high quality paediatric care and research. Each partner takes the lead according to its specialty with the Department of Paediatrics the custodian of education as well as making active contributions to research and clinical care.

This collaborative arrangement maximises the facilities and resources available to support our extensive research programs. It also fosters the development of a breadth

and depth of patient-orientated research across the broad spectrum of paediatric disciplines. In this report, some of the important resources and programs for supporting our campus partners are listed in detail such as the HELP, Graduate Research and the Education Hub.

<https://medicine.unimelb.edu.au/school-structure/paediatrics/engagement/melbourne-childrens-campus/campus-partnership>

Scholarships

The Clifford Family PhD Scholarship

This Scholarship, supported by the generosity of Sue and Leigh Clifford, is offered as a top-up scholarship to support the best and brightest clinical health professionals to undertake postgraduate research training at the Melbourne Children's Campus to develop their career as a clinical researcher. The most recent recipients are:

- Emma Macdonald-Laurs whose PhD under Dr Anthony Harvey's principal supervision investigates "Bottom-of-the-sulcus dysplasia: nidus or network"
- Farnaz Sabet whose PhD under Prof George Patton's principal supervision investigates "Evaluating the Outcomes of Participatory Women's Groups for Pregnant Adolescent Girls"
- Sharman Tan Tanny whose PhD under A/Prof Sebastian King's principal supervision investigated "Utilising high resolution impedance manometry to diagnose and manage oesophageal dysfunction in children with oesophageal atresia"

Department of Paediatrics Strategic Scholarships in Childhood Cancer

In 2022, the faculty-awarded strategic scholarships to two Department of Paediatrics PhD students doing research on childhood cancer. The scholarships were awarded to the following students:

- Lachlan Mcaloney whose PhD under A/Prof Paul Ekert's principal supervision will investigate "Modeling and characterization of novel oncogenic fusions in acute lymphoblastic leukemia"
- Claire More whose PhD under A/Prof Rachel Conyers' principal supervision will investigate "Implementation of Pharmacogenomics within Paediatric Oncology – actionable variants and discovery science"

Melbourne Research Scholarships (MRS)

The Department of Paediatrics contributes to the funding of Melbourne Research Scholarship recipients. This scholarship is offered to high-achieving international graduate research students.

Henry and Rachael Ackman Travelling Scholarships

As a result of a generous bequest to the University of Melbourne, Department of Paediatrics early career researchers (ECR) and graduate researcher students (GR) are eligible to apply for research travel awards, known as The Henry and Rachael Ackman Travelling Scholarships. The scheme supports overseas travel only and as such was last offered in 2019. The 2022 scholarship application round will open in the 3rd quarter 2022.

2022 Melbourne Abroad Travelling Scholarship (MATS)

The Melbourne Abroad Travelling Scholarships are Faculty funded graduate research travelling scholarships. These scholarships are offered in conjunction with the Ackman Travelling Scholarships.

Indigenous Child Health PhD Scholarship

The Department offers a generous scholarship (up to \$50K) for an Indigenous student.

This PhD opportunity focuses on the culturally appropriate design, validation, and evaluation of a measure to evaluate developmental outcomes in Australian Aboriginal and Torres Strait Islander children. This project is a collaboration between the University of Melbourne, and agencies in the Northern Territory, South Australia, and Victoria. The candidate will work with the team and partners to design and lead research that has a social impact and ultimately leads to improved early childhood development outcomes.

As August 2022, the scholarship has been advertised with an open expression of interest date. <https://poche.mdhs.unimelb.edu.au/news-and-events2/strong-kids,-strong-future-phd-opportunity>

Vera Scantlebury Brown Scholarships

The Vera Scantlebury Brown Child Welfare Memorial Trust Scholarship was created in 1946 to commemorate the work of Dr Vera Scantlebury Brown, OBE, Director of Maternal Infant and Pre-School Welfare in Victoria from 1926 to 1946. It represents a celebration of Dr Scantlebury Brown's leadership in the development of female professionals and as such is open to women only.

In 2021, the value of the scholarships were \$8000.00 for the successful applicants to undertake further study in research overseas or in Australia

<http://go.unimelb.edu.au/erb6>

2021-2022

Honorary Promotions

Our honorary staff play a critical role in the life of the Department of Paediatrics and substantially assist us in working with the communities we serve to improve health and advance health care through our teaching, learning, research, clinical care and advocacy. Applications for honorary appointments are welcome from individuals who make a significant and sustained contribution to the Department of Paediatrics in any of the areas of Learning and Teaching; Research; Engagement; or Professional Practice and Leadership.

Professorial Honoraries

Ann Sanson
Cathy Catroppa
David Tingay
Deanne Thompson
Kerr Graham
Melissa Little
Sebastian King
Susan White

Honorary promotions to level D

Amanda Gwee
Boris Novakovic
David Chong
George Alex
Ivan Macciocca
Jennifer Koplin
Julia Charlton
Margarita Moreno-Betancur
Mirana Ramialison
Patrick Mahar
Peter Simm
Rachel Peters
Shidan Tosif
Theresa Cole

Honorary promotions to level C

Alison Archibald
Andrew Tagg
Anna Price
Chloe Stutterd
Danya Vears
Deirdre Gartland
Eric Levi
Gabriel Dabscheck
Jennifer Sokol
John Hart
Joshua Osowicki
Kate Francis
Kathleen McGrath
Louise Crowe
Mardee Greenham
Meredith O'Connor
Mihiri Silva
Nicholas Ryan
Nicole Van Bergen
Penny Kee
Poongundran Namachivayam
Primrose Letcher
Sean Humphrey
Shivanthan Shanthikumar
Silvia Velasco
Sohinee Sarkar
Susan West
Trisha Prentice
Vicki McWilliam

For more information on our honorary program

<https://medicine.unimelb.edu.au/school-structure/paediatrics/engagement/honorary-staff>

The Health Education and Learning Precinct (HELP)



The Health Education and Learning Precinct (HELP) is a feature of The Royal Children's Hospital campus, that has been developed in partnership with the University of Melbourne Department of Paediatrics and the Royal Children's Hospital (RCH), to support the education and learning needs of the RCH campus community.

To meet our campus needs, the HELP has 22 spaces available to book, encompassing meeting rooms, seminar rooms, tutorial rooms, Collaborative Learning Spaces, Learning Labs, Simulation Centre and Technical Skills Laboratory area, and The Ella Latham Auditorium.

The HELP spaces are primarily used for:

- Formal educational courses delivered for a specific student group based on the RCH campus e.g., student lectures, scenario based learning tutorials, other tutorials and seminars.
- Regular and ad-hoc bookings to support the campus partners' staff educational and learning goals e.g., professional development, symposia lecture series, journal clubs, and short courses. These may support clinical, research or operational goals such as departmental strategic/planning days, or training delivered by administrative unit. Space also support face to face, online or hybrid delivery.

- Bookings by campus partner departments/groups for ad-hoc or regular meetings.
- Externally advertised conferences, courses and other training events to share our campus's expertise with health professionals, families and the wider community.

Spaces within the HELP are also available for external hire to external organisations.

Graduate Research Program and Committee

The Department of Paediatrics is committed to helping junior researchers reach their full potential. With a current cohort of over 150 Graduate Research Students, the Department provides a high-quality program that supports students in achieving the best research to improve the health and wellbeing of children, as well as preparing them for a career in an ever-changing environment.

Melbourne Children's Graduate Research Committee

Graduate research at the Department of Paediatrics is overseen by the Melbourne Children's Graduate Research Committee. Many initiatives started by the Committee have been adopted more broadly by the University.

This Committee, chaired by the Department's Graduate Research Coordinator, Prof Nigel Curtis, meets monthly to:

- Ensure that the Department attracts the best students who will receive the highest quality of supervision and work on high-quality projects;
- Support students and their supervisors;
- Develop and promote Graduate Research policies and guidelines;
- Provide professional development and training opportunities to students and supervisors;
- Liaise with our Campus partners, Murdoch Children's Research Institute and The Royal Children's Hospital, and University of Melbourne entities in matters related to Graduate Research.

Child and Adolescent Health PhD Program

PhD students on Campus are enrolled in the Child and Adolescent PhD Program which is a supplementary learning opportunity to enrich the graduate research experience. The program provides both depth and breadth to each student's research education.

Developed in collaboration with the students, the program offers an opportunity to share their research with other disciplines and expand peer network. Opportunities for networking provides students a cohort experience which is important for both wellbeing and student success.

<https://research.unimelb.edu.au/graduate-research/your-research-options/phd-programs/child-and-adolescent-health>

Child and Adolescent Health PhD Program extension: Life beyond PhD

In 2022, a new initiative will be available to graduate students enrolled on Campus. This Child and Adolescent Health PhD Program extension is a pilot program supported by MDHS funding. It has been designed to provide students with resources to help plan for life post-PhD. Students will participate in facilitated workshops focusing on leadership skills and their career and life goals. Open panels will be provided with external speakers from a wide range of backgrounds to talk about the multitude of career paths available to PhD graduates.

Melbourne Children's Graduate Research Committee members:



Prof Nigel Curtis



A/Prof Sebastian King



Prof Fiona Russell



Dr Sharon Lewis



Prof Paul Monagle



A/Prof Marc Seal



Prof David Coghill



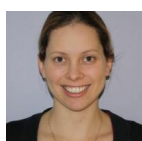
Prof Ed Stanley



A/Prof Shireen Lamande



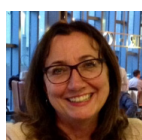
Dr Ann Frazier



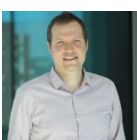
Dr Belinda McClaren



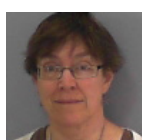
Prof Christine Imms



A/Prof Jan Hodgson



A/Prof Jonathan Payne



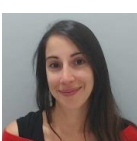
A/Prof Susan Donath



Prof Fiona Newall



Prof Steve Graham



Dr Nicole Messina



A/Prof Kirsten Perrett



Dr Anushi Rajapaksa



Prof Tony Pennington



Ms Kayla Parker



Prof John Christodoulou

2020 Graduate Research completions

MPhil

Millicent Osti

Supervisors: Andrew Steer (Principal), Daniel Engelman
Advisory Committee: David Burgner (Chair), Catherine Satzke
Thesis title: Improving the diagnosis of scabies in low-resource settings

Neda Taghizadeh

Supervisors: Andrew Davidson (Principal), David Story, Katrina Williams
Advisory Committee: Julie Bines (Chair), Ian McKenzie
Thesis title: Autism Spectrum Disorder (ASD) and Anaesthesia

PhD

Hannah Bryson

Supervisors: Fiona Mensah (Principal), Sharon Goldfeld, Anna Price
Advisory Committee: Sylvia Metcalfe (Chair), Rebecca Giallo
Thesis title: Hair cortisol as a measure of stress and social adversity in early childhood

Raul Chavez Valencia

Supervisors: Jeff Craig (Principal)
Advisory Committee: Amanda Fosang (Chair), Trevelyan Menheniott
Thesis title: Investigating the DNA methylation profiles of children with oligoarticular juvenile idiopathic arthritis (JIA)

Thomas Forbes

Supervisors: Melissa Little (Principal), Catherine Quinlan
Advisory Committee: Shireen Lamande (Chair), Joshua Kausman, David Elliott
Thesis title: Modelling Inherited Kidney Diseases with Kidney Organoids Derived by Directed Differentiation of Patient Induced Pluripotent Stem Cells

Bridget Freyne

Supervisors: Nigel Curtis (Principal), Nicole Messina
Advisory Committee: Paul Monagle (Chair), Susan Donath
Thesis title: Investigating the role of innate immunity in mediating the non-specific effects of Bacille Calmette-Guérin vaccine

Tyson Fricke

Supervisors: Igor Konstantinov (Principal), Yves D'Udekem
Advisory Committee: Salvatore Pepe (Chair), Robert Weintraub
Thesis title: Outcomes of the arterial switch operation

Shivani Kansal

Supervisors: Anthony Catto-Smith (Principal), Josef Wagner, Carl Kirkwood
Advisory Committee: Jeff Craig (Chair), Louise Judd
Thesis title: Variation of the Microbiome in Paediatric Crohn's Disease

Simranpreet Kaur

Supervisors: John Christodoulou (Principal), Nicole Van Bergen, Wendy Gold
Advisory Committee: Shireen Lamande (Chair)
Thesis title: Identifying novel disease genes in genetically undiagnosed individuals with Rett syndrome and related neurodevelopmental disorders

Ana Rita Leitoguinho

Supervisors: Andrew Elefanty (Principal), Ed Stanley
Advisory Committee: Shireen Lamande (Chair), Enzo Porrello
Thesis title: The role of VENTX homeobox gene during human primordial germ cell and haematopoietic development

Mengjiao Liu

Supervisors: Kate Lycett (Principal), Melissa Wake, Mingguang He, David Burgner, Tien Wong
Advisory Committee: Andrew Steer (Chair)
Thesis title: Retinal microvascular parameters and cardiovascular health, obesity and inflammation in children and mid-life adults

Toby Mansell

Supervisors: Richard Saffery (Principal), Joanne Ryan, Anne-Louise Ponsonby
Advisory Committee: John Carlin (Chair), Rebecca Giallo
Thesis title: Combined genetic and epigenetic analysis to identify early life determinants of complex phenotype

Braydon Meyer

Supervisors: Richard Saffery (Principal), Paul Ekert, Andrew Elefanty, Elizabeth Algar
Advisory Committee: Don Newgreen (Chair)
Thesis title: The epigenetic landscape of paediatric acute myeloid leukaemia

Kate Milner

Supervisors: Trevor Duke (Principal), Gehan Roberts
Advisory Committee: Peter Anderson (Chair), Stephen Graham, Katrina Williams
Thesis title: Beyond survival: neurodevelopmental outcomes for neonatal intensive care survivors in Fiji

Namitha Mohandas

Supervisors: Jeff Craig (Principal), Alicia Oshlack, Kylie Crompton, Lata Vadlamudi, Charles Claudianos
Advisory Committee: Richard Saffery (Chair), Boris Novakovic
Thesis title: An epigenomic and omics approach to neurodevelopmental disorders

Monica Nafria I Fedi

Supervisors: Andrew Elefanty (Principal), Ed Stanley
Advisory Committee: Shireen Lamande (Chair)
Thesis title: Modelling the earliest events of t(8;21) acute myeloid leukaemia in human embryonic stem cell-derived definitive haematopoietic progenitor cells

Philip Naimo

Supervisors: Igor Konstantinov (Principal), Yves D'Udekem
Advisory Committee: Salvatore Pepe (Chair), Robert Weintraub
Thesis title: Long-term outcomes of truncus arteriosus repair

Jacqueline Ogier

Supervisors: Paul Lockhart (Principal), Bryony Nayagam
Advisory Committee: Shireen Lamande (Chair), John Christodoulou, Sarah Stephenson
Thesis title: Saving the hair cell: Investigating Apoptosis signal-regulating kinase 1 as a molecular target for preventing aminoglycoside induced hearing loss

Jennifer O'Neill

Supervisors: Fiona Newall (Principal), Margie Danchin, Giuliana Antolovich, Sally Lima
Advisory Committee: Jan Hodgson (Chair), Margaret Heffernan
Thesis title: Immunising the Invisible: The School-based Immunisation Program for young people with disability in specialist school in Victoria, Australia

Yudha Patria

Supervisors: Shireen Lamande (Principal), John Bateman, Andrew Elefanty
Advisory Committee: Ed Stanley (Chair)
Thesis title: The Use of Pluripotent Stem Cells (PSCs) and CRISPR Genome Editing to Study the Roles of TRPV4 Ion Channels in Skeletal Malformation

Jessica Robinson

Supervisors: Paul Kalitsis (Principal), Damien Hudson
Advisory Committee: Don Newgreen (Chair), Alexander Combes
Thesis title: Structural and Regulatory Changes to the Mouse Y Chromosome

Ying-Chen Soo

Supervisors: Melissa Little (Principal), Sara Howden, Jessica Vanslambrouck
Advisory Committee: Andrew Elefanty (Chair), Amanda Fosang
Thesis title: Optimising the functional maturity of kidney organoids for screening nephrotoxic Drugs

Shidan Tosif

Supervisors: Trevor Duke (Principal), Amy Gray, Katherine Gilbert
Advisory Committee: Jan Hodgson (Chair)
Thesis title: Improving the quality of Essential Newborn Care in Solomon Islands

Dongcheng Zhang

Supervisors: Don Newgreen (Principal), Lincoln Stamp
Advisory Committee: Paul Lockhart (Chair)
Thesis title: Cellular mechanisms that spatiotemporally direct neural crest cell migration and enteric nerve system formation

Petra Zimmerman

Supervisors: Nigel Curtis (Principal), Kirsten Perrett, Nicole Ritz, Roy Robins-Browne
Advisory Committee: Julie Bines (Chair)
Thesis title: Factors influencing vaccine responses in the first year of life

2021 Graduate Research completions

Masters by research

Lianne Cox (MPhil)

Supervisors: Nigel Curtis (Principal), Roy Robins-Browne, Katie Flanagan
Advisory Committee: Susan Donath (Chair), Nicole Messina, Thomas Connell
Thesis title: Investigating the influence of BCG and hepatitis B vaccine on neonatal immune responses

Tianyu Wang (MRes)

Supervisors: Ed Stanley (Principal), Andrew Elefanty
Advisory Committee: Ann Frazier (Chair), Shireen Lamande
Thesis title: Exploring Efficient Generation of Insulin-Producing Cells from iPSCs, to Enhance Cell Therapy for Type I Diabetes

Doctor of Medical Science

Edward Oakley

Advisor: Franz Babl
Thesis title: Improving the management of infants with bronchiolitis presenting to the emergency department

PhD

Jocelyn Chan

Supervisors: Fiona Russell (Principal), Cattram Nguyen, Ross Andrews, Kim Mulholland
Advisory Committee: Sarath Ranganathan (Chair)
Thesis title: Understanding the indirect effects of pneumococcal conjugate vaccines in the Asia-Pacific region

Megan Chapman

Supervisors: Campbell Paul (Principal), Julia Charlton
Advisory Committee: Jane Halliday (Chair), Helen Shoemark, Brigid Jordan
Thesis title: Reflecting on Babies in the NICU: An exploration of Parental Reflective Functioning in a quaternary neonatal intensive care unit

Marnie Downes

Supervisors: John Carlin (Principal), Dallas English
Advisory Committee: Melissa Wake (Chair)
Thesis title: Multilevel regression and poststratification as a modelling approach for estimating descriptive population parameters from highly selected survey samples in large-scale health studies

Kelly Fitzpatrick

Supervisors: Stephanie Brown (Principal), Deirdre Gartland, Fiona Mensah, Kelsey Hegarty
Advisory Committee: Harriet Hiscock (Chair), Laura Tarzia
Thesis title: Types and Patterns of Intimate Partner Violence and Health Outcomes for Women

Katherine Frayman

Supervisors: Sarath Ranganathan (Principal), David Armstrong, Keith Grimwood
Advisory Committee: Steve Graham (Chair)
Thesis title: Long term outcomes following early infection and inflammation in cystic fibrosis lung disease

Monsurul Hoq

Supervisors: John Carlin (Principal), Paul Monagle, Susan Donath
Advisory Committee: Harriet Hiscock (Chair)
Thesis title: Estimation of age-specific reference intervals for laboratory blood tests in children

Kuang-Chi Hsiao

Supervisors: Mimi Tang (Principal), Anne-Louise Ponsonby
Advisory Committee: Andrew Davidson (Chair), Philip Sutton
Thesis title: Clinical and immune effects of probiotic and peanut oral immunotherapy for treatment of peanut allergy

Francesca Lami

Supervisors: Katrina Williams (Principal), Rowena Conroy
Advisory Committee: Vicki Anderson (Chair)
Thesis title: Associations between executive function, adaptive behaviour, participation and self-reported quality of life in adolescents with autism spectrum disorder without intellectual disability

Wei Shern Lee

Supervisors: Paul Lockhart (Principal), Richard Leventer, Sarah Stephenson
Advisory Committee: Ed Stanley (Chair)
Thesis title: Understanding the genetic basis and pathogenic mechanism of focal cortical dysplasia

Karen Mclean

Supervisors: Sharon Goldfeld (Principal), Harriet Hiscock, Dorothy Scott
Advisory Committee: Peter Anderson (Chair), Aron Shlonsky, Liana Buchanan
Thesis title: Assessment of health needs of children entering out-of-home care in Victoria: a mixed methods study

David Metz

Supervisors: Francesco Ierino (Principal), Nicholas Holford, Amanda Walker, Noel Cranswick

Advisory Committee: Andrew Davidson (Chair)

Thesis title: Optimising Immunosuppressant dosing in kidney transplantation: better outcomes through quantitative pharmacology

Marijke Mitchell

Supervisors: Katrina Williams (Principal), Fiona Newall

Advisory Committee: Paul Monagle (Chair)

Thesis title: Using simulation-based education to teach hospital staff how to manage behavioural emergencies in children with autism

Joshua Osowicki

Supervisors: Andrew Steer (Principal), Paul Licciardi, Pierre Smeesters, Jonathan Carapetis

Advisory Committee: Andrew Davidson (Chair)

Thesis title: Group A Streptococcal Human Challenge Study: Building a pharyngitis model in healthy adults to accelerate vaccine development

Rocio Rius Dominguez

Supervisors: John Christodoulou (Principal), Nicole van Bergen, David Thorburn, Alison Compton

Advisory Committee: Shireen Lamande (Chair)

Thesis title: Advancing the diagnosis of mitochondrial diseases with genomic sequencing

Shivanthan Shanthikumar

Supervisors: Sarath Ranganathan (Principal), Richard Saffery, Jovana Maksimovic, Melanie Neeland

Advisory Committee: Ngaire Elwood (Chair), Alicia Oshlack

Thesis title: Epigenetic markers as a predictor of lung disease severity in Cystic Fibrosis

Blake Smith

Supervisors: Ken Pang (Principal), Johannes Kern, George Varigos

Advisory Committee: Shireen Lamande (Chair)

Thesis title: Models and treatments of Dominant Dystrophic Epidermolysis Bullosa

Nikita Sood

Supervisors: Cathy Catroppa (Principal), Celia Godfrey

Advisory Committee: Frank Muscara (Chair)

Thesis title: Working Memory and Decision-Making following Childhood Traumatic Brain Injury: Tool Development, Clinical Trial, and Mediation

Julian Stolper

Supervisors: David Elliott (Principal), Enzo Porrello, Ed Stanley

Advisory Committee: Shireen Lamande (Chair), Ed Stanley, Christine Wells

Thesis title: Functional analysis of cardiac specific cis-regulatory elements involved in heart development and disease

Rushani Wijesuriya

Supervisors: Katherine Lee (Principal), Margarita Moreno-Betancur, John Carlin, Anurika De Silva

Advisory Committee: Peter Anderson (Chair), Fiona Mensah

Thesis title: Evaluation of multiple imputation approaches for handling incomplete three-level data

Jo-Anne Winther

Supervisors: Alasdair Vance (Principal), Timothy Silk

Advisory Committee: Dinah Reddihough (Chair), Susan Cotton

Thesis title: Examination of key child and psychosocial predictors of Oppositional Defiant Disorder (ODD) in young people with Attention Deficit Hyperactivity Disorder (ADHD)

Shiung-En Matthew Yong

Supervisors: Igor Konstantinov (Principal), Yves D'Udekem

Advisory Committee: Trevor Duke (Chair), Robert Weintraub

Thesis title: Outcomes of Surgery for Congenital Anomalies of the Pulmonary Circulation

Paul Wood

Supervisors: Grant McArthur

Advisory Committee: N/A

Thesis title: Novel therapeutic approaches to paediatric cancer

ECR publication prize finalist

Chantal Attard

The Fontan procedure is offered to children born with severe heart defects, allowing the child to live with just one pumping heart chamber. Patients living with a Fontan are at an increased risk of blood clots. As such, warfarin or aspirin are usually prescribed lifelong to reduce this risk. Warfarin can be challenging to manage, particularly in children, due to the need for regular blood tests (to adjust dosing) and increased bleeding risk – leading to the recommendation to exclude contact sports or high injury risk activities.



Objectives

This study aimed to compare long-term rates of brain injury (including stroke), blood clots, bleeding, bone health, and quality of life in people living with Fontan circulation who were receiving warfarin or aspirin.

Methods

This was a multicentre study of the Australia and New Zealand Fontan population. Participants underwent brain magnetic resonance imaging (MRI); dual-energy X-ray absorptiometry (DXA) (to assess bone mineral density); and questionnaires to assess bleeding and quality of life.

Results

121 individuals participated in our study. Stroke and markers of brain injury were detected in 39% and 91% of participants, respectively. There was no difference in the incidence of stroke or brain injury between patients receiving warfarin compared to aspirin. Bleeding was more common, and bone mineral density was lower in the warfarin group. Quality of life was similar between the warfarin and aspirin groups.

Conclusions

We found that stroke was common regardless of which medication the patient received. However, patients on warfarin had poorer bone health and a higher risk of bleeding than those on aspirin.

Our results suggest that aspirin should be offered for long-term prevention of thrombosis and stroke after Fontan surgery. A shift from warfarin to aspirin therapy would benefit the patient and the broader healthcare system by:

- Reducing the burden of regular blood tests required for warfarin monitoring.
- Reducing the incidence of bleeding.
- Reducing the incidence of poor bone health.
- Having a cost benefit to both the patient and the healthcare system (decreased number of blood tests and associated travel and time off; reduced intervention for bleeding as a side effect; reduced cost associated with bone fractures).

Outcomes to date: This publication was the focus of over 50 news articles with an audience reach of >100 million. There have been three commentary pieces written in response to the publication and Altmetric declared it in the top 5% of all tracked articles to date. I was also invited to discuss the clinical implications of my study on the popular podcast, 'Pediheart' whose target audience is paediatric cardiologists.

ECR publication prize finalist

Emma Webb

Congenital cytomegalovirus infection (cCMV) is the most common infectious and potentially preventable cause of permanent hearing loss, and neurodevelopmental disabilities in children. Anti-viral medication if commenced within the first month of life for symptomatic babies has been shown to improve hearing and neurodevelopmental outcomes. This has resulted in international consensus guidelines recommending a targeted cCMV screening approach for infants who do not pass their universal newborn hearing screening (UNHS), by saliva polymerase chain reaction (PCR) within 21 days of a newborns life.



Objectives

Our pilot study aimed to determine how feasible and acceptable it was to screen for cCMV using saliva PCR for infants who did not pass their UNHS, in an Australian clinical setting.

Methods

Our study involved the Victorian Infant Hearing Screening Program (VIHSP) and four maternity hospitals in Melbourne from June 2019-March 2020. Parents of infants who received a second positive 'refer' result on their hearing screening, were approached by a VIHSP staff member to discuss obtaining a test for cCMV, with parents then obtaining the saliva swab from their infant.

Results

We found that a parent completed targeted cCMV screening program was feasible and acceptable to families. 76% of families agreed to participate, with all 96 swabs completed within the necessary 21 days of life. One infant was confirmed to have cCMV and was able to be immediately assessed by an infectious disease clinician to discuss the option of anti-viral therapy.

Conclusions

Most of the families (>92%) found the screening easy to do, thought it was a good idea and were glad their baby was screened for cCMV.

Outcomes to date:

Moving forward, our pilot study combined with a cost-benefit analysis and further qualitative research into the enablers and barriers of the targeted cCMV screening program, will help provide a new way to deliver a targeted cCMV screening program within an Australian clinical setting. This is important in detecting cases of cCMV that might otherwise be missed in the newborn period, enabling us to accurately diagnose and facilitate timely anti-viral therapy for those infants who are appropriate. As well as this it can help provide families with an understanding of the potential cause of their child's hearing loss.



Picture sourced from: <https://www.ausmed.com.au/cpd/articles/congenital-cytomegalovirus>

Bob Dickens Chair in Paediatric Surgery

The newly established Bob Dickens Chair in Paediatric Orthopaedic Surgery is an appointment to the Department of Paediatrics based at the Melbourne Children's Campus and is supported by a generous donation from Mrs Pamela Galli AO to enable and support academic research in the field of paediatric orthopaedics.

The Bob Dickens Chair is one of several Chairs in the Department of Paediatrics which are supported by philanthropic funding to provide academic leadership in paediatric and adolescent health and wellbeing.

Erich Rutz was appointed in 2022 as the Bob Dickens Associate Professor in Paediatric Orthopedics after an extensive international search.

The Bob Dickens Chair has an important role as leader of academic surgery at the RCH and participates in, and promotes, excellence in clinical care of children and adolescents at the RCH.



The MD program within the Department of Paediatrics 2022

The MD program of the University of Melbourne is a 4 year course with medical students in their 3rd year completing a rotation of child and adolescent health.

Our Child and Adolescent (CAH) coordinators are general paediatricians and clinical educators. The academic coordinators are closely supported by the program's coordinators, Tracey Thiele and Pamela Morison. While the largest number of students attend the Royal Children's Hospital in their child and adolescent health term, we also have paediatricians coordinating child and adolescent teaching at the Austin, Northern, Western, Ballarat hospitals and our extended rural cohort of students in Shepparton.

Students develop key skills in child and adolescent health to enable their competency in managing children and families as junior doctors. Clinical placement is the main learning activity during the CAH rotation with students moving through emergency department, inpatient units and outpatient clinics. Core knowledge is supported through tutorials with the clinical educators and at RCH the clinical teaching fellows who join the Department of paediatrics for a year of developing their teaching skills. All students doing a CAH term will have a paediatrician or paediatric trainee teach them clinical skills at the bedside on a regular basis which is always a valuable learning opportunity for students. All students also participate in a simulation session to learn basic life support skills.

MD4s in Paediatrics

In 2021 a new program for final year (MD4 students) commenced at all paediatric sites to make up for the loss of clinical time during the pandemic of 2020. The success of this program allowed us to continue rotations for final year students in subspecialty paediatric units in 2022, for students with a particular interest in paediatrics. One of the rotations includes a medical education rotation which is supervised by Dr Wonie in collaboration with the MD1 foundations of clinical practice. Students on a medical education rotation learn teaching skills in a variety of settings with their peers from MD1 to MD4. They help their peers with learning essential clinical skills at the bedside.

MD1s in Paediatrics

In 2022 we welcomed for the first time 20 MD1 students who attend RCH once a month for their initial introduction to hospitals and clinical skills at the bedside. The new program is delivered by paediatricians and their MD4 and MD3 peers. This has been an excellent initiative to prepare students for their second year based at clinical schools. We look forward to more innovations in medical education with the MD redesign in the Child and Adolescent Health curriculum.



MD4 students teaching peers basic life support in paediatrics



MD1s been taught about ECGs by MD4 peer educators

BSc/BBiomedSc Honours and Master of Biomedical Science

Local academic coordinator: Dr Belinda McClaren
Professional support: Helen D'Cruz

These two coursework programs provide comprehensive research training with projects addressing laboratory, clinical and public health research questions related to child health. Students are enrolled in the Department of Paediatrics and conduct research in partnership with the Murdoch Children's Research Institute.

Honours students and projects, 2022

1. Jason Li

Title: The guts of the mechanism for Hirschsprung disease in children

Supervisor(s): Prof David Eisenstat, Dr Maree Faux

2. Junhao Wang

Title: How does daily peanut intake treat peanut allergy?

Supervisor(s): Prof Mimi Tang & Dr Sarah Ashley

3. Laura O'Brien

Title: Understanding gait in children with intellectual disabilities

Supervisor(s): Dr. Claudine Kraan, A/Prof. David Godler and Prof. David Amor

4. Joel Hodder

Title: Understanding post operative cerebral haemodynamic instability in neonates undergoing non-cardiac surgery; an application of near infra-red spectroscopy

Supervisor(s): Dr Cam Smirk & A/Prof David Tingay

5. Hongyu Zheng

Title: Identifying neuronal phenotypes and assessing drug efficacy in models of Wiedemann Steiner Syndrome and KMT2B-related dystonia

Supervisor(s): Prof Paul Lockhart, Dr Jordan Wright, Prof David Amor

6. Jonathan Fung

Title: The treatment of obstructive sleep apnoea using auto-titrating positive airway pressure in paediatric patients

Supervisor(s): Dr Anne-Marie Adams, Dr Moya Vadeleur, Dr Mandie Griffiths

7. Satvika Soppadandi

Title: Immunological protection following reduced dose pneumococcal vaccination

Supervisor(s): A/Prof Paul Licciardi, Dr Nadia Mazarakis, Jeremy Anderson

8. Aneta Bandilovska.

Title: Helping the helper: what do new teachers need to promote student wellbeing?

Supervisor(s): Dr Monika Raniti, Prof Susan Sawyer, Dr Ruth Aston

9. Anna Quach

Title: SPILLOVER: the impact of preterm respiratory support

Supervisor(s): Dr Prue Pereira-Fantini and Monique Fatmous

10. Desmond Wong

Title: Changing behaviours and children's heart health

Supervisor(s): Dr Jon Quach, Dr Jonathan Mynard, Dr Stephanie Best, Jonathan Glenning

11. Isabella Wang

Title: Unacceptable toxicities in paediatric cancer survivors

Supervisor(s): A/Prof Rachel Conyers, A/Prof David Elliott

12. Chelsea Velona

Title: Quality of Life Assessment of patients born with Hirschsprung Disease and their families

Supervisor(s): A/Prof Sebastian King and Dr Misel Trajanovska

13. Paige Skoko

Title: It's what's on the inside that counts: Defining the genomes of *Streptococcus pneumoniae* in Mongolia

Supervisor(s): A/Prof Catherine Satzke, Dr Laura Boelsen, Dr Claire von Mollendorf

14. Candice Dyson

Title: Cell-type specific transcriptomic Signatures in Brain Predictive of behaviour in Prader-Willi Syndrome

Supervisor(s): A/Prof David Godler, A/Prof Mirana Ramialison

15. Ken Kiat

Title: A Study Evaluating Sleep Quality and Fatigue, and Its Impact on Children with Multiple Sclerosis
 Supervisor(s): Dr Eppie Yiu (Primary Supervisor), Dr Moya Vandeleur, Dr Anne-Marie Adams

16. Leanne Quah

Title: Battling the COVID-19 Pandemic with Broccoli
 Supervisor(s): A/Prof Paul Licciardi, Dr Nadia Mazarakis, Dr Zheng Quan Toh

17. Lily Jackson-Martin

Title: Informing the Psychological Care of Children with Hirschsprung Disease and their Families
 Supervisor(s): Dr Kim-Michelle Gilson, Dr Misel Trajanovska

18. Lucas Agnoletto

Title: Sugar and Sleep. A Sleep Study in Children with Hepatic Glycogen Storage Diseases.
 Supervisor(s): Dr Heidi Peters, Dr Moya Vandeleur, Dr Anne-Marie Adams

19. Stephanie Cheng.

Title: Perinatal Epigenetics of Assisted Reproduction
 Supervisor(s): Dr Boris Novakovic, Prof Richard Saffery, Dr Sharon Lewis

20. Abigail Dewiso.

Title: Evaluating care for children with cerebral palsy and medical complexity
 Supervisor(s): A/Prof Christine Imms, A/Prof Adrienne Harvey & Dr Susan Gibbs

21. Sara Court

Title: When does holding become 'holding down'? – defining the boundaries of ethically permissible holding of infants for medical procedures
 Supervisor(s): Prof Lynn Gillam, Dr Georgina Hall

22. Allie Vuong

Title: Tree of Life: Mapping changes in the trachea, bronchus and alveolus during ventilation of the preterm lung
 Supervisor(s): Dr Prue Pereira-Fantin, A/Prof David Tingay, Monique Fatmou

23. Rui Yip

Title: Can we get better at manipulating DNA to study diseases?
 Supervisor(s): Prof Melissa Little, Dr Sara Howden, Dr Aude Dorison

24. Jeremy Power

Title: Influence of siblings on end-of-life decision making
 Supervisor(s): Dr Trisha Prentice, Prof Lynn Gillam

25. Katie Licheni

Title: Mitochondrial Disease: Making Sense of the Mysteries
 Supervisor(s): Dr Ann Frazier, Prof David Thorburn, Dr David Stroud

26. Sam Moloney

Title: Can we predict early death in patients diagnosed with diffuse midline glioma?
 Supervisor(s): A/Prof Jordan Hansford, Prof David Eisenstat

27. Ellen Keen

Title: Biomechanical Assessment of Engineered Heart Valve Tissue
 Supervisor(s): Dr Alejandro Hidalgo-Gonzalez, Dr Holly Voges

28. Lauren Farrelly

Title: After the cut: Understanding brain blood flow in infants after surgery
 Supervisor(s): Dr David Stewart, Dr Cam Smirk

29. Maxine Chau

Title: Codesign for childhood catch-up vaccination: improving the process for migrant parents
 Supervisor(s): Dr Jane Tuckerman, Dr Jessica Kaufman

30. Jasmine Dennison

Title: The future health of children conceived through assisted reproduction: a molecular perspective
 Supervisor(s): Dr Boris Novakovic, Prof Richard Saffery, Dr Sharon Lewis

31. Georgia Bender

Title: Detecting microbial invaders: how do preterm and term infant Toll-like receptor responses compare?
 Supervisor(s): A/Prof Paul Licciardi, Dr Lien Anh Ha Do, Jeremy Anderson

32. Katerina Terolli

Title: Human PSCs as a model for infant leukemia
 Supervisor(s): Prof Andrew Elefanty, Dr Elizabeth Ng

MDHS Faculty Honours scholarship recipients

In 2022, four students received the prestigious Faculty of Medicine, Dentistry and Health Science Frances Elizabeth Thomson Trust Honours scholarship: Junhao Wang, Rui Yip, Leanne Quah, Lily Martin-Jackson.

MCRI Honours scholarship recipients

The Murdoch Children's Research Institute awards merit-based, competitive scholarships to Honours students. The 2022 recipients of these scholarships are: Hongyu Zheng, Laura O'Brien, Katie Licheni, Katerina Terolli, Lauren Farrelly, Maxine Chau.

Honours committee, 2022

The Department of Paediatrics Honours committee form the Board of Examiners and have responsibilities for coursework delivery, student and project selection, assessment of oral presentations and thesis examination. Current members: Belinda McClaren (Chair), David Amor, Paul Lockhart, Sharon Lewis, David Tingay, Claudine Kraan, Jane Seto, Rachel Peters, Sebastian King, Amy Nisselle, Prue Pereira-Fantini, Elyse Passmore, Boris Novakovic, Adrienne Harvey, Simran Kaur, Alison Archibald, Emma Baker

Master of Biomedical Science

Angela Chuang

Title: Cord Blood Stem Cell Therapy in Children at High Risk of Heart Failure

Supervisor(s): A/Prof Salvatore Pepe, Prof Christian Brizard, Hao Yang Lim

Title: Streptococcal transmission and disease

Supervisor(s): A/Prof Catherine Satzke, Dr Jonathan Jacobs.

Leah Frajman

Title: Into the Unknown: multi-omic analyses of inherited metabolic disorders with 'variation of uncertain significance'

Supervisor(s): Dr Alison Compton, Prof David Thorburn, Prof John Christodoulou.

Addina Zailan

Title: Is prenatal/perinatal antibiotics exposure impact on children's ear infections and hearing loss? : A national cohort study.

Supervisor(s): Dr Jessika Hu, Dr Yichao Wang.

Yan Yung Ng

Title: Characterising the immune response to RSV in preterm and term infants

Supervisor(s): A/Prof Paul Licciardi, Dr Lien Anh Ha Do, A/Prof Daniel Pellicci.

Enola Roussel

Title: Linking determination of cell fate in the developing nervous system to paediatric brain tumours

Supervisor(s): Prof David Eisenstat, Dr Maree Faux.

Yilin Zhou

Title: Development of novel human stem cell derived models of beta-propeller protein-associated neurodegeneration for disease modelling and drug screening

Supervisor(s): A/Prof Paul Lockhart, Dr Jay Shukla

Derek Ly

Title: Anti-inflammatory effects of sulforaphane

Supervisor(s): A/Prof Paul Licciardi, Dr Zheng Quan Toh, Jonathan Tanusaputera

Title: Using kidney organoids to understand the role of tissue macrophages

Supervisor(s): Prof Melissa Little, Dr Jessica Vanslambrouck

Yi Yu

Title: Defining islet composition for future treatment of type 1 diabetes

Supervisor(s): Dr Jacqueline Schiesser, Prof Ed Stanley.

Where are they now?

Rodger Paul, Honours 2018

Rodger completed an Honours project under A/Prof. Sebastian King and Dr Misel Trajanovska, in which he interviewed patients living with Hirschsprung Disease about their perspectives on transition to adult medical and surgical services. Rodger continued his studies at the University of Melbourne completing a Master of Public Health, while working as a research assistant at the Royal Victorian Eye and Ear Hospital. Rodger has published his research in peer reviewed journals and presented at scientific conferences across Australia and China.

Rodger now works for Nous Group as Consultant for strategy and public policy projects in the Health and Ageing sector spanning aged care, mental health, and social services.



Darren Suryawijaya Ong, Honours 2018

Darren's honours project developed a lamb model of respiratory syncytial virus to test aerosolised therapeutics; this work was published in Frontiers in Pharmacology. Darren is a research assistant and project coordinator at MCRI, focusing on COVID-19 and pneumococcal research. Recently, Darren completed a Graduate Certificate in Infectious Disease Epidemiology and is studying the Master of Science in Epidemiology at the University of Melbourne.

Master of Genomics and Health

Program Director: A/Prof Jan Hodgson

Professional support: Cathy Iaria

Faculty: Dr Sharon Lewis (Research), Dr Belinda McClaren (Internships), Dr Gabrielle Reid (Genetics), Linda Ciccarelli (Genetics), Lyndon Gallacher (Variant Curation), Anthony Hurst (Counselling)

The Master of Genomics and Health (MGH), the first such program in Australia, is a new program within the Melbourne Medical School that offers training in advanced genomics, variant curation, counselling and research.

The program is preparing a workforce that is knowledgeable and skilled in practical, ethical and socially responsible implementation of genomics in health. Students gain knowledge about genomics and engage in discourse around the current and potential impact on health and medicine brought about by advances in genomics and genomic technologies.

The MGH program (200 points) includes 40 days of relevant professional internships and students can select a research stream which provides adequate training for those who wish to undertake a PhD in future. There are options available for a Graduate Certificate (50 points) or a Graduate Diploma (100 points).

Research and internship partners include: Murdoch Children's Research Institute, Victorian Clinical Genetics Service, Australian Genomics Health Alliance, Melbourne Genomics Health Alliance, Royal Melbourne Hospital, Royal Children's Hospital, Genetic Support Network of Victoria, Down Syndrome Victoria, Cancer Council Victoria, Stem Cells Australia, Victorian Institute of Forensic Medicine, State Government of Victoria, Illumina, Monash Health, University of Queensland, Peter MacCallum Cancer Centre

<https://study.unimelb.edu.au/find/courses/graduate/master-of-genomics-and-health/>

What our students say about the program

“I always had an interest in genetic and genomic testing and when I came across the subject in variant curation, I had a moment of realisation that this was what I was looking for.”

Sangavi Sivagnanasundram, 2021 graduate

<https://mdhs.unimelb.edu.au/study/meet-us/student-life/general-profiles-australia-and-new-zealand/sangavi-sivagnanasundram,-master-of-genomics-and-health>

Where are they now?

Sarah Casauria – Data officer

After graduating from the Masters of Genomics and Health course, Sarah was employed as a Data Officer with Australian Genomics at the Murdoch Children's Research Institute. As a Data Officer Sarah maintains and audits clinical and genomic data from research participants. Sarah is a member of the Australian Genomics Data Access Committee which develops and oversees data governance and data sharing processes. Sarah's work also involves providing database support and feedback to other research projects within the Australian Genomics alliance network.

<https://study.unimelb.edu.au/find/courses/graduate/master-of-genomics-and-health/the-experience/>

Marissa Rose – PhD student

Marissa Rose graduated from the Master of Genomics and Health in 2021. Marissa commenced her PhD at the Peter MacCallum Familial Cancer Centre in 2022. She is investigating novel ways to generate polygenic risk scores (PRS) to inform personalised cancer prevention strategies in clinical settings. Her research explores the ethical, legal and societal implications of the clinical use of PRS, and ancestral diversity within genomic data repositories.



Katie Arkell – coordinator/manager

Katie recently completed her Master of Genomics and Health (MGH) which complimented a 20-year career in the health sector by upskilling Katie in new genomic testing technology such as variant curation, and other important aspects such as bioethics, health economics and health policy. Katie is employed as the Genomics in Practice Stream Manager at Melbourne Genomics Health Alliance. She is responsible for managing delivery of a suite of complex projects that focus on implementation of genomic testing into hospitals for a range of therapeutic areas and settings across multiple large health services.

“Genomics is a constantly evolving field, and given the technological advancements, improved understanding of its impact on human disease and implementation into routine healthcare, there is a huge demand for a workforce that is skilled in genomics.”

Eloise Uebergang, 2019 graduate

<https://mdhs.unimelb.edu.au/study/meet-us/student-life/general-profiles-australia-and-new-zealand/eloise-uebergang,-master-of-genomics-and-health>

Postgraduate studies in Adolescent Health and Wellbeing

Course Convenor: Dr Ani Wierenga

Administration: Helen D'Cruz

Faculty: Bernadette Murphy, Dr Connie Chong, Hillary Field, Kristina Bennett,
Louise Bouchier, Dr Philippa Bellemore, Dr Toni Lindsay

Australia's only postgraduate courses in Adolescent Health and Wellbeing are offered by The University of Melbourne through the Department of Paediatrics, in collaboration with the Centre for Adolescent Health at the Royal Children's Hospital. Adolescence is a foundational period in the lives of individuals. Investments in adolescent health maximise human capabilities that play out across the life-course and into the next generation, for the benefit of individuals, communities and countries.

The Graduate Certificate, Graduate Diploma and Masters in Adolescent Health and wellbeing (AWH) serves mid-career professionals looking to up-skill in their work with young people. We have seen approximately 750 graduates across many different fields – teachers, doctors, nurses, school wellbeing, not for profit program managers or police – leading change in the world.

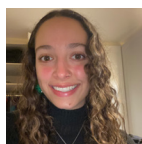
The unique value proposition of the AHW suite of courses are: a focus on the developmental period of adolescence and young adulthood (10-24 years); orientation towards cross disciplinary teaching and learning and a holistic exploration of the scope of responses available to address the challenges young people face, distinguished by the structural and organizational changes that can help make the world a better place with and for young people, in the various settings where they live and learn (homes, schools, institutions, communities, as well as health settings).

The Centre for Adolescent Health, a WHO Collaborating Centre under the leadership of Professors Susan Sawyer and George Patton, has played a leading role in global research into Adolescent Health, and this connection provides strong evidence base for the teaching. The 2019 course impact

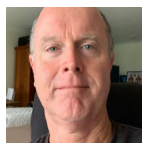
assessment highlighted that the course equips students with new knowledge, and understanding, as well as skills for advocacy and leadership. As such, the course is strongly aligned with Departmental priorities of engagement, advocacy, proactivity in policy development and life-long learning. With Departmental support, the course now has strong potential for growth.

From a domestic course, developed in 1996, which was originally offered to health professionals at RCH, the AHW program has grown to have a national and increasingly multi-disciplinary student base, and, given little global competition, we are increasingly finding international students in the Graduate Certificate and Graduate Diploma. The part-time online study facilitates national and international access, and we hope to shape the masters so that it will be accessible to international students.

Below we introduce you to some of our current students and recent graduates. It was hard to choose, but this selection was primarily done to showcase variety – of professions and settings in which our students work, and hence, to share something about the type of skills they wish to gain from our postgraduate program.



Lily is a registered nurse from Melbourne, who is now working in Dublin, Ireland. She has worked in Paediatric Haematology/Oncology for the past 3 years, including at the Royal Children's Hospital, Melbourne. Her interest in adolescents and young adults reflects that "they are a special bunch that are too often forgotten about". She enrolled in the course in order to improve the care she provides to her patients.



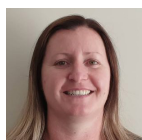
Tom is a highly experienced paediatrician from the Sunshine Coast Health Service in Queensland, Australia, where he is the lead for adolescent healthcare as well as chairman of a working party on improving care for adolescents and young adults in the region. He enrolled in the course as he is "passionate about improving AYA care in our health service and in adolescents more broadly".



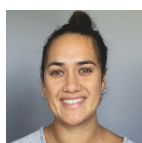
Jordanna is an experienced secondary teacher from Busselton, West Australia. She is wanting to learn how to implement wellbeing activities and initiatives into the educational environment. She describes seeing an increase in the issues that adolescents face, and is wanting to ensure that current educational structures evolve to better meet students' needs.



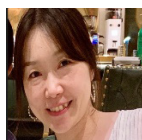
Jen is a degree-qualified youth worker who for the past 5 years has largely worked in the out-of-home care sector. "I am passionate about the well-being of young people and really enjoy my work." She is wanting to expand her knowledge of adolescent health, and having spent the past few months travelling around Australia, is excited about what she can take back out into the community.



Julianne has been a member of the Victoria Police for the past 18 years, where she has worked in both busy metropolitan stations and remote country locations. Her current role as a Youth Specialist Officer involves her working with at-risk youth, where "I really want to divert young people out of the criminal justice system."



Minaira is an artist whose creative experiences across the Pacific have cultivated "a deep love for collaborative projects, a faith in the unity and diversity of human relationships, and a determination to contribute meaningfully to the betterment of society through educating children and young people". She works as a Livewire Facilitator with the Starlight Foundation in Queensland and enrolled in the course with the goal of "strengthening my communication and engagement skills with adolescents and their families, learning about implementing effective programs and practices, and the value of exploring social cohesion through creative and artistic means".



Yuki has an academic background in Law and Development Studies, specializing in Women, Gender and Development. She previously worked with UNICEF in Latin America as an adolescent development and participation officer, managing projects focused on sexual and reproductive health and rights, HIV/AIDS, nutrition, and gender-based violence. With experience leading advocacy initiative with young people, she is currently working with an NGO in Japan to develop a leadership program to 6-15 year old girls.



Dr Elizabeth Bankah is a highly experienced family physician from Ghana, who cares for hospitalised adolescents in Accra. A recent graduate of the Melbourne program, she has been inspired to enhance the quality of teaching and training provided to Ghanaian community physicians. She is currently working with the Ghana Health Service and the Ghana College of Physicians and Surgeons to develop a new curricula in adolescent medicine for both undergraduates and postgraduates, with a new compulsory module on adolescent health for postgraduate training in family medicine. She is also wanting to develop plans for Ghana to access subspecialist fellowship training in adolescent medicine

Master of Genetic Counselling

Program Director: A/Prof Jan Hodgson

Professional support: Cathy Iaria

Faculty: A/Prof Jan Hodgson (Counselling and Professional Practice), Dr Melody Menezes (MGC Professional Practice & Clinical Placement Coordinator), Dr Sharon Lewis (Research), Dr Samantha Wake (Counselling), Samantha Ayres (Counselling), Dr Belinda McClaren (Internships), Dr Gabrielle Reid (Genetics), Linda Ciccarelli (Genetics), Lyndon Gallacher (Variant Curation), Mr Anthony Hurst (Counselling)
Genetics advisor: Professor David Amor

Course Overview

The Master of Genetic Counselling (MGC) is a full-time, two-year program designed to teach skills in clinical genetic counselling practice and research. It is fully accredited by the Human Genetics Society of Australasia (HGSA). The program draws on the expertise of tutors who are leading Clinicians, Genetic Counsellors and Scientists.

Graduates are eligible to gain employment as an Associate Genetic Counsellor and work in a diverse range of fields – for example clinical genetics services, genetics education, community health organisations and health policy. With well-established links to overseas training programs there are international opportunities for students, through an active exchange program for clinical placements and research collaborations. Graduates of the MGC have the opportunity to undertake certification in Australasia as well as overseas in countries with reciprocal training and certification agreements.

Clinical and Research partners include: Murdoch Children's Research Institute, Victorian Clinical Genetics Service, Australian Genomics Health Alliance, Melbourne Genomics Health Alliance, Royal Melbourne Hospital, Royal Children's Hospital, Genetic Support Network of Victoria, Royal Women's Hospital, Parkville Familial Cancer Centre, Mercy Hospital for Women, Monash Medical Centre, Monash IVF and the Austin Hospital.



New Course Initiatives

The Master of Genetic Counselling (MGC) Victorian Indigenous Practitioner Scholarship

The Victorian Indigenous Scholarship is funded by the Department Health and Human Services. It aims to encourage Indigenous students to apply for the MGC by addressing likely academic, financial and cultural barriers that have previously restricted selection into the program.

The Scholarship is a flexible support package, to provide financial support throughout the preparatory process, enrolment in the MGC and postgraduate vocational training. It includes mentoring and subject specific tutoring as well as membership of professional bodies such as the Australasian Society of Genetic Counsellor (ASGC) and The Human Genetics Society of Australia (HGSA), annual conference attendance and a paid support role in a clinical genetics service. Upon graduation the intention is to facilitate a 3-year paid training position as an Associate Genetic Counsellor to support the achievement of full certification as a Genetic Counsellor by the HGSA Board of Censors. We currently have two students enrolled in the first year of the program.

Virtual Genetic Counselling Clinic

During the pandemic and extensive Melbourne lockdowns we developed a Virtual Genetic Counselling clinic that enabled us to provide students with sufficient placement days to achieve all professional competencies. This meant that all students were able to graduate on time despite severe restrictions to placement sites related to COVID-19. The Virtual clinic was a great success for both staff and students and has become a significant learning tool in the program which we will continue to use in the course.

See our website for further information about genetic counselling and graduate experiences

<https://study.unimelb.edu.au/find/courses/graduate/master-of-genetic-counselling>

Infant Mental Health Group

(formerly Paediatric Social Work)

Led by Associate Professor Brigid Jordan

The focus of our research is the relationship between early life stress – because of serious illness and hospital experience or significant family stress and social disadvantage – and the health and mental health of infants and young children and their families. We have a strong focus on knowledge translation.

The Infant Mental Health Advanced Training (IMHAT) program builds upon the former University of Melbourne Graduate Diploma and Masters courses in Infant and Parent Mental Health established by Associate Professors Brigid Jordan (Paediatrics), Campbell Paul (Psychiatry) and Frances Salo (now retired) in 1996. It was developed out of the clinical, teaching and research work of the Infant Mental Health Group at the Royal Children's Hospital Melbourne and is now run under the auspice of the Mindful. [https://mindful.org.au/developmental-mental-health-training/infant-mental-health-advanced-training-\(imhat\)](https://mindful.org.au/developmental-mental-health-training/infant-mental-health-advanced-training-(imhat))

Over the past 26 years between three and four hundred students from the disciplines of medicine, psychiatry, psychology, nursing, social work, speech pathology and other allied health disciplines have completed the first year of the course.

The course aims to provide clinicians with:

- comprehensive understanding of the emotional and social development of the infant and family
- clinical skills necessary for working with expectant parents, babies, toddlers, infant-parent dyads and families.

The course is delivered with on-campus teaching one afternoon per week over two twelve-week semesters and zoom technology is used to enable rural, interstate and international students to join the class in real time.



PhD students

Ms Tamera Clancy – *Infant and Family Wellbeing after Cardiac Surgery: Life as a Pre-schooler* This prospective longitudinal study project is investigating the developmental trajectory and predictors of emotional and behavioural regulation in children who had cardiac surgery early in life. The primary aim is to examine the relationship between data on markers of early infant distress and co-regulatory support collected when the children were infants (six weeks after discharge from hospital) on emotional and behavioural regulation at pre-school age (3-4 years-old). In addition to parent-report measures this study is using salivary cortisol as a measure of stress regulation and standardised, clinician-rated observational measures of stress regulation and parent – child interaction. We are collaborating with Professor Carolina de Weerth from the Donders Institute for Brain, Cognition and Behaviour at Radboud University Medical Centre in The Netherlands.

Ms Nichola Coombs is investigating whether one year in an enhanced early education and care program makes a difference to the quality of the parent child relationship for vulnerable infants and toddlers. This study is nested in the Early Years Education Research Program – *Changing the Life Trajectories of Australia's Most Vulnerable Children* conducted by researchers from the Departments of Economics (Jeff Borland), Education (Anne Kennedy), Melbourne Institute (Yi-Ping Tseng) and Paediatrics (Brigid Jordan); www.eyerp.org

Nursing education and research

The following nursing education courses are facilitated through The University of Melbourne dept of nursing, and supported by the Dept of Paediatrics.

Royal Children's Hospital Training and Research Activities

Graduate Certificate in Critical Care Nursing

Emily Dashwood
Mallory Hamid

Emily Ivanka
Emily Steer

Graduate Certificate in Nursing Practice (Neonatal Intensive Care)

Holly Anderson
Rebeka Cali

Michelle Murphy
Ryan Sendall

Graduate Certificate in Nursing Practice (Paediatrics)

Alisha Baker
Bianca Burford
Natalie Fung
Hannah Harper
Poilin Howland
Simren Kanwar
Georgia Kent

Azzadine Miles
Erin Moore
Rachel Poxon
Laura Randall
Emily Runting
Beth Thompson
Madeline Zoch

Graduate Certificate in Nursing Practice (Paediatric Intensive Care)

Denise Xinyi Chong
Ruth Christy
Tara Fabris
Megan Fitzgerald
Kate Henderson

Jemma Franken
Bisni Luckose
Callum Robertson
Kate Strahan

Master of Advanced Nursing Practice

(enrolled for some part of 2021– usually take course over 2 years, *ongoing in 2022)

Coursework pathway

Lynne Addlem
Kym Bain*
Claudia Barriga
Laura Box
Jenni Braeutigam*
Dyan Cana*
Liam Cunningham*
Sarah Duncanson

Caitlin Elliott
Jessica Hinchcliffe
Claire Kerr*
Anne Kinmonth
Michelle McMahon
Sharon McManus
Artressa Ng*

Master of Advanced Nursing Practice (Research pathway)

Minor thesis completions

Eloise Borrello: *Skin injuries associated with peripheral intravenous catheters in hospitalised children: a retrospective cohort study.*

Felicity McCarthy: *Barriers and facilitators in attending interprofessional simulation education as perceived by nurses in leadership positions in the Paediatric Intensive Care Unit.*

Independent study projects

(Transitioned from minor thesis (50 credit points) to smaller research project (25 credit points))

Lauren Nichols*: *Screening practices regarding delirium assessment in the PICU*

Alyssa Serratore: *Feasibility and acceptability of methods to deliver parental satisfaction questionnaire in the PICU*

Narelle Jenkins: *Minimising Pain of Childhood Vaccines in older Children*

Master of Advanced Nursing Practice (Nurse Practitioner)

Sara Wilson (Rheumatology)
Meegan Price (Emergency)
Amy Baylis (Emergency)*

* denotes students who did not graduate and are continuing studies in 2022

PhD

Emma Jeffs

Emma is undertaking a PhD titled *Exploring purposes, outcomes and experiences of Morbidity and Mortality meetings in paediatric acute care*. Qualitative Case Study methodology using observation and interview methods has yielded a rich and complex data set, which she is currently analysing using reflexive thematic analysis. The triangulation of methods and sources is leading to a nuanced and deeper understanding of an important process in local clinical departments. Her current focus includes the completion of analysis and preparing for the presentation of findings to the RCH, in addition to finalising a scoping review for publication.

Mercy Thomas

Mercy is undertaking a PhD titled *Advancing Timely Screening of Neonatal Jaundice*.

Analysing the possibilities of developing a low-cost point-of-care device is the primary aim of this research. Further, exploring the rate and severity of jaundice readmissions to Victorian hospitals and ascertaining a comprehensive picture of jaundice screening practices in community settings facilitates understanding of practice gaps and aids future investments in resources, training, and education. An implementation framework designed to translate these research findings into clinical practice forms the final phase of the research to advance the timely screening of neonatal jaundice in community settings.

Jessica Taranto

Jessica is undertaking a PhD titled *Anal Dilations for Anorectal Malformations*. The expected submission is February 2028.

Jessica has undertaken systematic and literature reviews, with initial data extraction indicating that most colorectal services base their Anal dilatation regimen off the initial works of Dr Alberto Pena, as described in the 1982 case series, 'Posterior sagittal anorectoplasty: Important technical considerations and new applications'. Initial literature review findings indicate minimal quality research assessing the impact of performing anal dilatations on parents. The AHPEQS-Parent questionnaire has been identified as the most suitable tool for this project's aims and piloting of the modified questionnaire is underway.

Entry to Practice students supported through clinical placements

The Royal Children's Hospital supported 103 Master of Nursing Science students to undertake 17,960 clinical placement hours.

In addition, the hospital supported a further 278 'Entry to Practice' degree students to undertake 51,760 clinical placement hours from 10 other universities.

The Paediatric Academy

On the Melbourne Children's Campus



The Paediatric Academy is a new collaborative entity that has been launched by Department of Paediatrics. It is designed to develop and grow an inter-professional community for academic paediatrics across the Melbourne Children's Campus, supporting life-long learning and extending to alumni and partners beyond our walls.

The Paediatric Academy has 4 key functions:

- Professional development
- Networking and mentoring
- Communication
- Celebrating academic achievements and contributions to the Melbourne Children's Campus

These will be achieved through a blended approach combining regular face-to-face (or hybrid events) alongside an online platform to support information sharing and networking.

Rationale

The Melbourne Children's Campus is composed of four partner institutions:

- The Royal Children's Hospital (RCH)
- The University of Melbourne Department of Paediatrics (UoM)
- Murdoch Children's Research Institute (MCRI)
- The Royal Children's Hospital Foundation (RCHF)

Each institution houses professionals of unique expertise and provides resources, programs and initiatives, often on their own technology platforms or through their own networks.

Growing our community

We expect that our members and our functions will grow and evolve as we identify where and how it can add value to the work done on Campus.

The Academy is open to all professionals who have an interest in paediatrics.

We look forward to connecting, sharing and learning from each other.

Visit: <https://paedacademy.medicine.unimelb.edu.au/> to view and join the Academy.

Paediatric Academy Team



Amy Gray



Phoebe Malone



Lichin Lim



Angus Fraser

The Education Hub



Led by A/Professor Amy Gray

The Education Hub, situated at The Royal Children's Hospital, partners with medical, nursing and allied health teams to support quality education for health professionals.

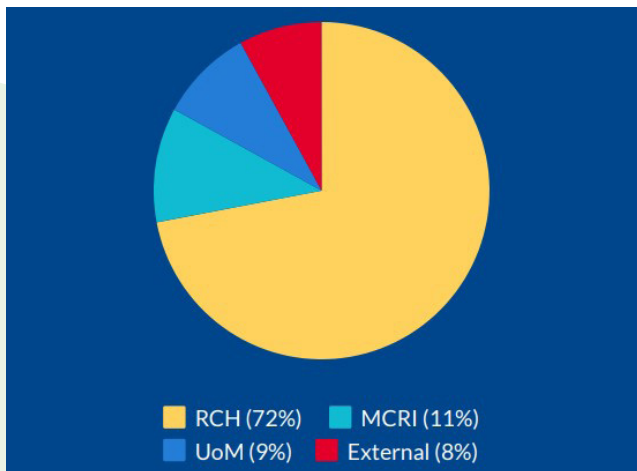
Our aim is to:

- develop and promote educational programs and resources
- bring educators together in a strengthened network
- optimise the use of technology for education
- support a culture of learning at the Melbourne Children's Campus and beyond

Highlights

Collaborations

Since 2019 over 40 Melbourne Children's campus departments have been consulted.



External LMS Platform

In 2021 the externally accessible learning platform was launched. Courses, modules and events housed here are for healthcare professionals and their continuing professional development. Since its launch there have been:

- more than 2,300 users on the LMS
- 16 live courses
- 8 upcoming events
- 4 past events

Education

The Education Hub aims to respond to stakeholder needs. Programs the Education Hub has supported in the past year include:

- Medical teaching for both junior and senior staff
- PPE training and fit testing
- Online education delivery
- Parental CPR training
- Advanced Paediatric Resuscitation
- High flow education
- POCUS – Point of care
- Ultrasound
- The Children's Bioethics Centre Modules
- Coaching workshops
- Skills stations
- Mentoring programs

Our impact

“Thank you for your brachial plexus course. This is such a new way of learning for me, novel and engaging. When I saw a patient I knew exactly where to go to remind myself what I needed to do.”

Podcasts with a worldwide audience

The Education Hub is involved in creating, producing and hosting podcasts. In the past year there have been over 12,000 listeners in over 20 countries.

The top 5 audiences in April 2021-22 are:

1. Australia
2. New Zealand
3. USA
4. UK
5. Ireland



In their own words...

“I learnt so much from the Hub. I had protected time to develop education skills and ideas, working with different ways to education. I learnt about engaging with stakeholders, working independently, how to develop content and evaluate its impact.”



Multidisciplinary Fellowships

13 Fellowships from 12 departments have undertaken over 20 projects in the past 3 years. The 2022 fellows are:

- Emma King (Nurse Practitioner Dermatology)
- Kathleen McGrath (Gastroenterology Consultant)
- Mikhaila Lazanyi (Gynaecology Consultant)
- Stephen Lacey (Medical Imaging Technologist)
- Yolly Gangemi (Clinical Nurse Educator PICU)

Publications

- Frydenberg, A., Osborne, N., Polley, C., Littlejohn, E. and Gray, A. (2022), Paediatric asthma education: Implementation of video-based education for families. J Paediatr Child Health. <https://doi.org/10.1111/jpc.15862>
- Barrington J, Polley C, van Heerden C, Gray A. Descriptive study of parents' perceptions of paediatric ward rounds Archives of Disease in Childhood 2021;106:786-790.
- Modak, M.B. and Gray, A.Z. (2021), Junior doctor perceptions of education and feedback on ward rounds. J Paediatr Child Health, 57: 96-102. <https://doi.org/10.1111/jpc.15135>
- Gray, A.Z., Modak, M., Connell, T. and Enright, H. (2020), Structuring ward rounds to enhance education. Clin Teach, 17: 286-291. <https://doi.org/10.1111/tct.13086>
- Polley, C., Cisternino, A. and Gray, A. (2021), A novel approach to medical mentoring. Clin. Teach., 18: 37-42. <https://doi.org/10.1111/tct.13143>

For more information, please visit <https://education-hub.rch.org.au/> or contact the Education Hub team at Education.Hub@rch.org.au

The Education Hub

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- Parental CPR training
- Advanced Paediatric Resuscitation
- High flow education
- POCUS – Point of care Ultrasound
- The Children's Bioethics Centre Modules
- Coaching workshops
- Skills stations
- Mentoring programs
- Online



Basic life support in infants and children

About: Learn how to use the Basic life Support DRSABC approach to paediatric resuscitation

Intended audience: All clinicians

Total time: 20 minutes

Cost: Free

CPD points: equivalent to 20 minutes

Refund eligibility: NA (free course)



COVID-19 and Kids

Highlights from Prof Fiona Russell

In response to the COVID-19 pandemic, members of the Department of Paediatrics were instrumental in leading research and education forums. Members also formed part of the MCRI COVID-19 research Executive committee to help determine research and policy priorities for children and adolescents, as well as provide educational forums for the public and health care workers.

Webinars and media

In recognition of the time constraints faced by clinicians and scientists to keep up with the rapidly evolving literature during the COVID-19 pandemic, we formed a team of cross-disciplinary experts from fields of epidemiology, immunology, virology, perinatal, and paediatric medicine, and University of Melbourne medical students to summarise the COVID-19 kids research and evidence. The 32 reports had over 1000 page views per month from around the world. (<http://go.unimelb.edu.au/qp3r>).

In 2020, Prof Fiona Russell led and hosted seven COVID-19 and Kids Grand Rounds, with >2000 attendees.

Prof Fiona Russell as Deputy Chair and Prof Nigel Crawford as a member of the Australian Society of Infectious Diseases Vaccination Special Interest Group organised a series of webinars for the society's members and the public to explain the Australian COVID-19 vaccination program.

Prof. Russell wrote numerous Op-Ed and Conversation pieces (with >1.5 million reads, the highest number of reads for a University of Melbourne academic), was cited in Nature and National Geographic, was a panellist on ABC Q&A, was featured in ABC podcasts and undertook numerous TV, radio and national and international newspaper interviews.

Vaccines

Regular COVID-19 vaccine research reports were produced, initially conceived to update WHO Pacific and UNICEF and their country office staff. This report was led by Dr John Hart from the Asia-Pacific Health research group, MCRI and supervised by Prof Russell. Prof Russell is a member of the WHO Pacific Joint Incident Management Taskforce for COVID-19 vaccines and Dr Hart provided a monthly talk to this committee using the report as a basis. Recently, the safety section has been collated by members from the Melbourne Vaccine Education Centre (MVEC) and supervised by Prof Nigel Crawford. Additional members included Professor Kim Mulholland, Professor Julie Bines and Associate Professor Margie Danchin. Since March 2021, 54 reports have been produced. There have been approximately 20,000.

<https://medicine.unimelb.edu.au/school-structure/paediatrics/news-and-events/covid-19-weekly-vaccine-updates>

To assist with COVID-19 vaccine uptake in the region, Prof Russell was a regular panelist on Explain the Science in Fiji led by the Fiji National University and to PNG Healthcare workers to explain COVID-19 vaccines to a hesitant population.

Schools

Members of the Department of Paediatrics and MCRI were instrumental in getting children back to face-to-face learning. In 2020 and 2021, MCRI was asked by the Victorian Department of Health to analyse the SARS-CoV-2 school outbreak data and develop a plan for getting the children back to school safely. This was led by Prof Fiona Russell, Prof Sharon Goldfeld and A/Prof Margie Danchin. The updated evidence in 2021 for school mitigation measures was led by Dr John Hart, Darren Suryawijaya and Prof Fiona Russell. These were summarised into research briefs (<https://www.mcri.edu.au/covid-19/research-briefs>). The findings from this work have been presented by Prof Russell to the Victorian DH, AHPCC, WHO/UNICEF/UNESCO COVID-19 in Schools and Education institutions, and the US CDC.

To determine the optimal strategy for testing in schools in 2022, Prof Russell, A/Prof Danchin and Prof Goldfeld played an advisory role in the modelling led by the Doherty Institute commissioned by the National Cabinet. These findings helped inform the school testing strategy nationally. With schools re-opening during Omicron, Professor Russell's team led by Darren Suryawijaya Ong

and Dr John Hart provide a weekly COVID-19 children's surveillance report (<https://www.mcri.edu.au/news-stories/weekly-report-surveillance-covid-19-children-launched>) to understand the impact of school re-opening on SARS-CoV-2 epidemiology.

The COVID-19 research briefs were shared with "WHO's Maternal Neonatal Child and Adolescent Health Programme and the Western Pacific Regional Office, UNICEF and UNESCO" and helped to update their materials. Prof Russell is a TAG member of the WHO/UNICEF COVID-19 in Schools and Education institutions committee and Chaired the Guidelines Development Group for the WHO/UNICEF Masks in Children committee which provided the updated recommendations for mask use on children. She was a panellist on the Global Science Dialogue on Transmission in Children in 2021.

Prof Russell contributed to a national dialogue on preparing the public for re-opening of schools during Delta and Omicron, and was a panellist on Sydney University Policy Lab Roadmap for Reopening and the 2022 Sydney Policy Lab's "Great Australian Renovation Report", July 2022.

International child health collaboration in the time of COVID

Professor Trevor Duke, Director of The Centre for International Child Health (CICH)

The pandemic has disrupted – among many things – the focus and methods of international health cooperation. Along with new opportunities for scientists and academics to contribute to the global pandemic effort against the virus, progress in child and adolescent health over the last 2 decades in low- and middle-income countries has been put at grave risk, and it is up to paediatric academics to respond to this also.

The Department of Paediatrics has been steadfast in collaborating with colleagues in the Asia Pacific region. These collaborations focus on their research priorities and priorities for child health in disadvantaged populations, health care worker education and training, and leadership, research, and clinical capacity development. Throughout the pandemic we have also continued our strong support for global health institutions, particularly the World Health Organization (WHO).

In Lao People's Democratic Republic (PDR), in collaboration with UNICEF, Dr Amy Gray has supported Lao paediatricians to:

- Develop remote education outreach to provincial and district hospitals for oxygen therapy and newborn care
- Initiate a nationwide approach to child death review
- Curate and create online educational resources for Integrated Maternal Newborn and Child Health both in health facilities and health professional training institutions.

Soon, with support from Curve Tomorrow, we will be launching a Lao language IMNCI App aimed at health workers in health centres and will be evaluating its uptake, acceptability, and impact on the ground.

Dr Hamish Graham and many members of our group have provided support to the WHO's Maternal Newborn Child and Adolescent Health programme by conducting evidence

reviews to update the Global Action Plan for Pneumonia and developed new operational guidance for child and adolescent health in humanitarian settings (2021).

Prof Steve Graham chaired the WHO's Guidelines Development Group that reviewed evidence to inform the WHO Consolidated Guidelines on Child and Adolescent TB (2022). We have also contributed to WHO's Strategic Technical Advisory Group (STAGE) for Maternal Newborn and Child Health, a committee which advises the Director General and MNCAH department. Translation of policy to practice is key. Recognising that most sick children in resource-limited settings, including those with pneumonia or tuberculosis, present to primary or secondary health care facilities, decentralisation and strengthening services for diagnosis and management is a major focus of our work in the Asia-Pacific and African regions.

With COVID-19 highlighting the oxygen crisis, our group expanded its work on improving hospital oxygen services with governmental and NGO partners in Papua New Guinea, Laos PDR, Nigeria, and Uganda. With demand for evidence and methods for assessing need and capacity, we worked with UN agencies and governments on locally generated tools and data to inform international response efforts, including interim guidance statements from WHO. This has been challenging work and reminds us again that sustained partnerships with people who can enact policy and implement change is essential – even if shorter term crisis responses are easier to fund.

During the COVID-19 pandemic, many members of the Department took a leading role in the development of research briefs to understand COVID-19 in children and adolescents, their role in transmission and the evidence behind school mitigation measures. These were shared with WHO's Maternal Neonatal Child and Adolescent Health Programme and the Western Pacific Regional Office, UNICEF and UNESCO and helped to update their materials. Prof Russell was a TAG member of the WHO/UNICEF COVID-19 in Schools and Education institutions and Chaired the Guidelines Development Group for the WHO/UNICEF Masks in Children committee which provided the updated recommendations for mask use on children.

We provide a weekly COVID-19 children's surveillance report to understand the SARS-CoV-2 epidemiology with schools open. For COVID-19 vaccines, our group advises the Australian government on COVID-19 vaccine support for the Asia-Pacific region; are members of the WHO Pacific Joint Incident Management Taskforce for COVID-19 vaccines and provides them with a weekly COVID-19 vaccine research evidence update; and are on the WHO Strategic Advisory Group of Experts on Immunization (SAGE).



Providing community TB services in Papua province, Indonesia. Photo by Dr Trisasi Lestari

Unit for Indigenous Child Development

Supporting Child Development Pathways

The Unit of Indigenous Child Development aims to improve the developmental trajectories and outcomes of Aboriginal and Torres Strait Islander children. We hope to achieve this by culturally adapting, validating and implementing mainstream developmental assessment instruments to increase equity in service provision for Aboriginal and Torres Strait Islander children.

Research

ASQ-STEPS Research Program

- In 2018, the Unit for Indigenous Child Development embarked on a new project – developing the first culturally appropriate developmental outcome measure for Aboriginal and Torres Strait Islander children – the ASQ-Steps for Measuring Aboriginal Child Development (ASQ-STEPS).
- In 2021, the team piloted the ASQ-STEPS in a remote and an urban site to determine how it functions in practice and receiving feedback on the design of the instrument, modified items and illustrations.
- Now at the Validation stage, the ASQ-STEPS will be implemented in sites across Australia to determine how accurately the ASQ-STEPS measures child development in the Aboriginal and Torres Strait Islander population (validity), with replicable results (reliability).

Once completed, we hope the ASQ-STEPS can be used to measure child developmental progress and evaluate program effectiveness.

A MRFF Preventative and Public Health grant is funding this phase of the research program.



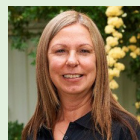
Dr Anita D'Aprano
Clinical Lead



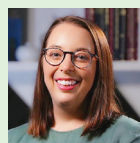
Isabel Brookes
Project Coordinator



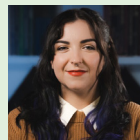
Linda Browne
Training Coordinator



Leah Lindrea-Morrison
Aboriginal Research Assistant /
Community Engagement Officer



Cat Lloyd-Johnson
Research Assistant / PhD Candidate



Olly Southerton
Research Assistant



Sam Simpson
Post-Doc Research Fellow



We acknowledge and pay our respects to the Traditional Owners and Custodians of the land on which we live and work, the first people of this country.

We pay our respects to them, their culture, and their Elders past, present and emerging.

Funding

Dr D'Aprano has secured over \$10 million in grant funding, over \$2 million of which is as a Chief Investigator. Recent support has been provided by

- the NT Department of Education to support the ASQ-STEPS Research Program;
- the Department of Education, Skills and Employment to advance Community Engagement; and
- the Department of Social Services to develop the 2nd Edition of the ASQ-TRAK

Consultation

ASQ-STEPS Indigenous Reference Group (IRG)



The ASQ-STEPS Indigenous Reference Group guides and advises on the ASQ-STEPS Research Program. The IRG members come from both the health and education sectors.

The IRG members make sure that the ASQ-STEPS Research Program is conducted in a culturally respectful, meaningful and appropriate way; contribute to research processes; and build knowledge in their communities about the ASQ-STEPS and the role of an IRG in research programs.

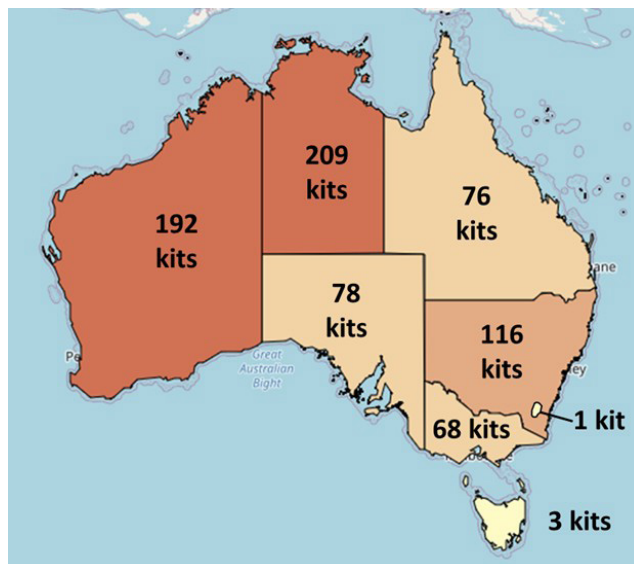
Knowledge translation

The ASQ-TRAK developmental screening tool (ASQ-TRAK)

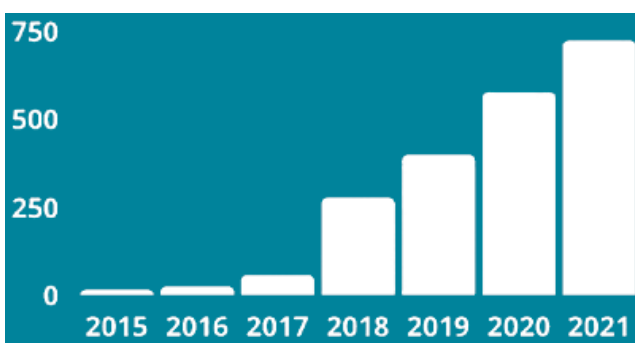
The ASQ-TRAK is the first culturally appropriate developmental screening tool for Aboriginal and Torres Strait Islander children in Australia. It is a significant example of translational success through collaborative research leading to substantive policy and practice change nationally.

Distribution

The ASQ-TRAK developmental screening tool is distributed to organisations providing child health and education services for Aboriginal and Torres Strait Islander children across Australia.



The **uptake** of the ASQ-TRAK to support culturally appropriate child health checks has increased significantly since 2015 (below). This is transforming the way developmental services are delivered to Aboriginal and Torres Strait Islander children – ultimately leading to early intervention and to better developmental outcomes.



The ASQ-TRAK is distributed in partnership with the Royal Children's Hospital Shop.

Learn more at: <https://asq-trak.medicine.unimelb.edu.au>

Training

- 31 ASQ-TRAK Training Workshops delivered by the UOM team
- > 500 staff trained to use the ASQ-TRAK in under 5 years
- 4 Master Trainers trained to deliver ASQ-TRAK training

Genomic Teaching and Research Activities

at the Melbourne Children's Campus

John Christodoulou
Chair of Genomic Medicine
Co-Group Leader, Brain and Mitochondrial Research
Group, MCRI

Genomic Education

It is not hyperbole to state that genomic sequencing has revolutionised the diagnosis and management of individuals with rare diseases and cancer. However, education and professional development about the utility and application of genomic technologies in healthcare has lagged. Postgraduate programs like the Masters of Genetic Counselling, the Masters of Genomics and Health (both described in more detail in this report), and innovative interactive educational opportunities through the Melbourne Genomics Health Alliance (<https://www.melbournegenomics.org.au/genomic-education>) have been highly successful in addressing this knowledge gap in the healthcare workforce.

Professional Development

Melbourne Genomics is offering a range of continuing professional development opportunities to support paediatricians ordering genomic testing. The content is co-designed and delivered with Victorian Clinical Genetics Services and includes:

- Short online modules and downloadable point-of-care resources
- Webinars
- Case-based workshops, also facilitated by expert paediatricians
- In-person workshops are now also being offered regionally

MD Discovery program in genomics

Recently, a working group under the auspices of the Human Genetics Society of Australasia has developed a guideline outlining what should be considered core competencies in genetics and genomics for medical graduates (<https://www.hgsa.org.au/documents/item/12553>). We are mapping the current University of Melbourne MD curriculum against the recommendations in this document. We look forward to working with the University's Department of Medical Education to develop an MD Discovery program in genomics and help fill gaps in the current MD genomic education curriculum as appropriate.

Genomic Research

Partnership

On the genomics research front, we are very excited with progress with the **International Precision Child Health Partnership (IPCHiP)** (<https://www.mcri.edu.au/news/world's-leading-children's-research-hospitals-join-forces-develop-new-treatments-rare-diseases>). IPCHiP is a strategic collaborative partnership between the four premier paediatric research institutions globally:

- MCRI on behalf of the Melbourne Children's campus
- The UCL Great Ormond St Institute for Child Health in London
- The Hospital for Sick Children in Toronto
- The Boston Children's Hospital

This partnership focuses on bringing together experts in child health and genomics to improve the diagnosis and management of children, with an initial focus on those with rare disorders.

Project

Our initial flagship research project is **Gene-STEPS (Shortening Time of Evaluation in Paediatric Epilepsy Services)**, led at the Melbourne Children's campus by Dr Katherine Howell. Through the IPCHiP partnership we aim to recruit up to 450 families across three continents as a prospective cohort to evaluate the clinical utility of rapid genomic sequencing (aiming for a turnaround time of less than three weeks) in children who develop seizures in the first year of life. It has been previously shown that up to 50% of infants may have an underlying genetic basis for their epilepsy.

A particular focus of the Gene-STEPS project is to evaluate the potential impact of early diagnosis and more targeted therapy on longer term cognitive outcomes. We also plan to build processes to enable ethical and responsible sharing of phenotypic and genomic data across international jurisdictions, which will form the basis for data sharing agreements that can be implemented in future collaborative research activities. In related work, our IPCHiP Project Officer, Michelle de Silva, is currently undertaking an audit of existing paediatric research cohorts (not just rare disease cohorts), which we hope will facilitate the identification of future potential collaborative projects. So, watch this space!

Healthy Trajectories:

A child and youth disability research hub



The Healthy Trajectories research hub brings together people with lived experience of disability, researchers, and professionals to create meaningful research collaborations to improve the lives of those with child-onset disability and their families.

We need the knowledge, skills, and voices of people with lived experience, as well as professionals from health, education, architecture, engineering, policy, social sciences, economics, and beyond. This wide range of expertise is essential because health, family and wider social experiences through childhood and adolescence have

a major impact on lifetime goals. Children with disability grow into adults and evidence shows a large proportion do not achieve social and financial independence.

Our research priorities are guided by the Australian Disability Strategy (2021-2031) and the National Disability Research Agenda. This ensures that our research is relevant and has a genuine impact on the issues that matter most to people with disability and their families.

Our Vision

For children and youth, whose lives are complicated by disability, to have the best chance of reaching their full potential for health and participation throughout their life. Healthy trajectories for all.

Our invitation to you

Our goal is to collaborate widely. If you are interested in child onset disability research, please get in touch! You can choose your level of involvement: subscribe to our email distribution list, join our research team, or join our team to yours.

For more information or to be added to our distribution list: Professor Christine Imms, Apex Australia Chair of Neurodevelopment and Disability christine.imms@unimelb.edu.au or healthy-trajectories@unimelb.edu.au

Our Mission

By forging a deep network of research collaborators across the Melbourne Children's Campus, the University of Melbourne and beyond, we will leverage the impact of our work to increase the pace of change required to improve the lives of those with child-onset disability and their families, and for social and economic transformation.

Our programs so far...

With generous support from the Royal Children's Hospital Foundation, the Melbourne Disability Institute and Melbourne Medical School, Healthy Trajectories has established a core team of researchers contributing to building programs of research to address our goals. These programs include:

Early intervention

Recent Australia-wide consultations to set a national disability research agenda identified as high priority the need to address the design and operation of the National Disability Insurance Scheme (NDIS). Our early intervention research will focus on one aspect of the NDIS, that related to delivery of the early childhood interventions and supports, both for children who are, and who are not eligible, for an NDIS package.

Family wellbeing

ENabling VISIONS And Growing Expectations (ENVISAGE) is a series of workshops with family wellbeing at the core. It is co-designed with parents, for parents new to the experience of raising a child with disability. Built around the International Classification of Functioning, Disability and Health, transactional models of development, family centred service and self-determination theory, ENVISAGE aims to empower parents and service providers to have confidence and tools to apply contemporary developmental perspectives on disability that focus on strengths, abilities and possibilities.

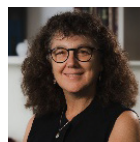
Inclusive education

Led by Melbourne University's Learning Environments Applied Research Network (LEARN) research group, this program of research has two important questions: (i) how should schools be built to be inclusive of all students, including those with disability; and (ii) how can learning environments be created within schools to enable participation in learning and school life for all students.

Medically complex disability

This program of research addresses issues related to pain, complex movement disorders and high medical support needs. One component of this program aims to identify, assess and manage pain more effectively in children with cerebral palsy, many of whom cannot self-report or have complex communication needs. A second study explores service use and experiences of care, by children with medically complex cerebral palsy and their caregivers and service providers.

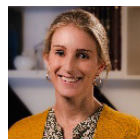
Our team



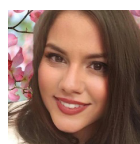
Director: Professor Christine Imms,
Apex Australia Chair of Neurodevelopment and Disability



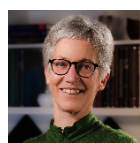
Program lead: Associate Professor Adrienne Harvey, Senior Research Fellow, Murdoch Children's Research Institute



Research Coordinator:
Ms. Georgie Rose, University of Melbourne



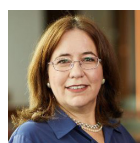
Consumer Engagement Officer:
Ms. Sevastine Katsakis, University of Melbourne



Post-doctoral Fellow:
Dr. Bridget O'Connor, recruiting now for a second position



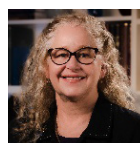
Policy advisor: Ms. Catherine Bain, Murdoch Children's Research Institute



Biostatistician: Dr. Anneke Grobler, Murdoch Children's Research Institute



Research Assistant: Ms. Jacky Lipson, Murdoch Children's Research Institute



Research Assistant: Dr. Jo Griggs, University of Melbourne



Doctoral scholars: Ms Kerry Britt, ENVISAGE program; Additional position to be advertised mid-2022

Advisory Committee

Professor Glenn Bowes (Chair), Professor John Prins (Head of MMS), Professor Bruce Bonyhady (Director, MDI), Professor Sarath Ranganathan (Head DoP), Professor Alicia Spittle (Associate Dean, Research Faculty of Medicine, Dentistry and Health Science), Ms Karen Dimmock (CEO Association for Children with a Disability), Professor Vicki Anderson (Theme Director, Clinical Sciences, MCRI), Bernadette O'Connor (Director, Allied Health, RCH)

Developmental Mental Health Research

Professor Dave Coghill

This has been a busy year with work extending across a broad range of projects. A lot of attention on campus has focused on developing the cerebral palsy CRE CP-ACHIEVE. CP-ACHIEVE has a particular focus on adolescents and adults with cerebral palsy aged 10 to 30 years. Our group is leading the physical and mental health workstream. Our aim is to first understand the needs of this group better and then to use this information to improve approaches to identification and assessment, particularly within primary care.



The work includes the development of accessible surveys and data linkage. A particular strength of CP-ACHIEVE is its strong emphasis on co-design and co-delivery of research. An early example of this in practice has been the development of a toolkit for young people with cerebral palsy and their parents that helps recognise possible mental health problems. This was developed with active involvement of the young people and their parents.

Parents and carers:

<https://doi.org/10.6084/m9.figshare.19207155.v1>

Young people:

<https://doi.org/10.6084/m9.figshare.19207230.v1>

In collaboration with Melissa Mulraney and Nardia Zendarski, both of whom are honorary members of the Department, we have developed a new line of research looking at the impact of sub-syndromal ADHD. This group exhibits impairing symptoms of inattention and/or hyperactivity/impulsivity but do not meet full diagnostic criteria.

This work began when Prof Coghill was asked to argue against the importance recognising and potentially treating this group in a debate at an international ADHD conference in Lisbon. While his opponent Prof Joe Biederman put up a strong defence Prof Coghill won the argument. However, when preparing a grant application, he asked Dr Mulraney to look at some data on suicidality from an Australian population study of child development (LSAC). To our surprise these data suggested that, even at a population level, rates of suicidal behaviour in sub-syndromal ADHD are like those seen in full ADHD and that both are very much higher than the general population, even when other mental health problems are considered. We extended the scope and found similar patterns across a wide range of outcomes including educational problems, poor mental health and challenging behaviours.

The team is now working with the longitudinal data from LSAC and with colleagues in forensic child and youth mental health and with the Adolescent Brain and Cognitive Development Study (ABCD) sample to examine the generalisability of these findings and evaluate the longitudinal outcomes for this group.

Prof Coghill has continued his long-term collaboration with Prof Ian Wong (UCL and Hong Kong University). This work focuses on the use of data science approaches using data from large national registries including the Hong Kong CDARS and UK CPRD registries, to investigate the impacts of psychotropic medications on distal outcomes. This has resulted in several high impact findings including:

1. While there is no association between prenatal exposure to antipsychotics and ADHD, ASD, preterm birth, and small for gestational age, it is possible that underlying maternal psychiatric disorders may be associated with the risk of ADHD and ASD in children
2. Treatment of ADHD with Methylphenidate reduces the risk of all-cause poisoning in children and adolescents
3. The observed association between initiating methylphenidate and the onset of myocardial infarction is very unlikely to be causal, at least in Asians was observed, the risk was the highest in the period before its initiation. Thus, this multinational study suggests there was no causal relationship between methylphenidate and myocardial infarction among Asians

International impact of cerebral palsy research and translation

Dinah Reddihough, Kerr Graham, Christine Imms

Two recent articles (Hussain et al 2021; Pinter et al, 2022) have undertaken bibliometric analyses of cerebral palsy research over the past 20 years, both highlighting the influence and impact of Melbourne Children's Campus researchers on this field. In the years 1990 – 2020, The Royal Children's Hospital was the most productive institution internationally. Professor Kerr Graham was the most successful author ranking highest in quality parameters.

How has this happened? Over the past 30 years there has been growth in the commitment to increasing knowledge about cerebral palsy and to improving the care of people with cerebral palsy and their families:

- The establishment of the Gait Laboratory in 1994 (Prof. Kerr Graham)
- The establishment of Solve! (Prof. Dinah Reddihough) which led to the creation of the first chair in Developmental Medicine in 2011 (the Apex Australia Chair of Neurodevelopment and Disability, Prof. Katrina Williams 2011-2019; Prof. Christine Imms 2020 –)
- The further chairs established due to the generosity of Pamela Galli (the Lorenzo Pamela Galli Chair in Developmental Medicine (Prof. David Amor) and the Bob Dickens Chair in Orthopaedic Surgery (Assoc. Prof Erich Rutz))

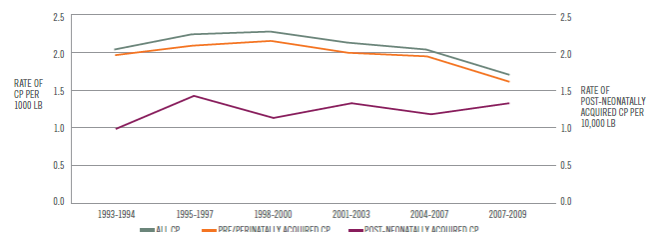
These have provided impetus and infrastructure to continue the quest to improve outcomes for every person with cerebral palsy.

We have been awarded three NHMRC-funded Centres of Research Excellence in Cerebral Palsy: in 2005 to focus on clinical gait analysis and gait rehabilitation (CIA Baker); in 2013 to focus on surveillance, assessment and intervention for children (CIA Reddihough); and in 2019 to focus on health, wellbeing and participation outcomes for the 10-30 year age group (CIA Reddihough). These CREs provide the funding to extend the work further and employ PhD and postdoctoral students, who in turn are continuing to make their own contribution in this multidisciplinary endeavour.

Underpinning much of the work has been the Victorian Cerebral Palsy Register, known internationally for its size (over 6300 participants) and longevity (established in 1987) and for the unique opportunity that it provides to study cerebral palsy across the lifespan.

This multidisciplinary effort has involved expert and dedicated clinicians and researchers from across the Campus, who now also work with close collaboration with young people with cerebral palsy and family members as research partners.

Figure 1. Rate of CP per 1000 live births (LB) and year of birth, South Australia, Victoria and Western Australia combined (1993-2009)



Aus CP Register report, 2016

Examples of our contribution to the upsurge in knowledge about cerebral palsy include:

- Epidemiological research, playing a key role in monitoring trends in cerebral palsy rates, profiles, causes, and mortality and demonstrating that Victorian and national rates of cerebral palsy are declining and are now one of the lowest in the world.
- Knowledge about MRI patterns contributing information to the understanding of aetiology and prognosis.
- Precise information about the movement disorder and associated disabilities, e.g., rates of hip displacement relative to motor severity, frequency of drooling, and speech and hearing problems.
- Awareness of the mental health difficulties of young people with cerebral palsy and their families.



- The evidence-base for various treatments e.g., upper limb splinting, botulinum toxin for upper and lower limb spasticity and saliva control, dystonia, multilevel surgery.
- Health services research including rates of admission and emergency department presentations of young people with cerebral palsy.
- Health economics including costs of interventions for cerebral palsy.
- Development of measurement tools now used nationally and internationally to measure outcomes: saliva control (Drooling Impact Scale), hand function (Melbourne Assessment of Unilateral Upper Limb Function), mobility (Functional Mobility Scale), gait (Gait Profile Score) and quality of life (Cerebral Palsy Quality of Life Questionnaire for Children). All these measures have been translated into multiple languages and used in many studies.
- Long term outcomes related to health, wellbeing and participation at home, at school and in the community.

Perhaps the main contribution has been to improve the quality of care for children with cerebral palsy and their families.

- Creation of hip surveillance guidelines, used nationally, have minimised painful hip dislocation and unnecessary harmful radiation exposure. Plans to link hip surveillance to the Victorian Cerebral Palsy Register will allow us to reach the 20% of children who currently miss out on surveillance and present with hip dislocations, which are very expensive to treat and often have very poor outcomes.
- Recent publication of the epidemiology of scoliosis has laid the groundwork for scoliosis screening guidelines.

- Studies evaluating the use of Botulinum toxin have not only documented effectiveness but have also demonstrated clinical situations where it does not work – thus avoiding ineffective interventions and resulting in large savings on a recurrent annual basis.
- Knowledge about the generally good prognosis for epilepsy with significant implications for clinical practice.
- Awareness about dental disease associated with submandibular duct excision for drooling resulting in improved dental surveillance for those being considered for this type of surgery.

Our work is ongoing. Our current CRE: CP Achieve involves 20 chief and associate investigators, 19 collaborating researchers, 4 post-doctoral and 14 affiliated doctoral students along with a host of Campus, national and international collaborators. Together with young people with cerebral palsy and family members, we will continue to contribute high quality, translatable evidence.



Doctor of Medicine students at GenV

Generation Victoria (genv.org.au) is Australia's largest birth cohort with ambitions to support transformative research for children and parents in coming decades. Led from the Melbourne Children's Campus, it is a whole-of-state cohort open to all 150,000 babies born in Victoria from Oct 2021-Sept 2023 and their parents, and is designed for discovery and interventional research.

Students have played a formative role in GenV since its inception. Our students, most enrolled through the Paediatrics Department at the University of Melbourne, have diverse interests – but all share the excitement of contributing to this unique project at the Murdoch Children's Research Institute.

This is the 4th year that we have hosted a sizable group of Doctor of Medicine (MD) projects, with 11 MDRP students currently undertaking six narrative reviews and five protocol developments. Since 2019, GenV has hosted 31 MD students. Students lead their own research project with supervision from GenV's multidisciplinary team. GenV benefits from diverse narrative reviews (that help scope and synthesise the literature) and protocols (that help plan GenV's research approaches) in pertinent areas of health and development, while the students gain hands-on training and experience of research in a professional environment.

Our projects tackle real-world challenges GenV itself faces. Through their placements, students are changing GenV for the better, readying it to implement new strategies so that future researchers can help find solutions to complex problems facing children and adults today. A universe of topics awaits future students as our children grow and our parents age. We hope that some of our medical students will embrace research as an important part of their future career, like GenV's Directors Melissa Wake and Sharon Goldfeld (both themselves paediatricians) – and perhaps within GenV itself.

Our door is always open for outstanding PhD students from all backgrounds. Just contact us at solutionsgenv@mcri.edu.au.

Australian Temperament Project Generation 3 Study

Study Overview

The Australian Temperament Project (ATP) is one of the longest running studies of social and emotional development in Australia. The study is based on a representative sample of over 2000 Australian children born in the state of Victoria, between September 1982 and January 1983. Since then, parents (Generation 1) and their offspring (Generation 2) have been followed for over 30 years (15 waves) across childhood, adolescence and into adult life.

The ATP Generation 3 Study (ATPG3) builds on the foundations of the ATP by following over 1000 cohort offspring (Generation 3) from late pregnancy to middle childhood. The study assesses parental emotional health, the parent-child relationship (including observational assessments of infant attachment and parental caregiving behaviour), and offspring social and emotional development. The study has also been set-up to study biological (epigenetic) processes linking generations. Department of Paediatrics staff members Sophie Barker and Annette Hall have been working on the study since 2015.

For further information, please see our study website <https://www.melbournechildrens.com/atp>

Project Background

The ATP began in 1983 as a collaboration between the Royal Children's Hospital Melbourne and La Trobe University, Victoria Australia. Over time the collaboration has expanded to include The University of Melbourne (Department of Paediatrics), The Australian Institute of Family Studies, Deakin University (Centre for Social and Early Emotional Development), the Murdoch Children's Research Institute, the University of New South Wales, and the University of Otago (New Zealand).

The ATPG3 is based within the Department of Paediatrics and is funded through National Health and Medical Research and Australian Research Council Grants awarded through the Centre for Social and Early Emotional Development. ATP and ATPG3 are included in various national and international cross-cohort collaborations including the Intergenerational Cohort Consortium, bringing long running cohort studies to examine the extent to which preconception parental life histories predict next generation health and development.

Honorary Staff



Professor Craig Olsson
Scientific Director, ATPG3 (since 2009)



Dr Chris Greenwood
Data Manager/Analyst



Dr Meredith O'Connor
Senior Research Fellow



Professor Ann Sanson
Scientific Director ATP (1988-2009)



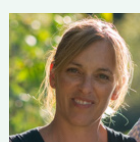
Dr Jacqui Macdonald
Senior Research Fellow /
Founding ATPG3 Project Manager



Dr Delyse Hutchinson
NHMRC Emerging Leadership
Fellow (2021-2025)



Dr Primrose Letcher
Senior Project Manager /
Senior Research Fellow



Dr Catherine Olsson
Senior Research Fellow



Professor Jennifer McIntosh
Clinical Investigator, Attachment Studies

2022 Publications

Letcher, P., McAnally, H., Greenwood, C., Spry, E., Macdonald, J., Thomson, K., Youssef, G., Hutchinson, D., McIntosh, J., Sanson, A., Sligo, J., Patton, G.C., Hancox, R.J., & Olsson, C.A. (accepted). Parental history of psychosocial wellbeing and child behaviour in next generation offspring: A two-cohort prospective intergenerational study. *Child Development*.

Olsson, C.M., Letcher, P., Greenwood, C.J., Moore, K., & Olsson, C.A. (accepted). The legacy of mental distress following physical illness in childhood: Findings from the Australian Temperament Project. *Journal of Pediatric Psychology*.

O'Connor, M., Guo, S., Letcher, P., Sanson, A., Goldfeld, S., Olsson, C.A. Developmental relationships between socio-economic disadvantage and mental health across the first 30 years of life. (2022). *Longitudinal and Life Course Studies* <https://doi.org/10.1332/175795921X16459587898770>

O'Connor, M., Greenwood, C.J., Letcher, P., Giallo, R., Priest, N., Goldfeld, S., Hope, S., Edwards, B., & Olsson, C.A. (2022). Inequalities in the distribution of COVID-19 related financial difficulties for families with young children. *Child: Care, Health and Development*. <https://doi.org/10.1111/cch.13010>

Spry, E., Letcher, P., Sanson, A., Patton, G.C., & Olsson, C. (2022). The developmental origins of stress reactivity: An intergenerational life-course perspective. *Current Opinion in Behavioral Sciences*, 43, 187-192, <https://doi.org/10.1016/j.cobeha.2021.10.005>

Macdonald, J., Greenwood, C., Letcher, P., Spry, E., McAnally, H., Thomson, K., Youssef, G., McIntosh, J., Hancox, R., Patton, G., Olsson, C. (2022). From adolescence to parenthood: A multi-decade study of mental health and parent-infant bonds. *Social Psychiatry and Psychiatric Epidemiology*, 57, 601–610. <https://doi.org/10.1007/s00127-020-01965-y>

O'Connor, M., Moreno-Betancur, M., Goldfeld, S., Wake, M., Patton, G., Dwyer, T., Tang, M. L. K., Saffery, R., Craig, J. M., Loke, J., Burgner, D., Olsson, C., & the LifeCourse Cohort Investigators. (2022). Data Resource Profile: Melbourne Children's LifeCourse Initiative (LifeCourse). *International Journal of Epidemiology*. <https://doi.org/https://doi.org/10.1093/ije/dyac086>



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Department of Paediatrics

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TikTok

https://www.tiktok.com/@unimelb_health

ACKNOWLEDGEMENT

Over the last two years, we have retained our staff and grown considerably.

We appreciate everyone's commitment to the Department of Paediatrics and the values they display.

The Department of Paediatrics would like to acknowledge all staff, researchers and individuals for their support and contribution towards our first report.

We would also like to, especially thank:

Professor Sarath Ranganathan, Head of the Department of Paediatrics

Dr Belinda McClaren, Senior Lecturer, Academic Coordinator

Mr David Pethick, Department Manager

Ms Christa Lai-Wong, Website Editor

Ms Kase Anderson, Executive Assistant