

Children's Intensive Care Research Program (ChIRP) 2023 Annual Report



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Overview of Research Program

Dedicated to improving outcomes for critically ill children, the Children's Intensive Care Research Program (ChIRP) conducts multicentre, multinational studies, and prioritises multi-disciplinary, local, national, and international collaborations.

Our main areas of research include:

- Clinical trial methodology;
- Precision medicine;
- Sepsis identification and treatment;
- Enhancing consumer engagement;
- Common interventions in intensive care including antibiotics and intravenous fluids; and
- Long-term follow up of children discharged from intensive care.

ChIRP comprises a multidisciplinary team with staff and students from varied fields including data science, data management, nursing, dietetics, intensive care, medicine, psychology, public health, and bioinformatics. Some of the team's recent achievements include Best Early-Mid Career Researcher (EMCR) Presentation at the Children's Health Queensland Research Symposium (2021 and 2022), Australian Trials Methodology Research Network Visiting Fellowship (2023), Children's Hospital Foundation Early Career Research Fellowship, NHMRC Investigator Grant (2023), >\$3M EMCRC lead-investigator funding, and completion of the 15th largest PICU clinical trial in history.

In 2023, facilitated by competitive collaborative grants (e.g., Council on Australia Latin America Relations; Unnati), ChIRP has prioritised the development and strengthening of local and international collaborations within UQ, and with other universities, hospital and health services, industry partners, and peak bodies. ChIRP is making global impacts including building paediatric clinical trial capacity in India and Brazil, enhancing consent processes across the life-course for children within and after intensive care, advancing paediatric precision medicine through digital clinical trials, culminating in changes to clinical practice.



Children's Intensive Care Research Program

Group Leader Summary

I am thrilled to present the first annual report summary for the Children's Intensive Care Research Program (ChIRP), within the Child Health Research Centre, Faculty of Medicine, The University of Queensland. Over the past year, our team has demonstrated an extremely high level of commitment to advancing paediatric critical care, propelling us onto an elevated trajectory of success. Our diverse, multidisciplinary research has not only contributed to the field's knowledge base but has also positioned us as a leading group in paediatric intensive care globally. This is further evidenced through high-profile national and international leadership positions.

We have warmly welcomed a number of new team members and students to ChIRP in 2023, and are continuing to experience a surge in interest from students eager to engage with our dynamic group. Our commitment to mentorship and fostering a collaborative learning environment is making us the destination of choice for aspiring researchers and clinicians. This influx of talent ensures the sustainability of our success and the continued evolution of our research endeavours.

As we celebrate our achievements, it is clear that ChIRP is poised for even greater accomplishments in the future. With a solid foundation, a talented team, and a commitment to excellence, we are confident that our group will continue to go from strength to strength, further solidifying our reputation as trailblazers in the field of paediatric intensive care.



A/Prof Kristen Gibbons

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Group Leader, [Children's Intensive Care Research Program \(ChIRP\)](#)
Child Health Research Centre
The University of Queensland

NHMRC Emerging Leader

Vice-Chair, Paediatric Study Group, Australian and New Zealand Intensive Care Society

Chair, Data Science Working Group, Paediatric Study Group, Australian and New Zealand Intensive Care Society

Deputy Chair, Metro South Human Research Ethics Committee

Key Projects

Resuscitation in Paediatric Septic Shock using Mega-Dose Vitamin C and Hydrocortisone - A Randomised Controlled Multicentre Trial (The RESPOND Study)

Funded by Children's Hospital Foundation; Financial Markets for Children; Australian National Health and Medical Research Council.

This project assesses the use of hydrocortisone and vitamin C in children with septic shock in Paediatric Intensive Care Units (PICUs) across six countries to support blood pressures (inotropes, steroids, vitamins) and improve blood flow to the organs.

Improving the lives of critically ill children: Clinical trial capacity building in India through the RESPOND Trial

Funded by the ARCH-India 'Unnati' Research Collaboration, Australian Government Department of Education.

This project delivers education to Indian PICU clinicians on clinical trial methodology through a series of workshops, webinars, and site visits, ensuring they can participate in international clinical trials and enhance their international visibility, ultimately benefitting their sickest children.

Rapid Personalised Diagnosis of Sepsis in Children

Funded by Personalised Health and Related Technologies – ETH Domain [Switzerland].

This study aims to use rapid omics technology to characterize the metabolome and proteome and search for biological phenotypes associated with sepsis to improve methods of diagnosis. This has great potential to result in better outcomes, lower costs, and less inappropriate antimicrobial use.

Rapid Acute Paediatric Diagnosis of Infection in Suspected Sepsis (RAPIDS)

Funded by Australian Government Medical Research Future Fund Genomics Health Futures Mission; Children's Hospital Foundation; Gold Coast Hospital Foundation; Emergency Medicine Foundation; Far North Queensland Foundation; Townsville Hospital and Health Service SERTA; Brisbane Diamantina Health Partners; Australian Infectious Diseases Research Centre.

This multicentre trial uses the most modern tests to assess gene expression to provide an accurate diagnosis of children with a suspected infection within hours (usually up to 48 hours). The research is determining whether this new technology could become standard of care, resulting in faster detection of sepsis and therefore, more timely and efficient treatment of infections, reducing the unnecessary use of antibiotics.

Gene Expression to Predict Long-Term Outcome in Infants After Heart Surgery (The NITRIC Follow-up Study)

Funded by the Australian Government Medical Research Future Fund Cardiovascular Health Mission - Congenital Heart Disease.

One out of four infants undergoing heart surgery develop a harmful response to cardiopulmonary bypass which leads to low cardiac output syndrome and prolonged severe organ failure post heart surgery in infants. We hypothesise that gene expression transcripts can identify this harmful response. Combinations of transcripts will yield a signature that will allow rapid discrimination of such patients. We will assess both short- and long-term outcomes which may ultimately enable the development of biomarkers for testing at the bedside.

Restrictive vs Standard Fluid Management in Mechanically Ventilated Children Admitted to PICU - a Pilot Randomised Controlled Trial (REDUCE)

Funded by Children's Hospital Foundation.

Provision of intravenous fluids is a key component of treatment within the PICU. However, excess fluid causes oedema which can impede oxygen delivery to cells, resulting in an increasing need for respiratory support as well as increasing the length of stay in the PICU. This trial assesses whether administering a safe restricted volume of intravenous fluids will assist in achieving better outcomes in comparison to a liberal approach to fluid management.

Machine Learning in the Paediatric Intensive Care Unit: Development of Risk Prediction Models (MELODY)

Funded by Ramaciotti Foundation.

Using advanced machine learning techniques, this project will develop a dynamic risk prediction model for early detection of patient deterioration using extensive, high-resolution data from >32,500 patient admissions across three large PICUs (Brisbane, Melbourne, and Zurich). The provision of resultant targeted treatments will increase the quality of life for PICU patients and their families, reducing mortality and the impact of neurodevelopmental sequelae.

Assessing school readiness outcomes in young children admitted to the paediatric intensive care unit using machine learning and population-based registry data in Queensland, Australia (READY-PICU)

Funded by the ZOLL Foundation.

1 in 3 PICU survivors will have ongoing problems with the way they move, learn, think, and feel long-term. This research uses machine learning to understand what parts of PICU care affected the developmental outcomes of over 2000 PICU survivors in Queensland during their first year of school. This will assist clinicians to create programs to help such children thrive at school.

Machine Learning to predict future educational outcomes in critically ill children

Funded by the Children's Hospital Foundation.

After successfully linking PICU admission data of the past 20 years with standardised school testing and administrative databases, this study uses machine learning techniques to build and test a predictive model to identify, at time of discharge, children at risk of poor educational outcomes. We will explore the integration of this approach with prospective clinical data, providing urgently needed evidence to guide families, practitioners, and researchers.

Building together: Better consenting practices for the most vulnerable in healthcare research

Funded by Metro South Research Support Scheme.

This study aims to enhance our understanding of delayed consent from a broad range of stakeholders. This enhanced understanding will lead to targeted resources for patients, families, carers, clinicians, researchers, and ethics committee members, in turn increasing the number of treatments under investigation to improve outcomes for critically unwell patients.

Adaptive Clinical Trials in Paediatric Critical Care

Supported by an AusTriM Visiting Fellowship.

Only 3% of randomised controlled trials conducted within PICUs have incorporated adaptive trial designs, yet they are shown to improve efficiency, are often more cost-effective and can result in recruitment of fewer patients. This project aims to use surveys and interviews of PICU trialists to identify barriers and facilitators in incorporating adaptive designs, and to demonstrate the influence that Bayesian adaptive designs may have had on trial efficiency and study results.

Group Members

Name	Highest Degree	Role
A/Prof Kristen Gibbons	PhD	Group Lead / Senior Biostatistician
Dr Sainath Raman	PhD	Clinical Lead / Paediatric Intensivist / Snr Research Fellow
Dr Anna MacDonald	PhD	Research and Operations Manager
Dr Trish Gilholm	PhD	Data Scientist / Postdoctoral Research Fellow
Dr Devika Ganesamoorthy	PhD	Bioinformatician / Postdoctoral Research Fellow
Ms Renate Le Marsney	MPH	Data Manager
Ms Trang Pham	MEng	Data Manager
Ms Courtney Whitehead-Nagy	BComm	Research Administration Officer
Dr Prabha Ajjikuttira	PhD	Research Officer
Prof Luregn Schlapbach	PhD	Honorary Professor
A/Prof Debbie Long	PhD	Academic Title Holder – A/Prof
Dr Kevin Plumpton	MBChB	Industry Fellow / Deputy Director PICU QCH
Kerry Johnson	BNursSt	Adjunct Fellow / Clinical Research Coordinator
Natalie Sharp	BN	Industry Fellow/ Research Nurse Coordinator
Melanie Kennedy	BN	Industry Fellow/ Research Nurse Coordinator
Ama Ranasinghe	BSci(Hons)	Industry Fellow / Research Administration Officer
Kate Weller	MPH	Industry Fellow / QPSP Manager
Karina Charles	BN	Research Affiliate / Research Nurse Coordinator
Dr Jessica Schults	PhD	Research Affiliate / Senior Research Fellow

Higher Degree Research Supervision

Name	Degree	Supervisors	Project Title
Alyssa Serratore	PhD	A/Prof Kristen Gibbons, Dr Sainath Raman, Dr Bec Jenkinson, Dr Jenny O’Neill	Understanding and incorporating the consumer voice in paediatric intensive care research
Quyen Tu	PhD	Prof Jason Roberts, Dr Sainath Raman, Prof Luregn Schlapbach, Dr Marino Os Cotta	Optimising antibiotic dosing in paediatric critical care
Huy Nguyen	PhD	Dr Sen Wang, A/Prof Kristen Gibbons, Dr Sainath Raman, Dr Ruihong Qiu	Expanding Data Sets to Allow Improved Critical Care for Children – Inpatient Risk Prediction
Michele Cree	PhD	Dr Suzanne Parker, Prof Jason Roberts, Prof Luregn Schlapbach	Establishing effective antibiotic and sedative dosing in paediatrics with extracorporeal therapies (including extracorporeal membrane oxygenation and renal replacement therapies)

Publications

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Conference Presentations

Limited to plenary, keynote and invited presentations.

Name of presenter	Invited, keynote, plenary?	Title of presentation and conference name (ChIRP staff highlighted)
A/Prof Kristen Gibbons	Invited	Gibbons K , Boyde M, Raman S , Pinkerton R, Isles A, Bloomer M, Denny K, Liley H, Long D , Milne D. A scoping review to inform better consenting practices for the most vulnerable in healthcare research. Australasian Association of Bioethics and Health Law; Brisbane, November 2023.
A/Prof Kristen Gibbons	Invited	Gibbons K . Comparison of Administration of 0.9% Sodium Chloride Solution vs Plasma-Lyte vs Compound Sodium LacTate Solution in Children Admitted to PICU: A Randomised Controlled Trial. Australian and New Zealand Intensive Care Annual Scientific Meeting; Adelaide, March 2023.
A/Prof Kristen Gibbons	Invited	Gibbons K . Innovative trial designs: A primer. Doctoral Seminar, Universite de Lausanne / CHUV; Lausanne, March 2023.
A/Prof Kristen Gibbons	Invited	Gibbons K . How adaptive designs fits implementation science. Les conférences de l'IUFRS; Lausanne, March 2023.
A/Prof Kristen Gibbons	Invited	Gibbons K . Investigator-Initiated RCTs in Paediatrics: Lessons Learnt and Opportunities for the Next Decade. University Children's Hospital Zurich Clinical-Biochemical Colloquium, Zurich, February 2023.
A/Prof Kristen Gibbons	Invited + plenary speaker	Gibbons K . The Methodologist's View: Insights from running trials in paediatric intensive care. ESPNIC Winter Research School; Lausanne, Switzerland, January 2023.
Dr Trish Gilholm	Invited	Gilholm, P . Educational outcomes after PICU. Australia and New Zealand Intensive Care Society Annual Scientific Meeting; Adelaide, March 2023
Dr Trish Gilholm	Invited	Gilholm, P . Machine learning to predict poor school performance in paediatric survivors of intensive care – A population-based study. Australia and New Zealand Intensive Care Society Paediatric Study Group (ANZICS PSG) Scientific Meeting. Noosa, March 2023.
A/Prof Kristen Gibbons	Invited panellist	From Theory to Practice: Real-World Approaches to Implementing QI Measures in Critical Care. Pedicriticon; Pune (India), November 2023.
A/Prof Kristen Gibbons	Invited panellist	High Risk Follow Up of Post Discharge, Whom to Follow, What to Look For. Pedicriticon; Pune (India), November 2023.

Name of presenter	Invited, keynote, plenary?	Title of presentation and conference name (ChIRP staff highlighted)
Dr Sainath Raman	Invited panel chair	Recent Update: Pain And Analgesia Guidelines. Pedicriticon; Pune (India), November 2023.
Dr Sainath Raman	Invited panellist	Use of Biomarkers in Sepsis: Clinical Relevance and Limitations. Pedicriticon; Pune (India), November 2023.
A/Prof Kristen Gibbons	Invited	Gibbons K. Building together: A scoping review to inform better consenting practices for the most vulnerable in healthcare research. Australian Ethics Network (AEN); Melbourne, May 2023.
Prof Luregn Schlapbach	Invited	Schlapbach L. Sepsis in children. European Sepsis Alliance; Brussels, March 2023.
Prof Luregn Schlapbach	Invited	Schlapbach L. RESPOND Trial. European Sepsis Alliance; Brussels, March 2023.
Prof Luregn Schlapbach	Invited	Schlapbach L. RESPOND Trial. Australian and New Zealand Intensive Care Annual Scientific Meeting; Adelaide, March 2023.
Prof Luregn Schlapbach	Scientific Board and Faculty	Schlapbach L. Sepsis Update 2023; Fluids versus inotropes; Low cardiac output syndrome revisited. 14th European Postgraduate Course in Neonatal and Pediatric Intensive Care; Bern, March/April 2023.
Prof Luregn Schlapbach	Invited	Schlapbach L. Update on Sepsis Recognition; National Sepsis Action Plans. Latin American Sepsis Forum, 2023.
Prof Luregn Schlapbach	Invited panellist	Schlapbach L. OXY-PICU Editorial. Critical Care Reviews; Belfast, June 2023.
Prof Luregn Schlapbach	Invited	Schlapbach L. Sepsis recognition – more than needles in the haystack; Personalized Medicine in PICU. European Society of Paediatric and Neonatal Intensive Care; Athens, June 2023:
Prof Luregn Schlapbach	Invited	Schlapbach L. Critical Care Trials for Children – Not just Small Adults? International Collaborative Critical Care Trials; Prato, Italy, June 2023.
Prof Luregn Schlapbach	Invited	Schlapbach L. Life after PICU- How our work impacts long term trajectories. Pediatric Intensive Care Chapter of Indian Academy of Pediatrics; July 2023.

Grant Funding Awarded in 2023

	Investigators (CIs only). Please highlight CHRC staff.	Funding Body	Funding scheme	Project Title	Dates (years)	Total funding amount
Dr Trish	N/A	Zoll-US	ZOLL Foundation Grants	Assessing school readiness outcomes in young children admitted to the pediatric intensive care unit using machine learning and population-based registry data in Queensland, Australia.	04 July 2023 to 30 Jun 2025	\$68,712.50
Dr Trish Gilholm	N/A	Australian Trials Methodology (AusTriM) Research Network	2023 Visiting Fellowship in Clinical Trial Methodology	Developing expertise in RCTs in pediatric critical care.	08 October 2023 – 20 October 2023	\$3,024
A/Prof Kristen Gibbons	Jha Vivekanand, Jayashree Muralidharan	Government Department of Education via Australia India Institute/ ARCH-India Australia	2023 Unnati Research Collaboration Grant.	Improving the lives of critically ill children: Clinical trial capacity building in India through the RESPOND Trial.	08 June 2023 to 08 Dec 2023	\$30,000
A/Prof Kristen Gibbons	N/A	NHMRC	Investigator Grant	Improving the lives of critically ill children through innovative trials of precision medicine.	01 Jan 2024 to 31 Dec 2028	\$1,586,190.00
A/Prof Kristen Gibbons	Sainath Raman, Jessica Schults , Bala Venkatesh, Jha Vivekanand, Jayashree Muralidharan, Jhuma Sankar	UQ Global Strategy and Partnerships	Global Strategy and Partnerships Seed Funding Scheme: Round Two 2023	Advancing Paediatric Partnerships with India: Transforming the Lives of Critically Ill Children	01 August 2023 -31 st August 2024	\$11,344 (\$5,672 GSP matched by \$5,672 from FOM and CHRC)
Ms Alyssa Serratore	Kristen Gibbons, Sainath Raman , Bec Jenkinson, Jenny O'Neil	UQ Faculty of Medicine	Early and Mid-Career Academic Consumer and Community Involvement (EMCR CCI) Kickstart Funding Scheme	Promoting and developing strategies to support the inclusion of the consumer's voice in Paediatric Intensive Care Unit (PICU)	01 August 2023 to 31 December 2023	\$500
Dr Amanda Harley	Devika Ganesamoorthy, Sainath Raman , Natalie Phillips, Kristen Gibbons , Lachlan Coin, Luregn Schlapbach	Emergency Medicine Foundation	Leading Edge Grant	Biomarkers for rapid diagnosis of paediatric sepsis	01 January 2024 to 31 December 2025	\$99,924

	Investigators (CIs only). Please highlight CHRC staff.	Funding Body	Funding scheme	Project Title	Dates (years)	Total funding amount
Jemma Woodgate	Kristen Gibbons, Sainath Raman , Kristie Bell, Jeanne Marshall	Children's Health Queensland Study Education and Research Trust Account (SERTA)	Research Grant	Nutrition therapy in infants receiving extracorporeal life support: A prospective, multi-site, observational study	01 January 2024 to 01 February 2026	\$18,933
Lori Anthony	Kristen Gibbons , Anthony Slater, Karina Charles, Deborah Long	Children's Health Queensland Study Education and Research Trust Account (SERTA)	Research Grant	PICU survivorship care planning: Identifying unmet healthcare needs in children following critical illness	01 January 2024 to 01 February 2026	\$19,939
TOTAL						\$1,838,566.50

Awarded Fellowships

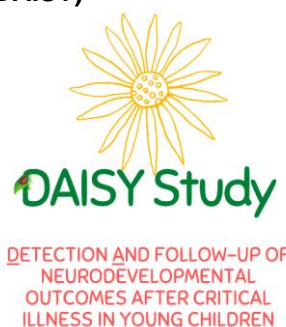
Funding body	Fellowship scheme	Investigator	Project Title	Years	Total funding amount
Australian Trials Methodology (AusTriM) Research Network	Visiting Fellowship	Dr Trish Gilholm	Developing expertise in RCTs in paediatric critical care	1	\$3,024
National Health and Medical Research Council	Investigator Grant	A/Prof Kristen Gibbons	Improving the lives of critically ill children through innovative trials of precision medicine.	5	\$1,586,190

Awards

Name of awardee	Award
A/Prof Kristen Gibbons	Leader of the Future (Academic), Faculty of Medicine, UQ
ChIRP	Finalist, Collaborators of the Year, Faculty of Medicine, UQ
Dr Anna MacDonald	CHRC Unsung Hero

Clinical Trials

Name of Study	Lay summary	Chief Investigators
Resuscitation in Paediatric Septic Shock using Mega-Dose Vitamin C and Hydrocortisone - A Randomised Controlled Multicentre Trial (RESPOND) 	<p>Sepsis and serious infections in children are one of the most common reasons for admission to intensive care. Septic shock occurs when there is a significant decrease in the blood pumped to the body.</p> <p>When children are admitted to hospital with septic shock, they can receive different treatments. These include antibiotics, fluids given through their veins, and medications to support blood pressures (inotropes, steroids, vitamins) and improve blood flow to the organs. This project is assessing the use of hydrocortisone and vitamin C in children with septic shock.</p>	A/Prof Kristen Gibbons Prof Luregn Schlapbach Dr Sainath Raman Prof Rinaldo Bellomo Prof Warwick Butt A/Prof Debbie Long Prof John Beca Dr Simon Erickson Dr Marino Festa A/Prof Shane George
Transnasal Humidified Rapid Insufflation Ventilatory Exchange in children requiring emergent intubation (Kids THRIVE)	<p>The study attempts to improve oxygenation in infants and children undergoing emergency intubation. The results of this study are likely to change standard practice to improve outcome for these vulnerable patients.</p>	Prof Andreas Schibler Dr Stuart Dalziel Prof Luregn Schlapbach A/Prof Jason Acworth A/Prof Kristen Gibbons Prof Brenda Gannon Prof Simon Craig A/Prof Shane George Dr Ben Gelbart Dr Simon Erickson
Restrictive vs Standard Fluid Management in Mechanically Ventilated Children Admitted to PICU - a Pilot Randomised Controlled Trial (REDUCE)	<p>The provision of intravenous fluids is a key component of treatment for a variety of conditions within the paediatric intensive care unit (PICU). However, there is currently a lack of evidence regarding the appropriate amount of fluid that should be administered to critically ill children. Excess fluid causes oedema which can impede oxygen delivery to cells and as such, result in the escalation of respiratory support as well as increase length of PICU stay. The REDUCE trial is aiming to assess whether administering a safe restricted volume of intravenous fluids will assist in achieving better outcomes in comparison to a liberal approach to fluid management.</p>	Dr Sainath Raman A/Prof Kristen Gibbons Prof Luregn Schlapbach Dr Sarfaraz Rahiman Melanie Kennedy A/Prof Adrian Mattke A/Prof Prem Venugopal Dr Craig McBride Quyen Tu Dr Florian Zapf Dr Eva Kuhlwein Jemma Woodgate Dr Puneet Singh

Name of Study	Lay summary	Chief Investigators
<p>Detection and Follow-up of Neurodevelopmental Outcomes after Critical Illness in Young Children (DAISY)</p>  <p>DAISY Study DETECTION AND FOLLOW-UP OF NEURODEVELOPMENTAL OUTCOMES AFTER CRITICAL ILLNESS IN YOUNG CHILDREN</p>	<p>Currently, Queensland does not provide any follow-up services to children following a severe illness or injury, despite research showing the significance of emerging, persisting impairments.</p> <p>The aim of the DAISY Study is to pilot a collaborative, online screening platform and General Practitioner shared-care follow-up model following PICU admission.</p> <p>We will explore the acceptability of this model with parents and GPs to ensure the best methods for follow-up. We will also determine those children most at risk and the best times to provide early interventions.</p>	<p>A/Prof Debbie Long A/Prof Samudragupta Bora Dr Belinda Dow A/Prof Kristen Gibbons Dr James Best Dr Kerri-Lyn Webb Dr Christian Stocker Prof Helen Liley Dr Zephania Tyack Prof Debra Thoms Prof Luregn Schlapbach Mrs Carolyn Wharton Mrs Lori Anthony Dr Isabel Castillo</p>
<p>Nitric Oxide on Extracorporeal Membrane Oxygenation in Neonates and Children (NECTAR)</p>	<p>Extracorporeal membrane oxygenation (ECMO) provides support for the pulmonary or cardiovascular function of children in whom the predicted mortality risk remains very high. The inevitable host inflammatory response and activation of the coagulation cascade due to the extracorporeal circuit contribute to additional morbidity and mortality in these patients. Mixing nitric oxide (NO) into the sweep gas of ECMO circuits may reduce the inflammatory and coagulation cascade activation during ECMO support.</p>	<p>A/Prof Adrian Mattke Ms Kerry Johnson A/Prof Kristen Gibbons A/Prof Debbie Long Dr Jeremy Robertson A/Prof Prem Venugopal Prof Antje Blumenthal Prof Andreas Schibler Prof Luregn Schlapbach</p>

Community Engagement, Outreach & Media Activities

Brazil Workshops

Four online Clinical Trial Methodology Workshops were conducted in October and November 2023 as an initiative between UQ & Instituto Latino Americano de Sepse (ILAS), funded by the Council on Australia Latin America Relations (COALAR).

Workshop 1: Developing the research questions, aims, and objectives

Presenters: A/Prof Kristen Gibbons & Prof Luregn Schlapbach

Topics covered:

- The research process
- Clinical question
- Literature search
- Assembling a team
- Defining the research question and aims
- Determining the study design
- Writing the protocol

Approx 70 live attendees, 358 registered and received the recording

Workshop 2: Recruitment, Consent and Data Collection

Presenters: Dr Sainath Raman, A/Prof Debbie Long & Kerry Johnson

Topics covered:

- Participant selection
- Randomisation and blinding
- Method of consent
- Data collection
- Long-term outcomes follow-up

Approx 55 live attendees, 358 registered and received the recording

Workshop 3: Methods and Operations

Presenters: A/Prof Kristen Gibbons & Kerry Johnson

Topics covered:

- Sample size
- Statistical analysis plan
- Monitoring
- AE/SAE reporting
- Dissemination

Approx 35 live attendees, 358 registered and received the recording

Workshop 4: Case Study – RESPOND Paediatric Sepsis Trial

Presenters: Prof Luregn Schlapbach & Dr Sainath Raman

Topics covered:

- Why the RESPOND trial?
- The RESPOND pilot
- The RESPOND full trial
- Trial tips and tricks

Approx 20 live attendees, 358 registered and received the recording

India Workshops/Presentations

Paediatric Sepsis, 28/11/2023

Presenter: Dr Sainath Raman

St. John's Medical College Hospital, India

Topic: Paediatric Sepsis

Attendees: Paediatric critical care trainees

The AI Revolution in Intensive Care: From Data to Decisions, 04/12/2022

Presenter: A/Prof Kristen Gibbons

A presentation given at the Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh, made possible with support from the Australia India Institute with funds provided by the Australian Government Department of Education Department of Education

Topics covered:

- What is machine learning?
- Types of machine learning
- Data in machine learning clinical outcomes
- Data Requirements for Machine Learning
- Importance of model validation
- Considerations in Combining Data from Multiple Sites

Using Bayesian Forecasting in Paediatric Antimicrobial Dosing, 04/12/2022

Presenter: Dr Sainath Raman

A presentation given at the Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh, made possible with support from the Australia India Institute with funds provided by the Australian Government Department of Education

Topics covered:

- Current dosing regimen
- Pharmacokinetics in children
- The critically ill child
- Augmented renal clearance
- Extra corporeal membrane oxygenation
- Cardiopulmonary bypass
- Therapeutic drug monitoring

- Model-informed precision dosing
- The DIRECT study

2 x Clinical Research Methodology Workshops

Presenters: A/Prof Kristen Gibbons, Dr Sainath Raman, and Indian colleagues

Workshop given at the Post Graduate Institute of Medical Education & Research (PGIMER), Chandigarh, and at the 2023 Pedicriticon National Congress, made possible with support from the Australia India Institute with funds provided by the Australian Government Department of Education.

Topics covered:

- Introduction to Clinical Research – PICO, Study Designs
- Literature reviews
- Introduction to protocols
- Surveys
- Observational studies
- Statistics
- Clinical trials
- How to write a protocol
- Mentored research proposal development

Other 2023 Highlights

Internal Collaborations

Our collaboration with internal UQ stakeholders has been instrumental in fostering innovation and excellence in our research endeavours. Through partnerships with, for example, the School of Nursing, Midwifery, and Social Work (HABS Faculty), Infection and Inflammation Group, Frazer Institute, UQ Centre for Clinical Research, Mater Research Institute (Faculty of Medicine), and the ARC Training Centre for Information Resilience (Faculty of Engineering, Architecture and Information Technology), we have achieved shared PhD supervision (e.g., in data science, midwifery), joint grants (e.g., MRFF, Intensive Care Foundation), and co-authored publications.

External Collaborations

We collaborate with all ANZ PICU, often acting as the lead site in multi-centre, binational research. Supporting the successful implementation of UQs Global Engagement Framework, ChIRP has been awarded two UQ Global Strategy and Partnerships Seed Funding Scheme grants, elevating UQ's partnerships with the University of Zurich (Switzerland; UQ Premier Partner) and Manipal Academy of Higher Education (India; UQ Enabling Partner). We have translated these partnerships into an additional \$2.6M in research funding, joint PhD student supervision, and plenary speaker invitations at international conferences. As global leaders in PICU research, ChIRP is the driving force behind initiatives to build clinical trial capacity in lower-resourced settings; federal government funding has enabled UQ-led workshops engaging >200 clinicians and researchers across India and South American, six Brazilian and three Indian PICUs obtaining ethical approval to recruit for UQ-led clinical trials, and invitations for ChIRP representation on international consortiums for sepsis guideline development and global clinical trial collaboration.

We also highly value our relationships with industry partners and consumer advocacy groups. For example, this year we have worked with industry partner, Immunexpress, and hospital partner, Queensland Children's Hospital (QCH), to complete retrospective testing and real-time intensive care patient sampling required for the validation of a bedside device diagnosing sepsis. We co-design research alongside our consumer partners (e.g., HeartKids) and our consumer research buddies (who have lived experience of PICU), to prioritise outcomes important to families, and develop research practices responsive to their needs. For example, in collaboration with consumers, Metro South, Mater, Gold Coast HHS, QCH, and QUT, ChIRP is leading a multidisciplinary program of research in improving consenting practices across neonatal, paediatric, and adult ICU clinical trials, which is funded by a Metro South-UQ Research Collaboration Grant, and supported by the NHMRC.

A/Prof Kristen Gibbons was awarded the 2023 Faculty of Medicine Leader of the Future (Academic) Award

Only 6 years post-PhD, ChIRP's Group Leader A/Prof Kristen Gibbons is a highly sought-after Biostatistician and Clinical Triallist. Her burgeoning research program focusses on enhancing clinical trial methodologies, development of prediction models, and machine learning for clinical-decision-making tools. Her research is making a tangible impact on health outcomes and is of global significance.

Since commencing at UQ in 2020, Kristen has developed extensive national and international networks, has attracted over a dozen students, and has grown her team from 2 full-time equivalent (FTE) staff (data management only) to an 8 FTE multidisciplinary team. Kristen demonstrates excellence in research quality and impact through her stellar, accelerating track record, including >155 publications (including two recent publications in the prestigious Journal of the American Medical Association) and chief investigator on highly competitive national grants (e.g., CI on 2x MRFF; CIA, NHMRC Clinical Trials and Cohort Studies grant). Kristen was recently awarded an NHMRC Emerging Leadership Fellowship (2024-2029), leading a

transformative program of research focused on improving the lives of critically ill children through innovative trials of precision medicine.

Kristen has a strong national and international reputation in collaboration, clinical trials, and biostatistics. As the elected Vice-Chair of the Australian and New Zealand Intensive Care Society Paediatric Study Group (ANZICS PSG)—the first non-clinician to ever hold a position on the Executive Committee—she and her team collaborate with PICUs across ANZ, as well as with international collaborators in Zurich, India, Brazil and Argentina.

Images

ChIRP Visit to India, November 2023

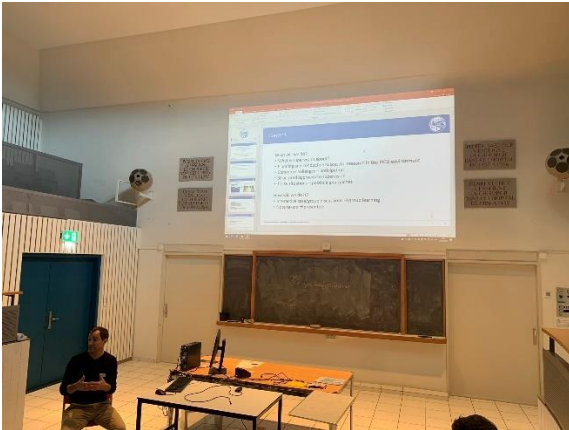






Academic Visiting Fellowship to University Children's Hospital, Zurich



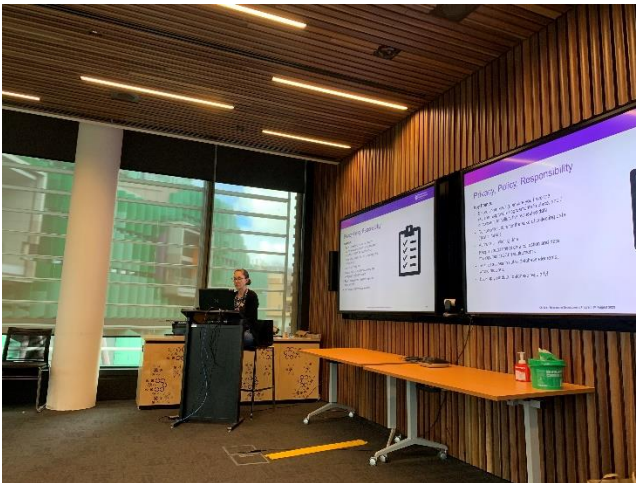


Awards





Other ChIRP Activities





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