2024 Annual Research Report

Central Northern Adelaide Renal and Transplantation Service (CNARTS)

Shaping the future of health with world-class care and world-class research

Government of South Australia

Health
Central Adelaide
Local Health Network

Contents

This report is produced by Dr Richard Le Leu and Prof Shilpa Jesudason on behalf of CNARTS.
Any queries about the content please contact Dr Richard Le Leu (richard.leleu@sa.gov.au).

Welcome

Welcome to the 8th Annual Research Report from the Central Northern Adelaide Renal and Transplantation Service (CNARTS), Central Adelaide Local Health Network.

CNARTS is very proud to highlight our research achievements for the last year. The breadth of clinical and laboratory research in CNARTS continues to move from strength to strength. Our staff, researchers and consumer partners remain committed to advancing knowledge and improving patient outcomes through innovation in the field of nephrology.

We also take this opportunity to sincerely thank our funding bodies, sponsors and supporters. Without this exceptional financial support for research in a highly competitive funding environment, we would not be able to progress the scope of research the unit undertakes.

As you read through this year's Annual Report, please reflect on the multidisciplinary projects, the wide collaborations, the support of new researchers and emerging future research leaders, and the national and global recognition our team receives. We are delighted to see these elements within our service and strive to provide an enriched environment in which research can flourish.

Thank you to all involved for your hard work and dedication to improving patient care.

Prof Shilpa Jesudason

Head of Unit, Renal

About CNARTS

The Central Northern Adelaide Renal and Transplantation Service (CNARTS) is the largest renal unit in South Australia and the third largest renal unit in Australia, caring for over 1700 patients with kidney failure, and many thousands more at all stages of chronic kidney disease. CNARTS currently provides dialysis services to approximately 850 dialysis patients, including supporting 170 home dialysis patients and provides supportive care to 170 patients and. CNARTS is the 3rd largest transplant unit and supports around 1000 existing transplant recipients. In 2024, CNARTS performed 100 transplants in total, which included 33 living donors, 4 simultaneous kidney-pancreas transplants, 2 Allogeneic islet transplants and 6 Auto islet transplants.

Visit the CNARTS website here

We service South Australia and Northern Territory

Mission statement

CNARTS has a strong history of research, delivering pioneering therapies and advancing care in general nephrology but also many specialised areas where we have been national and world leaders.

We aim to:

- *Improve the understanding of the science underpinning kidney diseases, dialysis and kidney transplantation, type 1 diabetes and hereditary pancreatitis*
- *Conduct translational research that is patient-centred and leads to improvements in treatments, outcomes and the patient experience*
- *Advance the use of new technologies, methodologies and treatments*
- *Support and mentor staff and students to build a highly skilled future research workforce*

Research sponsors

We are very grateful for the generous donors and fundraisers who support our research efforts. Without this support we would not be able to progress projects to improve the lives of people living with kidney disease.

The Hospital Research Foundation Group

hospitalresearch.org.au

Kidney, Transplant & Diabetes Research Australia

kidneydiabetesresearch.org.au

The Hospital Research Foundation (THRF) Group funds life-changing medical research, improved treatments and healthcare services in the community.

Kidney, Transplant and Diabetes Research Australia (KTDRA) is a charity of THRF Group. Together, KTDRA and THRF commit funds to advance kidney research through a number of 2024 CNARTS projects, including:

- Pre-clinical screening of GAD65 CAR-Tregs as a Novel Therapy for Type 1 Diabetes **– $27,230**
- The Effect of an Exercise Program on Peritoneal Dialysis Outcomes: A Feasibility Study (CORE-PD) **– $22,800**
- Investigating Tacrolimus exposure in pregnancy through advancing therapeutic drug monitoring and exploring impact on outcomes **– $50,000**
  kidneydiabetesresearch.org.au/news-stories/latest-news/funding-boost-for-kidney-transplant-diabetes-research/
- Feasibility and acceptability of a codesigned self-management program for chronic kidney disease patients **– $10,000**
- The Kidney Mum's Project: Supporting women with kidney disease to overcome their challenges to become mothers **– $150,000**
- Implementing the INJECT program (improving needle fear management in haemodialysis patients) into clinical practice **– $54,000**
  kidneydiabetesresearch.org.au/news-stories/latest-news/toolkit-to-help-women-with-kidney-disease-become-mothers/
- How to best manage a patient 24 hours after a kidney transplant **– $94,000**
  kidneydiabetesresearch.org.au/news-stories/latest-news/world-first-transplant-management-research-is-on-track/
- Funding for a Central and Northern Adelaide Renal and Transplantation Service (CNARTS) Clinical database that will help us understand how we care for patients, the quality of care they get and their outcomes – we can then be sure that our care is world class, **– $200,000**.
- Establishing islet isolation in Adelaide – Total pancreatectomy and Islet-Auto Transplantation (TPIAT) **– ($118,495)**

Awards and Fellowships

Prof Shilpa Jesudason and the Pregnancy Kidney Research Australia consumer group were awarded the 'Community Engagement Award" from South Australian Health Medical Research Institute (SAHMRI) for their outstanding involvement with consumers.

Dr Michael Collins received the *Jaquot award* for 'Research Establishment" at Australian and New Zealand Society of Nephrology (ANZSN) Conference in Adelaide. He proposed and is the co-lead investigator of the BEST-Fluids trial, a multi-centre, pragmatic trial of IV fluid therapy in kidney transplant recipients. This work was supported by the Jacquot Research Establishment Fellowship, in addition to funding from the Medical Research Future Fund (Australia), the New Zealand Health Research Council and the BEAT-CKD group of investigators.

Prof Randall Faull was awarded lifetime membership of the Australian and New Zealand Society of Nephrology (ANZSN) for his services to Nephrology, including as a past president of the society.

Dr Griffith Perkins was a Finalist for the *'Premier's Excellence Award – Emerging Young Talent'.*

Continuing *Mary Overton Early Career Research Fellowship* (2023–2025); continuing Kidney International Editorial Fellowship (2023–2025).

Received a Travel Award to attend the Australian and New Zealand Society for Immunology Clinical & Translational Immunology School.

James Zuiani (PhD Candidate) received a TSANZ Early Career Researcher award.

Received a Travel Award from Adelaide Medical School.

Was awarded an APA Young Investigator travel grant.

Denghao Wu (PhD Candidate) was awarded an Early Career Research Award from the Transplantation Society of Australia and New Zealand (TSANZ) for his research on Hereditary Pancreatitis.

Was awarded a travel grant from Kidney, Transplant and Diabetes Research Australia (KTDRA) to attend the American Pancreas Association Annual Meeting in Hawaii, USA.

Dr Alison Weightman (PhD Candidate) Was awarded a supplementary scholarship from Kidney, Transplant and Diabetes Research Australia (KTDRA) for her PhD study on 'Decision Making in Kidney Transplantation: An Applied Bioethics Approach".

CALHN Nimmo Visiting Professor

The Nimmo Visiting Professorship is a highlight of the Central Adelaide Local Health Network educational (CALHN) program. Since its inception in 1969, the Nimmo has featured an annual program of international speakers to enrich and stimulate local discussions. In 2024, The Central and Northern Adelaide Renal and Transplantation Service was honoured to host Professor Levin for her 2-week visit to Adelaide.

Professor Levin is a Professor of Medicine, Head Division of Nephrology at the University of British Columbia, and Consultant nephrologist at Providence Health Care/ St Paul's Hospital, in Vancouver Canada. She is Senior Medical Lead, Integration Clinical and Academic Networks at PHC. She is the Executive Director of BC Renal, which oversees the care, planning and budgets for Kidney services in the province of British Columbia.

She is active in international activities across the spectrum of kidney education, research, and administrative activities, and was past President of International Society of Nephrology (ISN), from 2015–17). Her major research interests include cardiovascular disease and comorbidities in CKD patients, variability in the progression of CKD and optimal models of care. She has over 600 peer reviewed publications, and numerous book chapters. She is the Principal Investigator on a CIHR SPOR network grant CANSOLVE CKD, worth $40million.

Her teaching and research awards include Canadian Society of Nephrology Outstanding Contributions to Canadian Nephrology (2013), Kidney Foundation Research Medal of Excellence (2014), and is a fellow of Canadian Academy of Health Sciences (2014), and the Aubrey J Tingle Research Award for contributions to the province of BC (2015). In 2015, she was awarded The Order of Canada. In 2024, she received the International Society of Nephrology Jean Hamburger Award for Excellence in Clinical Research.

Over her 2-week visit, Prof Levin met with staff and groups across CNARTS and participated in many clinical meetings. Some highlights included presenting at the CALHN Medical Grand Round, participating in the Better Evidence and Translation in Chronic Kidney Disease (BEAT- CKD) Workshop, the CALHN Medical Grand Round Nimmo Prize presentations and the CALHN Data workshop, where Prof Levin gave a fantastic presentation on "the impacts and challenges of excellent clinical data management in the renal space".

Research funding

Clinical Research Group

$22,800

2024 Kidney, Transplant & Diabetes Research Australia (KTDRA)

B Tarca, **S Jesudason, M Ovenden,** P Bennett

The Effect of an Exercise Program on Peritoneal Dialysis Outcomes: A Feasibility Study (CORE-PD).

The program will recruit patients who are ~3–4months from peritoneal dialysis catheter insertion, following them through the insertion/treatment commencing and re-introducing exercise so that they exercise safely and effectively whilst receiving peritoneal dialysis.

$50,000

2024 Kidney, Transplant & Diabetes Research Australia (KTDRA)

E Hewawasam, B Sallustio, B Huuskes, **S Jesudason**

Investigating Tacrolimus exposure in pregnancy through advancing therapeutic drug monitoring and exploring impact on outcomes.

$60,000

2024 The Health Translation SA (HTSA) MRFF Catalyst Grant Scheme

S Jesudason, C Siu, **E Hewawasam,** M Howell, K Owen, C Malik, B Robson, K Lam, G Harvey, A Sluiter

The kidney as a window to pregnancy and future health.

$12,000

2024–25 HSCGB

J Zhang, R Le Leu, P Bennett, **S Welke, S Jesudason**

Nurses' Perceptions of Patient Challenges Transitioning to Dialysis: A Qualitative Study.

$54,000

2023–24 Kidney, Transplant & Diabetes Research Australia (KTDRA)

G Radisic, R Le Leu, K Collins, A Burke, **F Donnelly,** K Hill, A Chur-Hansen, **S McDonald,** S Muthuramalingam, B Tan, **S Jesudason**

Implementation of the INJECT program (Improving needle fear management in haemodialysis patients) into clinical practice at Central Northern Adelaide Renal and Transplantation Services.

$10,000

2023–24 Kidney, Transplant & Diabetes Research Australia (KTDRA)

L Lunardi, R Le Leu, P Bennett

Feasibility and acceptability of a codesigned self-management program for chronic kidney disease patients.

$1,950,172

2021–25 NHMRC Ideas Grant

K O'Donnell, J Kelly, **K Owen,** R Tsetsakos, N Sinclair, **S Bateman,** J Lavoie
AIs: **S Jesudason, R Le Leu,** O Pearson, T Mackean, **S McDonald,** E Garrard, M Arnold-Chamney, L Jamieson

AKction2: Aboriginal Kidney Care Together – Improving Outcomes Now.

Centre for Clinical and Experimental Transplantation

$1,319,883

2024–2028 Medical Research Future Fund (MRFF)

CIA: **PT Coates** CI: **GB Perkins,** M Tunbridge, **G Irish,** N Spurrier, C Furst, P Hissaria, L Rowntree, B Grubor-Bauk, T Ying, J Singer, S Chadban

Repurposing mTOR inhibitors to boost vaccine responses in the immunocompromised and elderly.

This grant aims to deliver a novel, practical (consumer-informed) and widely-accessible strategy to restore vaccine immunogenicity in kidney transplant recipients and older adults. The grant supports linked observational and interventional studies of low-dose mTOR inhibitors as vaccine-agnostic oral adjuvant therapy to promote the formation of protective T cell responses and reverse age-associated immune decline.

$49,550

2024–2025 University of Adelaide Medical School

CIA: **GB Perkins**

A novel methodology for single-cell transcriptomics of clinical cohorts.

$9,311

2024 University of Adelaide Faculty of Health and Medical Sciences

CIA: **GB Perkins**

Equipment grant.

$27,200

2024 Kidney, Transplant & Diabetes Research Australia (KTDRA)

PT Coates, C Drogemuller, GB Perkins

Pre-clinical screening of GAD65 CAR-Tregs as a Novel Therapy for Type 1 Diabetes.

$118,495

2023–2026 The Hospital Research Foundation

C Drogemuller and **PT Coates**

Establishing islet isolation in Adelaide – Total pancreatectomy and Islet-Auto Transplantation (TPIAT).

$750,000

2022–2025 Targeted Translation Research Accelerator (TTRA) Program (Australia)

S Grey, **C Drogemuller** and **PT Coates**

Restoring glucose control in T1D patients with genetically engineered GARV-AAV2-A20-islet cells – a first in Human safety and efficacy trial. TTRARP2097.

Centre for Clinical and Experimental Transplantation continued...

$2,014,561

2022–2027 The Medical Research Future Fund (MRFF)

PT Coates, C Drogemuller, H Pleass, R Couper, J Chen, S De Sousa, S Khurana, L Palmer, A Brown, N Rogers, D Torpy

HEPATA: Hereditary Pancreatitis and AutoIslet Transplant Trials in Australia.

The aim of this project is to collect the evidence required for TP-IAT to become a reimbursed medical procedure for the treatment of hereditary pancreatitis (HP) (grant term 2022–2027). To achieve this, 24 HP patients will undergo TP-IAT and the impact on disease progression, quality of life, reduction in pain medication, hospitalisations, health costs and economic impacts will be determined. This will allow a formal application to the government for assessment of TP-IAT to become a reimbursed medical procedure.

$380,000

2021–2024 The Juvenile Diabetes Research Foundation (International)

T Coates, C Drogemuller

Proof of concept trial of intracutaneous islet transplant. 2-SRA-2022-1086-M-B.

$370,000

2021–2024 The Juvenile Diabetes Research Foundation (Australia)

T Coates, C Drogemuller

Proof of concept trial of intracutaneous islet transplant 2-SRA-2022-1096-M-B.

$500,276

2020–2024 Commercial in Confidence (International)

T Coates, C Drogemuller

Intracutaneous Ectopic Pancreas (IEP) creation by seeding Human Stem Cell-derived Islets (HSCI) into integrated BTM.

ANZDATA, ANZOD and BEAT-CKD

$150,000

2022–2024 The Hospital Research Foundation

S Jesudason, E Hewawasam, C Green, **S McDonald**

The Kidney Mums Project: Advancing pregnancy planning and care for women with kidney disease.

The Kidney Mums Project aims to transform the experiences and outcomes of women living with kidney disease who wish to achieve motherhood. The Kidney Mums toolkit will be developed to support women and their clinicians to navigate decisions about pregnancy and deliver best-practice care for positive maternal and foetal outcomes.

$2,500,000

2021–25 National Health and Medical Research Council – Centre of Research Excellence

A Tong, J Craig, C Hawley, G Wong, D Johnson, N Scholes-Robertson, **S McDonald,** K Howard, **S Jesudason,** A Teixera-Pinto

Partnering with patients with chronic kidney disease to transform care and outcomes (CRE-PACT).

ANZDATA, ANZOD and BEAT-CKD continued...

$975,000

2020–24 NHMRC Investigator Grant – Leadership 1

S McDonald

Building on Registry data to improve dialysis and kidney transplantation.

The mission of this project is to transform the care and health of people with CKD by answering patient/caregiver-prioritised research questions and addressing outcomes that are critically important to patients.

Clinical Trials

$2,904,210

2022–2027 The Medical Research Future Fund (MRFF)

C Au Peh, B Bose, D Johnson, V Jha, D Jayne, E Milanzi, M Griffith, J Wetzels, A Kronbichler, A Liew

REMIT: An international, multi-centre, randomised clinical trial to compare Obinutuzumab + Calcineurin Inhibitor to Corticosteroid + Cyclophosphamide treatment regimens in Primary Membranous Nephropathy.

Professor Chen Au Peh and a team of 20 nephrologists from 12 countries, will receive $2,904,210 (grant term 2022–2027) to fund an international clinical trial to compare treatment regimens in Primary Membranous Nephropathy, a rare kidney disease that causes leakage of protein in the urine and severe swelling of the body.

The REMIT trial will compare Obinutuzumab + Calcineurin Inhibitor to Corticosteroid + Cyclophosphamide treatment regimen in Primary Membranous Nephropathy Primary Membranous Nephropathy. Currently, treatment involves giving corticosteroid and cyclophosphamide. Unfortunately, this treatment has many undesirable side effects. Hence, we need to find better treatment with less side effects. This trial will compare new treatment comprising of Obinutuzumab and calcineurin inhibitor to the old treatment.

$593,970

2021–24 Canadian Institutes of Health Research

C Bohm, P Bennett, G Castillo, B Corradetti, M Di Nella, **S Jesudason,** J MacRae, C McIntyre, J Penny, J Presseau, K Tennankore, S Thompson, N Verdi, K Wilund, B Waldvogel

Trial of Intradialytic Cycling Kidney Exercise Rehabilitation for Cardiac Stunning in Hemodialysis (TICKERS_HD).

Clinical Research Group (CRG)

- The Clinical Research Group (CRG) coordinates, fosters and provides oversight for all clinical research projects (not including clinical trials) within CNARTS.
- The CRG operates under the direction of the Executive Committee is committed to enhancing research collaborations between various disciplines (medical, nursing and allied health) and facilitating sharing of knowledge and expertise, mentorship and guidance for researchers at all stages of their career.
- The CRG is currently pursuing mixed methodology research across a range of patient-centred themes, with the goal of evidence-based change to clinical practice and improvement of clinical care. A key focus is cross-discipline collaborative efforts.
- The CRG has pioneered the development of a new clinical database for CNARTS clinicians to capture the specialised data required for researching, measuring and auditing service delivery, patient care and health outcomes across the patient journey, including end stage kidney disease, patients on dialysis and transplant patients.
- The CRG Executive provides governance for CNARTS on all research projects using CNARTS patients and/or data.
- Monthly meetings via Zoom alternating Monday and Wednesday (chaired by Dr Richard Le Leu) to discuss and share current clinical research within CNARTS.

Vision statement

To embed a culture of research into daily clinical practice within CNARTS.

Executive Committee

Dr Richard Le Leu, CRG Research Co-ordinator

Prof Shilpa Jesudason, Chair of CRG

Prof Randall Faull

Tiffany Whittington

A/Prof Phil Clayton

Anthony Meade

Dr Michael Collins

Project staff

- Dr Richard Le Leu (Clinical Research Coordinator)
- Ms Gorjana Radisic (Research Officer)

CNARTS Clinical Research projects 2024

Improving self-management for people with chronic kidney disease through a patient activation approach

Lead: Laura Lunardi (PhD Candidate)

Team: R Le Leu, S Jesudason, L Matricciani, P Bennett, A Britton, S Muthuramalingam, R Bastin, E Johns, D Bradbrook, M Bradbrook, R Lester, D Myers

This study aims to:

1. Develop a co-designed self-management program for people with CKD
2. Determine the clinical feasibility and acceptability in usual kidney care service of this co-designed self-management program among patients with CKD stage 5 not receiving dialysis.

This project used a systematic co-design approach to partner with researchers, consumers, and clinicians. At the start of the project a consumer advisory group was created to oversee the project. Three focus groups consisting of renal consumers and health professionals were conducted to hear the consumers' experiences regarding what helped and hindered them in managing their health related to their kidney disease. The interviews from the focus groups have been thematically analysed. These experiences have guided in developing a new self-management program for patients with CKD. The final step of this project is to test the feasibility and acceptability of this co-designed self-management program in 2025.

Funded by:

- 2022 Allied Health, Pharmacy and Nursing RAH Research Committee ($35,000)
- 2024 Kidney, Transplant & Diabetes Research Australia (KTDRA) ($10,000)

The Feasibility, Acceptability, and Impact of a Prehabilitation Exercise Program for People Commencing Peritoneal Dialysis (CORE-PD)

Lead: Dr Brett Tarca

Team: S Jesudason, M Ovenden, P Bennett

(Collaboration with Allied Health and Human Performance, University of South Australia)

This project is aiming to introduce exercise prior to catheter insertion targeting physical function for people commencing peritoneal dialysis.

The program will recruit patients who are ~3-4months from peritoneal dialysis catheter insertion, following them through the insertion/treatment commencing and re-introducing exercise so that they exercise safely and effectively whilst receiving peritoneal dialysis.

As part of this study, patients will receive resistance bands and gym balls for simple home-based exercises, with ongoing support and monitoring from an exercise physiologist via a hybrid face-to-face and telehealth model.

kidneydiabetesresearch.org.au/news-stories/latest-news/strengthening-the-core-for-dialysis-patients/

Funded by: 2024 Kidney, Transplant & Diabetes Research Australia (KTDRA) ($22,800)

Kidney Care Clinician Perceptions of a Prehabilitation Exercise Program in Peritoneal Dialysis

Lead: Dr Brett Tarca

Team: S Jesudason, P Bennett

(Collaboration with Allied Health and Human Performance, University of South Australia)

This qualitative study aimed to explore the perceptions and attitudes of clinicians regarding prehabilitation exercise programs for people commencing peritoneal dialysis. Recruitment began in late October with 17 clinicians taking part in a 1:1 interviews. Participants were mainly nephrologist (n=8) and nurse (n=5) with dietitians and occupational therapists also involved. All participants reported having experience in working with patients in both the pre and post-catheter phase. Recruitment has been closed with data saturation and sufficiency achieved. Qualitative analysis of the interviews will commence in early 2025.

Benefits and Burdens of Kidney Transplantation for First Nations Australians

Lead: Dr Sam Bateman (PhD Candidate)

Team: S Jesudason (Principal Supervisor), O Pearson, P Clayton, S McDonald

Sam is progressing well through her PhD investigating models of care for Aboriginal and Torres Strait Islander people living with kidney disease. She recently quantified the survival benefit of kidney transplantation for Aboriginal and Torres Strait Islander people waitlisted for deceased donor kidney transplantation in Australia. From twelve months post-transplantation, deceased donor transplantation provides a survival benefit for Aboriginal and Torres Strait Islander people. Our findings provide evidence that supports efforts to promote the waitlisting of Aboriginal and Torres Strait Islander people who are otherwise eligible for transplantation (https://doi.org/10.5694/mja2.52361). She is currently working on her final PhD project, understanding the relationship between ethnicity, remoteness and late referral on the KPI of preformed dialysis access. She continues to work collaboratively with the AKction group as a chief investigator and values the relationships and contributions the project and reference teams make to both her research and clinical work.

Funded by:

- NHMRC post-graduate scholarship
- RACP Jacquot Award for Excellence Research Entry
- BEAT-CKD post-graduate scholarship

Aboriginal Kidney Care Together- Improving Outcomes Now – AKction2

Co Leads: Dr Kim O'Donnell, Prof Janet Kelly

Team: K Owen, R Lester, N Sinclair, S Bateman, J Lavoie, I T Williamson, J Kartinyeri, R Gadd, L Simpson-Lyttle, W Dono, C Franks, T Reid, M Wilson, D Forbes, D Champion, S Champion, O Pearson, T Mackean, S Jesudason, S McDonald, M Arnold- Ujvari, R Le Leu, L Jamieson, K Herman, A Cormick, T Stevenson, L Rix, B O'Connor

(Collaborations are established with Community members, CNARTS services and sites, SAHMRI, National Indigenous Kidney Transplantation Taskforce and the COMPASS Project, ANZDATA, Kidney Health Australia, Menzies School of Health Research NT, Adelaide University Rural Health Alliance, Adelaide Nursing School and the Adelaide Rural Clinical School.)

2024 was filled with deep collaborations and learning alongside the AKction Reference Team (A2RT) members, community members, health professionals and collaborators in rural, remote and city locations. We began the year with a social gathering at Kim's kulyi (home) in Eden Hills. This was a great way to reconnect after the festive season, do A2RT and staff 'Spirit' checks, scout locations and finalise plans for filming in collaboration with Menzies School of Health Research. We co-designed a video about staying strong that featured a number of A2RT members and families. This video is currently being used in Stay Strong resources such as the new Stay Strong website and soon to be embedded as the 'soft entry' in the 'Stay Strong' app. It also became a promotional ad for 2024 NAIDOC week and was showcased through a QR link at Adelaide Airport youtube.com/watch?v=LfHhR5pwRpw.

January social gathering at Kim's Kulyi

Filming night for the Stay Strong video

Holding a stall at the Closing the Gap Day event (hosted by Sonder in March) has become our way to promote AKction2, celebrate our strengths and partnerships and mostly to connect with Aboriginal and Torres Strait islander families, including young ones from across metropolitan schools. It is also a great way to connect with other service providers, allied health staff and health professionals. It's a favourite day of the year; a time to share resources, talk up the importance of kidney health and hear about initiatives communities may be doing in the kidney care space. Last year, community members led by Margie Steffens and students from the Adelaide Dental School also set up a large stall beside AKction2, to emphasise the importance of oral health. We were also invited to host a health information and promotion stall at the Moorundi Aboriginal Community Controlled Health Organisation Health Fair. We travelled to Murray Bridge in May for this. A2RT member Jared and project co-lead Janet also held an AKction2 stall at the NAIDOC Family Day, in Victoria Square. A big shout out to Donate Life SA and the University of Adelaide for providing resources and merchandise to share on the day.

1. *Kim and Jared hanging out with Billy the KHA Kidney at Closing the Gap day;* ***2.*** *AKction team members at the Moorundi Health Fair;* ***3.*** *A2RT member Jared Kartinyeri and Prof Janet Kelly presenting at the SA Population health conference.*

Between 2023-2024, we have been working closely with Margie Steffens, Kelly Clemente from TAFE SA and Wade Allan from Kanggawodli, to co-design opportunities for oral health students to undertake cultural safety/kidney health/oral health training and clinical placement at Kanggawodli, Daws Park bmcoralhealth.biomedcentral.com/articles/10.1186/s12903-024-04617-8.

Throughout the year, A2RT members were actively involved in co-presenting at conferences and forums including the Australian and New Zealand society of Nephrology conference and the Population Health Conference which were both held in Adelaide. A2RT members also joined Janet to teach into Adelaide Nursing School classes; providing all nursing school students an opportunity to practice clinical yarning face to face as part of their Aboriginal healthcare training.

We partnered with the COMPASS team to plan and co-facilitate a key stakeholder workshop for kidney care in South Australia. This workshop was held at SAHMRI in June and brought together Kidney Warriors, members from various SA communities, health providers, services and managers to talk about progress across AKction2 and COMPASS. This was a great opportunity to share ideas, and resources in a brave space and to discuss priorities moving forward. Over 40 people attended with clear priorities and collaborations identified going forward. The 2024 Stakeholder priorities identified will be shared as a report soon.

In the later part of the year we travelled to Port Augusta, Ceduna and Yalata to continue kidney health promotion, peer support and journey mapping activities. We again worked in partnership with students from the Adelaide University Rural Health Alliance and co-facilitated the Yalata Kidney Health Festival within Yalata Anangu School and across the community. The SA Dialysis Truck arranged to be in Yalata at the same time, whereby kidney warriors on dialysis could return home to be with family, and be part of the kidney health promotion initiatives. This year the nursing team at the Tullawon clinic and Dr Sam Bateman co-ordinated community kidney health screening, and used a traffic light system to prioritise who Sam needed to see first while in Yalata. Sam also provided updated kidney health education for Tullawon staff. The Yalata Kidney Health Festival is a significant learning experience for multidisciplinary health students and we entered the 'Stylin up' group photo taken with the students in front of the Yalata community sign in the Adelaide University Images of Learning and Teaching competition, and won 3rd place.

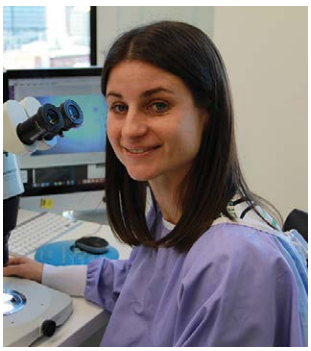
In November Rhanee and Janet met with service providers and community members in Pt Augusta and Ceduna. They joined in with the very successful weekly Bingo event at Ceduna Aboriginal Corporation, providing a kidney health promotion quiz in collaboration with Sarah Furnell from Yadu. Rhanee shared her kidney journey and information about the peer navigator roles at Port Augusta Dialysis Unit. They discussed creative options for increasing kidney health promotion in Ceduna with kidney warriors, youth health and Yadu. Pika Wiya and AKction2 are deepening collaborations and planning kidney health promotion events. Pika Wiya were very keen for Rhanee to be involved in their outreach clinic at Copley and Nepabunna, and invited Rhanee to join them the following week.

2025 will be the 5th and final year of AKction2. Our focus is to complete current activities and exploring opportunities AKction3 with a strong focus on kidney health promotion and *'stopping the young ones, following us onto the machines'.*

Funded by: AKction 2 is funded by a 5-year NHMRC Ideas Grant ($1,950,172)

4 & 5. Kelli Owen (Kaurna, Ngarrindjeri, Narrunga woman and Kidney Warrior) opened the Key Stakeholder Workshop with a Smoking Ceremony and Welcome to Country; ***6.*** *The AKction and COMPASS research team members;* ***7.*** *A2RT members facilitating a panel discussion within the workshop;* ***8.*** *'Stylin up' group photo of AKction2 researchers and student participants at the 2024 Yalata Kidney Health Festival;* ***9.*** *A2RT member Rhanee sharing her journey story in Ceduna at Community Bingo Night*

NEDD4L expression as a potential biomarker in diabetic nephropathy



Lead: Dr Jantina Manning

Team: N Thyagarajan, R Le Leu, S Jesudason

This study is a case-control study which involving baseline clinical characteristics and spot urine samples of approximately 3 mL collected from patients with type 2 diabetes mellitus and diabetic nephropathy, diabetic patients without renal involvement, and healthy volunteers.

The aim is to detect the NEDD4L in human urinary extracellular vesicles (EVs) to answer the following questions:

1. Is there a difference in NEDD4L expression in urinary EVs in patients with diabetic nephropathy compared to diabetic patients without nephropathy and healthy controls?
2. Are there any other clinical confounders in these populations that impact on NEDD4L expression?

The results showed that reduced NEDD4L expression was identified in diabetic nephropathy patient biopsies and urinary EVs. Additionally, diabetic nephropathy urine samples had increased EV numbers and protein concentrations. The innovative use of urine to determine NEDD4L levels in EVs provides a non-invasive assay that paves the way for future larger studies to determine whether this gene may be a useful biomarker to detect early pathological alterations prior to severe disease, in both diabetes and diabetic nephropathy, which would provide significant improvements for patient treatment responses.

Funded by: Diabetes Australia ($70,000)

A Pilot Randomised Controlled Trial Of Advanced Recovery Room Care Post Living Donor Kidney Transplantation

Lead: Dr Karthik Venkataraman

Team: M Collins, G Ludbrook, T Coates

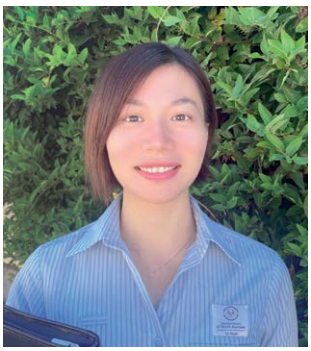
We conducted a single-centre pilot open-label randomised controlled trial (ACTRN12622001093774), randomising live donor kidney transplant recipients 1:1 to either post operative care in the ARRC or to standard of care management on the renal ward. The intervention involved closer haemodynamic monitoring, more frequent medical officer review and the ability to assess and address post operative hypotension with fluids and vasopressors. The primary outcomes were 1) safety (adverse events in the first 28 days post transplantation), 2) recruitment feasibility and 3) episodes of hypotension between groups.

A total of 27 living donor transplants were performed during the study; 18 recipients were eligible for enrolment into the trial. A total of 14 participants underwent randomisation (Figure 1). There were no major adverse events in either arm. 4 out of 7 participants (57%) were hypotensive post operatively in the control arm compared to 1 out of 7 participants (14%) in the intervention. The trial is ongoing.

In this pilot trial, use of advanced recovery room care was safe, and recruitment into a larger clinical trial appears feasible. Advanced recovery room care may reduce the incidence of post-transplant hypotension.

Funded by: 2024 Kidney, Transplant & Diabetes Research Australia (KTDRA) PhD scholarship ($94,000)

Nurses' Perceptions of Patient Challenges Transitioning to Dialysis: A Qualitative Study



Lead: Jing Zhang

Team: R Le Leu, P Bennett, S Jesudason

This study is part of a larger CNARTS qualitative study which aimed to understand and define the experiences and perspectives of patients and clinicians as patients transition to dialysis in a tertiary renal service. This is in order to develop new, sustainable clinical pathways to connect primary care and community-based care with hospital renal services, which are co-designed by the Royal Adelaide Hospital (RAH) multidisciplinary kidney care team, GPs and consumers. This sub-study focuses on the nurses' perspectives which will complement the previously analysed consumer perspective to further inform and optimise Integrated primary and tertiary care to improve patients' transition journey.

Fourteen participants who are Registered Nurses working within Central Northern Adelaide Renal & Transplantation Service (CNARTS) or in a satellite dialysis unit affiliated with CNARTS were recruited, interviewed and audio-recorded in March and April 2021. A qualitative inductive phenomenological approach using methods described by Braun and Clarke (2006) will be applied to capture themes and expectations suggested by participants.

This project will likely lead to identification of new models for individualised community-based care for patients approaching dialysis start, deliver better coordination with general practices and facilitate streamlined access to CNARTS clinical support. Streamlined coordination of care during key time points in the months before patients start dialysis may ultimately minimise unnecessary hospital visits and people starting dialysis unprepared. The project will inform clinical leadership at all levels and build the skills and effectiveness of the CNARTS multidisciplinary team in the delivery of integrated care.

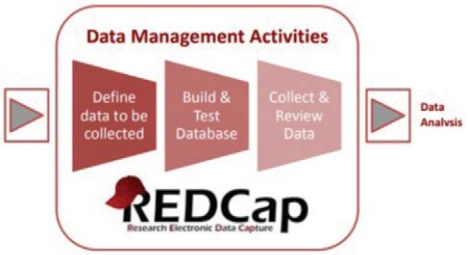
Funded by: 2024-25 HSCGB ($12,000)

Clinical database that will help us understand how we care for patients, the quality of care they get and their outcomes

Lead: Prof Shilpa Jesudason

Team: R Le Leu, P Clayton, J Fabian, E Dicas

(Collaboration with CALHN Digital)



This project has developed a secure clinical database for capturing the specialised data required for researching, measuring and auditing service delivery, patient care and health outcomes across the patient journey, including end stage kidney disease, patients on dialysis and transplant patients. The clinical database was co-designed with clinicians to facilitate auditing and reporting to enable new insights and innovation in service delivery evidence-based care, and world-class benchmarks for improving patient care.

This database has greatly improved data knowledge, understanding and application capabilities for CNARTS busy clinicians, particularly through further developments in easily accessed and informative data dashboards.

Through the collaboration with CALHN digital, the CNARTS database has been linked with the current electronic medical record system to create a 'Kidney Watch dashboard'. This dashboard is now currently being used to monitor patients approaching dialysis in real time.

The available data is now informing the development of new and enhanced services and care pathways to improve patient care, treatment choices and to reduce unnecessary hospitalisations.

Funded by: Kidney, Transplant and Diabetes Research Australia (KTDRA) ($200,000)

Improving Management of Needle Distress during the Journey to Dialysis through Psychological EduCation and Training (The INJECT Program)

Lead: Prof Shilpa Jesudason

Team: G Radisic, R Le Leu, F Donnelly, K Hill, A Burke, K Collins, A Chur-Hansen, B Tan, S Muthuramalingam, Macauley, S McDonald

(Collaboration with the School of Psychology, University of Adelaide and Clinical Psychology, CALHN)

The INJECT program has been successfully integrated into clinical practice at CNARTS. Key achievements include:

The development and validation of a novel measuring needle fear (MNF) screening tool, now fully operational in the renal unit. This tool is utilised by nurses in the kidney care team to screen patients for needle fear prior to dialysis, ensuring early identification and support. To enhance accessibility and streamline activity tracking, the MNF tool has also been integrated into the REDCap platform. To date, over 80 patients have been assessed using this innovative tool.

Additionally, an education program designed to help patients manage needle fear and prepare for dialysis has been seamlessly incorporated into clinical practice at CNARTS. The program is accessible through a dedicated link hosted on the Launch platform, which is overseen by the CALHN Centre for Education and Training.

To further support patient care, the nurse education program for needle fear management has been fully integrated into the CALHN Learning Central platform. The Nurse Education Coordinator actively promotes participation in this program, equipping nurses with enhanced skills to address needle fear and improve patient outcomes.

Funded by:

- The Health Services Charitable Gifts Board (HSCGB) ($52,000)
- RAH Research Committee Clinical Project Grant ($50,000)
- RAH Research Fund – The INJECT campaign ($52,000)
- Kidney, Transplant and Diabetes Research Australia (KTDRA) ($54,000)

International Travel for transplantation

Lead: Dr Georgina Irish and Prof Dominique Martin

The ITOT Research Collaborative aims to shed light on who, where, how, and why people travel for donation and transplantation. In doing so, we hope to inform policies and practices that will support successful and ethical donation and transplantation programs worldwide. The ITOT Research collaborative launched in 2024 and is led by Professor Dominique Martin and Dr Georgina Irish.

To explore some more general information about ITOT blogs.deakin.edu.au/itotproject/about-itot/

With the support of the Asian Society of Transplantation, the Declaration of Istanbul Custodian Group, the European Society of Organ Transplantation, the International Pediatric Transplant Association, the International Society for Heart and Lung Transplantation, the International Society of Nephrology, the International Society for Organ Donation and Procurement, la Sociedad de Trasplante de América Latina y el Caribe, and The Transplantation Society, The ITOT research collaborative conducted a 2024 survey on professionals' recent experiences, or lack of experience, in providing care for patients who have travelled to or from their country for organ donation or transplantation. The survey is focused on international travel for organ transplantation (ITOT) in general, not only travel that might involve transplant "tourism". We look forward to present and publish these data in 2025.

Figure demonstrating that people may travel all over the world for transplantation.

Centre for Clinical and Experimental Transplantation (CCET)

The CNARTS laboratory is based at the new biomedical precinct within the University of Adelaide Health and Medical Sciences building. The laboratory has continued its excellence in training the next generation of scientists and clinicians further enhancing its reputation for producing outstanding independent researchers, with a research focus on kidney disease, diabetes and other diseases of the pancreas. The laboratory was founded at the Queen Elizabeth Hospital by Prof Graeme Russ in 1986 and was the first dedicated transplantation immunology laboratory in Australia. Since then, the research interests of the CNARTS laboratory have broadened to include many aspects of kidney disease, diabetes and other diseases of the pancreas.

The laboratory is led by Prof Toby Coates AO and includes clinician scientists: A/Prof Chen Au Peh and A/Prof Shantanu Bhattacharjya. Chief Scientist A/Prof Chris Drogemuller is Head of the laboratory that includes a team of senior scientists, grant funded scientists, technical officers, PhD and Honours students. Many previous laboratory students have gone onto leadership roles in nephrology and transplantation from the CNARTS laboratory and become independent researchers in leading institutions all around the world. To date, the lab has had 3 prestigious CJ Martin fellowships awarded and a Rhodes Scholar.

Visions statement

To train the next generation of medical doctors and scientists in basic laboratory science for application to the causes and treatment of renal diseases and organ transplantation.

Laboratory staff

- A/Prof Chris Drogemuller (Chief Scientist)
- Dr Griffith Perkins (Post-Doctoral Fellow)
- Dr Bahman Delalat (Senior Medical Scientist)
- Dr Plinio Hurtado (Senior Grant Funded Scientist)
- Svjetlana Kireta (Senior Medical Scientist)
- Jodie Nitschke (Senior Grant Funded Scientist)
- Daniella Penko (Senior Grant funded Scientist)
- Julie Johnston (Technical Officer)

Students

- Denghao Wu (PhD Candidate)
- Brigette Clarke (PhD Candidate)
- Jacqueline Scaffidi (PhD Candidate)
- Nick Chai (PhD Candidate)
- Dylan Barnett (PhD Candidate)
- Jessica Lee (PhD Candidate)
- James Besanko (Masters Candidate)
- James Zuiani (PhD Candidate)

CCET Laboratory research projects 2024

SIR ZOSTER: Safety And Immunogenicity Of Recombinant ZOSTER Vaccine In Kidney Transplant Recipients

Researchers: G Perkins, M Tunbridge, C Chai, D Penko, J Nitschke, J Johnston, CJ Drogemuller, J Zuiani, G Irish, PR Hurtado, PT Coates

Associate Researchers: P Hissaria, B Grubor-Bauk, S Chadban, J Singer, L Rowntree, C Furst, N Spurrier

Immunosuppressed kidney transplant recipients are vulnerable to infections. While vaccines are available to prevent many infections, immunosuppressive medications limit their efficacy in kidney transplant recipients.

In this MRFF-funded study, we are investigating how different immunosuppression regimens taken by kidney transplant recipients affect response to the vaccination against shingles. This ongoing study enrolled >30 participants (kidney transplant recipients and their cohabitants) in 2024 across the Royal Adelaide Hospital and the Royal Prince Alfred Hospital in Sydney. Participants receive two doses of the SHINGRIX vaccine, and key aspects of their immune response are assessed by investigators within CNARTS, the University of Adelaide, and the Peter Doherty Institute in Melbourne.

This is the first study to compare the immune responses of kidney transplant recipients and non-immunosuppressed individuals, for whom the vaccine is highly effective at preventing shingles. The study will conclude in 2025 and will inform the development of novel strategies to restore vaccine efficacy in transplant recipients.

A Single-Cell Imaging Atlas of The Peripheral Immune Response For Precision Vaccination in Kidney Transplant Recipients

Researchers: GB Perkins, CS Chai, D Penko, PR Hurtado, PT Coates

Associate Researchers: L Martelotto, K Wise, S Mangiola

This project aims to understand why some kidney transplant recipients have strong responses to vaccination while others do not. Variation in vaccine response is influenced by many factors including immunosuppression, underlying kidney disease, comorbidities, age and microbiome.

To understand this, we are mapping the individual cells that make up the immune system to produce the first *Kidney Transplant Recipient Immune Cell Atlas.* This will give us unprecedented insight into how the immune system is altered in kidney transplant recipients and will let us identify immune cell types and signalling networks in the blood that are associated with a strong vaccine response. This tool will help us to predict how individual kidney transplant recipients will respond to vaccination and to identify novel drug targets and vaccination strategies for vaccine non-responders.

First in Human INCEPTR trial (*IN*traCutaneous, *E*ctopic *P*ancreas *TR*ial)

Researchers: T Coates, C Drogemuller, D Penko, J Johnston, J Nitschke, S Kireta, C Etherton, A Rickard and CNARTS Clinical Trials unit

Associated researchers: J Greenwood, M Wagstaff, D Torpy, B Clarke, T Kay, T Loudovaris, L Mariana

This project is supported by the Juvenile Diabetes Research Foundation International, now known as Breakthrough T1D (New York) and Australia, to develop an alternative extra hepatic site for islet transplantation. Following on from registration and initiation of the INCEPTR trial in 2022, 3 patients were activated and received a Novosorb ® scaffold implant followed by an intracutaneous islet transplant. All 3 patients reached the 12-month post-transplant trial endpoint, with the procedure well tolerated by all participants. All 3 patients displayed early signs of graft function as outlined in the table below.

Pt	transplant	BTM duration	Total IEQ	IEQ/kg	3 month C-peptide pmol/L	3th month HbA1c Red^{n} *	3th month Insulin Red^{n}*	6th Month HbA1c Red^{n}*	6th Month insulin Red^{n}*	12th Month HbA1c Red^{n}*	12th Month Insulin Red^{n}*
1	01/05/22	25 days	485, 584	6,100	Serum 42 Urine 110	1.6 ↓	21% ↓	1.8 ↓	22% ↓	1.1 ↓	28% ↓
2	removed 31/05/2023	169 days	No Tx								
2	08/11/2023	33 days	204, 633	3,009	Serum <12 urine 67	1.1 ↓	10% ↓	0.6 ↓	7% ↓	0.8 ↓	21% ↓
3	14/11/2023	76 days	276, 026	5,112	Serum <12 Urine 166	0.3 ↓	44% ↓	0.3 ↓	44% ↓	1.3 ↓	62% ↓

In this pilot proof of concept study 2/3 participants had positive c-peptide at 3 months. All patients showed improvement in glycaemic control over 12 months and 1/3 has ongoing long-term detectable graft function out to 2.5 years post-transplant.

Ongoing funding is currently being sort from Breakthrough T1D Australia to optimise the islet delivery procedure to maximise islet cell delivery and survival.

Intracutaneous Ectopic Pancreas (IEP) creation by seeding Human Stem Cell-derived Islets (HSCI) into integrated BTM

Researchers: T Coates, C Drogemuller, J Nitschke, S Kireta, D Penko, J Johnston

Associated researchers: J Greenwood

This project is a long-standing collaboration between one of the largest international diabetes companies, Novo Nordisk, our islet transplant research team and Beta Cell Technologies. Optimisation of our transplant model, used to evaluate the transplant outcomes of HSCI transplanted under the skin, was finalised in 2024. This newly created model will assess the ability of HSCI to cure diabetes, following transplantation of islets under the skin. Successful completion of this stage of the project in 2025, will provide the pre-clinical evidence required for a first-in-human trial of HSCI transplanted under the skin to treat type 1 diabetes.

Development of new approaches to measure proteolysis and glycosylation profiling of high and low affinity corticosteroid-binding globulin (CBG) in septic shock using mass spectrometry

Researchers: J Lee, T Coates, E Meyer, D Torpy

Associated Researchers: M Anderson, P Hoffman, Z Bayraktar, P Mittal, C Young, P Hurtado, W Rankin

This project aims to measure different affinity forms and glycoforms of corticosteroid-binding globulin (CBG) in the setting of sepsis. CBG binds cortisol at a high affinity, and the CBG:cortisol binding affinity is reduced reversibly by pyrexia and acidosis, and reduced irreversibly by neutrophil elastase cleavage at the reactive centre loop (RCL) of CBG, converting high affinity CBG to a low affinity form. These characteristics allow for optimisation of spatiotemporal distribution of free cortisol in the setting of sepsis. Previous research by E Meyer, D Torpy et al, has shown that reduced CBG is an independent predictor of ICU mortality in septic shock patients, highlighting the importance of CBG in septic shock survival.

We aimed to further investigate the impact of relative abundance of different CBG affinity forms and glycoforms on septic shock outcome, and to measure these using mass spectrometry, in collaboration with the proteomics team at UniSA and Macquarie University on this project. In 2024, through collaborative efforts, we have succeeded in identification and quantification of low affinity CBG for the first time, demonstrating that NE cleavage phenomenon does occur in vivo, although in small amounts, and was published in December 2024. Significant clinical associations between CBG glycosylation and septic shock outcome were also found; the results were presented at the Endocrine Society of Australia annual meeting and was nominated in the Bryan Hudson Award category.

This project is supported by HSCGB grants from the Royal Adelaide Hospital Endocrine Unit and AusHealth.

Adrenal cell transplantation for Addison's disease using biodegradable temporising matrix technology

Researchers: B Clarke (PhD Candidate), S Kireta, P Hurtardo, T Coates, D Torpy

Associated Researchers: C Christou, J Greenwood, J Kollias, J Johnston, D Penko, J Nitschke, C Drogemuller, J Manavis

The aim of the project is to explore the use of adrenocortical cell transplantation as a novel approach to the treatment of primary adrenal insufficiency. There is a need to improve the outcomes for individuals with Addison's disease, as morbidity and mortality remain significantly increased compared to the general population, even with current gold standard medical therapy.

During 2024, the results from our pilot study, developing a large animal model of autologous adrenocortical cell transplantation using an intra-cutaneous site were published in *Endocrinology.* This manuscript was subsequently selected for inclusion in the U.S. Endocrine Society's Endocrine News magazine in its "Eureka! The Top Endocrine Science of 2024" feature.

Studies characterising the cell surface markers of human primary adrenocortical cells and an adrenocortical carcinoma cell line were also continued. Following on from this work, a novel approach for adrenocortical cell identification and isolation using flow cytometry has been developed. This has potential important uses in cell isolation for transplantation, but also for the study of primary adrenocortical cells *in vitro* where achieving pure cell cultures has remained a long standing challenge. This data was presented as a poster at the 2024 Endocrine Society of Australia Annual Scientific Meeting in Adelaide.

These research studies have formed the basis of my PhD thesis, which is scheduled for award conferral in March 2025.

The transplantation study was undertaken in collaboration with Beta-Cell Technology and was supported by a Royal Adelaide Hospital Clinical Project Grant. HSCGB grants from the Royal Adelaide Hospital Endocrine Unit have additionally supported this body of work. Surgical equipment used in the large animal model was donated by Medtronic.

Hypothermic Oxygenated Machine Perfusion using the Organ Angel – Donor Kidney Preservation for transplantation

Researchers: Drogemuller, T Coates, D Penko, J Johnston, J Nitschke

In collaboration with a local Adelaide company – Vital Organ Technologies, we are designing, testing and evaluating a bespoke kidney preservation device called the 'Organ Angel'. The Organ Angel has been designed to comply with aviation standards that enable the device to be transported on commercial flights, adhering to strict weight, dimension and absence of hazardous components (pressurised oxygen cylinders).

Investigating the immunostimulatory properties of human DNA

Researchers: P Hurtado and C Peh

My research, in collaboration with Prof. Chen Au Peh, has primarily focused on investigating the immunostimulatory properties of human DNA, where we have identified previously unknown characteristics with significant implications for the pathogenesis of lupus. These findings are currently being prepared for submission, representing a crucial step towards understanding disease mechanisms and potentially enabling early detection of disease activity, as well as the development of novel therapeutic strategies.

Beyond this core research, I have actively collaborated with multiple departments. In partnership with Prof. David Torpy from the Department of Endocrinology, I co-supervise Dr Brigette Clark, who has successfully submitted her thesis. As part of the collaboration, I developed an ELISA-based detection method for quantifying serum cortisol-binding globulin (CBG), a crucial tool required for preclinical studies.

Another area of active investigation is the role of osteocytes as antigen-presenting cells during infection, a novel concept with broad implications for immunology and bone biology. In this project, I co-supervise PhD Candidate Amjad Hoasain alongside Prof. Gerald Atkins, working to elucidate how osteocytes contribute to immune responses in the context of infection.

Additionally, my work in fundamental immunological research extends to the cellular pharmacokinetics and immunostimulatory effects of small molecules, particularly cyclin-dependent kinase 4/6 (CDK4/6) inhibitors in cancer immunotherapy. This research aims to understand how these inhibitors modulate immune cell activation and enhance anti-tumour responses. This work forms the core research of PhD Candidate Hajer Batayneh, whom I co-supervise in collaboration with Prof. Shadong Wang from the UniSA Clinical & Health Sciences.

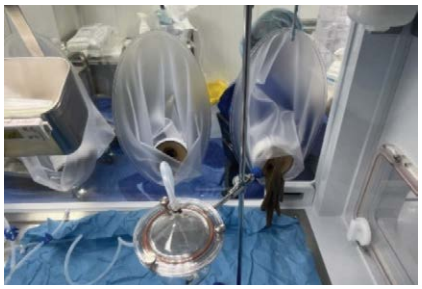
Total Pancreatectomy and Islet Auto Transplantation (TPIAT)

Researchers: T Coates, C Drogemuller, S Kireta, D Penko, J Johnston, J Nitschke, C Etherton, A Rickard, G Radisic, D Wu, G Perkins, C Russell

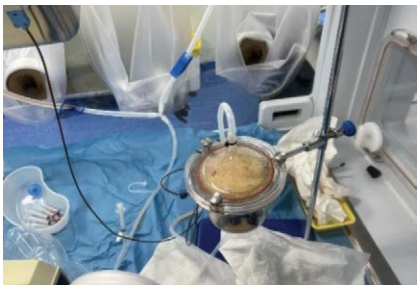
Associated researchers: D Torpy, S Khurana, J Chen, J Couper, R Couper, E L Neo

With the generous support of the hospital research foundation, the LIONS Club and the state government we have established a new clinical program for the treatment of hereditary pancreatitis.

To date, we have processed 12 donor pancreas within the newly established Biospherix facility. This has provided a great opportunity for ongoing training of staff in the islet isolation process, operation of the Biospherix system, development of SOPs and collection of safety and quality data required to initiate clinical activity. All of which is essential for isolation of islets within the new system for transplant into hereditary pancreatitis patients undergoing the TPIAT procedure. Based on the progress made in 2024, we anticipate performing the first clinical TPIAT in 2025 with the transplanted islets coming from the patient's pancreas that has been processed within the new Adelaide facility.



Chamber before pancreas is loaded



Pancreas loaded into chamber midpoint of tissue digestion

Empty chamber at completion of digestion

The Genetic Epidemiology of Hereditary Pancreatitis in South Australia

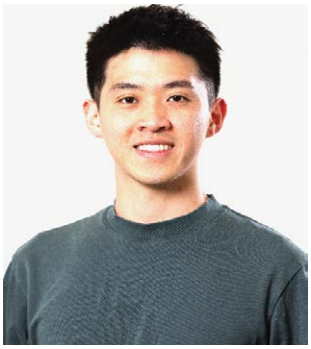
Researchers: D Wu, CJ Drogemuller, G Radisic, C Etherton, A Rickard, GB Perkins, J Zuiani, S De Sousa, PT Coates

Associated Researchers: D Adelson, G Irish, S Jahan

Hereditary Pancreatitis (HP) is a debilitating condition caused by inheritance of a variety of genetic mutations. HP results in inflammation of the pancreas from a young age, chronic abdominal pain, and dependency upon pain management opioids. Severe cases of HP are candidates for total pancreatectomy and islet auto transplant (TP-IAT) surgical treatment. This project is the first to identify Australian families suffering from HP and assess correlation between phenotypic disease outcome and genotypic variant. Patients with HP were identified from existing hospital records at the Royal Adelaide Hospital, Women's and Children's Hospital, St. Vincent's Hospital in Melbourne, and Westmead Hospital in Sydney. Medical Interviews were conducted for enrolled patients. Salivary biosamples were obtained from patients and family members to be whole-exome-sequenced (WES) and analysed in silico using bioinformatics toolkits (GATK) and the Integrative Genomics Viewer (IGV) developed by the Broad Institute.

A total of 20 pedigrees comprising 122 individuals were recruited for the project. Overall, 76% of HP presented with clinical onset before the age of 10. Ongoing opioid usage for pain management in the HP cohort was 55% and 64% of patients reported ongoing moderate to severe pain. Strikingly, HP was 67 times more prevalent in Indigenous populations than non-Indigenous. Our estimated prevalence of HP is higher than previously described and disproportionately affect Indigenous populations. The percentage of HP patients requiring lifelong analgesics is alarming and genetic factors are an important cause of pancreatitis in Australian children. Bioinformatics analyses of WES genotypic data yielded a list of 33 potentially pathogenic variants identified outside of known HP-associated gene including *ECE1, GJA5,* and *SPTBN5.* The analysis of the WES genomic data uses the latest bioinformatics tools including the Illumina DRAGEN platform to accurately align our patient data with a large panel of human reference genomes. The study described the prevalence of HP in an Australian population for the first time, highlighted the importance of utilising genetic testing protocols to guide medical decision-making in HP, generated candidates of potential pathogenic genetic variants associated with HP disease risk, and successfully established a patient registry for candidates of TP-IAT treatment.

Re-purposing rapamycin as a vaccine adjuvant to enhance pathogen-specific T cell response and longevity of immune memory in kidney transplant patients.



Researchers: N Chai, G Perkins, C Drogemuller, B Grubor-Bauk, T Coates

Effective vaccines against viruses, including severe acute respiratory syndrome coronavirus (SARS-CoV-2), rely on inducing both humoral and cellular immune responses, give rise to long-term immune memory. However, these responses are often compromised in kidney transplant recipients due to chronic immunosuppression. This research aims to identify novel strategies to enhance protective immunity in transplant recipients, with a specific focus on improving memory T cell responses.

We have conducted an animal study to investigate and optimize the effects of the mTOR inhibitor rapamycin on immune responses following SARS-CoV-2 mRNA vaccination. Our findings demonstrated that rapamycin was associated with an overall increase in both the magnitude and functionality of spike-specific T cells in mice. Among various memory T cell subsets, Tscm cells represent a rare subpopulation with self-renewing capabilities and robust proliferative potential. Previous studies have reported their persistence for over 25 years following smallpox and yellow fever vaccinations. Interestingly, we found that rapamycin promoted the generation of a unique spike-specific naïve-like T cell population in mice, characterised by high expression of the SCA-1 marker, indicative of the Tscm phenotype. The impact of immunosuppressive medications on Tscm generation will be further evaluated in transplant recipients.

In 2024, we successfully established a collaboration with Radboud University Medical Center in the Netherlands. Through this collaboration, we introduced a novel assay called Cellular Energetics through Noncanonical Amino Acid Tagging (CENCAT), which enables the measurement of metabolic profiles of heterogeneous immune populations at the single-cell level. Our next step is to investigate the mechanisms by which mTOR inhibition regulates immune cell metabolism, ultimately facilitating the induction of long-lived memory T cells in transplant recipients.

Nick presented his work at The Transplantation Society Conference 2024 in Istanbul, Türkiye. He was also awarded a travel grant by TSANZ for his conference travel.

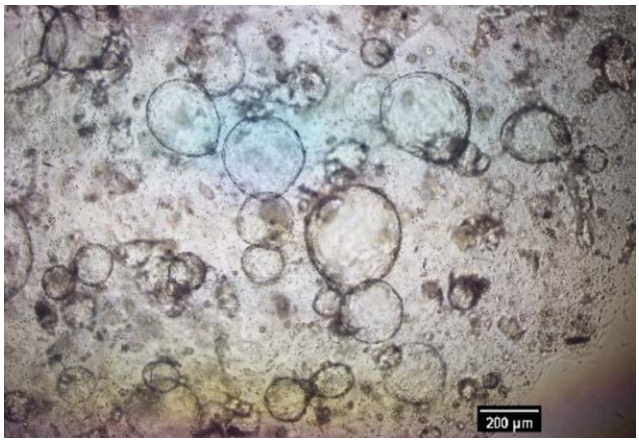
Characterisation of Pancreatic Organoids in hereditary pancreatitis and normal individuals

Researchers: J Zuiani (PhD Candidate, University of Adelaide), G Perkins, S Grey, C Drogemuller, T Coates

Hereditary pancreatitis (HP) is a chronic disease caused by a series of HP associated genetic mutations. This condition manifests in adolescence, leading to inflammation, severe abdominal pain, and the eventual development of pancreatic fibrosis, endocrine and exocrine insufficiency and a substantially increased risk of pancreatic cancer. There is currently a lack of models to effectively study the disease, as the gene mutations involved lack sufficiently homologous animal counterparts. As such, this project aims to develop an organoid model to study hereditary pancreatitis.

We have generated pancreatic organoids both from healthy individuals and patients with hereditary pancreatitis, utilising samples taken from total pancreatectomy with islet auto transplantation (TPIAT) procedures. We have characterised these organoids based on their acinar and ductal characteristics based on qPCR and immunohistochemistry staining, identifying a shift from an acinar to a ductal phenotype over 7 days in culture. We determined however that expression of trypsin, the key protein in most HP variants, was still expressed throughout this culture period, thus facilitating their use as a model for HP.

Alongside this work we have also begun the process of performing spatial transcriptomic characterisation of HP using samples from our TPIAT patient cohort. This will develop our understanding of the underlying mechanism which drive HP, and our aim will be to identify potential therapeutic targets which can be validated using our organoids model.



Microscopy image of pancreatic organoids

Organ preservation and resuscitation by isothermic oxygenated machine perfusion in an ex-vivo porcine model

Researchers: D Barnett, J, Bastian, A, Kanhere, D Daniel, R Bhattacharjya, S Bhattacharjya, T Coates

There is a constant supply and demand mismatch in organ transplantation which prevents the ever-increasing number of Australians who would benefit from this life-saving treatment from receiving it in a timely fashion. As a result, clinicians are relying on more and more marginal organs that previously would have been discarded without having objective biomarkers to assess organ quality or predict likelihood of function following transplant.

Machine perfusion technologies offer the potential to both evaluate the quality of organs ex-vivo and potentially even resuscitate damaged organs prior to transplantation. Because of this there has been a significant interest in the investigation of normothermic machine preservation. This technology however remains expensive and complicated resulting in limited uptake in clinical practice compared to the current gold standard of static cold storage. In an effort to simply the process of machine perfusion we are investigating whether it is possible to remove temperature manipulation completely from the machine perfusion and preserve organs at room temperature.

In the last year we have continued to analyse the data generated from our previous experiments showing that isothermic preservation was non-inferior in a large animal model compared with the current gold standard of static cold storage.

In the next 12 months we plan to undertake further experiments investigating the ability of isothermic perfusion to mitigate ischaemia-reperfusion injury. To begin this process we will analyse the molecular pathways upregulated and downregulated during isothermic preservation to better understand the specific pathways involved and compare this to organs preserved with static cold storage.

This project is gratefully supported financially by Kidney, Transplant & Diabetes Research Australia and could not be completed without the assistance from the staff at SAHMRI PIRL.

Development and validation of in-vitro biomarkers to assess insect allergy and venom immunotherapy

Researchers: S Mhatre, G Perkins, A Le, T Wanandy, T Coates, P Hissaria

This research is aimed at identifying the potential in-vitro biomarkers which can help to assess the success of Venom immunotherapy (VIT) and predict its outcome. The validation of a potential biomarkers will help clinicians to determine the duration of the treatment without exposing patients to a risky sting challenge, the only gold standard used at present to determine the success of VIT. The biomarkers under investigation include basophil activation test (BAT), mast cell activation test (MAT), protein- peptides profile of pre- and post VIT serum samples, and analysis of regulatory factors present in pre- and post-VIT serum samples.

As a part of this project, we have performed a systematic review on 'utility of BAT in in evaluation of efficacy of venom immunotherapy determined by sting challenge'. The data revealed that BAT can be useful to assess long-term VIT (2–5 years) but may not be of clinical significance in case of short-term VIT (3–6 months).

At present, the research is focused on optimization of mast cell culture from peripheral blood derived CD34+ pluripotent cells in serum -free media. The mast cells generated from the culture will be used to perform mast cell activation assay (MAT). The mass spectrometric analysis of pre-and post-VIT serum samples is also currently under investigation. The mass spectrometric analysis is being facilitated at Flinders proteomic facility in collaboration with Prof Tim Chataway.

The scholarship for pursuing this research as a part of M.Phil by research is funded by National Allergy Centre of Excellence (NACE). This project is also partly funded by HSCGB grant.

The establishment of National Hereditary Pancreatitis Registry as part of Hereditary Pancreatitis and Auto-Islet Transplant Trials in Australia (HEPATA)

Researchers: T Coates, C Drogemuller, G Radisic, J Chen, S Khurana, S De Sousa, L Palmer, D Torpy, A Brown, N Rogers, G Thomas, H Pleass

Project Manager: G Radisic

This project involves the establishment of Australia's first Hereditary Pancreatitis (HP) Registry, developed under the MRFF-funded HEPATA program. The registry integrates demographic, genetic, and clinical data from individuals affected by HP and their families, creating a comprehensive resource for advancing research and clinical care.

The registry is integral in supporting Total Pancreatectomy and Islet Auto Transplantation (TPIAT) by identifying suitable candidates for this life-changing procedure. Additionally, it serves as a vital repository for understanding the prevalence, genetic determinants, and broader impacts of hereditary pancreatitis in Australia.

We anticipate that data collected in the registry will generate valuable insights that can support advocacy for government funding of TPIAT, promoting equitable access to this procedure for all Australians affected by hereditary pancreatitis. Hosted on the REDCap platform at the Royal Adelaide Hospital, the registry became operational in 2024 and has already enrolled 32 patients to date.

As part of the HEPATA program, we have established a Consumer Advisory Group, comprising eight consumers who have joined the research team. This group has played a crucial role in shaping the research program, providing valuable guidance during the MRFF application process. Their insights are essential in ensuring that the perspectives and needs of individuals affected by hereditary pancreatitis are at the forefront of our work. The group meets quarterly and contributes to raising awareness, offering support to those impacted by the condition, and engaging in discussions to help shape future research directions, ultimately guiding the development of more effective treatment options.

abc.net.au/news/2024-12-27/siblings-undergo-life-changing-pancreatitis-surgery/104730812

A patient who has undergone a total pancreatectomy with her school friends, all wearing HEPATA program t-shirts

ANZDATA CNARTS

The Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) collects and reports the incidence, prevalence, and outcome of dialysis treatment and kidney transplantation for patients with kidney failure across Australia and New Zealand.

The mission of the registry is to improve the quality of care and outcomes for people with kidney failure in Australia and New Zealand by:

- Collecting and analysing accurate and comprehensive data from all patients receiving long-term dialysis or kidney transplantation in Australia and New Zealand,
- Producing and disseminating reports,
- Informing the development of practice, policy, and health services,
- Working with stakeholders to improve the understanding of kidney disease and outcomes of treatment.

The ANZDATA Registry encourages and enables the highest quality of care for people in Australia and New Zealand with kidney failure by providing information that is complete, accurate, clear, relevant, readily available, and timely.

The following information pertains to current research, publications, projects, events, conferences, and talks presented by ANZDATA staff and its affiliates.

Research staff

- **Prof Stephen McDonald (Director of Strategy and Policy):** stephen@anzdata.org.au
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ANZDATA research projects 2024

Pregnancy and Kidney Research Australia (PKRA)

Lead: Prof Shilpa Jesudason

Researchers: E Hewawasam, N Tangirala, C Davies, S McDonald, A Orsillo, S Jahan, A Jain

Consumer engagement support: J Mazis

Parenthood advisory group members: J Boag, C Green, L Heffernan, B Huuskes, C Maistry, K Owen, A Tolic, A Williamson, A Sluiter, E Newman.

Funded by: The Hospital Research Foundation (THRF) Women's Health Grant 2021–24; Kidney Transplant Diabetes Research Australia Project Grant 2023–25; THRF / HTSA MRFF Catalyst Grant 2024–25; BEATCKD CRE=PACT NHMRC CRE Grant 2021–25.

Pregnancy Kidney Research Australia (PKRA) brings consumers and researchers together from across Australia to focus on patient-centered research related to pregnancy planning and care for people living with kidney disease. Our team undertakes mixed-method projects with a significant emphasis on consumer co-design and collaboration throughout the research process.

Our research program is dedicated to empowering individuals with kidney disease to make well-informed decisions about parenthood and to successfully achieve a healthy pregnancy with appropriate care and support in place.

A Sluiter (consumer) and E Hewawasam (researcher) co-presented at the Australian and New Zealand Society of Nephrology (ANZSN) annual scientific meeting in Adelaide this year.

In 2024, the PKRA website pkra.com.au was launched, marking a significant milestone in our efforts to raise awareness about kidney health and parenthood in Australia. Additionally, a consumer-led Facebook group (facebook.com/groups/parenthoodwithkidneydisease), was established in collaboration with Kidney Health Australia, further engaging with the community.

Throughout the year our dedicated team of consumers have been actively involved in various projects and were honoured with the South Australian Health Medical Research Institute (SAHMRI) End of Year Award for Community Engagement in December 2024 for their outstanding involvement.

Prof Shilpa Jesudason and Jasmin Mazis holding the PKRA the SAHMRI Community Engagement Award

The ANZDATA Parenthood Working Group, established in 2023, reviews registry data capture for parenthood, promotes utilisation and community awareness, assists in report development, and presents research findings at meetings. Click for more details anzdata.org.au/anzdata/about/working-groups/parenthood-working-group/

The ANZDATA Parenthood Working Group pictured at the Australian and New Zealand Society of Nephrology (ANZSN) conference held in Adelaide.

1.

2.

1. *Prof Shilpa Jesudason and Jasmin Mazis holding the PKRA the SAHMRI Community Engagement Award*
2. *The ANZDATA Parenthood Working Group at the Australian and New Zealand Society of Nephrology (ANZSN) conference held in Adelaide*

Current projects

1. **Perinatal, ANZDATA, hospital data linkage study**
   - Labour and delivery outcomes – N Tangirala, E Hewawasam & S Jesudason (Outcomes paper now published dx.doi.org/10.1111/ajo.13885)
   - Pregnancies women had before they subsequently started KRT – S Jahan, E Hewawasam & S Jesudason
   - Follow-up of children born to transplanted mothers – E Hewawasam, C Davies, S McDonald, Z Li, E Sullivan, S Jesudason
   - Characteristics and outcomes of pregnancy-related acute kidney injury in Australia – A Jain, E Hewawasam, S Jesudason
2. **The "Kidney Mums Toolkit"**
   S Jesudason, E Hewawasam, C Green, S McDonald

   Implementation and evaluation of an online toolkit of resources for patients and clinicians to navigate safer parenthood decisions and care for better pregnancy outcomes in women with kidney disease.
3. **Tacrolimus measurement and dosing in pregnancy**
   N Tangirala, E Hewawasam, B Sallustio & S Jesudason
4. **Kidney doctors' perspectives on the management of pregnancy in women with CKD: an interview study**
   M Wyld and A Jaure, E Hewawasam & S Jesudason
5. **Understanding drivers of decision-making about pregnancy with CKD in both clinicians and patients**
   N Tangirala, E Hewawasam, M Howell & S Jesudason
6. **Tasmanian CKD linkage dataset study with access to information about kidney disease, perinatal outcomes, hospital admissions and pathology data**
   M Jose, L Cuthbertson, A Kitsos, T Saunder, E Hewawasam & S Jesudason
7. **Perspectives of reproductive health in First Nation's women with CKD**

   Collaboration Aboriginal Kidney Care Together, Improving Outcomes Now" (AKCTION) Reference Team in SA – N Tangirala, K Owen, K O'Donnell, J Kelly, A Graham, E Hewawasam & S Jesudason
8. **Assessing the feasibility of routinely measuring kidney function in pregnancy**
   S Jesudason, C Sui, K Lam, B Robson, C Malik, M Howell, G Harvey, K Owen, A Sluiter

Exploring patient travel

Lead: Prof Stephen McDonald

Researchers: C Davies, K Dansie, E Duncanson, P Clayton, S Jesudason, S Ullah, A Gulyani, D Keuskamp

Using ANZDATA data and sophisticated geospatial models, we have performed analyses of travel time and distance between patients' residential postcodes and dialysis units, to characterise the burden of travel for patients and identify where patients are treated geographically in Australia. In 2024, we completed a geospatial analysis to describe variation in kidney replacement therapy patient incidence across Australia and over the last two decades, to determine the emergence of hotspots of incidence (doi.org/10.1016/j.anzjph.2024.100161).

In 2024 we were also joined by four consumers from the ANZDATA Consumer Advisory Panel and Community Interest Register to review the work being done.

Survival after COVID Infection – impact of treatment modality

Lead: A/Prof Solomon Menahem

Researchers: P Kolovos, G Irish, F Kholmurodova, C Davies, H Kulkarn.

This project explores the risk factors associated with 30-day mortality following COVID-19 infection in patients receiving kidney replacement therapy.

Understanding changes to practice patterns in dialysis care during the COVID-19 pandemic

Lead: Dr Daniela Potter

Researchers: A Conway, C Davies, S Kotwal, G Irish, A Pilmore, P Clayton, K Polkinghorne.

This project aims to describe the changes to practice patterns that occurred during the initial phase of the pandemic among dialysis patients in Australia and New Zealand.

Data linkage projects

Lead: Prof Stephen McDonald

Researchers: C Davies, K Dansie, D Keuskamp, P Clayton, A Conway.

- **National Joint Replacement Registry –** Analysis has started on a large national linked data set between the Australian Orthopaedic Association National Joint Replacement Registry (AOA NJRR) and ANZDATA, examining joint replacements in the treated kidney failure cohort for the period 2003–2016. Early analyses have determined that Australian Kidney replacement therapy (KRT) patients experience higher rates of hip replacement than the non-KRT population, particularly for the diagnosis of osteonecrosis. There is however no difference in the rate of revision surgery between dialysis, transplant, and the non-KRT population.
- **Cardiac Surgery Registry –** In 2022, a national linked dataset was created between ANZDATA and the Australian and New Zealand Society of Cardiac & Thoracic Surgeons Database (ANZSCTS), which collects data on most cardiac surgical procedures. Key research aims include quantifying (1) the risk of developing kidney failure (treated with KRT) after cardiac surgery, and (2) the risks of cardiac surgery for KRT patients. Analyses were published in 2024 establishing that Australian KRT patients experienced higher rates of cardiac surgery and worse post-surgical outcomes than the non-KRT population. Further analyses have looked at the risk of developing treated kidney failure after cardiac surgery and were presented at the ANZSN ASM.

- **Intensive Care Registry –** In 2022 a national linked dataset was created between ANZDATA and the Australian & New Zealand Intensive Care Society Adult Patient Database, which collects data from over 90% of Intensive Care Units (ICUs). Key research aims include quantifying the incidence, cause, and duration of ICU admission for KRT patients. Early analyses have determined that Australian KRT patients experienced higher rates of ICU admission than the non-KRT population, particularly for non-surgical diagnoses. Further analyses will look at quantifying the duration and outcome of ICU admission for KRT patients.
- **Intensive Care Units –** In 2023 a linked dataset was created between ANZDATA, South Australian and Northern Territory Intensive Care Units, inpatient hospitalisation, and deaths data. This dataset will look at longer-term outcomes of ICU admission and enable quantification of the risk for any critical care patient of developing kidney failure (treated with KRT).
- **Sharesource (Baxter) APD –** The Baxter "Claria" APD device (introduced into practice in late 2018 and used by most people in Australia receiving peritoneal dialysis) collects individual treatment characteristics for each peritoneal dialysis session into a database – "Sharesource". This project links the Sharesource database with the ANZDATA registry. Data from the Sharesource database can help us get a clearer picture of the nightly experiences of patients, and how they relate to various outcomes. In 2024 we have produced analyses demonstrating the link between a high number of alarms in the first 30 days of treatment and a higher risk of technique failure in the first year. Results have been presented at WCN and the ANZSN annual scientific meeting.

The Baxter "Claria" APD device

SWIFT – Symptom Monitoring WIth Feedback Trial (SWIFT) – Patient reported outcome measures (PROMS) in Australia & New Zealand kidney dialysis units and the ANZDATA Registry

Lead: Prof Rachael Morton (Chief Investigator-University of Sydney)

Researchers: P Bennett, S Jesudason, S McDonald (clinical lead), D Alhuzaimi

The Symptom monitoring WIth Feedback Trial (SWIFT) is a novel two-arm cluster randomised trial testing the hypothesis that symptom monitoring using the IPOS-Renal questionnaire with feedback to clinicians and patients, improves quality of life and overall survival for patients receiving haemodialysis. This trial is conducted in collaboration with the ANZDATA registry in Adelaide and the NHMRC Clinical Trials Centre, University of Sydney.

SWIFT has recruited over 2082 participants in 72 units across New South Wales (NSW), Queensland (QLD), Victoria (VIC), and South Australia (SA). 39 units have now completed the trial.

Recent units include – QLD, Torres and Cape Hospital and Health Service; and VIC, Alfred Hospital

The SWIFT Investigator Meeting was held on 3rd of September 2024 at the ANZSN ASM in Adelaide. It brought together investigators and stakeholders and provided an opportunity to review trial progress, address challenges, and next steps.

The SWIFT team has collaborated with the Australian Teletrial Program (ATP) in SA and QLD to implement the teletrial model within satellite units across both states. The first ATP QLD teletrial sites at Thursday Island and Bamaga were activated in December 2024. This marks a significant milestone for both sites, as it represents their first-ever clinical trial. Additional teletrial sites are planned for activation in Q1 2025, further expanding the project's reach and impact.

Professor Rachael Morton presenting at the SWIFT Investigator Meeting

Better Evidence and Translation – Chronic Kidney Disease

Researchers: S Jesudason, S McDonald, S Bateman, G Irish, J Mazis

Better Evidence and Translation – Chronic Kidney Disease (BEAT-CKD) is a collaborative research network dedicated to enhancing the quality of life for individuals affected by chronic kidney disease. Our primary objective is to generate robust and reliable research evidence that empowers patients, healthcare professionals, and policymakers to make well-informed decisions regarding healthcare.

BEAT-CKD was initially founded with generous funding from the NHMRC Program Grant (APP1092957) and currently provides support to four research and translation organisations throughout Australia including Australia and New Zealand Dialysis and Transplant Registry.

The objectives of BEAT-CKD are to:

- Identify promising interventions that address health outcomes of high priority to patients, caregivers, health professionals, and policymakers.
- Provide robust evidence about these interventions.
- Identify and evaluate strategies to deliver these interventions in diverse clinical settings.

Throughout 2024, BEAT-CKD facilitated a series of educational events including research methods training sessions, consumer and researcher-hosted research sessions, online seminar series, and patient and career community groups.

In November 2024, BEAT-CKD held its annual end-of-year forum and workshop at the Flinders Health Medical Research Building (FHMRB). The event featured Adeera Levin, a Canadian Professor of Medicine and head of the Division of Nephrology at the University of British Columbia. The workshop attracted health professionals specialising in kidney disease, patients with chronic kidney disease, consumer representatives, caregivers, and industry professionals.

The previous years workshop on Improving Diverse and Equitable Involvement of Patients and Caregivers in Research in CKD was publised within the American Journal of Kidney Diseases.

BEAT-CKD End of Year Forum attendees at FHMRB

National Indigenous Kidney Transplantation Taskforce (NIKTT) – 2024 Update

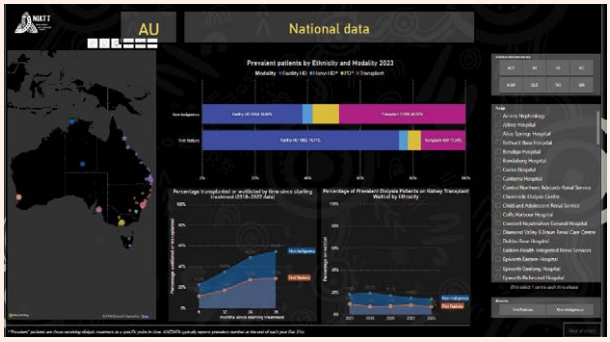
Secretariat Team: S McDonald, J Hughes, K Owen, K Cundale

The NIKTT Secretariat has continued its work in 2024 under bridging funding from the Department of Health and Aged Care. Housed within ANZDATA, the Secretariat's mandate is to advance kidney transplantation equity for Aboriginal and Torres Strait Islander people through several key initiatives, including supporting Indigenous Reference Groups, developing a data dashboard, and hosting the second NIKTT Gathering.

The ongoing collaboration among government bodies, healthcare providers, Aboriginal and Torres Strait Islander communities, and researchers underscores the Secretariat's commitment to systemic change. Highlights from 2024 include:

Data Dashboard Development

In collaboration with ANZDATA, work began on the development of a comprehensive data dashboard that will track national equity metrics in kidney transplantation. This tool is expected to provide unit-, regional-, and national-level data to support clinicians and policymakers in making evidence-based decisions.



Screen grab from the NIKTT data platform

Developing a Long-Term Consumer-Led Structure

Parallel to the NIKTT's grant-funded initiatives, progress is being made on a strategic plan to create a consumer-led governance framework that will work alongside state and federal governments to plan for the implementation of the National Strategy for Organ Donation, Retrieval and Transplantation. This body will be dedicated to representing the health and wellbeing interests of Aboriginal and Torres Strait Islander people living with kidney disease and transplantation.

NIKTT Secretariat in Canberra, meeting with DonateLife and the Department of Health to discuss future implementation and governance plans

Engagement at National and Regional Conferences

Throughout 2024, the Secretariat team has actively participated in several national and international conferences to advocate for transplantation equity. These engagements have provided platforms to share best practices and discuss the critical role of culturally safe care in kidney transplantation.

Kelli Owen and Stephen McDonald at the TSANZ ASM in June 2024

The COMPASS project: Guiding kidney care through Aboriginal patient navigators

Lead: Ms Kelli Owen

Researchers: C Algy, S Bateman, M D'Antoine, I Brown, D Croker, K Cundale, G Gorham, H Hall, P Henwood, K Herman, I Haklar, J Kelly, W Majoni, M Misener, K O'Donnell, L Ross, R Lester, K Tyrell, N Wilkshire, S Jesudason, S McDonald

Kidney disease disproportionately impacts Aboriginal and Torres Strait Islander people in Australia. Because the pathway to transplantation is often complex, confusing, and culturally unsafe, Aboriginal-led solutions are needed to ensure safe and equitable care. However, there is currently a disconnect between Aboriginal kidney Patient Navigator programs in South Australia and the Northern Territory: two jurisdictions that share one transplantation unit. The COMPASS project – **C**onnecting **O**ur **M**ob: **P**atient navigators **A**s **S**ustainable **S**upports – aims to integrate Patient Navigators into the transplantation pathway in Darwin, Alice Springs, Port Augusta, and Adelaide. The project will examine how best these roles work within the existing systems and identify barriers and enablers to sustainable implementation. For more information, see niktt.com.au/compass.

In 2024, the COMPASS team completed data collection at all participating project sites, engaging with patients, health professionals, health services executives, and Patient Navigators. Although the data is still being analysed, it has already provided valuable insights into the role of Patient Navigators, as well as key findings that will guide future practice and policy regarding the introduction of these roles. To share these findings, the project team has developed a communication strategy which is now being implemented. This includes creating new resources, such as videos to guide kidney patients through the journey to the Royal Adelaide Hospital for transplant and introduce the Patient Navigators. The strategy also encompasses a media campaign, publications, conference submissions, and community sharing trips. Full findings will be available when the project concludes in June 2025.

In 2024, the COMPASS team presented at several key conferences, including the Australian and New Zealand Society of Nephrology Scientific Seminar in Adelaide, the Public Health Association of Australia (PHAA) Conference in Perth, the 30th International Congress of The Transplantation Society in Turkey, and the PHAA Population Health Conference in Adelaide. These conferences provided an opportunity to share the principles of Indigenous-led research and governance, alongside preliminary findings on developing a coordinated Patient Navigator model.

Early findings suggest that the coordinated Patient Navigator model has been highly effective in facilitating culturally safe support and guidance throughout patients' kidney care journeys, as well as facilitating streamlined care for patients travelling to Adelaide for transplant and workup. In some cases, this support has had a life-saving impact, successfully encouraging complex or high-risk patients to begin treatment or undergo necessary procedures.
The project team has received positive feedback from clinical staff and caregivers regarding the assistance provided by Patient Navigators. The project team is now working closely with participating sites, such as the Royal Adelaide Hospital, to develop site-specific business cases that will hopefully secure ongoing funding and support for these positions.

COMPASS and AKCTION Teams at AKction Key Stakeholder Day

Clinician Survey of ANZDATA Quality Indicator Presentations

Lead: Prof Stephen McDonald

Researchers: C Davies, E Duncanson, N Gray

In 2024, analysis was completed of an online clinician survey that was undertaken to assess the comprehensibility of various display options for quality indicator data in kidney care that is collected and reported by ANZDATA. The survey aimed to assess comprehension of the data, decision-making, and preferences for the presentation formats. Results were presented as a poster at the ANZSN ASM and will be used to improve the ANZDATA hospital-specific performance reports.

Consumer-prioritised Quality Indicator Outcomes in Kidney Failure Care Survey

Lead: Prof Stephen McDonald

Researchers: E Duncanson, N Gray, C Davies, S Muthuramalingam, E Johns, Z Tasevski, K McColm

In 2024, researchers at ANZDATA completed the data collection of an online consumer survey to understand the views of people with lived experience of kidney disease, regarding the importance of various quality indicators in kidney failure care. Access to transplantation was rated the most important quality indicator overall, with the results presented at the ANZSN ASM and ACTA Registries Symposium in 2024.

Christopher Davies presenting at the ACTA Registries Symposium

ANZDATA Consumer Advisory Panel

The ANZDATA Consumer Advisory Panel (CAP) had a productive year. The panel plays a crucial role in providing feedback to the ANZDATA Executive team on consumer priorities for registry outcomes, data collection, and research focus from a consumer perspective.

Additionally, the panel offers insights on emerging issues in consumer engagement at local, national, and international levels guiding effective consumer and community engagement strategies within the activities of the ANZDATA Registry.

In addition to their regular CAP meetings, interested members regularly joined ANZDATA staff in attending their monthly research meetings to provide direct feedback on ANZDATA projects and work.

J Mazis (Patient Engagement Officer) L Torrisi (ANZDATA CAP Co Chair and S Shirley ANZDATA CAP Chair at ANZSN Conference in Adelaide (Kaurna Land)

This year, the ANZDATA CAP chair and co-chair attended the Australian and New Zealand Society of Nephrology (ANZSN) Consumer and Carers Day, as well as the Annual Scientific meeting. The CAP Chair and Co-Chair collaborated on a poster submission with the ANZDATA Patient Engagement officer that was accepted as part of the conference.

Patient Engagement Officer J. Mazis presented the current consumer initiatives within ANZDATA at the Australian Clinical Trials Alliance Conference in Melbourne in December 2024. The presentations highlighted the establishment of a Consumer Advisory Panel and underscored the advancements made within the past 12 months as well as highlighting the importance of continuing the work that has started.

TrEG

Transplant Epidemiology Group: 2024 Achievements and Future Directions

Since its establishment in 2023, the Transplant Epidemiology Group (TrEG) has been at the forefront of cutting-edge research in kidney transplantation and dialysis outcomes. Based at the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA), our interdisciplinary team—comprising researchers, epidemiologists, clinicians, and statisticians—collaborates to analyse trends, optimise transplant decision-making, and improve long-term outcomes for patients.

2024 Research Highlights

This year saw significant progress across several key research areas, including post-transplant outcomes, donor factors, prediction models, and health economics. Our research agenda for 2025 is already in motion, with new projects expanding on existing findings and addressing pressing challenges in transplantation. The ongoing development of prediction models aims to guide clinical decision-making, while our health economics studies will continue to quantify gaps in transplant accessibility and cost-effectiveness. Additionally, we remain committed to engaging with consumer advisory panels to ensure that patient perspectives shape our research.

Recognition and Impact

TrEG researchers have made a significant mark in the field, with multiple publications and accolades. This year, Dr. Georgina Irish received the *Early Career Research Award* from the Transplantation Society of Australia and New Zealand, and Dr. Alessandra Orsillo was awarded the *David Taverner Travelling Scholarship*.

We extend our deepest gratitude to the ANZDATA Consumer Advisory Panel, as well as the many kidney units, patients, and healthcare professionals across Australia and New Zealand, whose collaboration and contributions make this vital work possible.

Current Projects

Post-Transplant Outcomes

1. **The Association Between Early Graft Function, Donor Type, and Long-term Kidney Transplant Outcomes**
   Venkataraman K, Irish G, Collins M, Clayton P
2. **ABO Incompatible Kidney Transplants Have More Early Rejection But Comparable Long-term Graft Survival: An ANZDATA Analysis**
   Georgina Irish, Helen Pilmore, Scott Campbell, **Toby Coates,** Solomon Cohney, **Michael Collins,** Kathryn Dansie, Ross Francis, Peter Hughes, Frank Ierino, Nicole Isbel, Ashley Irish, John Kanellis, Darren Lee, William Mulley, Henry Pleass, Germaine Wong, Kate Wyburn, Mel Wyld, **Philip Clayton**

Donor Factors

1. **The Impact of Donor and Recipient Diabetes on Patient and Graft Survival in Renal Transplant Recipients**
   Orsillo A, Kholmurodova F, **Clayton P,** Chadban S, **Weightman A, Irish G**
2. **Comparable Long-Term Outcomes for Transplant Recipients of Donation After Circulatory Death and Donation After Brain Death Kidney Transplants in Australia and New Zealand: An ANZDATA Study**
   Alan Xu, Feruza Kholmurodova, **Georgina Irish, Philip Clayton**
3. **Dual Kidney Donor Profile Index: A Registry Analysis of Dual Kidney Transplants from the ANZDATA Registry**
   Irish G, Beecher M, Sanun R, Rowan R, Shah R, K Heggerty, R Francis, **Coates PT, Clayton P**

Prediction Scores and Decision Making

1. **Should I Have a Transplant? Using Flexible Parametric Models to Predict Survival After Kidney Transplant Waitlisting**
   Irish G, Mulley W, **Clayton P**
2. **Take it or Wait: Should I Accept This Kidney?**
   Irish G, Clayton P
3. **Factors Predicting Access to Pre-emptive or Early Kidney Transplantation: An Australian National Study**
   Alessandra Orsillo, Feruza Kholmurodova, Melanie Wyld, **Georgina L Irish, Philip A Clayton**
4. **Development and Validation of the Kidney Waiting List Index (KiWI): Risk Scores for Entry to the New Zealand Kidney Transplant Waiting List**
   G Irish, Nick Cross, Frances Dowen, **Phil Clayton,** H Pilmore

Health System Administration & Health Economics

1. **How Big Is Our Blind Spot? Estimating the Burden of Organ Failure Unmet by Transplantation**
   McMichael L, Sridhar V, Lopez R, Levine D, Teuteberg J, Verna EC, Schold J, Gill JS
2. **Who Is Currently Waitlisted for Kidney Transplantation and How Do Practices Differ Across the US, Australia & the UK?**
   McMichael L, Gill JS, Nitsch D, Kadatz M, **Clayton P**
3. **What Is the Cost of Evaluating Patients for Kidney Transplantation?**
   McMichael L, Gill J, Klarenbach S, Kadatz M, **Clayton P**
4. **Variations in Living Donor Kidney Transplantation: Insights from the Parent Transplant Centre Model in Australia & New Zealand**
   McMichael L, Cross N, Wyburn K, **Clayton P,** Wyld M

For more information, visit:

TrEG Australia tregaustralia.org.au or follow us on Bluesky @tregaustralia.bsky.social

CNARTS Clinical Trials Unit

The Central Northern Adelaide Renal and Transplantation Service (CNARTS) Clinical Trials Unit recruits for and coordinates clinical trials in patients with Chronic Kidney Disease (CKD), Kidney Failure (KF) and renal transplants across metropolitan and country areas of South Australia, Northern Territory and New South Wales. Medications that are standard of care for kidney patients were trialled for the first time in the CNARTS Clinical Trials Unit, thereby bringing new treatments directly to our patients. These medications include Tacrolimus, Everolimus and Myfortic for kidney transplant patients; Aranesp, Ferinject and Difelikefalin for patients with CKD /KF and Tolvaptan for patients with Polycystic Kidney Disease.

We conduct clinical trials in collaboration with Vascular Surgery, Immunology Clinical Trials, the Islet Transplant team, the CNARTS Clinical Research Group, the School of Pharmacy and Medical Sciences, University of South Australia, Australasian Kidney Trials Network (AKTN) and The George Institute.

During 2024, CNARTS researchers and patients have been involved in over 30 clinical trials. With encouraging results, patients enrolled in several of our studies were offered the opportunity to receive open label medication in open label extension studies. In 2025 we will be commencing new trials in IgA Nephropathy, Membranous Nephropathy, CKD, Incremental Dialysis and treatments for prevention of Acute Kidney injury (AKI) in CKD patients undergoing cardiothoracic surgery and transplant rejection in Kidney Transplant Recipients.

Project staff

- Karen Fischer
  (Clinical Trials Assistant)
- Jing Zhang
  (Registered Nurse/Clinical Trials)
- Bronwyn Hockley
  (Nursing Unit Manager)
- Krystal Skinner
  (Clinical Trial Coordinator)
- Meg Hockley
  (Assoc. Nursing Unit Manager)

Clinical trials 2024

1. **AT-1501-K102:** A Phase 1b, Multicenter, Open-Label Study to Evaluate the Safety, Pharmacokinetics and Efficacy of AT-1501 in Patients Undergoing Kidney Transplant.
   Sponsor: Eledon **PI:** Prof Toby Coates
2. **AT-1501-K207 BESTOW:** A Phase 2, Multicenter, Randomized, Open- Label Study to Evaluate the Safety and Efficacy of Tegoprubart in Patients Undergoing Kidney Transplantation.
   Sponsor: Eledon **PI:** Dr Michael Collins
3. **AT-1501-K209 BESTOW-EXTENSION:** A Phase 2, Multicenter, Open-Label Extension Study to Evaluate the Long term Safety and Efficacy of Tegoprubart in Kidney Transplant Recipients.
   Sponsor: Eledon **PI:** Dr Michael Collins
4. **ARGX-117-2201:** A Phase 2, Multicenter, Randomized, Double-Blinded, Placebo-Controlled Study to Assess the Safety, Efficacy, and Tolerability of ARGX-117 in Improving Allograft Function in Recipients of a Deceased Donor Renal Allograft at Risk for Delayed Graft Function (VARVARA).
   Sponsor: argenx BV **PI:** Dr Michael Collins
5. **CARSK study:** Canadian-Australian Randomised Trial of Screening Kidney Transplant Candidates for Coronary Artery Disease carsk.org.
   Sponsor: The University of Sydney **PI:** Dr Philip Clayton
6. **IM103-392:** A phase II, single arm multicentre trial of thymoglobulin, belatacept and sirolimus in pancreatic islet transplant recipients.
   Sponsor: The University of Sydney **PI:** Prof Toby Coates
7. **INCEPTR BTM:** Intra-cutaneous ectopic pancreas' – A prospective evaluation of a novel treatment for Type I Diabetes Mellitus employing deceased donor islets implanted into modified, preintegrated Biodegradable Temporising Matrix (BTM) dermal replacement
   Sponsor: Beta Cell Technologies Pty. Ltd. **PI:** Prof Toby Coates
8. **219900 (RSV OA=ADJ-023):** A Phase 2b, randomized, controlled, open-label study to evaluate the immune response and safety of the RSVPreF3 OA investigational vaccine in adults (≥18 years of age) when administered to lung and renal transplant recipients comparing 1 versus 2 doses and compared to healthy controls (≥50 years of age) receiving 1 dose.
   Sponsor: GlaxoSmithKline Biologicals S.A. **PI:** Prof Toby Coates

CKD/Glomerulonephritis trials

9. **CLNP023A2301:** A multi-center, randomised, double-blind, placebo controlled, parallel group, phase III study to evaluate the efficacy and safety of LNP023 in primary IgA nephropathy patients.
   Sponsor: Novartis **PI:** Dr Chii Yeap
10. **CLNP023A2002B:** A multicenter rollover extension program (REP) to evaluate the long-term safety and tolerability of open label iptacopan in adult participants with primary IgA nephropathy who have completed study CLNP023X2203 or CLNP023A2301.
    Sponsor: Novartis **PI:** Dr Chii Yeap
11. **GOAL study:** Comprehensive Geriatric Assessment for Frail Older People with Chronic Kidney Disease to Increase Attainment of Patient-Identified Goals – A Cluster Randomised Controlled Trial.
    Investigator Led: AKTN **PI:** Prof Shilpa Jesudason
12. **M11-001 aHUS Registry:** An Observational, Non-Interventional, Multi-Centre, Multi-National Study of Patients with Atypical Hemolytic-Uremic Syndrome.
    Sponsor: Alexion Pharmaceuticals **PI:** A/Prof Robert Carroll
13. **021FSGS16010:** A Randomized, Multicenter, Double-Blind, Parallel, Active Control Study of The Effects of Sparsentan, A Dual Endothelin Receptor and Angiotensin Receptor Blocker, On Renal Outcomes in Patients with Primary Focal Segmental Glomerulosclerosis (FSGS).
    Sponsor: Travere **PI:** A/Professor Chen Au Peh

14. **NEF-301OLE:** An open label extension (OLE) Study to the evaluate efficacy and safety of Nefecon treatment in patients with IgA nephropathy who have completed Study NEF-301.
    Sponsor: Calliditas Therapeutics **PI:** A/Prof Chen Au Peh
15. **021IGAN17001:** A Randomized, Multicenter, Double-blind, Parallel-group, Active-control Study of the Efficacy and Safety of Sparsentan for the Treatment of Immunoglobulin A Nephropathy (PROTECT Study).
    Sponsor: Travere **PI:** A/Professor Chen Au Peh
16. **KBP5074-3-001:** A Phase 3, Randomized, Double-Blind, Placebo-Controlled, Multicenter Study to Assess the Efficacy and Safety of KBP-5074, a Mineralocorticoid Receptor Antagonist, in Subjects with Uncontrolled Hypertension Who Have Moderate or Severe (Stage 3b/4) Chronic Kidney Disease (CLARION CKD).
    Sponsor: KBP BioSciences PTE. Ltd. **PI:** Dr Chii Yeap
17. **CR845-310302:** A Multicenter, Randomised, Double-Blind, Placebo-Controlled 12-Week Study to Evaluate the Safety and Efficacy of Oral Difelikefalin in Advanced Chronic Kidney Disease Subjects with Moderate-to-Severe Pruritus with an up to 52-Week Long-Term Extension.
    Sponsor: CARA Therapeutics **PI:** Dr Chii Yeap
18. **417-201-00007:** A Phase 3, Multicenter, Randomized, Double-blind, Placebo-controlled Trial to Evaluate the Efficacy and Safety of Sibeprenlimab Administered Subcutaneously in Subjects with Immunoglobulin A Nephropathy (Visionary).
    Sponsor: Otsuka Pharmaceuticals **PI:** Dr Chii Yeap
19. **TESTING ON:** Therapeutic Evaluation of Steroids in IgA Nephropathy Global – Post-Trial ObservatioNal Cohort Study.
    Sponsor: The George Institute for Global Health George **PI:** Prof Chen Au Peh
20. **The Renal Life Cycle Study** a Randomized Controlled Clinical Trial to Assess the Effect of Dapagliflozin on Renal and Cardiovascular Outcomes in Patients with Severe Chronic Kidney Disease.
    renal-lifecycle.com/en/home-en
    Sponsor: The George Institute for Global Health **PI:** Prof Shilpa Jesudason
21. **IMPEDE-PKD Trial:** Implementation of Metformin therapy to Ease Decline of kidney function in Polycystic Kidney Disease (IMPEDE-PKD) Randomised Placebo-Controlled Trial.
    aktn.org.au/impede-pkd
    Sponsor: AKTN **PI:** Prof Randall Faull.

Renal Failure/Dialysis trials

22. **RESOLVE:** Randomised Evaluation of SOdium dialysate Levels on Vascular Events, Protocol Number: GI-RM-7338.
    aktn.org.au/resolve
    Investigator Led: AKTN **PI:** A/Prof Philip Clayton
23. **TEACH-PD:** A pragmatic, registry-based, international, cluster-randomised controlled trial examining the use of TEACH-PD training modules for incident PD patients versus existing practices on the rate of PD-related infections.
    aktn.org.au/teach-pd
    Sponsor: AKTN **PI:** Prof Stephen McDonald
24. **PHOSPHATE study:** Pragmatic randomised trial of High or Standard PHosphAte Targets in End-stage kidney disease.
    aktn.org.au/phosphate-trial
    Sponsor: AKTN **PI:** A/Prof Philip Clayton
25. **TRACK study:** Treatment of CVD with low dose Rivaroxaban in Advanced CKD.
    tracktrial.org
    Sponsor: George Institute **PI:** Prof Shilpa Jesudason

26. **ACTIVATE AVF:** A study of the safety and feasibility of the Vessel Restoration System for AVF to promote the physiologic and functional maturation of upper-extremity autologous End-to-Side Arteriovenous Fistulas (AVF) in Patients with Chronic Kidney Disease.
    Sponsor: Alucent **PI:** Dr Ewan Macaulay.
27. **Symptom monitoring WIth Feedback Trial (SWIFT):** A Registry-Based Cluster Randomised Controlled Trial to determine the clinical effectiveness and cost-effectiveness of symptom monitoring with feedback to clinicians and patients compared with standard care in improving quality of life outcomes at 12 months for adults on haemodialysis.
    anzdata.org.au/anzdata/research/registry-trials/swift
    Sponsor: NHMRC Clinical Trials Centre The University of Sydney **PI:** Professor Stephen McDonald
28. **BEAT CALCI:** Better Evidence And Translation for Calciphylaxis.
    beat-calci.sydney.edu.au
    Sponsor: NHMRC Clinical Trials Centre The University of Sydney **PI:** Dr Michael Collins
29. **TICKERS HD:** Trial of Intradialytic Cycling as Kidney Exercise Rehabilitation for Cardiac Stunning in Hemodialysis (TICKERS-HD)-Implementation Sub-Study
    Sponsor: University of Manitoba **PI:** Prof Shilpa Jesudason

Student supervision

Mirabel Alonge (PhD Candidate, University of Adelaide) "Using pharmacokinetic principles to improve the safety of tacrolimus in kidney transplant recipients".

Supervisors: B Sallustio, S Jesudason, A Somogyi

Dr Dylan Barnett (PhD Candidate, University of Adelaide) "Organ preservation and resuscitation by isothermic oxygenated machine perfusion in an ex-vivo porcine model".

Supervisors: PT Coates, S Bhattacharjya

Dr James Besanko (Masters Candidate, University of Adelaide) "Evaluation of heart transplant transportation device in a pig model".

Supervisors: PT Coates, J Beltrame, J Edwards

Dr Samantha Bateman (PhD Candidate, University of Adelaide) "Benefits and Burdens of Kidney Transplantation for First Nations Australians".

Supervisors: S Jesudason, O Pearson, P Clayton, S McDonald

Nick Chai (PhD Candidate, University of Adelaide) "Exploring the adjuvant effect of mTOR inhibitor on boosting vaccine-induced T cell responses in immunocompromised transplant patients".

Supervisors: PT Coates, G Perkins, C Drogemuller

Dr Jessica Lee (PhD Candidate, University of Adelaide) "Development of new approaches to measure proteolysis and glycosylation profiling of high and low affinity corticosteroid-binding globulin (CBG) in septic shock using mass spectrometry".

Supervisors: PT Coates, D Torpy

Dr Brigette Clarke (PhD Candidate, University of Adelaide) "Adrenal cell transplantation for Addison's disease using Biodegradable Temporising Matrix technology".

Supervisors: PT Coates, P Hurtado, D Torpy

Dr Georgie Irish (PhD Candidate, University of Adelaide) "Decision making in kidney transplantation".

Supervisors: P Clayton, PT Coates

Laura Lunardi (PhD Candidate, University of South Australia) "Patient activation in Chronic Kidney Disease".

Supervisors: P Bennett, L Matricciani, R Le Leu

Dr Lachlan McMichael (PhD Candidate, University of Adelaide) "Understanding the path to kidney transplantation".

Supervisors: P Clayton, J Gill, M Kadatz, S Klarenbach

Shweta Mhatre (Masters Candidate, Adelaide University) "Development and validation of in-vitro biomarkers to assess insect allergy and venom immunotherapy".

Supervisors: G Perkins, A Le, T Wanandy, PT Coates, P Hissaria

Jackie Scaffidi (PhD Candidate, University of Adelaide) "Chimeric Antigen Receptor T regulatory cells (CAR-Tregs) as a therapy for autoimmune-driven Type 1 Diabetes".

Supervisors: PT Coates, S Barry

Dr Nishanta Tangirala (Masters Candidate, University of Adelaide) "Can I have a baby?"

Complexities in decision making around pregnancy in Australian women with kidney disease".

Supervisors: S Jesudason, E Hewawasam.

Dr Karthik Venkataraman (PhD Candidate, University of Adelaide) "Post-operative haemodynamic management after kidney transplant to improve early graft function".

Supervisors: M Collins, PT Coates

Dr Alison Weightman (PhD Candidate, University of Adelaide) "Decision Making in Deceased Donor Kidney Transplant Offers".

Supervisors: P Clayton, S Coghlan

Denghao Wu (PhD Candidate, University of Adelaide) "The genetic epidemiology of hereditary pancreatitis in South Australia".

Supervisors: PT Coates, L Palmer, K Kassahn, C Drogemuller

James Zuiani (PhD Candidate, University of Adelaide) "Characterisation of Pancreatic Organoids in hereditary pancreatitis and normal individuals".

Supervisors: S Grey, C Drogemuller, PT Coates

Conference abstracts

2024 Transplantation Society of Australia and New Zealand Annual Scientific Meeting, Melbourne

"Expanding Living Kidney Donation in Australia – barriers, opportunities and the next steps we need to take" – *Plenary*

Russell C

"Outcomes and insights from the National Indigenous Kidney Transplant Taskforce (NIKTT)" – *Plenary*

McDonald S, Owen K

"Shared decision making in transplantation – communicating risk and empowering patients" – *Plenary*

Irish G

"ABO incompatible Kidney Transplants have more early rejection but comparable long-term graft survival: ANZDATA Analysis"

Irish G

"How big is our blind spot? Estimating the burden of organ failure unmet by transplantation in the USA"

McMichael L, Sridhar V, Lopez R, Levine D, Teuteberg J, Verna E, Schold J, Gill J

"Boosting the longevity and stemness of sars-cov-2 memory t cell with mtor inhibitor (mtori) in transplant recipients"

Chai C, **Perkins G, Tunbridge M,** Hope C, Yeow A, **Salehi T, Kireta S, Johnston J, Hurtado PR,** Hissaria P, Grubor-Bauk B, **Coates T**

"A multicentre randomised trial of dietary inulin to improve SARS-COV-2 vaccine response in kidney transplant recipients"

Singer J, Tunbridge M, Perkins G, Salehi T, Grubor-Bauk B, Sim B, Chai C, Ying T, **Coates T**

"Short term machine preservation at room temperature is not inferior to static cold storage for deceased donor kidneys"

Barnett D, Bhattacharjya R, Daniel D, Kanhere A, Bastian J, Bhattacharjya S

"Histological comparison of pancreas preserved by machine perfusion and static cold storage"

Daniel D, Bhattacharjya R, Bastian J, Kanhere A, Barnett D, Ruszkiewicz A, **Bhattacharjya S**

"A pilot randomised controlled trial of advanced recovery room care post living donor kidney transplantation"

Venkataraman K, Collins M, Ludbrook G, **Coates T**

"SIR-Zoster – immunogenicity of recombinant zoster vaccination in kidney transplant recipients and healthy cohabitants"

Perkins G,Penko D, **Tunbridge M,** Chai C, **Hurtado PR,** Grubor-Bauk B, Irish G, Shi B, Singer J, Ying T, **Coates T**

"Oxygenated machine preservation of multi-visceral blocks for transplantation in a large animal model"

Bhattacharjya R, Barnett D, Kanhere A, Bastian J, Daniel D, Bhattacharjya S

"Boiling water ATP tissue extraction – a novel benchmarking technique for organ viability assessment"
Daniel D, Bhattacharjya R, Bastian J, Kanhere A, Barnett D, Bhattacharjya S

"Whole blood versus plasma tacrolimus through concentrations during pregnancy and their impact on outcomes"
Sallustio B, Alonge M, Coller J, Reuter S, **Hewawasam E, Jesudason S**

"Characterising pancreatic organoids from hereditary pancreatitis patients"
Zuiani J, Wu D, Drogemuller C, Perkins G, Coates T

"The epidemiology of hereditary pancreatitis in Australia and its effect on patient of total pancreatectomy with islet auto-transplantation (TPIAT)"
Wu D, Zuiani J, De Sousa S, Adelson D, **Coates T**

"Nephrologist perspectives on kidney transplant offers"
Weightman A, Duncanson E, Coghlan S, **Clayton P**

"The impact of donor and recipient diabetes on patient and graft survival in renal transplant recipients"
Orsillo A, Kholmurodova F, **Clayton P,** Chadban S, **Weightman A, Irish G**

"Pregnancy After Kidney Transplantation – Global Insights Based on Registry Data from Three Continents"
Giapoutzidou S, **Hewawasam E,** Coscia L, De Jong M, **Jesudason S**

"A standardised method of multi-visceral organ retrieval for testing ex-vivo machine perfusion in a large animal model"
Bastian J, Bhattacharjya R, Daniel D, Kanhere A, Barnett D, Bhattacharjya S

"Trends in hospital utilisation among children born to transplanted mothers in their first decade of childhood"
Hewawasam E, Davies C, Li Z, Sullivan E, **McDonald S, Jesudason S**

"Liver machine preservation at room temperature using an oxygenated, acellular perfusate – a pilot study"
Kanhere A, Daniel D, Bastian J, Bhattacharjya R, Barnett D, Bhattacharjya S

"Physiological assessment of small bowel graft viability under different ex-vivo machine perfusion (EVMP) conditions"
Bastian J, Bhattacharjya R, Kanhere A, Daniel D, Barnett D, Bhattacharjya S

"A blue peter approach to machine perfusion for organ preservation"
Bhattacharjya R, Barnett D, Kanhere A, Bastian J, Daniel D, Ruszkiewicz A, **Bhattacharjya S**

The Transplantation Society (TTS), Istanbul, Turkey

"A pilot randomised controlled trial of advanced recovery room care post living donor kidney transplantation"

Venkataraman K, Ludbrook G, **Coates PT, Collins M**

"Hospital admissions in the first 10-years of children born to transplanted mothers"

Hewawasam E, Davies C, Li Z, Sullivan E, **McDonald S, Jesudason S**

"Characterising pancreatic organoids from hereditary pancreatitis patients and their viability as a disease model"

Zuiani J, Perkins G, Wu D, Drogemuller C, Coates PT

"Outcomes of the RIVASTIM: Rapamycin randomized controlled trial of immunosuppression modification to improve vaccine responses in kidney transplant recipients"

Perkins G, Tunbridge M, Singer J, Chai C, Shi B, Ying T, Chadban S, **Coates PT**

"The epidemiology of hereditary pancreatitis in Australia and its effect on patient of total pancreatectomy with islet auto-transplantation (TPIAT)"

Wu D, Zuiani J, Drogemuller C, De Sousa S, Adelson D, Torpy D, **Coates PT**

"Importance of culturally safe care in donation and transplantation for First Nations peoples"

Owen K

"Pregnancy outcomes after kidney transplant utilizing assisted reproductive technologies"

Shah S, Rachwal B, Vyas P, Basera P, Rao S, Leonard A, Verma P, Constantinescu S, Moritz M, **Jesudason S,** Coscia L

"A novel Australian medical device (Organ Angel) for oxygenated hypothermic perfusion of donor hearts in a porcine model for up to 6 hours"

Besanko J, Coates PT, Edwards J, Beltrame J, Worthington M, Ou R

"Intercontinental insights: Registry based comparisons of pregnancy post-kidney transplantation"

Giapoutzidou S, **Hewawasam E,** Lely T, Coscia L, **Jesudason S,** de Jong M

"Reproductive planning – why & how"

Jesudason S

"How to set up a train the trainer program"

Jesudason S

"Pregnancy in transplantation"

Jesudason S

"ANZDATA (Australia & New Zealand Dialysis & Tx Registry)"

Irish G

"A young professionals perspective"

Irish G

American Society of Nephrology (ASN), San Diego, USA

"Improving transplantation equity in Australia: The national indigenous kidney transplantation taskforce"
Hughes J, Cundale K, **McDonald S**

"Impact of Victorian quality indicator (QI) on kidney transplant wait-lists for indigenous and nonindigenous Australians"
Ling R, **Davies C,** Mark T, **McDonald S,** Goodman D

Australian and New Zealand Society of Nephrology (ANZSN), Adelaide

"Preformed dialysis access for Aboriginal and Torres strait islander people"
Bateman S, Sinclair N, **Owen K,** Pearson O, **McDonald S, Clayton P, Jesudason S**

"How patient navigators can improve patient journeys for Aboriginal and Torres strait islander people with kidney failure: The Compass Project"
Owen K, Croker D, Henwood P, Ross L, Wilkshire N, Algy C, Lester R, Odonnell K, Kelly J, Haklar I, Cundale K, Halls H, Misener M, Tyrell K, **McDonald S, Jesudason S, Bateman S,** D'Antoine M, Brown I, Varcoe K

"Early to mid pregnancy renal parameters and adverse pregnancy outcomes in women with early stage CKD"
Orsillo A, Hewawasam E, Jesudason S

"Hidden figures: are we looking at the right metrics for transplant access"
McDonald S, Cundale K, Owen K, Hughes J

"A novel tool for the detection of needle fear in pre-dialysis and dialysis patients – measuring needle fear (MNF) tool"
Radisic G, Esterman A, **Le Leu R, Donnelly F,** Chur-Hansen A, Collins K, Burke A, Hill K, **McDonald S,** Macauley L, Muthuramalingam S, Jesudason S

"Hospital admissions during the first 10-years of life in children born to kidney transplanted mothers"
Radisic G, Esterman A, **Le Leu R, Donnelly F,** Chur-Hansen A, Collins K, Burke A, Hill K, **McDonald S,** Macauley L, Muthuramalingam S, **Jesudason S**

"Frequency of therapy alerts during the first 30 days of automated peritoneal dialysis and its relationship to technique survival"
Conway A, Hopkins J, McDonald S

"Placed based cultural safety training – the importance of culture for health and wellbeing"
Owen K

"Consumer-prioritised quality indicator outcomes in kidney failure care"
Davies C, Duncanson E, Muthuramalingam S, **Mazis J,** Johns E, McColm K, Tasevski Z, Gray N, **McDonald S**

"The Yalata kidney health festival: Implementing CARI clinical and cultural safety guidelines in a remote community"

Kelly J, Lester R, Smith E, **Bateman S,** Dumas K, Halford L, Stevenson T, Wilksch J

"Renal NEDD4L as a potential new regulator of glucose homeostasis and diabetic nephropathy"

Manning J, **Jesudason S,** Kumar S

"Intradialytic parenteral nutrition (IDPN) – Do we practice what we preach?

Meade A, Liu Y

"A 10 year ANZDATA analysis of peritoneal dialysis technique survival"

Hopkins J, Conway A, McDonald S

"Clinician comprehension of quality indicator presentations in kidney failure care"

Davies C, Duncanson E, Gray N, **McDonald S**

"Creating a consumer advisory panel within the Australian and New Zealand dialysis and transplant registry – Business as usual"

Mazis J, Shirley S, Torissi L, **McDonald S, Irish G**

"Patient perspectives on decision making in deceased donor kidney transplant offers: A qualitative study"

Weightman A, Duncanson E, Coghlan S, **Clayton P**

"Improving management of needle distress during the journey to dialysis through psychological education and training (INJECT) – A pilot feasibility study"

Radisic G, Le Leu R, Chur-Hansen A, Collins K, Burke A, **Donnelly F,** Hill K, **McDonald S,** Macauley L, **Jesudason S**

The ANZSN local organising committee – A Orsillo, R Kermond, L Wilson J Mazis, A Meade, K Owen, S Bateman

British Transplant Society (BTS), Harrogate, UK

"Novel methods for testing small bowel viability under different preservation conditions by ex vivo machine perfusion (MP) in a large animal model"

Bastian J, Barnett D, Bhattacharjya R, Daniel D, Kanhere A, Ruszkiewicz A, **Bhattacharjya S**

"Exploring the feasibility of multi-visceral organ retrieval for ex vivo machine perfusion in a large animal mode"

Bastian J, Barnett D, Bhattacharjya R, Daniel D, Kanhere A, Ruszkiewicz A, **Bhattacharjya S**

"A Blue Peter approach to machine perfusion for organ preservation"

Bhattacharjya R, **Barnett D,** Kanhere A, Bastian J, Daniel D, Ruszkiewicz A, Bhattacharjya S

"Liver machine preservation at room temperature using an oxygenated, acellular perfusate: A pilot study"

Kanhere A, Bastian J, Daniel D, Bhattacharjya R, Kanhere A, **Barnett D,** Bhattacharjya S, Ruszkiewicz A

"Functional and histological comparison of pancreas preserved by isothermic (room temperature) machine perfusion as compared to static cold storage and normothermic machine preservation"

Daniel D, Bhattacharjya R, Bastian J, Kanhere A, **Barnett D,** Ruszkiewicz A, **Bhattacharjya S**

"Oxygenated machine preservation of multi-visceral blocks for transplantation in a large animal model"

Bhattacharjya R, **Barnett D,** Kanhere A, Bastian J, Daniel D, Ruszkiewicz A, **Bhattacharjya S**

"Boiling water ATP tissue extraction: A novel benchmarking technique for organ viability assessment"

Daniel D, Bhattacharjya R, Kanhere A, Bastian J, **Barnett D,** Ruszkiewicz A, **Bhattacharjya S**

"Short-term machine preservation with acellular oxygenated perfusate at room temperature is not inferior to static cold storage for deceased donor kidneys"

Barnett D, Bhattacharjya R, Kanhere A, Bastian J, Daniel D, **Bhattacharjya S**

Renal Society Australasia (RSA), Sydney

"Integration of Point-of-Care Ultrasound (POCUS) for assessing and cannulation of arteriovenous fistulas (AVF's)- a regional South Australian dialysis units experience"

McFeeters S

"The futility of post-haemodialysis blood glucose levels: A retrospective cohort study"

Zhang J, Le Leu R, Bennett P

"Parenthood and Kidney Disease: 'Can I have a baby?'"

Williamson A, **Jesudason S**

Renal Society Australasia (RSA), Sydney

"A journey of an Argentinian Nephrologist to an Australian Renal Nurse Practitioner"
Lunardi L, Bennett P

"Development of an ISN-supported, globally focussed, Train the Trainer Program for Pregnancy and Kidney Disease"
Jesudason S, Hladunewich M

"Substantial sex differences in peritoneal dialysis outcomes: results from PDOPPS"
Brown E, Albak R, Bieber B, Sylvertooth D, **Jesudason S,** Johnson D, et al.

"Remote monitoring: what really happens during peritoneal dialysis?"
McDonald S, Conway A, Hopkins J

"The impact of transport on carbon emissions from peritoneal dialysis in Australia"
McDonald S, Barraclough K, Talbot B, Nelson C, Knight R, McCalister S

"Rates and outcomes of cardiac surgery for people receiving long term dialysis or kidney transplantation in Australia"
McDonald S, Keuscamp D, Davies C, Williams-Spence J, Tran L, Polkinghorne K

"The carbon footprint of dialysis therapies in Victoria, Australia"
McDonald S, Barraclough K, Talbot B, Nelson C, Knight R, McCalister S

"Editor's Pick of ISN Journals"
Perkins G

American Transplant Congress (ATC), Philadelphia

"Rapamycin and Inulin for Third-Dose Vaccine Response Stimulation (RIVASTIM): A Multicenter, Randomised, Double-Blinded, Placebo Controlled Trial of Dietary Inulin to Improve SARS-CoV-2 Vaccine Response in Kidney Transplant Recipients"
Singer J, **Tunbridge M, Perkins G, Salehi T,** Chai C, GruborBauk B, Sim B, Ying T, **Coates PT,** Chadban S

"The Impact of Donor and Recipient Diabetes on Patient and Graft Survival in Renal Transplant Recipients"
Orsillo A, Kholmurodova F, **Clayton P,** Chadban S, **Weightman A, Irish G**

"How Big is Our Blind Spot? Estimating the Burden of Organ Failure Unmet by Transplantation – An Analysis by the AST Setting the Tent Work Group"
McMichael L, Sridhar V, Lopez R, Levine D, Teuteberg J, Verna E, Schold J, Gill J

American Pancreatic Association (APA) /Japan Pancreas Society (JPS)/ Chinese Association of Pancreatology (CAP)/International Association of Pancreatology (IAP), Hawaii, USA

"A Genetic Analysis of Hereditary Pancreatitis in Australia: Searching for Potential Novel Modifiers"

Wu D, PT Coates

The European Dialysis and Transplant Nurses Association/European Renal Care Association (EDTNA/ERCA), Athens, Greece

"Should we perform post-haemodialysis blood glucose levels?"

Bennett P, **Zhang J, Le Leu R,** Xu Q

Australian and New Zealand Bone and Mineral Annual Meeting (ANZBMS), Adelaide

"Transplantation of Pancreatic Islets to treat Type 3c Diabetes in Hereditary Pancreatitis: Outcomes from the HEPATA Trial (HEreditary Pancreatitis Trials and Auto-Islet Transplant Trials Australia)"

Coates PT

Australian Gastroenterology Week (AGW), Adelaide

"Characterising pancreatic organoids from hereditary pancreatitis patients"

Zuiani J, Wu D, Drogemuller C, Perkins G, Coates T

Publications

Clinical Research Group

Alonge, M., J. Coller, S. E. Reuter, **S. Jesudason,** and B. Sallustio. "Determining Plasma Tacrolimus Concentrations Using High-Performance Lc-Ms/Ms in Renal Transplant Recipients." *Ther Drug Monit* 46, no. 1 (2024): 49-56.
dx.doi.org/10.1097/FTD.0000000000001135

Ankawi, G., N. Tangirala, **S. Jesudason,** and M. Hladunewich. "Pregnancy in Patients Receiving Home Dialysis." *Clin J Am Soc Nephrol* (2024).
dx.doi.org/10.2215/CJN.0000000000000437

Begum, M., A. Biruete, B. Kistler, **A. Meade,** J. Westhoff, and D. St-Jules. "A Systematic Review of Online Resources for the Dietary Management of Hyperphosphatemia in People with Chronic Kidney Disease." *J Ren Nutr* 34, no. 5 (2024): 410-17.
dx.doi.org/10.1053/j.jrn.2024.01.005

De Souza, L., D. Pham, A. M. Craven, R. Sekar, **S. Jesudason,** S. Ratanjee, W. Walker, and D. Ranganathan. "Pregnancy in Women on Dialysis – a Case Series – Challenges in Achieving Evidence-Based Care." *Obstet Med* (2024): 1753495X241254243.
dx.doi.org/10.1177/1753495X241254243

Duncanson, E., **R. Le Leu,** A. Chur-Hansen, T. Masotti, K. Collins, A. Burke, L. P. Macauley, **S. McDonald,** and **S. Jesudason.** "Nephrology Nurses' Perspectives Working with Patients Experiencing Needle-Related Distress." *J Ren Care* 50, no. 3 (Sep 2024): 241-51.
dx.doi.org/10.1111/jorc.12483

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