



Central Northern Adelaide Renal and  
Transplantation Service (CNARTS)

# Annual Research Report 2020

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



**Health**  
Central Adelaide  
Local Health Network

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# Welcome message

It is a great pleasure to deliver the fourth Annual Research Report from the Central Northern Adelaide Renal and Transplantation Service (CNARTS) at the Royal Adelaide Hospital, Central Adelaide Local Health Network.

2020 will be remembered as a year of enormous change and challenges, precipitated by the coronavirus pandemic. The impact on clinical and academic activities was profound. Patients living with kidney disease experienced unprecedented events such as the temporary suspension of organ transplantation in Australia, outpatient dialysis services being moved out of the Royal Adelaide Hospital, a very rapid shift to telehealth and disruption to usual clinical care. Our clinical and support staff displayed incredible resilience and teamwork adapting to this new paradigm. Throughout the year, our dedicated research teams adapted to working from home, conducting patient research by remote methods such as Zoom and doing everything possible to keep our research programs going.

Despite these barriers, CNARTS research activity continued throughout 2020, pursuing a broad and patient-centred research agenda. CNARTS has a diverse and multidisciplinary research team – medical, nursing, scientific, dietetic, psychology, occupational therapy and consumer co-investigators. Research methods include clinical trials of novel therapies, epidemiological studies through the ANZDATA registry, qualitative research to bring patient voices to the forefront, laboratory studies supporting translational basic science research to improve future clinical care.

We thank our highly motivated and dedicated research funding partners - The Hospital Research Foundation, Kidney Transplant Diabetes Research Australia and the RAH Hospital Research Fund – for their ongoing support of our teams and most importantly our patients.

A final word of thanks to every patient who has engaged with us, supported our events and activities, participated in our studies (directly or through use of their clinical data), informed our work through their input and partnership – we are inspired by your stories and journeys.



**A/Prof Shilpa Jesudason**  
*Chair of CNARTS Clinical Research Group*



**Prof Randall Faulk**  
*Director of Research and Training, CNARTS*

# About us

**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, with over 1700 kidney failure patients.**

CNARTS currently provides dialysis services to approximately 740 dialysis patients, including supporting 138 home dialysis patients (107 home peritoneal dialysis and 31 home haemodialysis). In 2020 CNARTS established a shared care program in haemodialysis with all metropolitan units now participating, with 41 patients currently participating in this program. CNARTS also provides supportive care to 170 patients and supports around 1000 existing transplant recipients and performs 65-80 transplants per year. The different types of transplants performed include kidney transplants, simultaneous kidney-pancreas transplant and islet cell transplants.

## Mission statement:

CNARTS has a strong culture of research, developing pioneering ideas and advancing knowledge in crucial areas of kidney disease.

We aim to:

1. Improve the understanding of the science underpinning kidney diseases
2. Conduct translational research that is patient-centred and leads to improvements in treatments, outcomes and the patient experience
3. Advance the use of new technologies, methodologies and treatments for the benefit of kidney patients
4. Support and mentor staff and students to pursue research at all levels, building a highly skilled research workforce that will lead us into the future

# Research sponsors

We are very grateful for the generous donors and fundraising organisations 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.



<https://www.rahrefund.com.au/>



The RAH Research Fund's purpose is to raise funds for life-saving medical research at the iconic hospital.

Current research projects supported by the RAH Research Fund include:

- > Improving Management of Needle Distress during the Journey to Dialysis through Psychological EduCation and Training (The INJECT Study) \$50,000
- > Gastrointestinal symptoms, dietary intake and changes in gut microbiome pre and post kidney transplant \$30,000
- > Phenotypic and Genotypic Analysis of Hereditary Pancreatitis in South Australia \$38,830

The INJECT fundraising campaign by the RAH Research Fund has raised over \$52,000



**TOGETHER. FIGHT.**

<https://www.hospitalresearch.com.au/>

The Hospital Research Foundation fights for cures, better treatments and improved care in hospitals, thanks to the support of our kind donors.

The Hospital Research Foundation (THRF) are passionate about supporting world-class medical research to find cures and improve care for families here in Australian and around the world and have been a long-time supporter of CNARTS kidney research.

The THRF have supported a number of CNARTS projects that include:

- > Total Pancreatectomy and Islet Auto Transplantation \$460,000
- > 3D Printing Human Islets \$120,671
- > The Genetic Epidemiology of Hereditary Pancreatitis in South Australia \$45,300



<https://kidneydiabetesresearch.com.au/>

Kidney, Transplant and Diabetes Research Australia (KTDR) is part of The Hospital Research Foundation Group and supports ground-breaking translational medical research that is helping to improve the lives of those with kidney disease and diabetes.

KTDR's mission is to raise funds in support of medical research aimed at developing new therapies to enhance organ transplantation, to treat diabetes and kidney disease and ultimately eliminate these diseases as two of the fastest growing chronic conditions in Australia and around the world.

In 2020, KTDR's valued supporters raised much-needed funds for kidney and diabetes research and patient care, which included:

- > Helena Kollias – Kars for Kidney Research event \$18,036
- > Carole & Barry Bailey – Burra Expo Open Gardens & Christmas Raffle \$2,500
- > Frans de Wolff – Birthday Fundraiser \$2,920
- > Barry Maney Group, Mt Gambier \$500 donation
- > Michael Fogden (Yankalilla Lions Club) coordinated a group donation from 20 SA Lions Club, which was then matched by Australian Lions Foundation. This resulted in a \$30,000 donation.



Yankalilla Lions Club members Michael and Sheila.



Kars for Kidney Research event

# Research sponsors

## Generous donor gifts new 3D Printer

KTDR would like to acknowledge and thank Mr Peter Swanson who generously donated funds towards a new 3D printer!

The device is used to print a large amount of islet cells and eliminate the need to rely on a deceased donor for transplantation. We look forward to sharing how this printer is changing people's lives.



Current research projects supported by KTDR in 2020 include:

- > Changes in Gut Health after kidney transplant \$50,000
- > Development of a clinical and research database to help patients suffering from kidney disease \$50,000



<https://www.creativehealth.org.au/>

The Centre for Creative Health (CCH) aims to improve the quality and experience of healthcare through art, music and design; from living a healthy lifestyle, through prevention, treatment, recovery and end of life care.

Projects supported by the CCH in 2020 included:

- > Diversional Activities Program for Renal Patients at Hampstead Dialysis Centre \$25,000
- > Dialysis Unit Guitarist



# Awards and Fellowships



**Dr Erandi Hewawasam** was awarded the Early Career Researcher Oral Presentation Award at the Australian Society for Medical Research South Australian Annual Scientific Meeting for her presentation entitled *“Factors influencing fertility rates in women receiving kidney replacement therapy: A analysis of linked ANZDATA Registry and Perinatal Data over 22 years”*.



**Denghao Wu** was awarded the Central Adelaide Local Health Network (CALHN) Student Research Award in 2020 for his project entitled *‘Hereditary Pancreatitis (HP) in Australia - Health assessment for Nationally Funded Centres (NFC) application to include Total Pancreatectomy and Islet Auto Transplant (TPIAT)’*.



**Dr Maleeka Ladhani** was awarded her Doctorate (PhD) by the University of Sydney in 2020 for her thesis *“Prevalence and outcomes in people with obesity across the spectrum of chronic kidney disease”*.



**Dr Georgina Irish** was awarded a NHMRC Postgraduate Scholarship for 2020-22 to support her project, *“Decision making in kidney transplantation”*.



**Dr Shyamsundar Muthuramalingam** and the ANZDATA team were awarded the SAHMRI Community Engagement award for 2020. This award is designed to recognise an individual or a team who has demonstrated excellence in meaningful consumer or community engagement in health and medical research.



**Dr Sarah Short** is the the first Rhodes Scholar to come from the CNARTS laboratory and became Adelaide University’s 112th Rhodes Scholar. Sarah, who completed her honours project within the CNARTS Laboratory in 2020, was awarded one of only three Australia-at-Large Rhodes Scholarships offered each year to study at Oxford University.

Full story at: <https://www.adelaide.edu.au/newsroom/news/list/2020/12/03/112th-rhodes-scholar-to-bring-science-to-the-bedside>

Sarah was also awarded a RAH Research Committee Honours Scholarship (Award amount \$2000) in 2020 to support her project *“Creation of an immunoprivileged site in the intra-cutaneous space for islet cell transplantation”*.

# Research funding for 2020



## Clinical Research Group:

2020 Kidney, Transplant and Diabetes Research Australia (KTDR) Project Grant (\$20,000)

**A Meade, C Trimmingham, R Faull, S McDonald, R Le Leu, P Clayton, G Rogers, T Coates, S Jesudason**

*Nutrition interventions to improve diarrhoea early after kidney transplant*

2020 CALHN CEO Clinical Rapid Implementation Project Scheme (CRIPS) (\$200,000)

**S Jesudason, S McDonald, T Whittington, C Bollen.**

**AI: R Faull, A Kellie, F Donnelly, A Britton, R Le Leu**

*Reducing Unplanned Chronic Dialysis Start – Implementing Pathways for Integrated Tertiary and Primary Care of Advanced Chronic Kidney Disease (CKD)*

2020 CALHN CEO Clinical Rapid Implementation Project Scheme (CRIPS) (\$200,000)

**B Farmer, A Britton, S McDonald**

**AI: R Faull, A Naresh, T Whittington**

*Aboriginal dialysis models of care – improving health outcomes in Aboriginal patients by improving adherence to dialysis treatment*

2020 RAH Research Committee - Clinical Project Grant (\$50,000)

**S Jesudason, S McDonald, A Chur-Hansen, A Burke, K Collins, E Duncanson, R Le Leu**

*Improving Management of Needle Fear during the Journey to Dialysis through Psychological Education and Training – The INJECT Study*

2020 RAH Research Fund INJECT specific Fundraising campaign (\$52,000)  
Health Network - Regional Health Local Network Research Grant (\$43,405)

**S McDonald, A Biddle, K Hill, J Childs**

*Impact on patients of Point of Care Ultrasonography for dialysis access needle use*

2021-25 NHMRC Ideas Grant (\$1,950,172)

**K O'Donnell, J Kelly, K Owen, R Tsetsakos, N Sinclair, S Bateman, J Lavoie**

*AKtion2: Aboriginal Kidney Care Together - Improving Outcomes Now*

This project brings together Aboriginal kidney patients and families, health professionals, health services, academics and researchers to improve renal care and services in South Australia.

## Centre for Clinical and Experimental Transplantation:

2020 Kidney, 2017-2021 The Hospital Research Foundation (\$460,000)

**T Coates.**

*Total Pancreatectomy and Islet Auto Transplantation.*

2016-2021 Juvenile Diabetes Research Foundation (\$3,200,000)

**T Coates.**

*Expanding the criteria for human islet transplantation by the development of a drug-free immunosuppressive protocol.*

2019-2021 Juvenile Diabetes Research Foundation International 3-SRA-2019-777-M-B (\$1,969,259)

**T Coates.**

*Proof of Concept Clinical Trial of Intracutaneous Islet Transplantation*

2019-2020 Commercial in Confidence (\$1,254,357)

**T Coates and C Drogemuller.**

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

2020-2022 Commercial in Confidence (\$500,276)

**T Coates and C Drogemuller.**

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

## ANZDATA, ANZOD and BEAT-CKD:

2020 Australian Government Department of Health - Public Health and Chronic Disease Grant Program (\$501,200)

**S McDonald, J Craig, A Tong, D Johnson, D Reidlinger**

*To establish a National Kidney Consumer Research Network*

2020-24 NHMRC Investigator Grant – Leadership 1 (\$975,000)

**S McDonald**

*Building on Registry data to improve dialysis and kidney transplantation*

2020 RAH Research Committee - Clinical Project Grant (\$38,830)

*Phenotypic and Genotypic Analysis of Hereditary Pancreatitis in South Australia.*

2020 The Hospital Research Foundation (\$45,300)

*The Genetic Epidemiology of Hereditary Pancreatitis in South Australia*

2020 The Hospital Research Foundation (\$120,671)

*3D printing human islets*

2020 Health Services Charitable Gifts Board (HSCGB) (\$18,000)

*Student scholarships*

- > 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.

## Vision statement:

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



A/Prof Phil Clayton, Tiffany Whittington, A/Prof Shilpa Jesudason (Chair of CRG), Prof Randall Faulk, Dr Richard Le Leu (CRG Research Co-ordinator), Anthony Meade

## Project Staff:

**Dr Richard Le Leu (Clinical Research Coordinator)**

**Emily Duncanson (Research Officer)**

**Stephen Chen (Data Manager)**

**Dr Nerylee Watson (Research Officer)**

**Ms Gorjana Radisic (Research Officer)**

## CRG projects for 2020

### 1. Improving Management of Needle Distress during the Journey to Dialysis through Psychological Education and Training (The INJECT Study)

**Lead** - A/Prof Shilpa Jesudason

**Team** - G Radisic, E Duncanson, R Le Leu, J Turner, F Donnelly, L Macauley, K Hill, A Burke, K Collins, A Chur-Hansen, S McDonald  
(Collaboration with the School of Psychology, University of Adelaide and Clinical Psychology, CALHN)



Our multidisciplinary team including consumer partners has developed "INJECT" - a patient self-management psychological intervention to address

needle fear in adults receiving haemodialysis. This intervention has been informed by qualitative interviews with dialysis patients and nurses. We will test feasibility and acceptability in this pilot study as well as education program for nurses and patients. In addition to testing the curriculum and acceptability of the educational program, this study will also identify barriers and facilitators to implementing a pragmatic trial to improve needle distress in patients. This can subsequently inform an intervention for a broader clinical trial.

Funded by:

- > The Health Services Charitable Gifts Board (HSCGB) (\$60,000)
- > RAH Research Committee Clinical Project Grant (\$50,000)
- > RAH Research Fund – The INJECT campaign (\$52,000)

### 2. Gastrointestinal symptoms, dietary intake and changes in gut microbiome pre and post kidney transplant

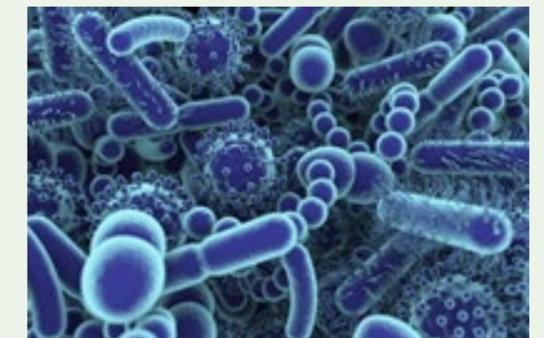
**Lead** - Anthony Meade

**Team** - N Watson, R Le Leu, M Mukherjee (Flinders University Dietetics Honours student), C Trimmingham, G Rogers (SAHMRI), P Clayton, T Coates, S Jesudason  
(Collaboration with the Microbiome and Host Health Programme, SAHMRI)

This project will help us understand more about gastrointestinal symptoms and dietary intakes in people with recent kidney transplants. This project will also investigate the gut microbiome before and after kidney transplant and study the ability of renal transplant patient's microbiome to digest certain foods that might be important for treatment of symptoms. A total of 60 participants were recruited. Microbiome analysis and dietary/symptom analysis will be undertaken early in 2021.

Funded by:

- > Allied Health, Pharmacy and Nursing RAH Research Committee (\$30,000)
- > Kidney, Transplant and Diabetes Research Australia (KTDR) (\$50,000)



# CRG projects for 2020



### 3. Fit, strong or active: What should we focus on to improve the lives of peritoneal dialysis (PD) patients?

**Lead** - Brett Tarca (PhD candidate)

**Team** - K Ferrar, T Wycherley, P Bennett, A Meade, R Le Leu, S Jesudason  
(*Collaboration with Allied Health and Human Performance, University of South Australia*)

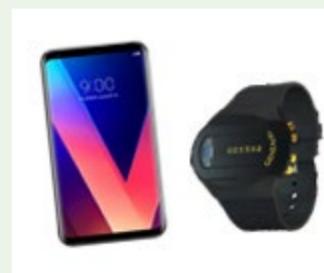
This research study is exploring the modifiable physical factors that predict physical functioning for patients receiving peritoneal dialysis (PD). This 12-month longitudinal cohort study will assess physical activity levels / sedentary behaviour, muscle strength and cardiorespiratory fitness as predictors of physical function at three time points (baseline, 6 months and 12 months) in PD patients. To date, 84 patients have been recruited, 65 have completed baseline assessment, 21 have had 6-month follow ups with 9 completing the 12-month assessment. Recruitment is on-going.



### 4. Ecological Momentary Assessment to Explore Fatigue, Mood and Physical Activity Levels in People Receiving Peritoneal Dialysis

**Lead** - Brett Tarca (PhD candidate)

**Team** - K Ferrar, T Wycherley, T Boyle, P Bennett, A Meade, R Le Leu, S Jesudason, M Borlace, M Ovenden, K Ferrar  
(*Collaboration with Allied Health and Human Performance, University of South Australia*)



This research study is exploring the fluctuations and relationships between fatigue, mood and physical activity for people receiving

peritoneal dialysis (PD). This 7-day intensive longitudinal will explore the within day and day to day experience that people experience through the use of mobile technology (ecological momentary assessment). Ecological momentary assessments allows for capturing of data in real-time and real environments with survey questions triggered at 5 times throughout each day. Recruitment commenced in December 2020 with 4 participants having completed the protocol to date.

Funded by:

- > Allied Health Professional Collaborative Grants SA Health, The Hospital Research Foundation-UniSA (\$21,000)

### 5. Aboriginal Kidney Care Together- Improving Outcomes Now (aKction)

**Lead** - Dr Janet Kelly

**Team** - K O'Donnell, S Jesudason, S McDonald, O Pearson, M Arnold-Chamney, T Whittington, T Stevenson, S Bateman (PhD Candidate), R Le Leu, S Crail, G Meija, A McKivett, Kylie Herman, L Dodd, L Jamieson, H Buchanan, Brian Farmer, Clare Dekuyer, Matilda D'Antoine, S Franca, A Lane, C Russell, K Schwartzkopff  
(*Collaboration with Community members, University of Adelaide, SAHMRI, ANZDATA, The National Indigenous Kidney Transplantation Taskforce, Kidney Health Australia*)

The AKction- Project have been working with Aboriginal patients, family members, health professionals and support services in urban, rural and remote locations in South Australia to identify what is working and what needs improvement in kidney care. Individual patient journeys have been mapped, and workable strategies for improvement identified through key stakeholder workshops and ongoing discussions. Specific issues related to access, transport and accommodation, dental care and workforce have been identified. Short, medium and long term solutions have been prioritised and actioned in collaboration with Aboriginal patients, health professionals, researchers, educators and kidney care services. For example, the piloting of dialysis at Kanguawodli Aboriginal hostel. The Aboriginal Reference Group has grown in strength and capacity, and now provide crucial support, advice and leadership for improvements in Aboriginal kidney care and research locally and nationally. Our recent successful 5 year NHMRC Ideas Grant will enable collaborative work to continue and strengthen in AKction 2 in 2021. With Dr Kim O'Donnell as CIA, and three community members included as Chief Investigators, AKction 2 signifies a significant move toward meaningful Indigenous Governance and decolonised research collaborations.

AKction 1 is funded by:

- > SA Academic Health Science and Translation Centre (SA Centre) for the Rapid Applied Research Translation for Health Impact Grant (\$185, 604).





### 5. Improving the therapeutic use of vancomycin in patients undergoing dialysis treatment

**Lead** - Dr Lachlan McMichael

**Team** - L Paradiso, R Le Leu, , M Ward, D Foster, J Latte, H Tran, S Jesudason, S Jahan, K Richards, R Faull, S Reuter Lange

*(Collaboration with School of Pharmacy & Medical Sciences, University of South Australia)*

This project will determine the pharmacokinetics of vancomycin in patients receiving maintenance haemodialysis treatment to guide optimal and safe administration of vancomycin in the treatment of serious gram-positive bacterial infections. To date, 5 patient have been recruited.

Funded by:

- > Allied Health Research Collaboration grant (\$22,000).



### 6. Benefits and Burdens of Kidney Transplantation for First Nations Australians

**Lead** - Dr Sam Bateman (PhD Candidate)

**Team** - S Jesudason (Principle Supervisor), O Pearson, P Clayton, S McDonald

This PhD project will initially undertake a systematic review on How are the disparities in health outcomes for First Nations people receiving renal replacement therapy in Australia, New Zealand, Canada and the United States of America addressed? The next phase will then aim to establish if, for an Indigenous Australian dialysis patient who is at any time wait-listed for transplantation, there is a survival benefit of a deceased donor kidney

Funded by:

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



### 7. Decision Making in Renal Transplantation: An Applied Bioethics Approach to Offers and Informed Consent

**Lead** - Dr Alison Weightman (PhD Candidate)

**Team** - P Clayton (Principle Supervisor), M Ladhani, S Moodie, D Stephenson, S Coglan

This is a qualitative research project investigating the processes and opinions of stakeholders in decision making at the time of deceased donor kidney transplant offers. The project is being led by Dr Alison Weightman and forms part of her PhD. Interviews will be conducted with multiple different groups including transplant nephrologists, non-transplant nephrologists, new transplant patients, patients on the waiting list and family members of deceased donors. The aim of the project is to gain a greater understanding of the information exchange and decision making procedures occurring when a deceased donor kidney transplant is offered to a recipient, as well as the priorities of all participants in this process.

Funded by:

- > University of Adelaide Research Training Program Stipend



### 8. Assessing the ability of non-invasive, tachycardic-induced cardiac stress test as a risk predictive tool regarding perioperative renal transplant myocardial infarction and cardiovascular death within Central and Northern Adelaide Renal and Transplantation Services (CNARTS)

**Lead** - Dr Tania Salehi

**Team** - N Montarello, A Bate, M Worthley, A Pisaniello, P Clayton, K Teo, T Coates

*(Collaboration with Department of Cardiology, CALHN)*

This study consisted of a retrospective audit to assess our centre's renal transplantation cardiovascular assessment protocol over a 5-year period. This audit validated the effectiveness of a negative tachycardic-induced cardiac stress test, when a target heart rate of 85% predicted for age and gender is achieved, in predicting the absence of peri-operative myocardial infarction and cardiovascular death following kidney-only transplant surgery within 30 days.



**9. Human leukocyte antigen (HLA) associations in azathioprine-induced drug hypersensitivity reaction in ANCA-associated vasculitis**

**Lead** - Dr Tania Salehi

**Team** - C Peh, R Carroll

This project will create a retrospective databank of patients with associated vasculitis previously treated with, or currently on azathioprine maintenance therapy. The cohort will be divided according to those who have experienced an episode of azathioprine-induced drug hypersensitivity reaction, and those who have tolerated azathioprine maintenance therapy. HLA typing will be performed in both arms, with the aim to identify suspected HLA associations to those who have experienced a drug hypersensitivity reaction.



**10. Descriptive overview of deaths from withdrawal after renal transplantation progress**

**Lead** - Dr Sadia Jahan

**Team** - P Clayton

This retrospective audit will investigate the causes of withdrawal from kidney transplantation and investigate the patient characteristics within this patient group.



**11. The impact of care ultrasound (POCUS) training on dialysis access assessment and cannula placement**

**Lead** - Prof Stephen McDonald

**Team** - A Biddle, J Childs, K Hill

This project examines whether use of "point of care" ultrasound by nurses in rural South Australian dialysis units will improve patients' experiences by lessening the pain and trauma associated with insertion of needles for dialysis, and reducing the need to return to Adelaide for investigation and treatment.

Funded by:

- > Health Network - Regional Health Local Network Research Grant (\$43,405)



**12. What are the experiences and concerns raised on an international online forum by caregivers of patients with kidney disease?**

**Lead** - Natalie Tuckey (Honours student)

**Team** - A Chur-Hansen (Principal supervisor), E Duncanson, S Jesudason

*(Collaboration with the School of Psychology, University of Adelaide)*

The aims of this honours project were to contribute to the literature through the research question: What are the experiences and concerns raised on an international online forum by caregivers of patients with chronic kidney disease? This study advocates for caregivers who have poor quality of life and using online social support to reach out to others. The present findings provided valuable insight into the psychosocial and physical challenges of caregivers of patients of CKD, as well as identified a gap in caregiver knowledge.



### 13. In what ways do companion and other animals impact the lives of people living with kidney disease?

**Lead** - Tara Jackson (Honours student)

**Team** - A Chur-Hansen (Principal supervisor), E Duncanson, S Jesudason

*(Collaboration with the School of Psychology, University of Adelaide)*

The aims of this honours project were to investigate perspectives, attitudes, and experiences around companion and other animals in people living with kidney disease, based on an online forum. This study highlighted the value of companion and other animals, and that some health professionals do not necessarily understand or appreciate the human-animal bond, which means there are implications for people living with kidney disease, health professionals, and healthcare providers.



### 14. Early outcomes post renal transplantation in low and moderate immunologic risk recipients following basiliximab or rabbit anti-thymocyte globulin induction therapy

**Lead** - Dr Tania Salehi

**Team** - P Clayton

This retrospective review investigated the impact of selective versus universal rATG induction immunosuppression therapy on early post renal transplantation outcomes, amongst low to moderate immunologic risk categories over a 36-month period. Results showed lower rates of acute rejection with rATG induction therapy compared to basiliximab, with overall similar complication rates. However, viral infections and leukopenia were most common with higher dose rATG, signifying the dose dependent complications of such therapies.



### 15. Exploring Sodium Channel Modelling by Nedd4L in human diabetic kidney disease

**Lead** - Dr Jantina Manning

**Team** - S Jesudason, R Le Leu, S Chang, S Kumar

To confirm whether a specific type of protein (Nedd4-2) in human kidneys can be detected in human kidney biopsies and to analyse whether protein levels of Nedd4L are down-regulated in human diabetic nephropathy and if this associates with a change in epithelial sodium channels.



# 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. 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 and includes clinician scientists: A/Prof Chen Au Peh and Dr Rob Carroll. Principal Medical Scientist Chris Drogemuller manages 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 excitingly, this year our first Rhodes Scholar Sarah Short.

## Vision 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:

Chris Drogemuller (Principal Medical Scientist)  
Svjetlana Kireta (Senior Medical Scientist)  
Dr Plinio Hurtado (Senior Grant Funded Scientist)  
Julie Johnston (Technical Officer)  
Jodie Nitschke (Senior Grant Funded Scientist)  
Daniella Penko (Senior Grant funded Scientist)  
Dr Ernesto Hurtado (Grant Funded Scientist)  
Denghao Wu (Grant Funded Scientist)  
Dr Sebastian Stead (Grant Funded Project)

## Students:

Griffith Perkins (PhD candidate)  
Juewan Kim (PhD candidate)  
Alice Krige (PhD candidate)  
Brigette Clarke (PhD candidate)  
Jacqueline Scaffidi (PhD candidate)  
Bronwyn Dearman (PhD candidate)  
David Linn (Honours Student)



# Laboratory research projects

## 1. 3D bioprinting of Tregs & Generation of stable induced Treg

**Researchers** - T Coates, C Drogemuller, J Kim, D Penko

**Associated Researchers** - Gordon Wallace, Xiao Liu, Zhilian Yue, Yu Hou

This project is an ongoing collaboration with the University of Wollongong's Prof Gordon Wallace and involves the design and fabrication of the only dedicated 3D pancreatic organoid printer in Australia to create alternative sources of insulin production for treatment of diabetes. In 2019, significant progress was achieved with the successful co-printing of regulatory T-cells and islets. In 2020 we received the third iteration of the 3D printer with refined printing capabilities, to enable in vivo testing of these Treg and islet organoids in our animal models of diabetes.





## 2. The Biodegradable Temporizing Matrix as an Alternative Site for Human Islet Transplantation

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

**Associated researchers** - J Greenwood, S Grey, B Dearman, S Walters, T Kay, T Loudovaris, L Mariana

This project is supported by the Juvenile Diabetes Research Foundation International (New York), where an alternative extra hepatic site for islet transplantation is being developed. It is a collaboration with Prof John Greenwood (the inventor of the material) from the Burns Unit at the Royal Adelaide Hospital and has created a biomedical start-up company – Beta Cell Technology to develop this approach for the clinic.

Notwithstanding the challenges COVID-19 presented in 2020 we were able to perform seven large animal experiments to examine the suitability of intracutaneous islet transplant to treat type 1 diabetes. These experiments confirmed the ability of the site to support islet survival and function. In addition, we were able to overcome the challenge of loading the islets into the site by incorporating a new surgical technique that creates a fold in the engrafted tissue into which islets can be readily seeded. Based on the data obtained from the completed JDRF studies, a first in human "Proof

of Concept" clinical trial of intra-cutaneous islet transplantation will be trialled in 2021 to examine if the engineered hyper-vascularised intracutaneous site can support islet survival and function.

## 3. 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 commercial in confidence and comprises a collaboration between one of the largest international diabetes companies, our islet transplant research team and Beta Cell Technologies. In 2020 we completed a pilot mouse study investigating HSCI transplant into BTM engrafted under the kidney capsule (the gold standard model for testing islet function in vivo). Four weeks after HSCI transplant, we were able to show robust islet survival within the transplant site as indicated by positive staining for Chromogranin A, Insulin, Glucagon and Somatostatin. Further, c-peptide was readily detectable within the serum of these mice, providing strong evidence of islet function. Based on this data we have secured an additional \$500,000 in funding to investigate intracutaneous HSCI transplant in a rat model of diabetes. As the rat is significantly larger in size compared to mice we can engraft the BTM into the skin, identical to the procedure that will be used clinically in humans, followed by HSCI transplant to determine whether intracutaneous islet transplant can reverse diabetes in this model. The aim of this research is to generate sufficient pre-clinical data to support a first in human trial in the next 2 years.



## 4. Regulation of IL-10 secretion by human B cells

**Researchers** - G Perkins, P Hurtado, J Kim, S Stead, C Hope, T Coates

We are working with blood samples from transplant recipients, allergic individuals, and patients with systemic lupus erythematosus to explore dysregulation of an immunosuppressive immune cell subset called regulatory B cells in these disorders. We have identified a cytokine network that underpins this dysregulation, and have developed several novel laboratory assays to investigate how impaired regulatory B cell function might contribute to disease



## 5. Targeted Dendritic Cells Delivery of siRNA Loaded Nanoparticles

**Researchers** - D. Linn, T. Coates, S. Stead

This project utilises silicon nanoparticles bound to antibodies, to provide a novel vector for siRNA delivery to Dendritic cells; with the goal to manipulate the cell phenotype to promote tolerance in transplant recipients.

During 2020, David optimised the siRNA transfection conditions of human monocyte derived Dendritic cells and showed successful GAPDH gene knockdown. Furthermore, he took the project into the nanoparticle testing stages, successfully loading nanoparticles with siRNA and targeting them to Dendritic cells. With further experimentation, he managed to show a significant knockdown of gene expression with the targeting nanoparticles to a higher degree than with the commonly utilised lipofection reagents. The data that David generated provides a strong foundation for the use of Silicon nanoparticles as a novel vector for targeted siRNA delivery.



## 6. The Development of Chimeric Antigen Receptor (CAR) Regulatory T Cells as a Novel Therapy for Type 1 Diabetes

**Researchers** - J Scaffidi, T Sadlon, V Bandara, S Barry and T Coates

This project is investigating the ability to render regulatory T cells (Tregs) specific for a known autoantigen of type 1 diabetes (T1D) via chimeric antigen receptor (CAR) expression. We propose that these cells will be better able to suppress the autoimmune response that occurs in T1D.

During 2020, we successfully developed a CAR specific for the autoantigen of interest and induced its expression in T cells using lentiviral gene delivery. This CAR was shown to bind specifically to its target antigen to induce proliferation in vitro. Further screening is underway to verify activation in response to cell-bound antigen.

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

**Researchers** - B Clarke, S Kireta, J Johnson, D Penko, J Nitschke, C Drogemuller, T Coates, D Torpy

**Associated Researchers** - C Christou, J Greenwood, J Kollias, E Concannon

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, specifically evaluating an intracutaneous site for cell transplantation in a large animal model. 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.

In 2019 and 2020, we developed a protocol for the isolation and primary culture of porcine adrenocortical cells and were able to demonstrate cell survival and preservation of dynamic endocrine function in short-term culture. In late 2020, we started our first in vivo experiments, performing autologous intracutaneous adrenocortical cell transplantation in a bilaterally adrenalectomised porcine model. This experiment is designed as a proof of concept study to demonstrate survival and endocrine function in vivo of cultured adrenocortical cells. This experiment remains in progress at the time of report. Demonstration of success in these autograft studies will lead to further experiments evaluating porcine adrenocortical allografts using the same model. This project is supported by a Royal Adelaide Hospital Clinical Project Grant and is being undertaken in collaboration with Beta-Cell Technology. Ligasure Exact devices to assist with surgical adrenalectomy have been donated by Medtronic.



## 8. The epidemiology and costs of chronic pancreatitis in South Australia

**Researchers** - T Bampton, C Drogemuller, T Coates

The management of chronic pancreatitis (CP) results in a significant burden to healthcare. It is characterised by episodes of severe pain, often necessitating hospitalisation and high doses of opioid medication to achieve analgesia. There are no comprehensive data examining the epidemiology or costs of CP in Australia. Data linkage is a rapidly growing field of study, allowing researchers a high level of statistical power to find modest effect sizes with large volumes of unbiased data.

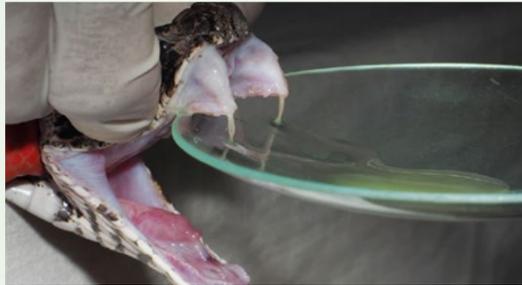
This project therefore involved close collaboration with SA NT Datalink, an organisation that allows research access to administrative data generated by both State and Commonwealth Governments on the population of SA. A total of 2,576 index cases with CP were identified over a 20-year period within South Australia. This allowed for estimations of the prevalence and incidence of a condition previously undescribed epidemiologically within Australia. Additionally, captured within the dataset were numerous data points relating to health-care utilisation, including days in hospital, emergency department visits, time in ICU and procedures undergone in hospital, for example.

The CP cohort were identified as having significantly higher health-care utilisation than all comparator groups using the same health-care metrics. Such data are vital to inform health service decision-making regarding the future of CP management.

## 9. The immunostimulatory properties of mammalian DNA

**Researchers** - E Hurtado, P Hurtado and C Peh

The presence of circulating autoantibodies such as anti-double stranded DNA antibodies (anti-dsDNA), and the presence of Type I interferon signature seems to play a central role in the pathogenesis of Systemic Lupus Erythematosus (SLE). Polyclonal activation of autoreactive B cells is known to be responsible for the presence of these circulating autoantibodies while activation of TLR9 bearing immune cells by DNA CpG motifs is believed to mediate the Type I interferon signature. Although optimal CpG motifs capable of activating TLR9 are more frequently found in bacterial DNA, the presence of these motifs in our DNA has not been comprehensively studied. This project, using bioinformatics tools, will aim to map the frequency and distribution of CpG motifs in the human genome and to corroborate their immunostimulatory properties using in vitro assays. The study will help understand the possible contribution of our DNA in the pathogenesis of the Systemic Lupus Erythematosus.



### 10. Use of small molecules as adjuvant treatment for snake envenoming.

**Researchers** - E Hurtado and C Peh

According to the World Health Organization, about 5.4 million snakebites occur each year, resulting in 1.8 to 2.7 million cases of envenomings (poisoning from snake bites). Using bioinformatics and in vitro experiments, this discovery project aims to evaluate the potential snake venom inhibitory effect of commonly used drugs that could lead to novel, more effective envenoming treatment.



### 11. The role of kidney stem cells in kidney immunopathology

**Researchers** - P Hurtado

**Associated researchers** - Xin-Fu Zhou and A Zidam

The aim of this project is to understand the role of urine stem cells (USC) in modulating their microenvironment, in particular, the function of immune cells. Our study had uncovered an unknown capacity of USCs, residents of the kidney, to release of B cell survival and stimulatory signals. This unexpected finding could change our understanding of the kidneys' normal immune environment and immune-mediated nephropathy. The study set the foundation to investigate the role use the study of USC could have the potential to be used as a non-invasive surrogate system for the diagnosis and risk assessment of kidney immunopathology.



### 12. Total Pancreatectomy and Islet Auto Transplantation (TPIAT)

**Researchers** - T Coates, C Drogemuller, S Kireta, T Radford, C Etherton, 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 we have been able to establish a new clinical program for the treatment of chronic pancreatitis. The program involves removing a patient's own pancreas, thus removing the source of chronic pain and also removing the likelihood they will go on to develop pancreatic cancer in their 40-50's. Once the pancreas has been surgically removed it is processed to isolate the islets within, the cells responsible for secreting insulin and controlling our blood sugar levels. Once the islets have been isolated they are then transplanted back into the patient's liver where they will remain and following a short period of engraftment will secrete insulin in response to changing blood glucose levels. This transplant procedure will prevent the patient from becoming overtly diabetic and in some cases not requiring any exogenous insulin at all to control their blood sugar levels.



### 13. Persufflation in an ovine model of kidney transplantation as a means of organ preservation

**Researchers** - A Krige (PhD candidate), C Russell, C Drogemuller, J Johnston, T Coates

**Associated Researchers** - L Palmer, K Pappas

This PhD project is investigating prolonged (24 hour) persufflation preservation (gaseous perfusion preservation) in a large animal model of kidney auto-transplantation as an alternative to static cold storage, in order to ameliorate ischaemia reperfusion injury. In addition, two forms of prolonged persufflation (anterograde and retrograde) will be assessed ex vivo to investigate the most effective method of organ preservation prior to transplantation.

Due to the COVID-19 pandemic and the need for reallocation of health resources including medical officers, I was asked to take on a full-time clinical role for much of 2020 and therefore put my research on hold to facilitate this. The plan at this juncture is to return to full-time research however my project has been set back a full 12 months as a result of the interruption.



## 14. The Genetic Epidemiology of Hereditary Pancreatitis in South Australia

**Researchers** - D Wu, C Drogemuller, T Coates

**Associated Researchers** - L Palmer, K Kassahn

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 and interviewed for phenotype. Salivary biosamples were obtained from patients and family members to be whole-exome-sequenced (WES) and analysed in silico using bioinformatics toolkits (GATK).

A total of 5 pedigrees and 4 individual probands comprising 47 individuals were recruited for the project. 4 families possess the mutation PRSS1 (3 family with R122H, 1 family with A86T). In total, 23 PRSS1 and 9 SPINK1 variant carriers across multiple generations were identified, 13 of which self-identified as Indigenous Australian. Our estimated prevalence of HP in South Australia is much higher than the value of 0.1-0.3/100,000 previously described in European populations. Bioinformatics analyses of WES genotypic data yielded three potentially pathogenic variants identified outside of known HP-associated gene: ECE1, GJA5, and SPTBN5. The study described the prevalence of HP in an Australian population for the first time, highlighted the importance of utilising genetic studies to guide medical decision-making in HP, and successfully established a patient database for candidates of TP-IAT treatment.

## 15. The Development of a Tissue-Engineered Skin Substitute utilising a Biodegradable Polyurethane Scaffold in a Novel Bioreactor for the Treatment of Extensive, Full Thickness Burns

**Researchers** - B Dearman, T Coates

**Associated researchers** - J Greenwood, S Boyce

Skin tissue bioengineering is an emerging field that brings together interdisciplinary teams to promote successful translation to clinical care. Extensive deep tissue injuries, such as large burns and other major skin loss conditions, are medical indications where bioengineered skin substitutes (that restore both dermal and epidermal tissues) are being studied as alternatives.

This project's primary aim is to reduce or abolish the need for skin grafts by growing a patient's own Composite Cultured Skin (CCS). The patient's cells are isolated from a small graft and cultured separately before being seeded and grown in a biodegradable polyurethane (PUR) scaffold that produces bilayer skin ready for grafting over the burn wounds. The first key outcome was to characterise and upscale the development of the CCS. This was achieved using a novel in-house prototype bioreactor that supported the generation and scale-up of 25cm x 25cm composite cultured skins for large wounds in a porcine wound model. This study employed the two-stage strategy of NovoSorb® Biodegradable temporising matrix (BTM) followed by CCS application and was the model that enabled this translational research to move forward into clinic.

The two-stage strategy has now been used clinically in a 95% TBSA burn injury (covering 40% TBSA of original burn). The patient not only survived but at two years post-injury, they have required minimal contracture release in areas where autografts were applied and none to the CCS-applied areas. The result for CCS was a smooth, supple aesthetic appearance with varying pigmentation from primary epithelial engraftment. No delineation between junctions of CCSs could be observed. Although further CCS refinement and optimisation of the clinical care regime are required, this approach has the potential to provide an alternative treatment for the care of life-threatening burns.



# ANZDATA, ANZOD and BEAT-CKD



<https://www.anzdata.org.au/>

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 end stage kidney disease across Australia and New Zealand.

The mission of the registry is to improve the quality of care and outcomes for people with end stage kidney disease 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 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 end stage kidney disease by providing information that is complete, accurate, clear, relevant, readily available and timely.

The Australia and New Zealand Organ Donation Registry (ANZOD), records and reports on organ donation within Australia and New Zealand. The Registry reports monthly on this web site (<https://www.anzdata.org.au/anzod/>), the numbers of deceased organ donors and the number of recipients benefiting from donation. An annual report (<https://www.anzdata.org.au/anzod/publications-2/annual-reports/>) is also produced for download on health outcomes of donation and how Australia and New Zealand compares international outcomes in organ donation and transplantation.

## BEAT-CKD:

The Better Evidence And Translation – Chronic Kidney Disease (BEAT-CKD) is a collaborative research program that aims to improve the lives of people living with chronic kidney disease in Australia and globally by generating high-quality research evidence to inform healthcare decisions made by patients, health professionals, and policy makers. BEAT-CKD addresses the entire spectrum of CKD, from early stage chronic kidney disease, through to dialysis, and kidney transplantation.

BEAT-CKD is funded by a NHMRC Program Grant (1092957) and include the Chief Investigators: Prof Jonathan Craig, Prof David Johnson, Prof Jeremy Chapman, A/Prof Carmel Hawley and Prof Stephen McDonald and Associated Investigators: A/Prof Shilpa Jesudason and A/Prof Phil Clayton. This grant awarded in 2016-2020 (\$10,141,300) supports national research and translation platforms including ANZDATA. (<http://beatckd.org/>)

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## BEAT-CKD forum and workshops August 2020



BEAT-CKD Annual Digital Research forum organised by the ANZDATA registry was held from 03-04th August 2020. Over 100 delegates attended the forum. This two-day digital forum covered learnings and highlights from the BEAT-CKD cross-pillar collaborations, changing the world from a consumer perspective, consumer engagement and involvement across the research-translation cycle, broad-range of projects arising from the BEAT-CKD program presented by emerging leaders, and the future of BEAT-CKD beyond 2020. There was also a practical workshop on grant writing.



## ANZDATA and BEAT-CKD Current projects:

### 1. Organ utilisation and allocation

**Lead** - A/Prof Phil Clayton

**Team** - M Sypek, S McDonald

Using data from ANZDATA and ANZOD registries, this project involves the design and measure of the effects of alternative models for organ allocation. This includes simulation via kidney-pancreas simulated allocation modelling (KPSAM) software, community preferences in organ allocation, analysis of ethical concepts underpinning allocation systems and a number of smaller projects around wait listing and organ discards.

We have completed projects addressing Fatherhood in men receiving dialysis or with kidney transplantation and Pregnancy outcomes for simultaneous pancreas-kidney transplant recipients vs kidney transplant recipients.

Ongoing projects include:

1. establishing a prospective state-wide registry of chronic kidney disease
2. a survey study to evaluate the thoughts, experiences and concerns of women with kidney disease and their partners/family regarding current pregnancy counselling practices and their information needs and preferences,
3. a qualitative interview study to look at the thoughts and experiences of nephrologists on managing conception and pregnancy in women with chronic kidney disease.

### 2. Pregnancy and parenthood in chronic kidney disease and dialysis and transplant patients

**Lead** - A/Prof Shilpa Jesudason

**Team** - E Hewawasam, C Davies, P Clayton, S McDonald

The year of 2020 has been a very productive year for our Parenthood with Kidney Disease Research Group lead by A/Prof Shilpa Jesudason and Dr Erandi Hewawasam (Project manager), supported by an active consumer group.

A multi-jurisdictional perinatal, ANZDATA registry and hospital data linkage study is currently underway to investigate parenthood outcomes for women and men with chronic kidney disease, or undergoing dialysis or with kidney transplantation. A detailed methodology paper for study has been published. We are analysing factors influencing birth rates in women with kidney failure, pregnancy outcomes and outcomes for babies.



Pregnancy Consumer Group Member Adela Tollic

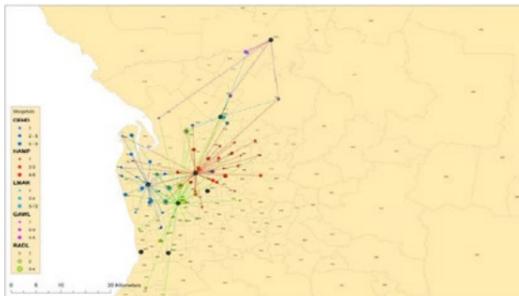


### 3. Exploring patient travel to in-centre haemodialysis

**Lead** - Prof. Stephen McDonald

**Team** - C Davies, K Dansie, E Duncanson, P Clayton, S Jesudason, S Ullah 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. Geospatial analysis is also being used to describe variation in KRT patient incidence across Australia and over the last two decades, with the aim of determining the emergence of hotspots of incidence.



### 4. Consumer involvement in research –

**Lead** - Prof. Stephen McDonald

**Team** - S Muthuramalingam, E Duncanson, K Dansie, S Jesudason

The BEAT-CKD program funded by an NHMRC Program Grant (APP1092957) concluded at the end of 2020 and to continue BEAT-CKD's consumer involvement in research work, the investigator group received the Kidney Health Australia National Strategic Action Plan Department of Health Grant, project title: 'Developing a National Kidney Consumer Research Network' ('The Network') for 2020-23. This project established 'The Network' (~40 consumers) to bring together consumers with lived experience of kidney disease in Australia, to be involved kidney disease research. It will create connections between researchers and consumers. We will provide pathways for consumers to be involved in setting the research agenda, 'doing' research, and communicating results and translating them into practice to improve patient care and outcomes. The project will also develop 'how to' tools and resources on consumer involvement in research, for researchers, clinicians and patients, and provide mentorship opportunities between fellow consumers to support one another as they get involved.

Shyam, a kidney consumer with lived experience started as a consumer engagement officer for ANZDATA in April 2020 and leads ANZDATA's Registry's consumer-related activities and continue "The Network's" consumer engagement work in 2020 and beyond.

"The Network" conducted its inaugural workshop for consumers on Nov 18th - A practical workshop for people/carers with kidney disease on "how-to" be involved in kidney research as a consumer partner. This workshop was attended by 25 consumers and 15 researchers/clinicians all over Australia via zoom.

ANZDATA published and disseminated the following tangible outcomes in collaboration with the consumer advisory board members:

- > 1 page and video version of the 2018 summary infographic- hosted on the RAH dialysis Unit bedside devices and ANZDATA and KHA website
- > Plain language summary of the adult data for kidney transplant and dialysis in Australia and New Zealand up to 31st December 2018
- > In collaboration with Caring for Australasians with Renal Impairment (CARI) guidelines group, consumers from the network developed consumer evidence summary and infographic for transplant patients regarding COVID-19

The ANZDATA Consumer Engagement Team received the Community Engagement Award for SAHMRI on 17th Dec 2020. This award is designed to recognise an individual or a team who has demonstrated excellence in meaningful consumer or community engagement in health and medical research.



Introductory Workshop for Kidney Consumers April 2020



Shyam receiving the SAHMRI's Community Engagement Award on behalf of ANZDATA Consumer Engagement Team from Professor Steve Wesselingh Executive Director of SAHMRI and sponsor Maxxia

## 5. Data linkage Studies

**Lead** - Prof. Stephen McDonald

**Team** - C Davies, K Dansie, D Keuskamp, G Lincoln

- > 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 end-stage kidney disease cohort for the period 2003-2016. Early analyses have determined that Australian KRT patients experience higher rates of hip replacement than the non-KRT population, particularly for the diagnosis of osteonecrosis. Further analyses will look at outcomes of joint replacement for KRT patients.
- > Cardiothoracic Surgery Registry – Early in 2021 a national linked dataset will be created between ANZDATA and the Australian and New Zealand Society of Cardiac & Thoracic Surgeons Database (ANZSCTS), which collects data on the majority of cardiothoracic surgical procedures. Key research aims include quantifying (1) the risk for developing end-stage kidney disease (treated with KRT) after cardiac surgery, and (2) the risks of cardiac surgery for KRT patients.
- > Intensive Care Registry – Early in 2021 a national linked dataset will be created between ANZDATA and the Australian & New Zealand Intensive Care Society Adult Patient Database, which collects data from over 90% of ICUs. Key research aims include quantifying the incidence, cause and duration of ICU admission for KRT patients. Scoping work is being conducted to develop a dataset that will enable quantification of the risk for any critical care patient of developing end-stage kidney disease (treated with KRT).
- > Other data linkage studies with ANZDATA include Sharesource (Baxter) APD and National Death Index

## 6. Patient reported outcome measures (PROMS) in Australia & New Zealand Renal units and the ANZDATA Registry – Symptom Monitoring With Feedback Trial (SWIFT) –

**Lead** - Prof. Stephen McDonald

**Team** - L Greenham, K Dansie, E Duncanson, S Jesudason, P Bennett, R Morton



SWIFT (Symptom monitoring With Feedback Trial) (<https://ctc.usyd.edu.au/our-work/research-divisions/health-economics/current-key-projects/swift>) is a novel two-arm cluster randomised trial testing the hypotheses that symptom monitoring using the IPOS-Renal questionnaire with feedback to clinicians, improves quality of life and overall survival for patients receiving haemodialysis. Additionally, the trial will examine the cost-effectiveness of electronic data capture of patient reported outcome measures within a clinical quality registry (ANZDATA). This trial is conducted in collaboration with the ANZDATA registry in Adelaide and the NHMRC Clinical Trials Centre, University of Sydney. The SWIFT Pilot was undertaken from September 2019-March 2020; 226 individual patients were involved from 4 sites, 3 in South Australia and 1 in Queensland. The pilot study found patients, nurses and doctors believe that PROMs collection is important to improve patients' quality of life. Patients and nurses found the electronic tablets easy to use. Electronic symptom monitoring

in adults on hemodialysis with feedback to clinicians is feasible. These data supported the commencement of the definitive trial in 3,072 patients which will provide a framework for national collection of patient reported outcomes. The main trial is currently underway in NSW with QLD units to follow shortly.

## 7. Improving impact and outcomes of ANZDATA hospital-specific performance reports

**Lead** - Prof. Stephen McDonald

**Team** - C Davies, E Hewawasam, M Sypek, P Clayton

This project aims to improve the hospital-specific performance reports ANZDATA produces each year, including the statistical methods used to compare performance of Australian and New Zealand dialysis and kidney transplant centres. Changes have already been made to these methods to provide more accurate estimates of relative performance based on a new definition of the number of expected events, and also to control false discovery rates due to multiple comparisons made between centres. Further research is exploring Bayesian and cumulative sum methods, and a survey is planned to assess stakeholder comprehension of reports.

We have conducted a Heads of Units survey aimed to identify characteristics at centre level that will help the registry in its roles- in particular safety and quality assurance and health service planning. We disseminated this survey to parent renal units in Australia and New Zealand along with end of year ANZDATA survey. The survey covered a variety of areas staffing, resources and clinical practice. Overall, about 70% of the units completed the survey. As expected, a lot of variation was observed with

centre characteristics. Next, we are planning to complete the evaluation of current centre survey and look at how much variability does the unit characteristics explain. We will also look at how the characteristics alter the distribution of unit "performance" on various metrics.



## 8. Decision making in Kidney Transplantation

**Lead** - Dr Georgie Irish (PhD Candidate)

**Team** - P Clayton (Principle Supervisor), T Coates

Kidney transplantation is a life-saving treatment for most people with end-stage kidney disease. For some people, however, it causes more harm than good. This PhD project aims to clarify which individuals will benefit from transplantation by personalising information on predicting potential outcomes after transplantation. We will use this to develop a decision tool to help doctors and patients make these challenging and irreversible decisions. This will maximise the benefits from this precious resource.

Project: Australian and New Zealand Living Kidney Donor Profile Index

Risk scores may aid risk quantification and decision-making in kidney transplantation. The Living Kidney Donor Profile Index (LKDPI) was developed in the USA to choose between living

# Clinical trials unit

donors. On previous analyses we found the original LKDPI is moderately discriminatory but poorly calibrated in Australia and New Zealand. We have developed a new risk prediction score for overall graft survival in adult recipients of a living kidney donor transplant in an Australian and New Zealand population based on the ANZDATA registry. This is undergoing validation in a UK population. This work was presented at the Australian and New Zealand Society of Nephrology in 2020.

Project: Do decision aids help people who are facing decisions about solid organ transplantation? A systematic review

A systematic review of patient decision aids in solid organ transplant is underway. The proposal is registered with PROSPERO. Thus far 7473 studies have been screened and full text review is almost completed.

Project: Who should be transplanted? Estimating difference in life expectancy

This study will quantify the change in life expectancy derived from kidney transplantation. Statistical methods will be used to estimate the individual patient benefit, defined as predicted incremental survival post-transplantation compared with remaining on the waiting list. This study has commenced data extraction and analysis is planned for mid-2021.

Funded by:

- > NHMRC Postgraduate Scholarship
- > RACP Jacquot Award for Excellence Research Entry Scholarship

## 9. Integration of three pragmatic registry trials into the ANZDATA Registry

**Lead** - Prof. Stephen McDonald

**Team** - K Dansie, P Clayton

Randomised controlled trials can be embedded into registries to minimize duplicate data collection and provide the ability to easily follow up patient's long term, without the need for data linkage. The Australasian Kidney Trials Network (AKTN) and the ANZDATA registry have worked effectively together to coordinate three registry-based trials:

BEST-Fluids (Better Evidence for Selecting Transplant Fluids)

<https://aktn.org.au/best-fluids/>

RESOLVE (Randomised Evaluation of Sodium dialysate Levels on Vascular Events) <https://aktn.org.au/resolve/>

TEACH-PD (Targeted Education ApproaCH to Improve Peritoneal Dialysis Outcomes) <https://aktn.org.au/teach-pd-crct/>

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), End Stage Kidney Failure (Haemodialysis and Peritoneal Dialysis) and Renal Transplants across metropolitan and country areas of South Australia, Northern Territory and New South Wales.

Medications that are now standard of care for kidney patients have been previously trialled for the first time in the clinical trials unit, thereby bringing new treatments directly to our patients. These include Tacrolimus, Sirolimus, Everolimus and Myfortic for renal transplant patients; Aranesp® and Mircera® for patients with CKD /Kidney Failure and Tolvaptan for patients with polycystic kidney disease. We also conduct clinical trials in collaboration with Vascular Surgery, the Islet Transplant team, the CNARTS Clinical Research Group and the Royal Adelaide Hospital (RAH) Medical Oncology department.

During 2020, CNARTS researchers and patients have been involved in over 30 clinical trials.

Due to COVID-19 pandemic, the clinical trials team developed new strategies to meet study requirements as patient visits, study specific laboratory tests and delivery of study medication. Patient visits which had routinely been conducted at the RAH were conducted either off site at The Queen Elizabeth Hospital or Hampstead Dialysis Centre or by phone. This was important to maintain patient safety and continuity of the studies for post COVID-19.

### Trial staff:



Jenny Latte (Assoc. Nursing Unit Manager), Eileen Scott (Assoc. Nursing Unit Manager), Meg Hockley (Assoc. Nursing Unit Manager), Bronwyn Hockley (Nursing Unit Manager), Karen Fischer (Clinical Trials Assistant).

# 2020 Clinical Trials

## Transplant trials:

1.	<b>CHORUS:</b>	Global Multicentre Kidney Transplant Advagraf Conversion Registry. A non-interventional post-authorisation study (PAS)  <b>Sponsor: Astellas</b> <b>PI: Dr Chii Yeap</b>	7.	<b>BEST FLUIDS</b>	An investigator-initiated, pragmatic, registry-based, multi-centre, double-blind, randomised controlled trial evaluating the effect of Plasmalyte versus 0.9% saline on early kidney transplant function in deceased donor kidney transplantation.  <b>Sponsor: AKTN</b> <b>PI: Prof Toby Coates</b>
2.	<b>MK-8228-002:</b>	A Phase III, Randomized, Double-Blind, Active Comparator-Controlled Study to Evaluate the Efficacy and Safety of MK-8228 (Letemovir) Versus Valganciclovir for the Prevention of Human Cytomegalovirus (CMV) Disease in Adult Kidney Transplant Recipients  <b>Sponsor: Merck Sharp &amp; Dohme</b> <b>PI: A/Prof Robert Carroll</b>	8.	<b>The CARSK Study:</b>	Canadian-Australian Randomised Trial of Screening Kidney Transplant Candidates for Coronary Artery Disease  <b>Sponsor: The University of Sydney</b> <b>PI: Dr Philip Clayton</b>
3.	<b>CIRRUS I:</b>	A partially-blinded, active-controlled, multicenter, randomized study evaluating efficacy, safety, tolerability, pharmacokinetic (PK) and pharmacodynamics (PD) of an anti-CD40 monoclonal antibody, CFZ533, in de novo and maintenance kidney transplant recipients  <b>Sponsor: Novartis</b> <b>PI: Prof Toby Coates</b>	9.	<b>VKTX01:</b>	A Pivotal Phase 3 Trial to Evaluate the Safety and Efficacy of Clazakizumab for the Treatment of Chronic Active Antibody-Mediated Rejection in Kidney Transplant Recipients  <b>Sponsor: Vitaeris Inc</b> <b>PI: Prof Toby Coates I</b>
4.	<b>PK INDIGENOUS STUDY:</b>	Comparison of Immunosuppressant Drug Pharmacokinetics in Indigenous versus non-Indigenous Australian Kidney Transplant Recipients.  <b>Investigator Led: Menzies Institute</b> <b>PI: A/Prof Robert Carroll</b>	10.	<b>CAI001:</b>	A 2-stage, multicentre, randomised, placebo-controlled study to evaluate safety/ tolerability, pharmacokinetics and efficacy of UCB7858 in adult kidney transplant recipients with Chronic Allograft Injury.  <b>Sponsor: UCB</b> <b>PI: A/Prof Robert Carroll</b>
5.	<b>CA209-993ISR:</b>	A 12 month, partially-blinded, active-controlled, multicenter, randomized study PD-1 blockade in renal transplant patients with poor prognosis cancer and minimizing risk of organ rejection using comprehensive immune monitoring and screening techniques – a safety study.  <b>Investigator Led &amp;</b> <b>PI: A/Prof Robert Carroll</b>			
6.	<b>TMCT-04:</b>	A Randomized Controlled Trial of Urine CXCL10 Chemokine Monitoring Post- Renal Transplant  <b>Investigator Led &amp; PI: A/Prof Robert Carroll</b>			

# 2020 Clinical Trials

## CKD/Glomerulonephritis trials:

11.	<b>TULIP (Protocol D3461C00007):</b>	A Multicentre, Randomised, Double-blind, Placebo-controlled, Phase 2 Study Evaluating the Efficacy and Safety of Anifrolumab in Adult Subjects with Active Proliferative Lupus Nephritis.  <b>Sponsor: Astra Zeneca</b> <b>Site PI: A/Prof Chen Au Peh</b>
12.	<b>GXE4KGBio-001:</b>	Open-label randomised controlled trial of efepoetin alfa for treatment of anaemia associated with chronic kidney disease patients not on dialysis (nd-ckd). A non-inferiority trial compared to methoxy polyethylene glycol-epoetin beta (Mircera)  <b>Sponsor: Kalbe</b> <b>Site PI: Dr Jobert Anjelo</b>
13.	<b>RITAZAREM</b>	An international, open label, randomised controlled trial comparing rituximab with azathioprine as maintenance therapy in relapsing ANCA-associated vasculitis.  <b>Investigator Led: Cambridge University</b> <b>Site PI: A/Prof Chen Au Peh</b>
14.	<b>GI-R-01-2011 TESTING STUDY:</b>	Therapeutic Evaluation of Steroids in IgA Nephropathy Global study.  <b>Investigator Led: George Institute</b> <b>Site PI: A/Prof Chen Au Peh</b>
15.	<b>M11-001 aHUS REGISTRY:</b>	An Observational, Non-Interventional, Multi-Centre, Multi-National Study of Patients with Atypical Hemolytic-Uremic Syndrome.  <b>Sponsor: Alexion</b> <b>Site PI: A/Prof Robert Carroll</b>
16.	<b>AKB-6548-CI-0014</b>	Phase 3, Randomized, Open-Label, Active-Controlled Study Evaluating the Efficacy and Safety of Oral Vadadustat for the Correction of Anaemia in Subjects with Non-Dialysis-Dependent Chronic Kidney Disease (NDD-CKD) (PRO2TECT – CORRECTION).  <b>Sponsor: Akebia</b> <b>Site PI: Prof Stephen McDonald</b>
17.	<b>AKB-6548-CI-0015</b>	Phase 3, Randomized, Open-Label, Active-Controlled Study Evaluating the Efficacy and Safety of Oral Vadadustat for the Maintenance Treatment of Anaemia in Subjects with Non-Dialysis-Dependent Chronic Kidney Disease (NDD-CKD).  <b>Sponsor: Akebia</b> <b>Site PI: Prof Stephen McDonald</b>
18.	<b>021FSGS16010:</b>	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)  <b>Sponsor: Retrophin Inc</b> <b>Site PI: A/Prof Chen Au Peh</b>
19.	<b>OMS721-IGA-001:</b>	A Randomized, Double-blind, Placebo-controlled, Phase 3 Study of the Safety and Efficacy of OMS721 in Patients with Immunoglobulin A (IgA) Nephropathy (ARTEMIS-IGAN)  <b>Sponsor: Omeros Corp</b> <b>Site PI: A/Prof Chen Au Peh</b>
20.	<b>NEF-301:</b>	A randomized, double-blind, placebo controlled study to evaluate efficacy and safety of Nefecon in patients with primary IgA nephropathy at risk of progressing to end-stage renal disease (NeflgArd).  <b>Sponsor: Calliditas Therapeutics AB</b> <b>Site PI: A/Prof Chen Au Peh</b>
21.	<b>021IGAN17001:</b>	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)  <b>Sponsor: Retrophin Inc</b> <b>Site PI: A/Prof Chen Au Peh</b>
22.	<b>402-C-1808:</b>	A Phase 3 Trial Of The Efficacy And Safety Of Bardoxolone Methyl In Patients With Autosomal Dominant Polycystic Kidney Disease (FALCON Study)  <b>Sponsor: REATA</b> <b>Site PI: Professor Randall Faul</b>

## 2020 Clinical Trials

### Dialysis trials:

23.	<b>AVeNEW Study</b>	A Prospective, Multi-Center, Randomized, Concurrently-Controlled Clinical Study of the BARD® COVERATM Arteriovenous (AV) Stent Graft in the Treatment of Stenosis in the Venous Outflow of AV Fistula Access Circuits  <b>Sponsor: BARD</b> <b>Site PI: Dr Ewan Macaulay</b>
24.	<b>Protocol 200807:</b>	in dialysis subjects with anemia associated with chronic kidney disease to evaluate the safety and efficacy of daprodustat compared to recombinant human erythropoietin, following a switch from erythropoietin-stimulating agents. (ASCEND-D)  <b>Sponsor: GlaxoSmithKline</b> <b>Site PI: A/Prof Shilpa Jesudason</b>
25.	<b>Protocol 201410:</b>	A 52-week open-label (sponsor-blind), randomized, active-controlled, parallel-group, multi-center study to evaluate the efficacy and safety of daprodustat compared to recombinant human erythropoietin in subjects with anemia associated with chronic kidney disease who are initiating dialysis. (ASCEND-ID)  <b>Sponsor: GlaxoSmithKline</b> <b>Site PI: A/Prof Shilpa Jesudason</b>
26.	<b>REDUCCTION:</b>	Reducing the burden of dialysis Catheter Complications: A national approach. Protocol Number: GI-RM-7338.  <b>Investigator Led: George Institute</b> <b>Site PI: A/Prof Chen Au Peh</b>
27.	<b>RESOLVE:</b>	Randomised Evaluation of SOdium dialysate Levels on Vascular Events Protocol Number: GI-RM-7338.  <b>Investigator Led: AKTN</b> <b>PI: A/Prof Philip Clayton</b>
28.	<b>CR845-CLIN3103:</b>	A Multicenter, Double-blind, Randomized, Placebo controlled Study to Evaluate the Safety and Efficacy of Intravenous CR845 in Hemodialysis Patients with Moderate-to-Severe Pruritus, with a 52-Week Open-label Extension  <b>Sponsor: CARA Therapeutics</b> <b>PI: Dr Susan Crail</b>
29.	<b>TEACH-PD:</b>	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 ( <a href="https://aktn.org.au/teach-pd/">https://aktn.org.au/teach-pd/</a> )  <b>Sponsor: AKTN</b> <b>Site PI: Professor Stephen McDonald</b>
30.	<b>PHOSPHATE Study:</b>	Pragmatic randomised trial of High Or Standard PHosphAte Targets in End-stage kidney disease ( <a href="https://aktn.org.au/phosphate-trial/">https://aktn.org.au/phosphate-trial/</a> )  <b>Sponsor: AKTN</b> <b>Site A/Prof Philip Clayton</b>

## Student supervision in 2020

**Mirabel Alonge** (PhD candidate, University of Adelaide) "Using Pharmacokinetic Principles to Improve the Safety of Tacrolimus in Renal Transplant Patients"

*Supervisors: B Sallustio, S Jesudason, A Somogyi*

**Patrick Asare** (PhD Candidate, University of Adelaide) "Role of LC3 associated phagocytosis in COPD and lung cancer"

*Supervisors: E Roscioli, P Hurtado, S Hodge*

**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*

**Dr Tristan Bampton** (Honours candidate, University of Adelaide), "The epidemiology and costs of chronic pancreatitis in South Australia" – 1st Class Honours.

*Supervisors: T Coates*

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

*Supervisors: T Coates, D Torpy*

**Dr Bronwyn Dearman** (PhD candidate, University of Adelaide) "The Development of a Tissue-Engineered Skin Substitute utilising a Biodegradable Polyurethane Scaffold in a Novel Bioreactor for the Treatment of Extensive, Full Thickness Burns"

*Supervisors: T Coates, J Greenwood, S Boyce*

**Talia Gutman** (PhD candidate, University of Sydney) "Strengthening Patient Involvement in Research about Chronic Kidney Disease"

*Supervisors: A Tong, J Craig, S Jesudason*

**Juewan Kim** (PhD candidate, University of Adelaide) "Tregs with Pancreatic Islets"

*Supervisors: T Coates, R Carroll*

**Dr Georgie Irish** (PhD candidate, University of Adelaide) "Decision Making in Kidney Transplantation"

*Supervisors: P Clayton, T Coates*

**Dr Alice Krige** (PhD candidate, University of South Australia) "Normothermic extra-corporeal perfusion in an ovine model of kidney transplantation as a means of organ preservation."

*Supervisors: T Coates, L Palmer*

**Griffiths Perkins** (PhD candidate, University of Adelaide) "Regulation of IL-10 secretion by human B cells"

*Supervisors: T Coates, P Hurtado, C Hope*

**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: T Coates, S Barry*

**Brett Tarca** (PhD candidate, University of South Australia) "Exploring Relationships Between Fatigue, Mood, Physical Function and Physical Activity in People Receiving Peritoneal Dialysis"

*Supervisors: K Ferrar, T Wycherley, S Jesudason, P Bennett*

**Dr Alison Weightman** (PhD candidate, University of Adelaide) "Decision Making in Renal Transplantation: An Applied Bioethics Approach to Offers and Informed Consent"

*Supervisors: P Clayton, S Coghlan*

**Denghao Wu** (Honours candidate, University of Adelaide) "The Genetic Epidemiology of Hereditary Pancreatitis in South Australia" – thesis accepted 2020, first class honours.

*Supervisors: T Coates, L Palmer, K Kassahn*

**Dr Asmaa Zidam** (Master Degree Candidate, University of South Australia) "Study of the immunological interaction between the urine derived stem cells with the peripheral blood lymphocytes."

*Supervisors: Xin-Fu Xu, P Hurtado*

# Conference abstracts 2020

## The Biennial Home Dialysis Conference 'Home Dialysis... Overcoming Barriers' (Canberra, 26-28 February 2020)

"If you can't change it, don't fight it; Coping with automated peritoneal dialysis for end-stage kidney disease: A qualitative study" eposter presentation

[E Duncanson](#), [A Chur-Hansen](#), [S Jesudason](#)

## Better Evidence and Translation in Chronic Kidney Disease (BEAT-CKD) Annual Research Forum Online (3-4 August, 2020)

"Decision Making in Renal Transplantation: An Applied Bioethics Approach"

[A Weightman](#)

"Decision making in kidney transplantation"

[G Irish](#)

"The benefits and burdens of kidney transplantation for Aboriginal and Torres Strait Islander people"

[S Bateman](#)

"Factors affecting access to the waiting list and transplantation among the Indigenous Australians"

[N Khanal](#)

"Birth rates in Australians receiving renal replacement therapy: Analysis of multi-jurisdictional data linkage study"

[E Hewawasam](#)

"Heat maps and hot spots: Spatial analysis of end-stage kidney disease incidence"

[D Keuskamp](#)

"Trends in joint replacement for dialysis and transplant patients: data linkage study"

[C Davies](#)

"Consumers who have been embedded in BEAT-CKD tell their story"

[S Muthuramalingam](#)

## The Transplant Society (TTS) Online (September 12-24, 2020)

"Registry based randomised clinical trials - A new clinical trial paradigm in transplantation" – Workshop session

[S McDonald](#)

"Organ Donation and Transplantation in Covid Times - Opportunities to Learn after the First Wave" oral presentation

[T Coates](#)

"Global organ trafficking registry" State-of-the-Art-Session

[T Coates](#)

"IL-4 regulates the secretion of IL-10 by human B cells" eposter presentation

[G Perkins](#), [C Hope](#), [J Kim](#), [F Kette](#), [S Stead](#), [P Hurtado](#), [PT Coates](#)

"siRNA gene knockdown with functionalised porous silicon nanoparticles" eposter presentation

[S Stead](#), [J Kim](#), [F Kette](#), [G Perkins](#), [T Coates](#)

"Generation of stable human induced regulatory T-cells requires optimal rapamycin concentration and TCR stimulation" eposter presentation

[J Kim](#), [C Hope](#), [J Scaffidi](#), [S Stead](#), [G Perkins](#), [F Kette](#), [R Carroll](#), [S Barry](#), [T Coates](#)

"Clinician perspectives on factors associated with delayed wait-listing for deceased donor renal transplantation in Australia" eposter presentation

[L McMichael](#), [A Gulyani](#), [K Dansie](#), [P Clayton](#)

"Subcutaneous implantation of rapamycin impregnated scaffolds demonstrate the potential for localised islet graft immunosuppression" eposter presentation

[F Kette](#), [S Short](#), [S Stead](#), [J Kim](#), [C Drogemuller](#), [D Rojas-Canales](#), [T Coates](#)

## European Association for Palliative Care online (October 7-9, 2020)

Recognition of pruritus (itch) in ESKD: Are haemodialysis patients missing out? eposter presentation

[S Schwetlik](#), [L Lunardi](#), [S Crail](#), [G Crawford](#)

## American Society of Nephrology (ASN) online (October 22-25, 2020)

Reducing the Burden of Dialysis Catheter Complications: A National Approach (REDUCCION) oral presentation

[M Gallagher](#), [S Kotwal](#), [G Talaulikar](#), [N Gray](#), [K Polkinghorne](#), [S McDonald](#), [A Cass](#)

"The Effects of Allopurinol on the Progression of CKD According to Baseline Serum Urate Level: Results from Post Hoc Analyses of the CKD-FIX Trial" eposter presentation

[A Tikun](#), [E Pascoe](#), [A Cass](#), [N Dalbeth](#), [R Day](#), [J de Zoysa](#), [B Douglas](#), [R Faull et al.](#)

"Feasibility and Acceptability of Symptom Monitoring with Feedback Trial (SWIFT) for Adults on Hemodialysis: A Pilot ANZDATA Registry-Based Cluster Randomized Trial" eposter presentation

[R Morton](#), [K Dansie](#), [P Bennett](#), [A Viecelli](#), [S Jesudason](#), [K Shah](#), [C Brown](#), [S Palmer](#), [F Caskey](#), [S McDonald](#)

## Australian and New Zealand Society of Nephrology (ANZSN) Online (30 November – 2 December 2020)

"Transition to adult care- KHA and the consumer perspectives" invited speakers

[S Jesudason](#) and [L Macauley](#)

"Transition to adult care – Adult perspective" invited speaker

[R Carroll](#)

"New approaches to data in transplantation" invited speaker

[G Irish](#)

"Collaborative indigenous community-based research: A tool-kit for co-creation and meaningful community consultation" oral presentation

[S Bateman](#), [O Pearson](#), [K O'Donnell](#), [K Owen](#), [N Sinclair](#), [R Tsetsakos](#), [I Williamson](#), [S McDonald](#), [S Jesudason](#), [J Kelly](#)

"Trends in joint replacement for Australian dialysis and transplant patients: A data linkage study oral presentation"

[C Davies](#), [S McDonald](#), [D Keuskamp](#), [M Lorimer](#), [K Dansie](#), [S Rainbird](#), [P Lewis](#), [S Graves](#), [I Harris](#)

"The Relationship of Cardiovascular Morbidity with Death and End-Stage Kidney Failure in Patients with Diabetes and CKD Receiving Specialist Renal Care" eposter presentation

[K Tan](#), [S McDonald](#)

"Predicting Allograft Survival in Young Pediatric Kidney Transplant Recipients" eposter presentation

[M Barayre](#), [J Harambat](#), [A Le Page](#), [S Marks](#), [C Prestidge](#), [M Sypek](#), [S McDonald](#), [R Patzer](#), [J Hogan](#)

"The Australian and New Zealand living kidney donor profile index" oral presentation

[G Irish](#), [S Chadban](#), [N Boudville](#), [S Campbell](#), [J Kanellis](#), [P Clayton](#)

"Emerging hot spots in Australian KRT incidence" poster presentation

[D Keuskamp](#), [S Jesudason](#), [S McDonald](#)

"Fertility rates in Australians receiving kidney replacement therapy: analysis of linked data" poster presentation

[E Hewawasam](#), [C Davies](#), [A Gulyani](#), [P Clayton](#), [E Sullivan](#), [S McDonald](#), [S Jesudason](#)

"TREM-1 mutation and its manifestation in kidneys" eposter presentation

[S Jahan](#), [J Brealey](#), [J Nolan](#), [T Coates](#)

"Protocol biopsy: to perform or not to perform" poster presentation

[S Jahan](#), [E Schofield](#), [R Faull](#)

# Conference abstracts 2020

"The national indigenous kidney transplantation taskforce (NIKTT) pre-transplant data pilot project" eposter presentation

**S McDonald, K Dole, P Boan, W Lim, S Cherian, A Abeyaratne**

"Changes in diet quality and the incidence of diarrhoea following kidney transplantation – A pilot study" eposter presentation

**M Mukherjee, R Le Leu, C Trimmingham, N Watson, S Jesudason, P Clayton, A Meade**

"Early outcomes post renal transplantation in low and moderate immunologic risk recipients following basiliximab or rabbit anti-thymocyte globulin induction therapy" eposter presentation

**T Salehi, P Clayton**

"A negative tachycardic-induced cardiac stress test predicts against 30 day peri-operative cardiovascular mortality post renal transplantation" eposter presentation

**T Salehi, N Montarello, A Bate, P Clayton, M Worthley, PT Coates**

## Australian Clinical Trials Alliance Conference (30 November-4 December, 2020)

"Linking Registry Data to Maximise Outcomes"

**S McDonald**

"Review of patient involvement in kidney transplant offers: an opportunity for shared decision making?" eposter presentation

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

"The symptom monitoring with feedback trial (SWIFT) study protocol: An ANZDATA registry-based cluster randomised controlled trial among Australian and New Zealand adults receiving haemodialysis for kidney failure" eposter presentation

**R Morton, L Greenham, A Viecelli, P Bennett, S Jesudason, C Brown, W Handke, R Mister, P Westall, J Simes, M Jose, R Raj, P Choi, P Mount, I Iaranjo, S Palmer, A Salmon, A Tong, D Harris, C Hawley, D Johnson, S McDonald**

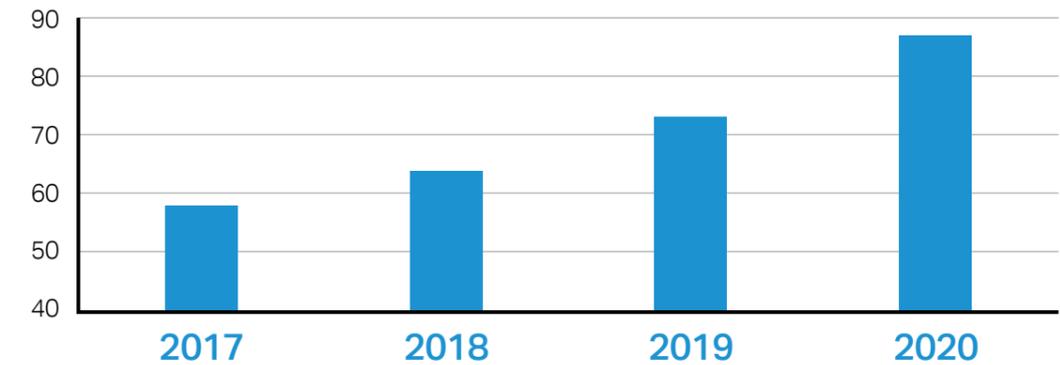
"An ANZDATA summary infographic to improve the reporting of Aboriginal and Torres Strait Islander people's data" eposter presentation

**J Hughes, M Tiong, K Hurst, S McDonald, D Duff**

*Note: The Renal Society of Australasia (RSA) and The Transplantation Society of Australia and New Zealand (TSANZ) Annual conference in 2020 were both postponed to 2021.*

# Publications

## Publication 2017 -2020



## Clinical Research Group and CNARTS

**Burke JP, Aljishi M, Francis L, Hoy W, Divi D, Cherian R, Frazier J, Gobe G, Gois P, Govindarajulu S, Huynh S, Jesudason S, John G, Madhan K, Mallett A, Manickam V, Mutatiri C, Ng SK, Thet Z, Trnka P, Venuthurupalli SK, and Ranganathan D.**

"Protocol and Establishment of a Queensland Renal Biopsy Registry in Australia." *BMC Nephrol* 21, no. 1 (Aug 1 2020): 320.

<https://dx.doi.org/10.1186/s12882-020-01983-7>.

**Chadban SJ, McDonald M, Wyburn K, Opdam H, Barry L, and Coates PT.**

"Significant Impact of Covid-19 on Organ Donation and Transplantation in a Low-Prevalence Country: Australia." *Kidney Int* (Oct 20 2020).

<https://dx.doi.org/10.1016/j.kint.2020.10.007>.

**Crowhurst T, Nolan J, Faull R, Holmes M, and Holmes-Liew CL.**

"Bk Virus-Associated Nephropathy in a Lung Transplant Patient: Case Report and Literature Review." *BMC Infect Dis* 20, no. 1 (Aug 14 2020): 600.

<https://dx.doi.org/10.1186/s12879-020-05292-0>.

**Fang A, Lunardi L, Skilton F, Turner D.**

"Residual Renal Function among Patients on Haemodialysis and Implications for Clinical Practice." *Renal Society of Australasia Journal* 16, no. 2 (2020): 44-53.

**Hill K, Sharp R, Childs J, Esterman A, Le Leu R, Juneja R, and Jesudason S.**

"Cannulation Practices at Haemodialysis Initiation Via an Arteriovenous Fistula or Arteriovenous Graft." *J Vasc Access* 21, no. 5 (Sep 2020): 573-81.

<https://dx.doi.org/10.1177/1129729819869093>.

**Hill K, Xu Q, Jaensch A, Esterman A, Le Leu R, Childs J, Juneja R, and Jesudason S.**

"Outcomes of Arteriovenous Fistulae Cannulation in the First 6 Weeks of Use: A Retrospective Multicenter Observational Study." *J Vasc Access* (Sep 11 2020): 1129729820954717.

<https://dx.doi.org/10.1177/1129729820954717>.

**Irish GL, Hesselman P, Pedchenko VK, Clayton PA, and Coates PT.**

"The Case | a 23-Year-Old Male with Hemoptysis." *Kidney Int* 98, no. 6 (Dec 2020): 1627-28.

<https://dx.doi.org/10.1016/j.kint.2020.07.050>.

**Irish GL and Jesudason S.**

"Case Study of Tacrolimus as an Effective Treatment for Idiopathic Membranous Glomerulonephritis in Pregnancy." *Obstet Med* 13, no. 3 (Sep 2020): 148-50.

<https://dx.doi.org/10.1177/1753495x18816923>.

**Jalalonmuhali M, Caroll R, Deayton S, Emery T, Humphreys I, Lim SJ, Lim SK, and Coates T.**

"Prevalence of At1r Antibody (At1r-Ab) among Malaysian Multi-Ethnic Population." *Hum Immunol* (Jul 29 2020).

<https://dx.doi.org/10.1016/j.humimm.2020.07.005>.

**Jalalonmuhali M, Carroll RP, Tsiopelas E, Clayton P, and Coates PT.**

"Development of De Novo Hla Donor Specific Antibodies (Hla-Dsa), Hla Antibodies (Hla-Ab) and Allograft Rejection Post Blood Transfusion in Kidney Transplant Recipients." *Hum Immunol* (Apr 20 2020).

<https://dx.doi.org/10.1016/j.humimm.2020.04.002>.

**Kanakaratne S, Asokan G, Olakkengil SA, and Bhattacharjya S.**

"Spleno-renal Abo-Incompatible Heterotopic Living Donor Renal Transplant with Splenic Preservation." *ANZ J Surg* (Aug 10 2020).

<https://dx.doi.org/10.1111/ans.16233>.

# Publications

**Kim C, Brealey J, Jobert A, and Nolan J.**

"A Case of Monoclonal Gammopathy of Renal Significance Presenting as Atypical Amyloidosis with Iga Lambda Paraproteinemia." *J Pathol Transl Med* (Nov 9 2020).

<https://dx.doi.org/10.4132/jptm.2020.09.18>.

**Ladhani M, Craig JC, and Wong G.**

"Obesity and Gender-Biased Access to Deceased Donor Kidney Transplantation." *Nephrol Dial Transplant* 35, no. 1 (Jan 1 2020): 184-89.

<https://dx.doi.org/10.1093/ndt/gfz100>.

**Lunardi L, Bull K, Crail S, and Hill K.**

"Planning for End of Life Care in Dialysis." *Renal Society of Australasia Journal* 16, no. 3 (2020).

**Lunardi L, Hill K, Crail S, Esterman A, Le Leu R, and Drummond C.**

"Supportive and Palliative Care Indicators Tool (Spict) Improves Renal Nurses' Confidence in Recognising Patients Approaching End of Life." *BMJ Supportive & Palliative Care* (2020):

<https://dx.doi.org/10.1136/bmjspcare-2020-002496>.

**McBride L, Wilkinson C, and Jesudason S.**

"Management of Autosomal Dominant Polycystic Kidney Disease (Adpkd) During Pregnancy: Risks and Challenges." *Int J Womens Health* 12 (2020): 409-22.

<https://dx.doi.org/10.2147/ijwh.S204997>.

**McMichael LC, Carroll RP, Rao NN, and Coates PT.**

"Rapidly Progressive Metastatic Adenocarcinoma of Unknown Primary 2 Months Following Deceased Donor Renal Transplantation-Donor- or Recipient-Derived?" *Nephrology (Carlton)* (Nov 9 2020).

<https://dx.doi.org/10.1111/nep.13777>.

**Mohammadi F, McDonald S, Clark E, and Jesudason S.**

"Two Pregnancies after Simultaneous Pancreas-Kidney Transplantation: A Case Report." *Obstet Med* 13, no. 2 (Jun 2020): 92-95.

<https://dx.doi.org/10.1177/1753495x18789584>.

**Montarello NJ, Salehi T, Bate AP, Pisaniello AD, Clayton PA, Teo KSL, Worthley MI, and Coates PT.**

"Multimodality Tachycardia-Induced Stress Testing Predicts a Low-Risk Group for Early Cardiovascular Mortality after Renal Transplantation." *Kidney Int Rep* 6, no. 1 (Jan 2021): 120-27.

<https://dx.doi.org/10.1016/j.ekir.2020.10.006>.

**Salehi T and Coates PT.**

"Class Effect: Dapagliflozin Reduces Cardiovascular and Kidney Events." *Kidney Int* 97, no. 2 (Feb 2020): 246-48.

<https://dx.doi.org/10.1016/j.kint.2019.08.035>.

**Shah KK, Murtagh FEM, McGeechan K, Crail SM, Burns A, and Morton RL.**

"Quality of Life among Caregivers of People with End-Stage Kidney Disease Managed with Dialysis or Comprehensive Conservative Care." *BMC Nephrol* 21, no. 1 (May 4 2020): 160.

<https://dx.doi.org/10.1186/s12882-020-01830-9>.

**Tarca BD, Wycherley TP, Bennett P, Meade A, and Ferrar KE.**

"Modifiable Physical Factors Associated with Physical Functioning for Patients Receiving Dialysis: A Systematic Review." *J Phys Act Health* (Feb 10 2020): 1-15.

<https://dx.doi.org/10.1123/jpah.2019-0338>.

**Tarca BD, Wycherley TP, Meade A, Bennett P, and Ferrar KE.**

"Validity and Reliability of Hand-Held Dynamometry for Abdominal Flexion Muscular Assessment." *J Sport Rehabil* (Jun 12 2020): 1-4.

<https://dx.doi.org/10.1123/jsr.2019-0521>.

**Zeng J, Bennett PN, Hill K, Borlace M, and Xu Q.**

"The Exercise Perceptions of People Treated with Peritoneal Dialysis." *J Ren Care* (Jan 14 2020).

<https://dx.doi.org/10.1111/jorc.12313>.

**Zhang JB and Bennett PN.**

"The Perception of People with Chronic Kidney Disease Towards Exercise and Physical Activity: A Literature Review." *Renal Society of Australasia Journal* 15, no. 3 (2019): 97-104.

<https://dx.doi.org/10.33235/rsaj.15.3.97-104>.

## Editorials/Commentaries:

**Hill K, and Donnelly F "Editorial.**

"Renal Society of Australasia Journal 16, no. 2 (2020): 34-35.

## Centre for Clinical and Experimental Transplantation (CCET)

**Asare PF, Roscioli E, Hurtado PR, Tran HB, Mah CY, and Hodge S.**

"LC3-Associated Phagocytosis (Lap): A Potentially Influential Mediator of Efferocytosis-Related Tumor Progression and Aggressiveness." *Front Oncol* 10 (2020): 1298.

<https://dx.doi.org/10.3389/fonc.2020.01298>.

**Clarke B, Loudovaris T, Radford T, Drogemuller C, Coates PT, and Torpy D.**

"Ambulatory Intravenous Insulin and Islet Cell Transplantation to Treat Severe Type Iii Insulin Hypersensitivity in a Patient with Type 1 Diabetes Mellitus." *Clin Case Rep* 8, no. 12 (Dec 2020): 2759-62.

<https://dx.doi.org/10.1002/ccr3.3200>.

**Coates PT, Wong G, Druke T, Rovin B, and Ronco P.**

"Early Experience with Covid-19 in Kidney Transplantation." *Kidney Int* 97, no. 6 (Jun 2020): 1074-75.

<https://dx.doi.org/10.1016/j.kint.2020.04.001>.

**Forget A, Rojas D, Waibel M, Pencko D, Gunenthiran S, Ninan N, Loudovaris T, Drogemuller C, Coates PT, Voelcker NH, and Blencowe A.**

"Facile Preparation of Tissue Engineering Scaffolds with Pore Size Gradients Using the Muesli Effect and Their Application to Cell Spheroid Encapsulation." *J Biomed Mater Res B Appl Biomater* (Feb 12 2020).

<https://dx.doi.org/10.1002/jbm.b.34581>.

**Guha C, Tong A, Baumgart A, Scholes-Robertson N, Isbel N, Kanellis J, Campbell S, Coates T, and Chadban S.**

"Suspension and Resumption of Kidney Transplant Programs During the Covid-19 Pandemic: Perspectives from Patients, Caregivers and Potential Living Donors-a Qualitative Study." *Transpl Int* (Jul 8 2020).

<https://dx.doi.org/10.1111/tri.13697>.

**Hu ZL, Luo C, Hurtado PR, Li H, Wang S, Hu B, Xu JM, Liu Y, Feng SQ, Hurtado-Perez E, Chen K, Zhou XF, Li CQ, and Dai RP.**

"Brain-Derived Neurotrophic Factor Precursor in the Immune System Is a Novel Target for Treating Multiple Sclerosis." *Theranostics* 11, no. 2 (2021): 715-30.

<https://dx.doi.org/10.7150/thno.51390>.

**Hua L, Sebben R, Olakkengil S, Russell C, Coates T, and Bhattacharjya S.**

"Correlation between Computed Tomography Volumetry and Nuclear Medicine Split Renal Function in Live Kidney Donation: A Single-Centre Experience." *ANZ J Surg* 90, no. 7-8 (Jul 2020): 1347-51.

<https://dx.doi.org/10.1111/ans.16087>.

**Hurtado PR, Hurtado-Pérez E, Luo C, Bednarz J, Hisaria P, and Peh CA.**

"Unexpectedly, Low Hydroxychloroquine Concentration Enhances DNA-Induced Immune Stimulation In vitro: Potential Implication in Non-Compliant Patients with Sle." *Lupus* 29, no. 2 (Feb 2020): 216-18.

<https://dx.doi.org/10.1177/0961203319897810>.

**Kim J, Perkins GB, and Coates PT.**

"Evolutionary Immunology: How Your Ancestry Can Affect Your Kidney Transplant." *Kidney Int* 98, no. 1 (Jul 2020): 45-47.

<https://dx.doi.org/10.1016/j.kint.2020.01.020>.

**Kim J, Scaffidi J, and Coates PT.**

"Off the Beaten Track: Defining the Developmental Path of T Cells through the Human Thymus." *Kidney Int* (Jun 20 2020).

<https://dx.doi.org/10.1016/j.kint.2020.05.047>.

**Kim J, Hope CM, Gantumur N, Perkins GB, Stead SO, Yue Z, Liu X, Asua AU, Kette FD, Penko D, Drogemuller CJ, Carroll RP, Barry SC, Wallace GG, and Coates PT.**

"Encapsulation of Human Natural and Induced Regulatory T-Cells in Il-2 and Ccl1

Supplemented Alginate-Gelma Hydrogel for 3d Bioprinting." 30, no. 15 (2020): 2000544.

<https://dx.doi.org/https://doi.org/10.1002/adfm.202000544>.

**Kim J, Hope CM, Perkins GB, Stead SO, Scaffidi JC, Kette FD, Carroll RP, Barry SC, and Coates PT.**

"Rapamycin and Abundant Tcr Stimulation Are Required for the Generation of Stable Human Induced Regulatory T Cells." *Clin Transl Immunology* 9, no. 12 (2020): e1223.

<https://dx.doi.org/10.1002/cti2.1223>.

**Lyne SA, Downie-Doyle S, Lester SE, Quinlivan A, Coates PT, Gordon TP, and Rischmueller M.**

"Primary Sjogren's Syndrome in South Australia." *Clin Exp Rheumatol* 38 Suppl 126, no. 4 (Jul-Aug 2020): 57-63.

<https://www.ncbi.nlm.nih.gov/pubmed/32940213>.

**Mahmood MA, White J, Thwin KT, Zaw A, Alfred S, Warrell D, Nwe MT, Thein MM, Cumming R, Moody J, and Peh CA.**

"A Framework for Shifting the Paradigm and Developing Coalitions to Address Neglected Public Health Problems: Lessons from the Myanmar Snakebite Project." *Toxicon* 177 Suppl 1 (Apr 20 2020): S1.

<https://dx.doi.org/10.1016/j.toxicon.2019.10.009>.

**Perkins GB, Kim J, and Coates PT. "Going Rogue: How Autoantibodies Become Pathogenic.**

" *Kidney Int* (Dec 18 2020).

<https://dx.doi.org/10.1016/j.kint.2020.10.049>.

**Rogers C, White J, Weinstein S, Mahmood MA, Warrell D, Alfred S, Nwe MT, Thwin KT, and Peh CA.**

"The Effect of Snake Length on the Extent of Envenoming in Russell's Viper (*Daboia Siamensis*) Snake Bite Cases in Myanmar." *Toxicon* 177 Suppl 1 (Apr 20 2020): S15-s16.

<https://dx.doi.org/10.1016/j.toxicon.2019.10.068>.

# Publications

**Ryan J, Tieu J, Bose B, Francis R, Gingold M, Goh L, Gray J, Hill CL, Hissaria P, Jahan S, Langguth D, Li J, McLean-Tooke A, Peh CA, Rahman M, Sammel T, Stamp LK, Street M, Swaminathan S, Wong NL, and Kitching R.**

"Formation of the Australia and New Zealand Vasculitis Society to Improve the Care of Patients with Vasculitis in Australian and New Zealand." *Intern Med J* 50, no. 7 (Jul 2020): 781-83.

<https://dx.doi.org/10.1111/imj.14898>.

**Sai Sein Lin O, Myat Thet N, Khin Maung G, Than A, Mi Mi K, Myat Myat T, Myo T, Pyae Phyo A, Oakkar Kyaw K, Aye Zarchi S, Du Wun M, Htay A, O'Shea M, Mahmood MA, Peh CA, White J, and Warrell DA.**

"Clinical Importance of the Mandalay Spitting Cobra (*Naja Mandalayensis*) in Upper Myanmar - Bites, Envenoming and Ophthalmia." *Toxicon* 184 (Sep 2020): 39-47.

<https://dx.doi.org/10.1016/j.toxicon.2020.05.023>.

**Shen WY, Luo C, Reinaldo, Hurtado P, Hurtado-Perez E, Luo RY, Hu ZL, Li H, Xu JM, Zhou XF, and Dai RP.**

"The Regulatory Role of Probdnf in Monocyte Function: Implications in Stanford Type-a Aortic Dissection Disease." *Faseb j* 34, no. 2 (Feb 2020): 2541-53.

<https://dx.doi.org/10.1096/fj.201901905RR>.

**Sivanathan KN and Coates PT.**

"Improving Human Kidney Function in Renovascular Disease with Mesenchymal Stem Cell Therapy." *Kidney Int* 97, no. 4 (Apr 2020): 655-56.

<https://dx.doi.org/10.1016/j.kint.2019.12.020>.

**Soraru J, Isbel N, Wong G, Coates PT, Mantha M, Abraham A, Juneja R, Hsu D, Brown F, Bose B, Mudge D, Carroll R, Kausman J, Hughes P, Barbour T, Durkan A, Mount P, Lee D, Larkins N, Ranganathan D, and Lim WH.**

"Baseline Characteristics of Patients with Atypical Haemolytic Uraemic Syndrome

(Ahus): The Australian Cohort in a Global Ahus Registry." *Nephrology (Carlton)* (May 7 2020).

<https://dx.doi.org/10.1111/nep.13722>.

**Thein MM, Rogers C, White J, Mahmood MA, Weinstein S, Nwe MT, Zaw A, Thwin KT, Bates D, Alfred S, Warrell D, and Peh CA.**

"Green Snake Bites: Characteristics and Significance of This Subset of Snakebites in the Mandalay Region of Myanmar." *Toxicon* 177 Suppl 1 (Apr 20 2020): S15.

<https://dx.doi.org/10.1016/j.toxicon.2019.10.067>.

**Webster AC, Hedley JA, Anderson PF, Hawthorne WJ, Radford T, Drogemuller C, Rogers N, Goodman D, Lee MH, Loudovaris T, and Kelly PJ.**

"Australia and New Zealand Islet and Pancreas Transplant Registry Annual Report 2019: Islet Donations, Islet Isolations, and Islet Transplants." *Transplant Direct* 6, no. 7 (Jul 2020): e565.

<https://dx.doi.org/10.1097/txd.0000000000001014>.

**Wong G and Coates T.**

"Epidemiology of Kidney Disease: Consolidating and Integrating the Evidence to Improve Kidney Care from Early Childhood to Adulthood." *Kidney Int* 98, no. 6 (Dec 2020): 1378-81.

<https://dx.doi.org/10.1016/j.kint.2020.09.020>.

**Wong G, Marsh J, Howell M, Lim WH, Chadban S, Coates T, Hawley C, Campbell S, Larkins N, Snelling T, Allan L, Teixeira-Pinto A, Reidlinger D, Wyburn K, and Craig JC.**

"Screening and Management Practices for Polyoma (Bk) Viremia and Nephropathy in Kidney Transplant Recipients from the Lands Down Under: Addressing the Unknowns and Rationale for a Multicenter Clinical Trial." *Kidney Int Rep* 5, no. 10 (Oct 2020): 1777-80.

<https://dx.doi.org/10.1016/j.ekir.2020.06.038>.

**Zidan AA, Al-Hawwas M, Perkins GB, Mourad GM, Stapledon CJM, Bobrovskaya L, Zhou XF, and Hurtado PR.**

"Characterization of Urine Stem Cell-Derived Extracellular Vesicles Reveals B Cell Stimulating Cargo." *Int J Mol Sci* 22, no. 1 (Jan 5 2021).

<https://dx.doi.org/10.3390/ijms22010459>.

## Editorials/Commentaries:

**Coates PT.**

"A Kidney International Journal of the Covid-19 Year in Kidney Transplantation." *Kidney Int* (Oct 19 2020).

<https://dx.doi.org/10.1016/j.kint.2020.10.006>.

**Coates PT and Wong G.**

"Current Controversies in Nephrology-How to Crossmatch for Transplantation?" *Kidney Int* 97, no. 4 (Apr 2020): 662-63.

<https://dx.doi.org/10.1016/j.kint.2020.02.002>.

**Coates PT and Wong G.**

"The Forgotten Fallen: Painful Reality of a Pandemic." *Kidney Int* (Jun 15 2020).

<https://dx.doi.org/10.1016/j.kint.2020.06.002>.

**Wong G and Coates PT.**

"Kidney International 60th Anniversary Edition: Transplantation-the Chosen 5." *Kidney Int* 98, no. 5 (Nov 2020): 1064-66.

<https://dx.doi.org/10.1016/j.kint.2020.09.005>.

## ANZDATA, ANZOD and Beat-CKD

**Chen JH, Johnson DW, Wong G, Boudville N, Borlace M, Walker R, Hawley C, McDonald S, and Lim WH.**

"Associations between Diabetes and Sex with Peritoneal Dialysis Technique and Patient Survival: Results from the Australia and New Zealand Dialysis and Transplant Registry Cohort Study." *Perit Dial Int* (Apr 22 2020): 896860820918708.

<https://dx.doi.org/10.1177/0896860820918708>.

**Dansie K, Vieceilli AK, Pascoe EM, Johnson DW, McDonald S, Clayton P, and Hawley C.**

"Novel Trial Strategies to Enhance the Relevance, Efficiency, Effectiveness and Impact of Nephrology Research." *Kidney Int* (May 25 2020).

<https://dx.doi.org/10.1016/j.kint.2020.04.050>.

**De La Mata NL, Clayton PA, Kelly PJ, McDonald S, Chadban S, Polkinghorne KR, and Webster AC.**

"Survival in Living Kidney Donors: An Australian and New Zealand Cohort Study Using Data Linkage." *Transplant Direct* 6, no. 3 (Mar 2020): e533.

<https://dx.doi.org/10.1097/txd.0000000000000975>.

**Duncanson E, Bennett PN, Vieceilli A, Dansie K, Handke W, Tong A, Palmer S, Jesudason S, McDonald SP, and Morton RL.**

"Feasibility and Acceptability of E-Proms Data Capture and Feedback among Patients Receiving Haemodialysis in the Symptom Monitoring with Feedback Trial (Swift) Pilot: Protocol for a Qualitative Study in Australia." *BMJ Open* 10, no. 11 (Nov 6 2020): e039014.

<https://dx.doi.org/10.1136/bmjopen-2020-039014>.

**Duncanson E, Dansie K, Gutman T, Tong A, Howell M, Jesudason S, Reidlinger D, Williamson A, Scholes-Robertson N, Murphy L, Hawley CM, Craig JC, Johnson DW, and McDonald S.**

"Knowledge Is Power: A Framework for Partnering with Consumers in Developing and Delivering a Scientific Meeting in Nephrology." *Nephrology (Carlton)* 25, no. 5 (May 2020): 379-83.

<https://dx.doi.org/10.1111/nep.13570>.

**Gutman T, Manera KE, Baumgart A, Johnson DW, Wilkie M, Boudville N, Craig JC, Dong J, Jesudason S, Mehrotra R, Neu A, Shen JI, Van Biesen W, Blake PG, Brunier G, Cho Y, Jefferson N, Lenga I, Mann N, Mendelson AA, Perl J, Sanabria RM, Scholes-Roberston N, Schwartz D, Teitelbaum I, and Tong A.**

"Can I Go to Glasgow? Learnings from Patient Involvement at the 17th Congress of the International Society for Peritoneal Dialysis (Ispd)." *Perit Dial Int* 40, no. 1 (Jan 2020): 12-25.

<https://dx.doi.org/10.1177/0896860819880101>.

**Gutman T, Tong A, Howell M, Dansie K, Hawley CM, Craig JC, Jesudason S, Chapman JR, Johnson DW, Murphy L, Reidlinger D, Crowe S, Duncanson E, Muthuramalingam S, Scholes-Robertson N, Williamson A, and McDonald S.**

"Principles and Strategies for Involving Patients in Research in Chronic Kidney Disease: Report from National Workshops." *Nephrol Dial Transplant* 35, no. 9 (Sep 1 2020): 1585-94.

<https://dx.doi.org/10.1093/ndt/gfz076>.

**Hewawasam E, Gulyani A, Davies CE, Sullivan E, Wark S, Clayton PA, McDonald SP, and Jesudason S.**

"Parenthood and Pregnancy in Australians Receiving Treatment for End-Stage Kidney Disease: Protocol of a National Study of Perinatal and Parental Outcomes through Population Record Linkage." *BMJ Open* 10, no. 5 (May 25 2020): e036329.

<https://dx.doi.org/10.1136/bmjopen-2019-036329>.

**Hole BD, Evans KM, Pyart R, Davids MR, Bedat CG, Hanafusa N, Harris DCH, Jager KJ, Jha V, Johansen KL, McDonald S, Masakane I, Rosa-Diez G, Saran R, Wetmore JB, and Caskey FJ.**

"International Collaborative Efforts to Establish Kidney Health Surveillance Systems." *Kidney Int* 98, no. 4 (Oct 2020): 812-16.

<https://dx.doi.org/10.1016/j.kint.2020.06.047>.

**Htay H, Cho Y, Pascoe EM, Hawley C, Clayton PA, Borlace M, Badve SV, Sud K, Boudville N, Chen JH, Sypek M, and Johnson DW.**

"Multicentre Registry Data Analysis Comparing Outcomes of Culture-Negative Peritonitis and Different Subtypes of Culture-Positive Peritonitis in Peritoneal Dialysis Patients." *Perit Dial Int* 40, no. 1 (Jan 2020): 47-56.

<https://dx.doi.org/10.1177/0896860819879891>.

**Htay H, Pascoe EM, Hawley CM, Campbell SB, Chapman J, Cho Y, Clayton PA, Collins MG, Francis RS, Isbel NM, Lim WH, Putrino S, and Johnson DW.**

"Patient and Center Characteristics Associated with Kidney Transplant Outcomes: A Binational Registry Analysis." *Transpl Int* (Jun 26 2020).

<https://dx.doi.org/10.1111/tri.13681>.

**Jesudason S, Fitzpatrick A, Gulyani A, Davies CE, Hewawasam E, Clayton PA, and McDonald SP.**

"Fatherhood and Kidney Replacement Therapy: Analysis of the Australian and New Zealand Dialysis and Transplantation (Anzdata) Registry." *Am J Kidney Dis* (May 28 2020).

<https://dx.doi.org/10.1053/j.ajkd.2020.03.020>.

# Publications

Ju A, Scholes-Robertson N, Johnson D, Cho Y, Zwieten A, Manera K, Howell M, Vieceili A, Jesudason S, Evangelidis N, Polkinghorne K, Gutman T, Wyburn K, Craig J, Tong A, Charalambous A, Beach B, Larkin B, Beach C, and Wooldridge W.

"Patient-Led Identification and Prioritization of Exercise Interventions for Fatigue on Dialysis: A Workshop Report." *Clin Kidney J* (02/04 2020).

<https://dx.doi.org/10.1093/ckj/sfz200>.

Morton JI, Liew D, McDonald SP, Shaw JE, and Magliano DJ.

"The Association between Age of Onset of Type 2 Diabetes with the Long-Term Risk of End-Stage Kidney Disease: A National Registry Study." *Diabetes Care* (Jun 15 2020).

<https://dx.doi.org/10.2337/dc20-0352>.

Morton RL, Lioufas N, Dansie K, Palmer SC, Jose MD, Raj R, Salmon A, Sypek M, Tong A, Ludlow M, Boudville N, and McDonald S.

"Use of Patient-Reported Outcome Measures and Patient-Reported Experience Measures in Renal Units in Australia and New Zealand: A Cross-Sectional Survey Study." *Nephrology (Carlton)* 25, no. 1 (Jan 2020): 14-21.

<https://dx.doi.org/10.1111/nep.13577>.

Muthuramalingam S, Scholes-Robertson N, Carswell P, Maistry C, Paulo K, and Duncanson E.

"Empowering Consumers as Equal Partners at Scientific Conferences in Nephrology." *Nephrology (Carlton)* (May 17 2020).

<https://dx.doi.org/10.1111/nep.13719>.

Natale P, Gutman T, Howell M, Dansie K, Hawley CM, Cho Y, Vieceili AK, Craig JC, Jesudason S, Chapman JR, Johnson DW, Murphy L, Reidlinger D, Crowe S, Duncanson E, Muthuramalingam S, Scholes-Robertson N, Williamson A, McDonald S, Wong G, Teixeira-Pinto A, Strippoli GFM, and Tong A.

"Recruitment and Retention in Clinical Trials in Chronic Kidney Disease: Report from National Workshops with Patients, Caregivers and Health Professionals." *Nephrol Dial Transplant* 35, no. 5 (May 1 2020): 755-64.

<https://dx.doi.org/10.1093/ndt/gfaa044>.

Ng MY, Ullah S, Wilson G, McDonald S, Sypek M, and Mallett AJ.

"Abo Blood Group Relationships to Kidney Transplant Recipient and Graft Outcomes." *PLoS One* 15, no. 7 (2020): e0236396.

<https://dx.doi.org/10.1371/journal.pone.0236396>.

Rangaswamy D, Guddattu V, Webster AC, Borlace M, Boudville N, Clayton P, Badve S, Johnson DW, and Sud K.

"Icodextrin Use for Peritoneal Dialysis in Australia: A Cohort Study Using Australia and New Zealand Dialysis and Transplant Registry." *Perit Dial Int* 40, no. 2 (Mar 2020): 209-19.

<https://dx.doi.org/10.1177/0896860819894058>.

Sriravindrarajah A, Kotwal S, Sen S, McDonald S, Jardine M, Cass A, and Gallagher M.

"Impact of Supplemental Private Health Insurance on Dialysis and Outcomes." *Intern Med J* 50, no. 5 (May 2020): 542-49.

<https://dx.doi.org/10.1111/imj.14375>.

Sypek MP, Hiho S, Cantwell L, Clayton P, Hughes P, Le Page AK, and Kausman J.

"Human Leukocyte Antigen Eplet Mismatches and Long-Term Clinical Outcomes in Pediatric Renal Transplantation: A Pragmatic, Registry-Based Study." *Pediatr Transplant* (Apr 22 2020): e13705.

<https://dx.doi.org/10.1111/ptr.13705>.

Sypek MP, Hughes P, Holdsworth R, Kanellis J, McDonald S, and Clayton PD.

"Insights into the Labeling Effect of Kidney Donor Performance Index Reporting: The Australian Experience." *Am J Transplant* 20, no. 3 (Mar 2020): 870-78.

<https://dx.doi.org/10.1111/ajt.15656>.

Tang J, Gulyani A, Hewawasam E, McDonald S, Clayton P, Webster AC, Kanellis J, and Jesudason S.

"Pregnancy Outcomes for Simultaneous Pancreas-Kidney Transplant Recipients Versus Kidney Transplant Recipients." *Clin Transplant* (Nov 11 2020): e14151.

<https://dx.doi.org/10.1111/ctr.14151>.

Yao J, Clayton PA, Wyburn K, Choksi H, Cavazzoni E, Tovmassian D, Lau HMH, Allen R, Yuen L, Laurence JM, Lam VWT, and Pleass HCC.

"Paediatric Kidney Transplants from Donors Aged 1 Year and Under: An Analysis of the Australian and New Zealand Dialysis and Transplant Registry (Anzdata) from 1963 to 2018." *Transpl Int* (Oct 17 2020).

<https://dx.doi.org/10.1111/tri.13772>.

Ying T, Shi B, Kelly PJ, Pilmore H, Clayton PA, and Chadban SJ.

"Death after Kidney Transplantation: An Analysis by Era and Time Post-Transplant." *J Am Soc Nephrol* (Sep 9 2020).

<https://dx.doi.org/10.1681/asn.2020050566>.

## Clinical trials unit

Badve SV, Pascoe EM, Tiku A, Boudville N, Brown FG, Cass A, Clarke P, Dalbeth N, Day RO, de Zoysa JR, Douglas B, Faul R, Harris DC, Hawley CM, Jones GRD, Kanellis J, Palmer SC, Perkovic V, Rangan GK, Reidlinger D, Robison L, Walker RJ, Walters G, and Johnson DW.

"Effects of Allopurinol on the Progression of Chronic Kidney Disease." *N Engl J Med* 382, no. 26 (Jun 25 2020): 2504-13.

<https://dx.doi.org/10.1056/NEJMoa1915833>.

Collins MG, Fahim MA, Pascoe EM, Dansie KB, Hawley CM, Clayton PA, Howard K, Johnson DW, McArthur CJ, McConnochie RC, Mount PF, Reidlinger D, Robison L, Varghese J, Vergara LA, Weinberg L, and Chadban SJ.

"Study Protocol for Better Evidence for Selecting Transplant Fluids (Best-Fluids): A Pragmatic, Registry-Based, Multi-Center, Double-Blind, Randomized Controlled Trial Evaluating the Effect of Intravenous Fluid Therapy with Plasma-Lyte 148 Versus 0.9% Saline on Delayed Graft Function in Deceased Donor Kidney Transplantation." *Trials* 21, no. 1 (May 25 2020): 428.

<https://dx.doi.org/10.1186/s13063-020-04359-2>.

Smith RM, Jones RB, Specks U, Bond S, Nodale M, Aljayyousi R, Andrews J, Bruchfeld A, Camilleri B, Carette S, Cheung CK, Derebail V, Doulton T, Forbess L, Fujimoto S, Furuta S, Gewurz-Singer O, Harper L, Ito-Ihara T, Khalidi N, Klocke R, Koenig C, Komagata Y, Langford C, Lanyon P, Luqmani RA, Makino H, McAlear C, Monach P, Moreland LW, Mynard K, Nachman P, Pagnoux C, Pearce F, Peh CA, Pusey C, Ranganathan D, Rhee RL, Spiera R, Sreih AG, Tesar V, Walters G, Weisman MH, Wroe C, Merkel P, and Jayne D.

"Rituximab as Therapy to Induce Remission after Relapse in Anca-Associated Vasculitis." *Ann Rheum Dis* (Jun 24 2020).

<https://dx.doi.org/10.1136/annrheumdis-2019-216863>.

Sunderland A, Russ G, Sallustio B, Cervelli M, Joyce D, Ooi E, Jeffrey G, Boudville N, Chakera A, Dogra G, Chan D, Wong G, and Lim WH.

"Effect of the Proton-Pump inhibitor Pantoprazole on Mycophenolic Acid Exposure in Kidney and Liver Transplant Recipients (Impact Study): A Randomized Trial." *Nephrol Dial Transplant* 35, no. 6 (Jun 1 2020): 1060-70.

<https://dx.doi.org/10.1093/ndt/gfaa111>.

Toussaint ND, Pedagogos E, Lioufas NM, Elder GJ, Pascoe EM, Badve SV, Valks A, Block GA, Boudville N, Cameron JD, Campbell KL, Chen SSM, Faul R, Holt SG, Jackson D, Jardine MJ, Johnson DW, Kerr PG, Lau KK, Hooi LS, Narayan O, Perkovic V, Polkinghorne KR, Pollock CA, Reidlinger D, Robison L, Smith ER, Walker RJ, Wang AYM, and Hawley CM.

"A Randomized Trial on the Effect of Phosphate Reduction on Vascular End Points in Ckd (Improve-Ckd)." *J Am Soc Nephrol* (Sep 11 2020).

<https://dx.doi.org/10.1681/asn.2020040411>.

Walsh M, Merkel PA, Peh CA, Szpirt WM, Puéchal X, Fujimoto S, Hawley CM, Khalidi N, Floßmann O, Wald R, Girard LP, Levin A, Gregorini G, Harper L, Clark WF, Pagnoux C, Specks U, Smyth L, Tesar V, Ito-Ihara T, de Zoysa JR, Szczekliak W, Flores-Suárez LF, Carette S, Guillevin L, Pusey CD, Casian AL, Brezina B, Mazzetti A, McAlear CA, Broadhurst E, Reidlinger D, Mehta S, Ives N, and Jayne DRW.

"Plasma Exchange and Glucocorticoids in Severe Anca-Associated Vasculitis." *N Engl J Med* 382, no. 7 (Feb 13 2020): 622-31.

<https://dx.doi.org/10.1056/NEJMoa1803537>.

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