

# Abstract book

Victorian Renal Clinical Network Conference

**High quality, safe renal care, improved by information**

Melbourne Convention & Exhibition Centre

Friday 15 September 2017



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## Victorian Renal Clinical Network (VRCN)

The Victorian Renal Clinical Network (VRCN) began in December 2007 and transferred to Safer Care Victoria (SCV), when it was established by the Victorian Government in January 2017.

SCV was established in response to the recommendations within the Duckett report, Targeting Zero: supporting the Victorian hospital system to eliminate avoidable harm and strengthen quality of care.

In alignment with the above changes and the recently published Framework for Clinical Network, the VRCN refocuses its efforts to tackle variation in quality, outcome and experience of care for patients by driving system-wide improvement in safety and quality of care.

Providing safe, high-quality consistent care is vital to achieve the highest quality outcomes for patients. However, providing safe quality care is dependent upon the availability and application of the best available clinical evidence and research.

To help you achieve safe, quality outcomes for your patient, we are delighted to host the 2017 Victorian Renal Clinical Network Conference: High quality, safe renal care, improved by information.

We trust that you will find the conference informative and gain valuable insights into the experiences of others, both nationally and in Victoria, which can inform your clinical practice.

We wish to convey sincere thanks to all who participated and supported the conference and commend this abstract book to you.



Professor Steve Holt  
Clinical Lead and Chair, VRCN



Alice Gleeson  
Manager, VRCN

# Conference program

The program includes links to speakers

|   |  |  |   |   |  |  |
|---|--|--|---|---|--|--|
| 08:00 – 09:00   | Registration   |  |   | Tea and coffee on arrival   |  |  |
| 09:00 – 09:10   | Welcome address  |  |   | Steve Holt, VRCN Chair and Clinical Lead  |  |  |
| Plenary session 1 – Chair: Steve Holt, VRCN Chair and Clinical Lead |  |  |   |   |  |  |
| 09:10 – 9:35  | Clinical Networks and Clinical Engagement – where to from here   |  |   | Robyn Hudson, Director, Clinical Partners, Safer Care Victoria                        |  |  |
| 09:35 – 9:45  | Introducing the Victorian Agency for Health Information (VAHI)   |  |   | Paula Wilton, A/Director, Clinical Analytics, Victorian Agency for Health Information |  |  |
| 09:45 – 10:15   | What does High Quality Safe Renal Care Mean to Me – A Patient Experience   |  |   | Greg Collette, Renal Health Consumer  |  |  |
| 10:15 – 10:45   | Measuring Patient Experience   |  |   | Avnesh Ratnanesan, CEO, Energesse   |  |  |
| 10:45 – 11:15   | Morning tea and networking   |  |   |   |  |  |
| Concurrent Sessions   | Session 1 - Room 109<br>Chair: Peter Kerr, Monash Health   |  | Session 2 - Room 110<br>Chair: Christine Somerville, Barwon Health  |   | Session 3<br>Rooms 111 & 112   |  |
| 11:15 – 11:35   | Patient Early-warning Wearables: A study in subjects with normal and abnormal renal function<br>Steve Holt, Melbourne Health       |  | Identification of discrepant practices in Victorian Peritoneal Dialysis (PD) peritonitis protocols<br>Nicole Lioufas, Western Health  |   | Environmental Sustainability Workshop.<br>Chair :Katherine Barraclough<br><br>Program available at Appendix 1  |  |
| 11:35 – 11:55   | Improving patient outcomes with the use of portable ultrasound in a home haemodialysis population<br>Rosie Simmonds, Barwon Health |  | Standardised monitoring of infections and antimicrobial use in haemodialysis outpatients<br>Leon Worth, Victorian Healthcare Associated Infection Surveillance System (VICNISS) |   |  |  |
| 11:55 – 12:15   | Examining the utility of dialysis plastic waste as an incorporative product in concrete<br>John Agar, Barwon Health                |  | Disposing PD effluent: environmental and financial cost comparisons<br>Jade Ryan, Melbourne Health  |   |  |  |
| 12:15 – 1:15  | Lunch and networking   |  |   |   |  |  |
| Concurrent Sessions   | Session 4 - Room 109<br>Chair: Jenny Soding, Bendigo Health  |  | Session 5 - Room 110<br>Chair: Nuala Barker, St Vincent’s Health  |   | Session 6 (Rooms 111& 112):  |  |
| 1:15 – 1:35   | Renal supportive care in Victoria: current experience<br>Kathryn Ducharlet, St Vincent’s Health                                    |  | Improving medication adherence in kidney transplantation<br>Jac Kee Low, Monash University  |   | Environmental Sustainability Workshop.<br>Chair :Katherine Barraclough.<br><br>Program available at Appendix 1 |  |
| 1:35 – 1:55   | A collaborative approach to renal supportive care<br>Kerry Linton, Monash Health   |  | Review of tacrolimus dosing post renal transplant<br>Caitlin Hand, Alfred Health  |   |  |  |
| 1:55 – 2:15   | Pathway Options to Improve Supportive care in ESKD<br>Jilly Bone, Eastern Health   |  | Tobramycin clearance in a cystic fibrosis patient on HD<br>Vanessa Inserra, Alfred Health   |   |  |  |
| 2:15 – 2:35   | Responding to the needs of regional and rural consumers with renal failure<br>Maria Safe, Melbourne Health                         |  | Exploring the transition of adolescents from paediatric to adult care<br>Kimberley Crawford, Monash University  |   |  |  |

# Conference program

The program includes links to speakers

|   |  |   |
|---|--|---|
| 2:35 – 3:00   | Afternoon tea and networking   |   |
| Plenary session 2 – Chair: Peter Mount, Austin Health   |  |   |
| 3:00 – 3:20   | Carbapenemase producing Enterobacteriaceae (CPE)   | Caroline Marshall, Head, Infection Prevention & Surveillance Service, Melbourne Health                                  |
| 3:20 – 3:35   | Benefits of Altruistic Donation in Paired Kidney Exchange  | Peter Hughes, Physician in Charge of Renal Transplantation, Melbourne Health, AKX Clinical Program Director             |
| 3:35 – 3:50   | Altruistic Donation – a Kidney Donor’s Perspective   | Paul Bannan, Renal Health Consumer  |
| 3:50 – 4:10   | Altruistic Kidney Donation: "Are you crazy?"   | Alex Holmes, Head Consultant Psychiatrist and Associate Professor, Royal Melbourne Hospital and University of Melbourne |
| 4:10 – 4:40   | Reporting and Responding to Unwarranted Clinical Variation in Renal Care   | Carol Pollock , Academic Nephrologist, Sydney Medical School, The University of Sydney                                  |
| 4:40 – 5:10   | Analysis of Renal KPI and ANZDATA to target areas for improvement in Victorian renal care  | Nigel Toussaint, Deputy Director of Nephrology, Melbourne Health  |
| 5:10 – 5:15   | Network conference closing address   | Alice Gleeson, Manager, VRCN, Safer Care Victoria   |
| 5:15  | Close  |   |
| APPENDIX 1 : Environmental Sustainability (ES) Workshop |  |   |
| 11:15 – 3:00  | Concurrent Session 3 and 6 : Environmental Sustainability (ES) Workshop  |   |
| 11:15 – 11:20   | Welcome and Introductions  | Katherine Barraclough, Chair of Environmental Sustainability Special Interest Group (ESSIG)                             |
| 11:20 – 11:35   | Introducing ESSIG and the GREENS Survey Findings   | Katherine Barraclough, Chair of ESSIG   |
| 11:35 – 11:55   | Dialysis unit waste management initiatives   | Anthea White, Nurse Unit Manager, Coburg Dialysis Unit  |
| 11:55 – 12:15   | Health Purchasing Victoria: sustainable procurement and recycling.   | Jefferson Hopewell, Sustainability Procurement Officer, Health Purchasing Victoria                                      |
| 12:15 – 1:15  | Lunch and networking   |   |
| 1 :15 – 1:25  | Working towards a 5-year environmental sustainability strategy for healthcare in Victoria  | Tiernan Humphreys, Manager Environmental Sustainability Infrastructure Planning & Delivery, DHHS                        |
| 1 :25 – 2:00  | Group Work – Barriers and enablers to improving environmental sustainability in renal healthcare   | Gwen Still, Deputy Chair of ESSIG   |
| 2:00 – 2:40   | Collaborating to Improve ES in Renal Healthcare : Panel Q&A.<br>- Brendan Cummins, Director Healthcare Solutions, Baxter Healthcare<br>- Mark Parker, General Manager Products, Fresenius Medical Care<br>- Paddy Kelly, National Key Accounts Manager, Daniels Health<br>- Catherine O’Shea, Sustainability Officer, Western Health | Katherine Barraclough, Chair of ESSIG   |
| 2:40 – 2:45   | Wrap Up and Next Steps   | Katherine Barraclough, Chair of ESSIG   |
| 2:35 – 3:00   | Afternoon tea and networking followed by Plenary Session 2   |   |

An abstract book with speaker bios will be available on the Victorian Renal Clinical Network [website](#)

## Mr Paul Bannan

Renal Health Consumer



### Biography

Paul became Victoria's 2nd altruistic kidney donor at 53. He is a Scout who progressed from Cub scouts to Venturers and obtained the Queen Scout Award at sixteen and the Duke of Edinburgh Silver and Gold awards.

Paul's mentors were returned men and women from WWII, some were Rats of Tobruk. These people and Paul's parents had the greatest influence on Paul's values of "Others Before Self" a motto that he has endeavoured to live by since his formative years. Paul served a Fitter Machinist apprenticeship with the Aeronautical Research Laboratories. He was a senior Maintenance Fitter at Australia Post and worked at Nestle Confectionery for 27 years, who supported his community service including his altruistic kidney donation. Paul spent 25 plus years as a local C.F.A. Fire and Rescue Brigade volunteer, serving several terms as an officer. He is also the N.C.O. in Charge of the Yea and District Memorial Rifles Group who support the local R.S.L. Branches during ANZAC and Remembrance Day services.

Paul was awarded the: National Emergency Medal, for efforts around Black Saturday, National Medal for long service to the CFA, 20 Year CFA Service Medal, 2016 Shire of Murrindindi Citizen of the Year and the 2016 News Corp Pride of Australia Medal.

In closing Paul firmly believes he has done nothing more than what six other people did on that same day in November and is humbled by all the attention he has received for just doing; what he could, when he could, wherever he could, for whoever he could.

## Mr Greg Collette

Renal Health Consumer



### Biography

Greg has been on dialysis, with brief breaks for two short-lived transplants, for 22 years.

Greg ran his knowledge management consultancy, Wordware, for 23 years, and was also joint founder-owner of Smooth Hospital Move Pty Ltd. Greg was involved early in his own care. He extended from 3 to 5 dialysis sessions /week to improve his quality of life, and moved to the buttonhole needling technique to extend the life and functionality of his fistula. In 2009 Greg started the BigDandMe blog for people on dialysis which has about 10,000 regular monthly visitors from 166 countries.

Greg designed the first Dialysis Early Warning App for dialysis patients and clinicians. The App provides a day-by-day update of a patient's condition, gives early warning of potential problems and provides knowledge and confidence to enable the patient to take pre-emptive action to maintain their health and wellbeing. The App, launched in 2016, is now used by Diavium patients and clinicians in Australia, South America, the UK and Europe. With his blog and patient advocacy role increasing, Greg now regularly speaks at health conferences as a patient representative. His paper Could Your Fistula Rupture?, received the 2016 Renal Society of Australasia conference best paper award. He was also awarded best speaker at the Diavium 2016 Global Conference in Lisbon, Portugal. Greg lives with his wife Julie in Melbourne.

## Ms Alice Gleeson

Manager, Victorian Renal Clinical Network,  
Safer Care Victoria

(SRN,RPN,CCN,BN,  
Master of Health Services Management)



### Biography

Alice has trained and worked as a nurse in Ireland, London and Australia. Her major work experience includes, eight years in ICU, 16 years in Liver Transplant Coordination/Management and has worked at DHHS for over 10 years.

She acquired expertise in renal care by: undertaking a short renal course; managing dialysis patients in intensive care; assisting to establish a combined renal/liver transplant program; assisting to establish the VRCN and more recently supporting the VRCN.

Alice has lead service improvement and change management at operational level when at the Donor Tissue Bank and the Liver Transplant Unit, and at system level through Coordinating the National Organ Donor Collaborative and a range of projects undertaken as a departmental employee.

## A Prof Alex Holmes

Consultant Psychiatrist and Associate  
Professor

The Royal Melbourne Hospital and  
The University of Melbourne.

MBBS, M.Med (psych), FRANZCP, PhD



### Biography

Alex Holmes is an Associate Professor in the Department of Psychiatry, University of Melbourne and Head of consultation-liaison psychiatry at Royal Melbourne Hospital. His research is focussed on the psychiatric sequelae of physical illness, including serious physical injury, pain, multiple sclerosis and brain tumours. His clinical work includes liaison with the renal unit at RMH, including work with donors and recipients in the transplant program.



## Ms Robyn Hudson

Director Clinicians as Partners,  
Safer Care Victoria



### Biography

Robyn has over sixteen years of varied experience in the health sector. Currently, she is the Director Clinicians as Partners, Safer Care Victoria. She has a reputation for leading system innovation and improvement with real benefits for the population. She has been a Director in Innovation hubs, Academic Health Science Centres (UCLPartners) and has held management positions within major acute hospitals in Australia and the UK. She has been a member of Better Care Victoria Board and chair of its emerging leaders subcommittee. She holds an MBA from Judge Business School, Cambridge University. Robyn is passionate about improving health outcomes for people and believes that deep and rich conversations, amongst the leadership of the many players in healthcare will lead to whole system change..

## A Prof Peter Hughes

Physician in Charge of Renal  
Transplantation, Melbourne Health  
AKX Clinical Program Director



### Biography

Peter completed his PhD at the Walter and Eliza Hall Institute. He has been the Physician in charge of renal transplantation at the Royal Melbourne Hospital since 2012 and was recently appointed the Clinical Program Director of the Australian Paired Kidney Exchange. He current research interests in acute kidney injury, immune monitoring, non-invasive diagnosis in kidney transplantation, immunological matching and kidney allocation.



## A Prof Caroline Marshall

Head of Infection Prevention and Surveillance Service, Melbourne Health  
Infectious Diseases Physician,  
Victorian Infectious Diseases Service  
Principal Research Fellow,  
The University of Melbourne



### Biography

Associate Professor Caroline Marshall is an infectious diseases physician with the Victorian Infectious Diseases Service at The Royal Melbourne Hospital. Additionally, she works there as Head of the Infection Prevention and Surveillance Service and as one of the Antimicrobial Stewardship Service physicians. She is also Principal Research Fellow in the Department of Medicine at the University of Melbourne and is one of the Chief Investigators at the NH&MRC funded National Centre for Antimicrobial Stewardship based at the Peter Doherty Institute for Infection and Immunity.

## Prof Carol Pollock

Academic nephrologist, Sydney Medical School, The University of Sydney  
Renal Transplant Physician,  
Royal North Shore Hospital NSW



### Biography

Carol Pollock is an academic nephrologist and renal transplant physician with over 290 publications in basic research and clinical medicine. She is an inaugural Fellow of the Australian Academy of Health and Medical Sciences (2015), was conferred a Vice Chancellors Award for Excellence in Research Supervision (2012) and recognised as a 'Distinguished Professor' by the University of Sydney (2012). She was the 2014 recipient of the Ministerial Award for Excellence in Cardiovascular Research. She was Scientific Chairman of the 2013 World Congress of Nephrology. She is Chair of the NSW Cardiovascular Research Network and Chairs the Research Advisory Committee of the Australian and New Zealand Society of Nephrology. Health leadership roles include inaugural Chair of the NSW Agency for Clinical Innovation, immediate past Chair of the Clinical Excellence Commission, remaining as a director of both organisations till April 2016. She was Chair of the Northern Sydney Local Health District Board since its inception in 2011 till 2016 and since 2016 was Director and then Chair of the NSW Bureau of Health Information. She is a current Director of Kidney Health Australia and Chairs the International Society of Nephrology Meetings committee, responsible for delivering both research and educational meetings and policy forums across the globe.

## Dr Avnesh Ratnanesan

Chief Executive Officer, Energesse



### Biography

Dr Avi Ratnanesan is the Chief Executive Officer of Energesse, a leading firm that specialises in improving patient experience and customer experience in healthcare. Energesse provides thought leadership in patient-centred innovation and technology solutions including MES Experience for real-time patient feedback and PanSensic for free-text analytics of patient stories. Dr Avi's career began as a medical doctor in the UK and Australia following his degree from the University of Sheffield. After an MBA (Honours) from the University of Queensland, he ventured into biotech and pharmaceuticals with responsibilities including Chief of Staff at Pfizer Australia, leading the innovation agenda and helping grow the organization to over a \$1 billion in annual revenue.

Avi is an extraordinarily enlightening, inspiring and highly rated speaker whose exploits have been featured in the following media: Sky News, ABC, SBS, Channel 11, SMH, Insurance Business America and more.

As a former medical practitioner, corporate strategist and technology innovator, he is making a difference in the world by advising teams, organisations, businesses and governments. Dr Avi is also a customer analytics expert, ably guiding organisations with actionable insights towards competitive advantage and higher ROI.

## A Prof Nigel Toussaint

Deputy Director of Nephrology,  
Melbourne Health

Clinical Associate Professor,  
The University of Melbourne



### Biography

Nigel Toussaint is the Deputy Director of Nephrology at Melbourne Health (The Royal Melbourne Hospital) and is a Clinical Associate Professor at the University of Melbourne. He is a nephrologist with an interest in the complications of chronic kidney disease, especially mineral and bone disorders. He is also the Chair of the Renal KPI Working group for the Victorian Renal Clinical Network.

## Ms Paula Wilton

A Director, Clinical Analytics and  
Outcomes Research Branch,  
Victorian Agency for Health Information

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### Biography

Paula Wilton is the A/Director of the Clinical Analytics and Outcomes Research Branch at the Victorian Agency for Health Information. Paula is a health economist with over 20 years of experience in the public, private and university sectors, both within Australia and overseas. Prior to her current role, Paula worked at the Department of Premier and Cabinet where in 2016 she was seconded in to the Department of Health and Human Services, to work on the implementation of the Targeting Zero review.

## Ms Nuala Barker

Manager Dialysis Services  
St Vincent's Health



### Biography

Nuala Barker is the Manager of Dialysis Services at St Vincent's hospital, Melbourne. She is the current Chair of the Victorian Renal Hub Reference Group. She has over 20 years of experience in renal nursing, working across haemodialysis and peritoneal dialysis both in London and Melbourne.

## Dr Katherine Barraclough

Nephrologist, Melbourne Health  
Chair Environmental Sustainability Special  
Interest Group (ESSIG)



### Biography

Katherine Barraclough is a nephrologist at the Royal Melbourne Hospital. She strongly believes that in addition to providing personal clinical care, health professionals have a central role to play in ensuring that healthy, stable environments exist for future generations. To this end, she currently chairs the Victorian Nephrology Environmental Sustainability Special Interest Group, a working group of the Victorian Renal Clinical Network, and the Green Nephrology Action Team, a working group of the Australia New Zealand Society of Nephrology, both of which are committed to improving the environmental profile of renal care delivery. She is also an active member of Doctors for the Environment Australia, an organisation that promotes good health through care of the environment.

## Prof Peter G Kerr

Professor and Director of Nephrology,  
Monash Medical Centre  
and Monash University



### Biography

Peter Kerr completed his undergraduate medicine at Monash University in Melbourne [1980] and completed Nephrology training in Melbourne predominantly under Prof Bob Atkins (past ISN President). He went on to complete a laboratory PhD in transplant immunology but then moved more to haemodialysis. He went on to complete a year studying HD in Montpellier, France. Since then he has been actively involved in all aspects of Dialysis, especially haemodialysis.

Peter is a strong advocate for home based dialytic therapies and is committed to building and sustaining Nephrology in the Asian-Pacific region. He has been Editor-in-Chief of the Asian-Pacific journal Nephrology since 2010. He was also a Council member of the ISN since 2009 and is Chair of the Local Organising Committee for the World Congress of Nephrology, to be held in Melbourne, April 2019.

## Dr Peter Mount

Nephrologist, Austin Health



### Biography

Dr Peter Mount is a nephrologist at Austin Health. He is a member of the VRCN KPI working group. At Austin Health he is deputy director of nephrology, clinical lead in haemodialysis, head of clinical trials, clinical lead for nephrology business and quality meeting, and represents nephrology on the CSU executive safety, quality and risk committee. His clinical interests include haemodialysis and kidney transplantation.

## Ms Jenny Soding

Renal Business Manager, Bendigo Health



### Biography

Jenny has enjoyed a range of roles in renal healthcare, including public, private and government sectors and has had the privilege of working with and learning from some of the greatest leaders and mentors in the Nephrology specialty. Jenny recently joined Assoc. Prof. Chris Holmes and the team at Bendigo Health at a time when both the hospital and renal service are strongly focussed on the provision of world class health care services in the regional setting.

## Ms Gwen Still

Associate Nurse Unit Manager,  
St Vincent's Health

Deputy Chair, Environmental Sustainability  
Special Interest Group (ESSIG)



### Biography

Gwen has been a registered Nurse since 2002. She trained at University of Technology of Sydney, and has worked in Renal healthcare since 2004.

Gwen is currently Associate Nurse Unit Manager at St Vincent's Dialysis. She has been a member of VRCN, Environmental Sustainability Special Interest Group (ESSIG) since November 2015.

## A Prof Christine Somerville

Nephrologist, Director Department  
of Renal Medicine,  
Supervisor of HMO Training,  
Barwon Health

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### Biography

Christine trained in nephrology and post graduate studies at St Vincent's Hospital Melbourne.

She has been a nephrologist (VMO) at Barwon Health since 1994.

Christine is Director of Department of Renal Medicine at Barwon Health since 2011.

Her interests at Barwon Health include nocturnal home haemodialysis, the support of home dialysis patients, the role of excessive ultrafiltration in morbidity and mortality on haemodialysis and "green" dialysis.



## Prof John Agar

Nephrologist, Barwon Health  
Conjoint Clinical Professor of  
Medicine (Nephrology) University  
Hospital Geelong and Deakin  
University School of Medicine,  
MBBS, FRACP, FRCP



### Biography

John Agar is Conjoint Professor of Medicine and Consultant Nephrologist at Deakin University School of Medicine and University Hospital Geelong. In addition to his commitment to grow and improve home dialysis therapies - in particular, home nocturnal haemodialysis - he has been a long-time advocate for improved resource management, better environmental practices, and a lesser carbon footprint in dialysis through the use of recycled and/or re-used reject water, and the augmentation of dialysis power demands from power renewables. His ultimate dream is to complete the water-power-waste eco-loop by finding a better way to manage the mountainous waste generation of dialysis.

### Co-authors

- Katherine Barraclough, Nephrologist, Melbourne Health
- Riyadh AL-Ameri, Senior Lecturer, School of Engineering, Deakin University

## Abstract: Turning Dialysis Waste to Resource: An Examination of the Utility of Dialysis Plastic Waste as an Incorporative Product in Concrete

**Background:** Estimates suggest that global plastic waste generation from haemodialysis exceeds 900,000 tonnes annually. Currently, most of this ends up as infectious waste that requires chemical disinfection or incineration prior to disposal, at significant financial and environmental cost. SteriMed 700 is a novel waste management system that sterilises and reduces the volume of medical waste. This significantly reduces waste disposal costs and creates opportunity for end-product reuse.

**Aims:** To investigate the feasibility of using shredded sterile dialysis waste plastic as an incorporative product in concrete.

**Methods:** Manually shredded polypropylene plastic was added to concrete at concentrations of 0.5% and 1% of by weight of concrete. The concrete-plastic mixes were tested for compressive and tensile strength. A SteriMed 700 waste-processing machine located in the Fresenius Medical Care Alice Springs Dialysis Unit was used to sterilise and shred plastic consumables used for haemodialysis treatments. Shredded hard, soft and mixed plastics were added to concrete mixes at a concentration of 1% by weight of concrete. The concrete-plastic mixes were then tested for compressive strength and water absorption.

**Results:** The addition of polypropylene fibers to concrete had no impact on compressive strength but led to a minor increase in tensile strength (0.8% and 8% increase, when 0.5% and 1% of polypropylene fibers were added, respectively). Improved bonding of plastic with the concrete matrix was observed when finer plastic fibres were used. The addition of 1% SteriMed shredded dialysis waste plastic produced a slight reduction in compressive strength (9.9%, 16.9% and 11.5% when hard, soft and mixed plastics were added, respectively). The initial rate of water absorption by the concrete was unchanged after the addition of plastic dialysis waste; however, the secondary rate of water absorption decreased by an average of 30% across the three plastic-concrete mixes.

**Discussion:** The percentage of the plastic waste in the concrete mix and the shape of the plastic fibers have a significant influence on the final characteristics of the concrete. The minimal loss of compressive strength observed with the addition of dialysis waste plastic to concrete is unlikely to impact the overall behavior of the concrete. The 30% decrease water absorption is significant and would be expected to improve resistance of concrete to corrosion.

**Conclusion:** The addition of dialysis waste plastic to concrete led to a significant improvement in concrete characteristics that may lead to better long-term quality and durability. Further testing of this is underway.

## Ms Jilly Bone

Clinical Nurse Specialist,  
Eastern Health

Project Manager for the  
POISE Project which received  
a VRCN 2016 Grant.



### Biography

Jilly Bones' nursing career has spanned 21 years, starting in Nottingham in the UK. Working in specialist ICU, renal transplant and renal high dependency in Guys and St Thomas' London. She travelled back and forth to Australia before settling in Melbourne and began diversifying her career working in chronic pain Management and IVF. She returned back to the sphere of renal commencing work for Eastern Health in 2008 as an RN then moving into nurse education. Having developed a passion for challenges and change, diversifying once more into project management for Eastern Health Integrated Renal Service; POISE project.

### Co-authors

- Dr Louis Huang, Nephrologist Home Dialysis Service, Eastern Health
- Peta McLean, Clinical Service Manager, Eastern Health

## Abstract: Pathway Options to Improve Supportive care in ESKD. The POISE project

**Background:** In recent years, there has been a significant rise in the number of peritoneal dialysis (PD) patients in Victoria; however, the technique survival of these patients has proven limited. Concurrently, the number of failing transplant patients continues to increase, and conservative care is an increasingly accepted pathway for patients reaching end-stage kidney disease (ESKD). The POISE project is a pilot study examining the most appropriate care pathway for these patient groups with the underlying principles of most appropriate care while maintaining patient choice and independence.

**Aims:** Utilising techniques such as hybrid dialysis, a gradual introduction to home haemodialysis and better health awareness, the intent of the POISE program is to extend the technique survival of current PD patients and gradually transition failing transplant patients to home-based therapies. Hybrid dialysis will maintain sustainable home dialysis and promote independence, while providing a pathway for home haemodialysis training. Efficient use of hybrid dialysis will promote a 3:1 ratio in satellite units for those patients unable to achieve home haemodialysis. Early recognition of failing transplants will enable sufficient time and education to learn home dialysis or consider other care pathways. And a focussed supportive care pathway will identify patients better suited to conservative care earlier, and enable measured education and improved family and patient cognizance of treatment options.

**Methods:** The program comprises a system to identify failure of renal replacement therapy (RRT). Inclusion criteria are as follow: Failing PD patients (Kt/V <1.7/week or creatinine clearance <65 L/week), failing transplants (creatinine >300 µmol/L), and near-ESKD (eGFR <20mL/min). Once identified, patients are assessed, referred and discussed at a monthly multi-disciplinary team (MDT, including the home dialysis nurse unit manager, social worker, dietitian, psychologist, nurse practitioner and nephrologist) meeting to appraise the patient's capacity for either hybrid dialysis (using supplementary haemodialysis while resting the peritoneal membrane), home-based dialysis re-entry, or supportive care for those patients considered either unsuitable for continued dialysis or expressing a wish not to proceed with alternative RRT options. This is followed by a timely meeting with the patient (and family) where options are discussed in a supported environment.

**Results:** Twenty-three patients have been identified by inclusion criteria, 12 of whom have been discharged from POISE after receiving a transplant, dying, or transitioning to satellite dialysis. Eleven patients (11 PD, 1 transplant, and 0 CKD) remain under assessment and are discussed regularly with the MDT. Seven patients have used hybrid dialysis, extending their time on PD from between 1-7 months with one patient returning to PD from Hybrid. Private and supportive physician-led meetings engage the patients in making decisions for their care.

**Conclusion:** Due for completion in May 2018, there is already some evidence that timely intervention in these patient groups can delay PD technique failure, and enable appropriate therapy post-transplant and timely consideration of conservative care.

## Dr Kimberley Crawford

Research Fellow, Monash University

Project Manager for the development of guidelines for adolescents and young adults with CKD transitioning to adult care Project which received a VRCN 2016 Grant.



### Biography

Dr Crawford is a Research Fellow in the Faculty of Medicine, Nursing and Health Sciences at Monash University. Her research interests include medication adherence, chronic kidney disease and improving patient care and outcomes. Her present research is focusing on evaluating the transition process, as an adolescent moves from paediatric to adult care, in partnership with four tertiary hospitals in Victoria. She has a broad quantitative, qualitative and mixed method research knowledge.

### Co-authors

- Dr Jac Kee Low, Research Assistant, Monash University
- Professor Elizabeth Manias, Research Professor, Deakin University
- Associate Professor Allison Williams, Adjunct Associate Professor, Monash University

### Abstract: Exploring the transition of adolescents from paediatric to adult care

**Background:** A challenging phase for adolescents with chronic kidney disease (CKD) is the transition from paediatric to adult care. This process involves a major switch in the model of care provided from a supervised to a more self-directed management of the health condition.

**Aims:** The aim of this study was to evaluate the transition process from the perspective of adolescents with CKD, their parents and health professionals who care for them.

**Methods:** A descriptive exploratory design was utilised. In-depth interviews were conducted with adolescents in the transition process, with those that had transferred and with their parents. Participants were recruited in 2017 from four tertiary hospitals in Victoria that specialise in CKD treatment. Focus groups were conducted at each hospital with multi-disciplinary health professionals responsible for the care of CKD patients in a paediatric and adult setting. Interviews and focus groups were transcribed and preliminary analysis conducted.

**Results:** To date, 16 adolescents have been interviewed; with a mean age of 19.2 years, 6 were female and 11 had transferred to adult care, the mean time since transfer was 22 months. Seven mothers were also interviewed, 4 had a child that had transferred to adult care. The transition process was difficult for the mothers, who explained that in the paediatric hospital the staff knew them by name, they trusted the medical advice and found it comforting working with the same doctors. The mothers were concerned that the care in the adult clinic would not be as thorough. The adolescents expressed less concern about transferring to adult care, however, 2 admitted to non-adherence following transfer. Focus groups involved a team of multi-disciplinary health professionals with a mean of 15.4 years of experience working in nephrology. Health professionals recognised that transition occurred at an age where many patients didn't understand the risk of their actions. and there needed to be a balance between encouraging the adolescent to become independent but not excluding the parents completely.

**Discussion:** This qualitative study combined the perspectives of three important stakeholders in transitional care to evaluate the transition process across four Victorian hospitals. Results indicate that the transition process needs to be carefully managed for both the adolescent and the parent to achieve best patient outcomes.

**Conclusion:** Ongoing engagement of adolescents with the healthcare system is necessary to enhance patient wellbeing, autonomy and adherence to treatment resulting in improved outcomes for the patient, family and the healthcare system.

## Dr Kathryn Ducharlet

Nephrologist, St Vincent's Health  
Project Manager for the RSC of patients  
with advanced CKD: experience, attitudes  
and approach of Nephrologists and  
Nephrology trainees Project which  
received a VRCN 2016 Grant



### Biography

Kathryn is a Nephrologist at St Vincent's hospital, with clinical and research interests that include Chronic Kidney Disease, Dialysis, symptom management and Renal Supportive Care. She is a graduate student at the University of Melbourne and her research aims to determine current clinical practice and perceptions of Renal Supportive Care with the aim to improve and integrate supportive care service delivery within the existing health care systems. Kathryn has undergraduate degrees in Science (Psychology) and Commerce (Economics) at Melbourne University prior to starting her career in Medicine.

### Co-authors

- Hilton Gock, Associate Professor, St Vincent's Hospital Melbourne
- Jennifer Philip, Professor, Chair of Palliative Medicine, Melbourne University, VCCC

## Abstract: Renal Supportive Care in Victoria: current experience

**Background:** Patients with advanced Chronic Kidney Disease (CKD) have a high burden of physical and psychosocial morbidity, frequently in the context of frailty and limited prognosis. Understanding the role, timing and application of Renal Supportive Care (RSC) and palliative care for patients with advanced CKD is an increasingly important part of Nephrology care.

**Aim:** To explore current practice, experiences and understanding of RSC, Palliative Care and end-of-life care by renal clinicians.

**Methods:** An exploratory qualitative study was performed across 5 Victorian metropolitan and regional hospitals. Focus groups and semi-structured interviews with renal clinicians were audio recorded and transcribed and subjected to thematic analysis by two independent researchers.

**Results:** 58 participants were recruited; 35 nurses (3 nurse practitioners, 2 nurse educators, 5 acute ward, 25 dialysis) and 23 medical staff (5 advanced trainees, 18 Nephrologists) with clinical experience ranging between 0.5 to 40 years.

Four preliminary major themes emerged:

- 1) Current perceptions and practices of RSC vary substantially. However; overall, RSC is identified as more acceptable for patients than palliative care.
- 2) Compared with dialysis, conservatively managed patients have a much less defined pathway of care with fewer available resources compared with dialysis or transplantation.
- 3) Dialysis and conservatively managed patients have few, readily identified transition points to herald the final phase of life and recognition is therefore inconsistent.
- 4) Intensification or continuation of futile treatments at the end-of-life can be a cause of conflict and disquiet for patients, families and treating teams.

**Discussion:** This study was designed to understand service provision, clinician attitudes and experience of RSC and palliative care within existing health care systems. In Nephrology, there is increasing recognition of symptom burden, impaired quality of life and complex treatment decision making in patients with advanced CKD. RSC and palliative care may benefit select patients in terms of quality and potentially quantity of life. However, at present there are no clinical standards to inform provision of these services. This study has identified issues to be considered for future research, clinical best practise and service development.

**Conclusions:** RSC offers potential to enhance patient care in a rapidly expanding group of CKD patients. The development of services needs to interface with and be responsive to current nephrology systems. This research aids translation of emerging evidence into clinical practice by understanding the scope of clinical need. There are substantial opportunities for innovation and collaboration between health care providers across Victoria to improve patient outcomes in this area.



## Ms Caitlin Hand

Intern Pharmacist, Alfred Health



### Biography

Caitlin is a recent graduate of Monash University, having completed her Bachelor of Pharmacy (with Honors) in 2016. She is currently undertaking her Graduate Certificate in Pharmacy Practice (Internship) at the Alfred Hospital, while conducting a retrospective cohort study in one of the facility's clinical specialties - solid organ (renal) transplants.

### Co-authors

- Catherine Brown, Renal Senior Clinical Pharmacist, Alfred Health
- Dr Scott Wilson, Renal Consultant, Alfred Health

### Abstract: Review of Tacrolimus Dosing Post Renal Transplant: A Retrospective Cohort Study

**Background:** Appropriate dosing and close monitoring of immunosuppressant therapy, including calcineurin inhibitors, is fundamental in determining the success of organ transplants. Recent trends at our institution have indicated that significantly higher plasma concentrations of tacrolimus have been experienced in new renal transplant patients than the institution's target of 8-10µg/L.

**Aims:** To compare initial doses and subsequent plasma trough concentrations (C<sub>0</sub>) of tacrolimus with those one-month post-transplant, to inform future guidelines and improve patient outcomes.

**Methods:** This retrospective, single-centre cohort study examined new renal transplant patients prescribed tacrolimus as part of their post-transplant immunosuppression regimen between January 2013 and December 2016. Initial tacrolimus doses (mg/kg/day) were directly compared to one month post-transplant doses, alongside subsequent C<sub>0</sub> levels.

**Results:** 109 patients were identified, an interim analysis of the first twenty-three new renal transplant recipients is included [mean age 51.4 ± 13.9 years; 74% male; 61% deceased donor transplant]. The initial mean dose (± SD) of tacrolimus received was 0.126 ± 0.029mg/kg/day, compared to 0.090 ± 0.060mg/kg/day at 1-month post-transplant [p= 0.017]. Mean tacrolimus C<sub>0</sub> levels were 16.5 ± 9.1µg/L immediately and 8.3 ± 2.3µg/L one-month post-transplant. The average difference in dose was 0.036mg/kg/day [95% CI=0.007 to 0.065].

**Conclusion:** These early results suggest that tacrolimus is being initiated at doses higher than necessary to reach the recommended therapeutic range, supporting lower starting doses which may reduce the risk of toxicity and improve graft functional recovery.

## Prof Steve Holt

Victorian Renal Clinical Network, Chair and Lead

Director of Nephrology, The Royal Melbourne Hospital

Professor of Medicine, The University of Melbourne

(BSc MBBS PhD FRCP FRACP)



### Biography

Steve is Director of Nephrology at The Royal Melbourne Hospital and Professor of Medicine at The University of Melbourne. He is currently the Lead for the Victorian Renal Clinical Network.

The Royal Melbourne hospital provides secondary, tertiary and quaternary nephrology services and supports 23 satellite dialysis units and a large home dialysis population. The RMH renal transplant programme is one of the largest in Australia.

Steve has been a researcher for over 20 years and during this time he has established clinical and laboratory research in the UK and in Australia. Steve Holt has international expertise in dialysis and mineral trafficking. He has >140 publications and has been instrumental in writing national/international guidelines and been on the organising committee and speaker at a number of international/national conferences. He is on the editorial board of Nephrology and is a regular reviewer for many journals.

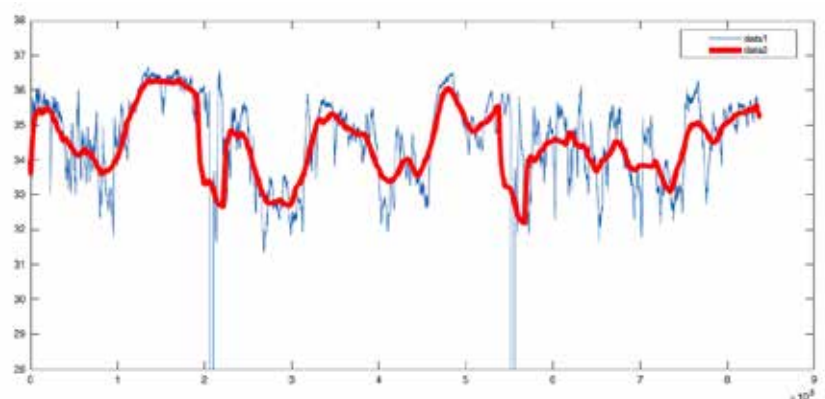
### Abstract: Patient Early-warning Wearables: A Proof of concept study in normal and renal patients

**Background:** Sepsis in renal patients is a significant issue and is associated with high morbidity and mortality, in addition to consuming large amounts of healthcare resources. Evidence suggests that treating infection early is associated with significant improvement in outcomes and a reduction in resource utilization. Temperature monitoring can now be performed using wearable technology, however no data exist as to baseline temperature profiles in normal or renal patients, using such continuous monitoring techniques. We want to understand temperature patterns that predict impending sepsis, before it becomes clinically overt

**Aims:** Collect and examine temperature profiles of volunteers and renal patients to study the effect of renal failure on temperature variation. Compare profiles of patients with and without inflammation or infection to determine patterns that may be useful in the early detection of sepsis using wearable technology.

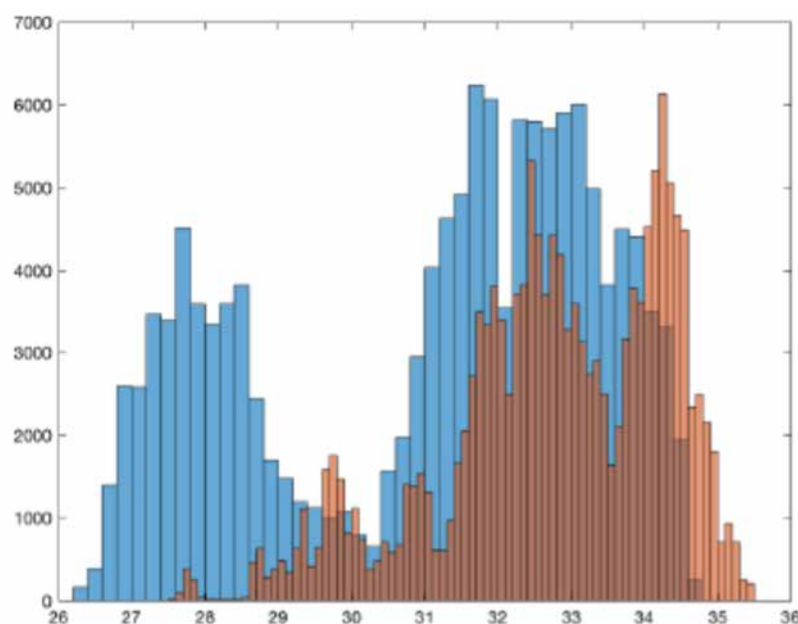
**Methods:** We used the Empatica E4 (Empatica, Milan) watch to collect data from normal individuals and those with renal impairment. As a test for an inflammatory response we examined the effect of the flu vaccine on the temperature profiles of normal individuals. Data was cleaned and examined in MatLab (Mathworks inc, US).

**Results:** We show how normal wrist temperature is cyclical, shown here over ~2.5 days. Blue - actual recorded temperature. Red- the smoothed signal.



## Prof Steve Holt (cont)

There is a loss in the degree of temperature fluctuation in normal individuals, and a change in the median temperature after receiving a vaccination that elicits an inflammatory response in normal individuals. As shown in the temperature frequency distribution below (blue pre- vaccination, brown, post vaccination).



### Co-authors

- Jennifer Yo, Renal Registrar,  
The Royal Melbourne Hospital,  
Grattan St, Parkville, Melbourne
- Leon Worth, Consultant in Infectious  
disease, Victorian Healthcare Associated  
Infection Surveillance System (VICNISS).  
Doherty Institute
- Frank Volpato, Software Systems  
Engineer
- Steve Christov, Guidance Director –  
Operations & Business Development,  
National Centre for Antimicrobial  
Stewardship (NCAS), Doherty Institute

**Discussion:** There is sparse data on temperature profiles of hospitalised patients. The only data comes from the ICU setting which is a very controlled and artificial environment. There are no continuous temperature data on normal or hospitalised individuals and a paucity of research examining the effects of dialysis and immunosuppression on temperature patterns. The initial results from our studies look promising and we are continuing to collect and analyse this data.

**Conclusion:** We are excited by the possibilities that this technology presents. We are examining how dialysis affects normal temperature profiles, and how we might apply diagnostic rules to real time data to alert the user to impending infection.



## Ms Vanessa Inserra

Clinical Pharmacist, Alfred Health



### Biography

Vanessa is a clinical pharmacist with three years of experience in hospital pharmacy. She is currently working in the renal unit as well as with the endocrinology and rheumatology departments. Her work covers inpatient clinical work and outpatient work with renal transplant, haemodialysis and peritoneal dialysis patients.

### Co-authors

- Catherine Brown, Acting Senior Renal Pharmacist, Alfred Health
- Dr Joel Smith, Registrar, Alfred Health
- Odette Youdell, Senior Scientist Biochemistry, Alfred Health
- Adam Cunningham, Senior Respiratory Pharmacist, Alfred Health
- Dr Scott Wilson, Consultant Renal Physician, Alfred Health

### Abstract: Tobramycin clearance in a cystic fibrosis patient on haemodialysis: implications for dosing

**Background:** In the era of conventional high-flux haemodialysis (HF-HD), standardised dosing practices for tobramycin (or any aminoglycoside) are not established for the dialysis dependent renal failure population – largely as a function of unknown extracorporeal clearance kinetics.

**Aims:** To analyse dialytic clearance of tobramycin in a patient with cystic fibrosis undergoing high-flux haemodialysis to guide subsequent dosing.

**Methods:** Following a 120mg intravenous dose of tobramycin 5 days prior, a 54 year old male with cystic fibrosis and end-stage renal disease recorded a plasma drug level of 2.2mg/L at 6pm the night before dialysis. He underwent a 2.5 hour HF-HD treatment with a standard commercial polysulfone membrane. Paired serum and spent (effluent) dialysate tobramycin levels were taken at time 0 (pre-dialysis), 5 minutes (intra-dialysis), 1hr (intra-dialysis), 2hrs (intradialysis) and at 2.5hrs (post-wash back).

**Results:** Tobramycin plasma concentrations decreased over the treatment period (time 0: 1.9mg/L, 5 minutes: 1.8mg/L, 1 hour: 1.3mg/L, 2 hours: 1.1mg/L (pre-wash back), 2.5 hours: 1mg/L (post-wash back)).

**Discussion:** Tobramycin was 50% cleared by haemodialysis, with a half-life of three hours and at an eliminate rate following first order kinetics. Given known distribution kinetics of tobramycin the reduction in level is likely a function of dialytic clearance. Tobramycin levels in dialysate flagged positive and were found to be quantitatively inaccurate, due to the different fluid composition of the dialysate on the serum-calibrated assay. Further investigation of post-dialysis plasma levels are required to consider the potential for rebound increase in plasma levels post-HD and confirmatory dialysate assays for clearance will require specific pre-test calibration.

**Conclusion:** These results demonstrate tobramycin clearance for a cystic fibrosis patient follows first order kinetics and is estimated to be 50% cleared by HF-HD. This suggests that intra-dialysis plasma levels may be tested to determine the next safe time for tobramycin dosing.

## Ms Kerry Linton

Renal Nurse Practitioner, Monash Health  
Project Manager for the Collaborative  
Renal Supportive Care Project which  
received a VRCN 2016 Grant.



### Biography

Kerry Linton is a Nurse Practitioner working in the Department of Nephrology at Monash Health, Clayton. She completed her Master of Nursing degree in 2010 at Deakin University and was endorsed as a Nurse Practitioner in 2012. Since 1989, Kerry has worked across a range of areas in nephrology, including acute and chronic haemodialysis, and home therapies.

Her current role as an NP in the renal service includes management of patients in the Monash Health satellite haemodialysis units, and running a Nurse Practitioner led CKD Clinic at Dandenong, which offers an individualised assessment and education service for people with kidney disease.

Kerry has a particular interest in renal supportive care for people choosing not to have renal replacement therapy and has worked to develop a renal supportive care service at Monash Health.

She continues to represent Monash at the Renal Clinical Health Network on matters related to renal supportive care and is currently undertaking further education in palliative care.

### Abstract: Supportive care is about more than kidneys!

**Background:** There has been a rise in recognition of renal supportive care as a branch of nephrology care as well as recognition that patients requiring supportive care for other chronic illnesses may have similar needs. Siloed care by disease specialty may not always meet the needs of patients with more than one chronic condition.

**Aim:** To evaluate the care of people with end stage kidney disease who have opted for supportive care, provided as part of a multidisciplinary, multispecialty supportive care clinic.

**Methods:** A clinic has been developed for people with end stage chronic disease, including renal, heart or respiratory failure as well as multiple other comorbid conditions. The service combines nephrology, chronic heart failure, general medicine and palliative care practitioners, nurse practitioners, social workers and community agencies. Continuity of care for renal patients throughout the full trajectory of their illness is of primary concern. Several different patient and carer reported outcome measures, including bereavement support, will be used to evaluate the service.

**Results:** It is anticipated that results will improve knowledge of timely identification and referral to community support services. Early identification of functional decline, symptom burden, carer burden will support proactive interventions that are effective and sustainable.

**Conclusion:** A combined supportive service will bring together the expertise of palliative care and chronic disease streams while providing a streamlined experience for patients with life limiting conditions and support for their carers'.

## Dr Nicole Lioufas

Third year advanced trainee in nephrology, Western Health

Assisting Dr Sandra Crikis, Project Manager for the SCoup-HOME

DIALYSIS-VIC: Standardising Care, Outcomes, Uptake and Persistence  
in HOME DIALYSIS in Victoria which received a VRCN 2016 Grant.



### Biography

Nicole is a third year renal advanced trainee at Western Health, completing her previous training at the Royal Hobart and Royal Melbourne Hospitals. She is a member of the ANZDATA patient reported outcome measures group. Her interests include dialysis, particularly home therapies, and obstetric medicine

### Co-authors

- Dr Sandra Crikis, Home Therapies Service Consultant, Western Health
- A/Prof Craig Nelson, Head of Nephrology, Western Health

### Abstract: Identification of discrepant practices in Victoria Peritoneal Dialysis (PD) Peritonitis Protocols that may impact on the variability in the culture negative rate of PD effluent samples

**Context:** Infection in particular PD peritonitis is a cause of technique failure in peritoneal dialysis patients. It has been reported that inconsistencies in the process of care to prevent infection in PD patients may play a role and it has been postulated that poor PD outcomes may be related to significant deviations from ISPD or units' own guidelines.

**Objectives:** Plan to review peritoneal dialysis (PD) peritonitis protocols across Victorian Home Dialysis HUBS, and compare to current best practice and identify any deviations. Plan to ensure robust /detailed protocol pathways are implemented to improve correct diagnosis and appropriate management.

**Key messages:** We identified 9 major differences across Victorian peritoneal hub with regards to their peritonitis management protocol including:

- 1) The definition of PD peritonitis used by some hubs as defined in their peritonitis management protocol varied from those recommended by the International Society for Peritoneal dialysis - ISPD has provided specific diagnostic criteria for PD peritonitis to calculate peritonitis rates for the purpose of benchmarking across units. Of protocols examined only one Victorian renal hub defined peritonitis by the ISPD guideline definition.
- 2) Effluent collection method and subsequent microbiological processing –Review of the available protocols revealed Effluent collection and processing techniques varied with some found to be discrepant with best reported practices to yield a low culture negative rate. ISPD also recommend best practice to achieve a culture negative rate of <20%. A disparate culture negative rate across hospitals was also identified after analysis of ANZDATA. Given the importance of prompt and accurate diagnosis and treatment of peritonitis and the significant role identification of the pathogenic organism plays in minimising adverse outcome for the patient it is imperative that best practices are known, and widely disseminated within each renal hub.

**Conclusion:** We hope to assess if different practices in effluent collection and processing across Victorian pathology laboratories play a role in the discrepant culture negative rates of Victorian Peritoneal Dialysis hubs.

## Ms Jac Kee Low

Research Officer, Monash University



### Biography

Jac Kee Low is a research officer at Monash University, who received her PhD in June 2017. Her dissertation entitled "Improving Medication Adherence in Kidney Transplantation" focuses on developing person-centred approach with an aim to improve adherence in kidney transplant recipients. She will continue to focus on utilising patient experience to improve patient safety.

### Co-authors

- Elizabeth Manias, Research Professor, Deakin University
- Kimberley Crawford, Research Fellow, Monash University
- Rowan Walker, Director of Nephrology, Alfred Health
- William R Mulley, Nephrologist, Monash Health
- Nigel D Toussaint, Deputy Director, Dept Nephrology, Melbourne Health
- Michael Dooley, Director of Pharmacy, Alfred Health
- Elaine Kennedy, Renal Transplant Coordinator, Monash Health
- Catherine L Smith, Biostatistician, Monash University
- Michelle Nalder, Pharmacist, Melbourne Health
- Doris Yip, Renal Transplant Coordinator, Melbourne Health
- Francesco Ierino, Director of Nephrology, St Vincent's Hospital
- David Goodman, Nephrologist, St Vincent's Hospital
- Kim Mullins, Renal Transplant Coordinator, St Vincent's Hospital
- Allison Williams, Research Associate Professor, Monash University

## Abstract: Improving Medication Adherence in Kidney Transplantation (IMAKT)

**Background:** Medication adherence is paramount for the survival of kidney transplants and yet, 1 in 3 kidney transplant recipients are non-adherent.

**Aims:** To improve medication adherence in kidney transplantation, with a focus on immunosuppressive medications.

**Methods:** The research was conducted in Victoria, Australia, involving all renal units offering adult kidney transplantation. Phase One of the study involved analysing the opinions of 25 patients with end-stage kidney disease, 29 staff involved in kidney transplant care, and 1 consumer representative on factors affecting medication adherence. Sequentially, their views were used in Phase Two in the development of a 3-month multidimensional intervention, underpinned by the Theory of Planned Behaviour. The effectiveness of the intervention in supporting long-term adherence to immunosuppressive medications was tested in Phase Three through a 12-month randomised controlled trial. Newly transplanted patients were recruited and randomly assigned to the intervention or control group (1:1). Their immunosuppressive medication adherence was monitored using multiple methods: 1) primary – electronic monitoring device, Medication Event Monitoring System (MEMS), 2) surrogate – prescription refill record and immunosuppressive assay, and 3) self-report – Basel Assessment of Adherence to Immunosuppressive Medication Scale (BAASIS®).

**Results:** Seventy-two participants consented to participate in the Phase Three trial. The primary measure of medication adherence, the MEMS, was underutilised by 42% of participants. Whilst no significant differences were detected between groups across time in the MEMS results from 3 to 12 months, self-reported adherence to immunosuppressive medication revealed that more participants were adherent ( $\geq 8\%$ ) in the intervention group than the control group. The percentage of adherent participants decreased significantly between baseline and 3, 6, 9 and 12 months in the control group ( $p$ -values  $< 0.001$ ) whilst no significant difference was found in the intervention group. More participants from the intervention group were adherent to the timing of immunosuppressive medication intake than the control group during the 9-month follow-up period.

**Discussion:** The first two phases demonstrated the feasibility of developing an intervention incorporating the perspectives of key stakeholders to inform the development of an intervention. The results derived from the self-reported adherence suggests that the intervention has the potential to assist in promoting medication adherence but improvement is still required to improve its efficacy.

**Conclusion:** The findings can be used to help improve the medication education in new transplant patients and prevent transplant loss due to non-adherence.



## Ms Jade Ryan

Dialysis Coordinator, Nurse Practitioner  
Candidate, Royal Melbourne Hospital  
Kidney Care Service



### Biography

Jade completed a Bachelor of Nursing at the Australian Catholic University in 2009 and since then has worked predominantly as a renal nurse, originally at St Vincent's Hospital in Melbourne and more recently within the Royal Melbourne Hospital Kidney Care Service. This year she has commenced a Masters of Advanced Nursing Practice (Nurse Practitioner) through Melbourne University and she currently holds the position of Dialysis Coordinator Nurse Practitioner Candidate for the Royal Melbourne Hospital.

Jade is passionate about contributing to the development of an environmentally sustainable healthcare system. She does this through being a Melbourne Health Green Champion and a member of the Victorian Environmental Sustainability Special Interest Group, a working group of the Victorian Renal Clinical Network, Department of Health and Human Services.

### Co-authors

- Sarah Malone, Clinical Nurse Specialist, Bendigo Health
- Katherine Barraclough, Nephrologist, Melbourne Health

## Abstract: Comparison of the Environmental and Financial Costs of the Various Methods Available for Draining and Disposing of Automated Peritoneal Dialysis Effluent

**Context:** There are 3 methods available for draining and disposing of effluent generated from Automated Peritoneal Dialysis (APD). The first involves draining effluent into a plastic drain bag which is placed in the bin once drainage is complete. Alternatively, for those with an accessible drain close by, a drain line can be used to drain effluent directly into a sink or base of shower. A third option involves draining effluent into a reusable 25L plastic drum with a tap, which can then be emptied into a shower or sink. The drum must be rinsed with water after each use, and once weekly with a capful of bleach.

**Objectives:** To compare the amount of plastic waste generated and the cost of the different options available for draining and disposing of APD effluent.

**Key messages:** Over a month, use of a drain bag will generate a considerable amount of unrecyclable plastic waste, at significant cost (see Table). Use of a drain line can reduce amount of waste and lower costs, while use of a reusable drum ensures no waste is generated from effluent drainage and significant cost savings.

Table 1: Comparison of the weight of plastic waste generated and the cost of the different drain options.

| Drain Option                      | Total weight of waste per month          | Cost per month            |
|-----------------------------------|--|---------------------------|
| Baxter Drain Bag                  | 6kg                                      | \$402.30                  |
| Baxter High Dose using Drain Bag* | 12.6kg                                   | \$936.30                  |
| Fresenius Drain Bag               | 9kg**                                    | \$420***                  |
| Baxter Drain Line (3.65m)         | 2.5kg                                    | \$59.70                   |
| Fresenius Drain Line (12.3m)      | 9.75kg****                               | \$150***                  |
| Reusable drum                     | Nil (1.2kg when drum no longer required) | One off cost of \$30-\$40 |

\*For those on Baxter APD receiving High Dose therapy and draining >15L per night, an extra bag and a connector are required, more than doubling waste weight and cost.

\*\*For those using Fresenius APD, two drainage bags are supplied to patients for each treatment regardless of APD dose or amount of effluent drained; thus, the 9kg refers to the amount of waste arising from disposal of 2 bags per night.

\*\*\*Costs paid if these items are purchased individually. However, the consumables required for Fresenius APD are typically purchased and supplied to patients as a 'bundle', so actual costs may be less.

\*\*\*\*Fresenius drain lines are longer than Baxter lines so the weight of waste generated when using these will be higher than if a Fresenius drain bag is used.

**Conclusion:** Use of a reusable plastic drum for collection of APD effluent results in less plastic waste and cost compared with the other methods available. These benefits should be considered when choosing the most appropriate drainage method for APD patients.

## Ms Maria Safe

Manager Renal Services, Dept Nephrology,  
Royal Melbourne Hospital



### Biography

Maria Safe began her renal career as a dialysis nurse at St Vincents Hospital during the 90s. Since then she has worked at several health services in a clinical and business management capacity; and also had a stint working within the private sector. Maria was the Manager of the Victorian Renal Health Network for 3 years and has a very good understanding of the complexities of Victorian renal service delivery model from a clinical, financial and health policy perspective. Her current role is the manager of the renal services of the Royal Melbourne Hospital.

### Co-authors

- Elaine Sanders, Nurse Practitioner Candidate, The Royal Melbourne Hospital
- Lambrina Likouresis, Regional Clinical Nurse Educator, The Royal Melbourne Hospital
- Janice Picking, Nephworks Senior Data Manager, The Royal Melbourne Hospital
- Steve Holt, Director of Nephrology, The Royal Melbourne Hospital

### Abstract: Responding to the needs to regional and rural consumers with renal failure

**Context:** Delivering specialist renal failure and dialysis services in regional and rural Victoria continues to be a challenge. The distances and lack of specialists in regional areas means that expertise is concentrated in major centres. In order to support our regional and rural partners RMH Kidney Care has been investing in delocalisation of expert services and we present some of the work we are doing to try to improve access and education for our regional patients. Whilst we have not yet perfected these models we hope that the presentation of these ideas may stimulate debate on how best to look after regional and rural consumers.

**Objectives:** Improve access to nephrology expertise in regional and rural settings.

**Key messages:** We have invested in the training of 5 nurse practitioner candidates and have one nurse practitioner in post. We have provided enhanced education and training of regional satellite dialysis unit nurses, with good feedback. We have employed link nurses in key regional centres to enhance provision of home dialysis. We have invested in 6 new regional consultant clinics for general nephrology, transplantation and transplant education and dialysis. We have embraced technology to help us perform more clinics using telehealth, which have shown success for transplant and dialysis follow-up. We have recently created a registrar role to specifically improve response times for our regional and rural patients with medical queries. We have developed our computer system (Nephworks) to specifically obtain results from across the state and have algorithms to detect deterioration and alert us to changes in patient status. The system also contains real time data and prescription information. We have instigated studies of new technology to assess target weights and cardiovascular status of our patients non-invasively in order to make better decisions on dialysis prescriptions at a distance.

**Conclusion:** We need to do more to support our regional and rural workforce and patients. However we think that investing in workforce improvement and changing models of care as well as new technology will bring enhanced nephrology expertise nearer to country patients in the future.

# Ms Rosie Simmonds

Nurse Practitioner/Nurse Unit  
Manager, Barwon Health



## Biography

Rosie is a Nurse Practitioner, and the Nurse Unit Manager of the Home Therapies Unit at Barwon Health, University Hospital Geelong. She has worked in Renal Nursing for well over 20 years and is a strong advocate for home dialysis and for therapies that improve outcomes for our patients.

## Co-authors

- Hanna Millier, Clinical Nurse Specialist, Barwon Health
- Janeane Boddington, Associate Nurse Unit Manager, Barwon Health
- Vicki Smith, Vascular Access Nurse, Barwon Health

## Abstract: Improving patient outcomes with the use of portable ultrasound in a home haemodialysis population

**Background:** Home haemodialysis (HHD) has many advantages for the person with chronic kidney disease and for the health system as a whole. However, successful home haemodialysis is more often than not reliant on the patient both conquering their fears and becoming skilled in inserting two large needles into their arteriovenous fistula. Complications with self-cannulation can erode confidence, prolong training and ultimately be the cause of failed transition to HHD.

**Aim:** Point of Care (POC) ultrasound has been introduced into the Home Therapies Unit in the past 12 months with the ultimate aim of providing home haemodialysis patients with the increased knowledge and confidence they need when self-cannulating their AVF.

**Method:** POC-ultrasound is an adjunct to AVF assessment for both staff and patients. The portable, compact ultrasound features real-time 2D imaging and is simple to operate. Patients in the HTU are educated and trained in the use and care of the portable ultrasound using a specially designed training package. They are encouraged to use the ultrasound prior to cannulation to identify both the health of the AVF and possible areas for needle placement. Patients transitioning to home haemodialysis following training and those experiencing difficulties with cannulation at home are encouraged to take an ultrasound home for use in their own homes and /or attend the HTU to use the ultrasound for review of their AVF.

**Discussion:** POC-ultrasound enhances education and learning and readily engages the patient. It improves comprehension of the anatomy of the AVF and aids in identification of potential areas to cannulate and areas to avoid. It ultimately assists the patient to place the needle in the optimal position for a successful haemodialysis, building confidence and ability, and reducing anxiety. It has been our observation that for a number of our patients this has meant a reduced need for attendance to the HTU for assisted dialysis and reduced intervention overall.

**Conclusion:** The introduction of POC-ultrasound has resulted in an increase in successful cannulation in the home and potentially in a cost saving to the health service. It has allowed for better utilisation of the AVF as a whole and ultimately a better overall health outcome for the patient. POC-ultrasound provides skills and confidence, and empowers patients to participate and achieve success with their home haemodialysis.



## A Prof Leon Worth

Infectious diseases physician and  
clinical epidemiologist

MBBS, FRACP, Grad Dip Epi, PhD



### Biography

Associate Professor Leon Worth is an infectious diseases physician and clinical epidemiologist.

His research interests include monitoring and prevention of device-related bloodstream infections, bundle approaches for infection prevention, and infections in immunocompromised populations.

He provides medical lead to infection prevention departments in 2 large Victorian teaching hospitals.

As medical advisor to the Victorian Healthcare Associated Infection Surveillance System since 2007, he develops and validates healthcare infection surveillance strategies employed by all Victorian hospitals, including a network of dialysis centres.

Nationally, he is engaged in establishing standardised frameworks for equitable reporting of key healthcare-associated infections, through the National Healthcare Performance Authority and the Australian Commission on Safety and Quality in Health Care.

### Abstract: Standardised monitoring of infections and antimicrobial use in haemodialysis outpatients by a Victorian surveillance network (2008-2015)

**Background:** Haemodialysis patients are at high risk of infections related to vascular access devices as well as immune-compromise due to renal failure and other comorbidities. However, methods to measure safe care have not been widely implemented in Australian dialysis facilities.

**Aims:** To determine the burden of bloodstream and local access-related infections and prescribing patterns for intravenous antibiotics in Victorian haemodialysis outpatients.

**Methods:** A voluntary surveillance network was established, using secure web-based data handling and analysis/reporting by the Victorian Healthcare Associated Infection Surveillance System Coordinating Centre. Definitions for infection and antimicrobial starts were based upon methods employed by the CDC. Longitudinal mixed-effects Poisson regression was used to model time-trends.

**Results:** Forty-eight of 78 Victorian dialysis centres participated in the network between 2008 and 2015, with 3449 events reported over 78,826 patient-months. Rates of bloodstream infection, local infection and intravenous antimicrobial starts for tunnelled central lines were 2.60, 1.41, and 3.37 per 100 patient-months, respectively, with lower infection rates observed in patients with arteriovenous fistulae and arteriovenous grafts (Figure 1). *Staphylococcus aureus* was the most frequent pathogen, with methicillin-resistant isolates (MRSA) responsible for 14.0%. Access-related infections diminished significantly across all vascular-access modalities over time (3-4% risk reduction/year, Table 1), and increased antimicrobial administration was evident annually in patients with arteriovenous fistulae (Table 1). Vancomycin contributed nearly half of all antimicrobial starts consistently throughout the study period.

## A Prof Leon Worth (cont)

Figure 1. Haemodialysis event rates according to vascular access category, 2008-2015

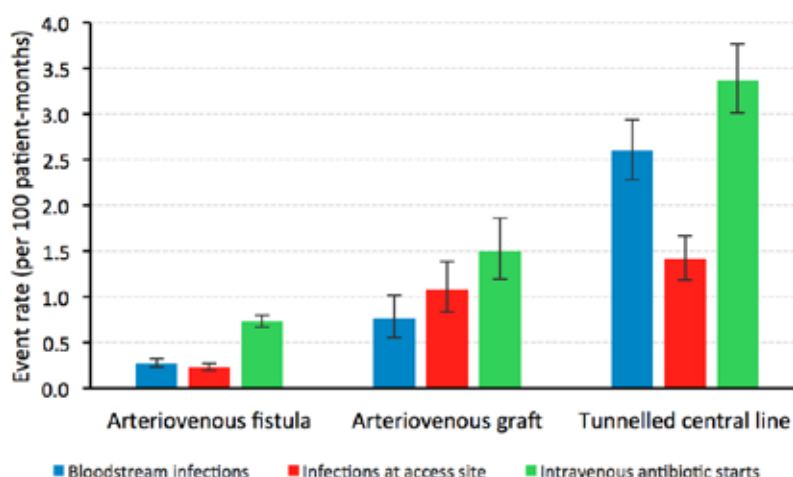


Table 1. Change in annual risk for haemodialysis events, 2008-2015

|                        | Bloodstream infections | IV antimicrobial starts | Pus/redness/swelling |
|------------------------|------------------------|-------------------------|----------------------|
| Arteriovenous fistula  | -2.0%                  | +2.0%*                  | -4.0%*               |
| Tunnelled central line | -3.0%*                 | -1.0%                   | -3.0%*               |
| Arteriovenous graft    | -2.0%                  | +2.0%                   | -3.0%*               |

\* p<0.05

**Discussion:** We demonstrate the feasibility and sustainability of standardized monitoring and reporting of healthcare-associated infections and antimicrobial use in haemodialysis patients. The burden of infection was low compared with international reports, and we observed reductions in bloodstream and access-related infections, but increasing intravenous antimicrobial use during the studied timeframe.

**Conclusion:** Risk for bloodstream and local access-related infections is highest in haemodialysis patients with tunnelled central lines. *S. aureus* is the most frequent cause of infection, with a low incidence of MRSA. Infection prevention practices and the appropriateness of antibiotic prescribing (including vancomycin) should be evaluated in this population.

### Co-authors

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## Mr Brendan Cummins

Director, Healthcare Solutions, ANZ



### Biography

Brendan Cummins was appointed to the role of Director, Healthcare Solutions for Baxter Healthcare June 2015. Responsible for corporate relationships and commercial effectiveness in Australia and New Zealand, with a focus on reducing customer effort.

Brendan joined Baxter in 2008 and has over 13 years' experience in the ANZ Healthcare sector. He has a Bachelor of Commerce (Marketing) with PGDip's in Advertising and Management from Monash University in Melbourne, Australia.

A passionate outdoorsman and St Kilda FC supporter with three sometimes St Kilda supporting children.

## Dr Jefferson Hopewell

Sustainable Procurement Officer,  
Health Purchasing Victoria



### Biography

Jefferson Hopewell has extensive experience with sustainable procurement, plastics recycling, and environmental life cycle assessment. Jefferson's career spans roles at the Cooperative Research Centre for Polymers, in the plastics manufacturing industry, and then as a consultant working in areas such as plastics recycling, bioplastics, and providing product life cycle assessments. Prior to joining HPV in 2011 as Sustainable Procurement Officer, Jefferson consulted on industry projects in Australia and the UK, and co-developed a training program for energy efficient manufacturing. Jefferson holds a Master of Sustainable Practice from RMIT University and a PhD in Chemistry from the University of Queensland.

## Mr Tiernan Humphrys

**Manager, Environmental Sustainability,  
Finance and Infrastructure**  
Department of Health and Human Services



### Biography

Tiernan Humphreys is a sustainability leader with over 16 years' experience in the public and private sector. In 2016 he was awarded a scholarship from Yale University to attend their inaugural Sustainability Leadership Forum and while in the US he gave a guest lecture at Harvard University on sustainability and communications.

Since 2008 he has been Manager Environmental Sustainability at the Department of Health and Human Services responsible for providing sustainability leadership to the state's 87 public health services, which employ some 80,000 staff, covers over 2.5 million square metres and emits over 750,000 tonnes of carbon. In 2015 his team received the inaugural Institute of Public Administration Australia (Victoria) Leadership in Sustainability Award. For the last three his contribution to sustainability has been recognised through being a judge on the Victorian Premier's Sustainability Award.

## Mr Paddy Kelly

**National Key Accounts Manager,  
Daniels Health**



### Biography

After completing his Batchelor of Business in Logistics & Supply Chain Management, Paddy has developed his experience in Waste Management Services throughout the Healthcare Industry. His interests are working with healthcare staff and sustainability officers to offer a safe and efficient waste management process throughout their facilities. Paddy has a keen focus for providing compliant solutions to divert waste from landfill where possible.

Paddy is an advocate for safer waste management practices in Australia, reducing risk to healthcare workers in the handling of sharps, and implementing solutions that reduce infection transfer risk. He works with his clients to offer products that provide improvements in safety, cost efficiencies and environmental prowess. Paddy believes in before-and-after studies to prove the case for injury reduction through using the Daniels Sharpsmart container.

## Ms Catherine O'Shea

Sustainability Officer, Western Health



### Biography

Catherine O'Shea has been the Sustainability Officer at Western Health since 2011. During this time she has worked to create systems for governance and action on environmental issues and enjoyed joining in broader dialogues that encourage different ways to reduce the impact of healthcare on the environment. With 20 years nursing experience prior to completing a Master in Environment and Sustainability at Monash University, Catherine brings an understanding of pertinent issues in healthcare and the natural environment. She and has now spent more than 10 years working passionately on projects under the banner of environmental sustainability. She is particularly interested in broadening the dialogue around climate change to have it acknowledged as a healthcare issue' and that healthcare professionals be empowered to act to their full capacity in this space.

## Mr Mark Parker

General Manager, Products,  
Fresenius Medical Care



### Biography

Mark has been with FMC in the capacity of General Manager of the Products Division since March 2016. In this role he is responsible for the PD and HD portfolio's as well as oversight Supply Chain and Regulatory Affairs. He has work in a number of healthcare companies across a range of medical device and pharmaceuticals. Mark has been employed in the Healthcare industry for over 25 years.

## Ms Anthea White

Manager, Coburg Dialysis Unit



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### Biography

Anthea has worked for Melbourne Health for 22 years, initially as a dialysis technician, and been in her current role as the manager of Coburg Dialysis Unit since 2002.

Anthea's background is as a Science graduate of Monash University and Masters in Human Nutrition & Dietetics from Deakin University.

Her position as satellite dialysis manager has allowed Anthea to pursue her passion for sustainability with a strong focus on waste management and recycling. Anthea represents the RSA on the GNAT (Green Nephrology Action Team), a joint committee of the ANZSN, RSA & KHA.