

## Newsletter Winter 2021/2

### Dr Prasanna Dinesh Koggalage joins CaHRU

Dr Prasanna Dinesh Koggalage joined the Community and Health Research Unit (CaHRU) in January 2022 as an International Research Fellow, from the Postgraduate Institute of Medicine, University of Colombo, Sri Lanka. Dinesh will be on placement with CaHRU for 12 months. As a medical doctor, he has special research interests in medical tourism, healthcare quality and safety, primary healthcare and human resource management. He has several local and international publications in Sri Lanka Journal in Medical Administration, International Journal of Research Foundation of Hospital and Healthcare Administration, Asia Pacific Journal of Tourism Research, AIMS Public Health, International Journal of Procurement Management and Journal of Health Policy and Management.



Whilst working with CaHRU, Dinesh would like explore healthcare quality and safety strategies and also, Continuing Professional Development (CPD) in the primary healthcare system in the UK. During his stay, he will also find out about pre-hospital care and Accident and Emergency services in the UK and their applicability to Sri Lanka's health system. Dinesh is also looking forward to learning more about conducting Systematic Reviews and Qualitative Research under the supervision of Professor Siriwardena.

More about Dr Koggalage's career: Dinesh is a medical doctor (M.B.B.S.) graduated with a Second Class honours from the Faculty of Medicine, University of Colombo, Sri Lanka in 2006. He completed his Master's Degree (MSc) in Medical Administration with a Gold Medal at the Postgraduate Institute of Medicine (PGIM), University of Colombo following which he started his career as a Medical Manager and was appointed the Deputy Director and then, the Director of District General Hospital, Gampaha which is the largest tertiary care provider in Gampaha district in the Western province of Sri Lanka. Dinesh obtained his doctoral qualification (MD) in Medical Administration in 2020 from the PGIM, University of Colombo, following which he was trained in the Office of the Director General of Health Services and the Management, Development and Planning Unit of the Ministry of Health. Then, he was appointed the Deputy Director and the Director of the Health Promotion Bureau of the Ministry of Health which is the national focal point for health education and publicity in Sri Lanka. He has also earned a Commonwealth Executive Master's degree in Business Administration (CEMBA), Postgraduate Diploma in Healthcare Quality and Safety from the University of Colombo and Diploma in Public Procurement and Contract Administration (DIPPCA) from the Miloda Academy for Financial Studies of the Ministry of Finance.

### Novel use of ambulance data to identify vulnerable communities in the early days of a new pandemic



The February 2022 CaHRU Improvement Science and Research Method seminar was presented by Dr Harriet Moore on 'Novel use of ambulance data to identify vulnerable communities in the early days of new pandemic'. Dr Moore is an interdisciplinary researcher and lecturer in the Department of Geography. Harriet's main interests include river restoration, environmental behaviour, social disparity, emergency medical services, COVID-19 and mental health. Harriet is a founding member of the EDGE Consortium, a research collaboration between the UK and Ontario, Canada, exploring trends in acute mental and physical health conditions using ambulance 999 call data, including identifying unusual clusters of COVID-19 cases.

The presentation began with a discussion of Social ecological modelling (SEM) and health geography which lies at the intersection of social determinants and urban landscape thinking. This was followed by the methods linking ambulance data, socioeconomic, and institutional/landscape/spatial data, where ambulance data were used to create 'proxy' measures of socioeconomic, environmental, and landscape factors, that may explain health

outcomes.

This was applied to two studies, the first of which was published on 'Mental health emergencies and COVID-19' in the British Journal of Psychology Open, exploring the nature of mental health emergencies occurring during first national lockdown compared to the same period a year before. The second was, 'Characterising unusual spatial clusters of male mental health emergencies occurring during the first national COVID 19 'lockdown' in the East Midlands region, UK: a geospatial analysis of ambulance 999 data (in press). The studies illustrated the possibility of identifying vulnerable communities in real time, with the possibility of addressing factors that might predispose to inequalities and facilitate more transformative thinking, practice and policy.

If you would like to watch the recording of this seminar contact Sue Bowler [sbowler@lincoln.ac.uk](mailto:sbowler@lincoln.ac.uk) who you can also contact to attend future seminars. Details of the March seminar, which will be presented by Dr Zahid Asghar, are given below.

## Mathematic Modelling and Statistics in Medicine



On 12 January, Dr Zahid Asghar gave a presentation for the Centre for Computational Physics at the University of Lincoln.

Dr Asghar gave examples of deterministic and stochastic models used in infectious disease epidemiology. He looked at the way these models have been developed for HIV and Covid19 recently. Dr Asghar gave an overview of some of the research being done in the Community and Health Research Unit and the Lincoln International Institute of Rural Health. Finally, he concluded by highlighting the importance of the interdisciplinary nature of research, now more than ever with "Big Data" and the need to link AI and machine learning into our contemporary paradigm of research.

[Dr Zahid Asghar](#) is a Mathematical Modeller and a Medical Statistician based in the Medical School. He is the Director of postgraduate studies for the School of Health and Social Care. He leads the Big Data team as part of CaHRU and LIIRH.

On 23.03.2022 Dr Zahid Asghar will present the Community and Health Research Unit seminar on the following topic: "Using Track and Trace data to model the early phase of Covid-19 Epidemic in Lincolnshire. Empirical evidence for the rule of six". If you would like to attend, please contact Sue Bowler on [sbowler@lincoln.ac.uk](mailto:sbowler@lincoln.ac.uk)

## GPs in emergency departments seminar

The January CaHRU Improvement Science and Research Methods seminar was given by Dr Alison Cooper MBChB MRCGP PhD, Clinical Research Fellow, of Cardiff University. Alison's PhD as part of this study focused on the potential patient safety implications of these service models and how they could be mitigated. Alison also works as a salaried GP in Rumney Primary Care Centre, Cardiff and lead stakeholder liaison for the Wales Covid-19 Evidence Centre.



'GPs in EDs' is a NIHR funded study led by Prof Adrian Edwards at Cardiff University - a realist evaluation of the effectiveness, patient safety, patient experience and wider system implications of GPs working in or alongside emergency departments'. Alison described a theory-driven realist methodological approach to this complex mixed-methods study.

Alison explained "In phase one we developed initial theories about current practice from: a rapid realist review, a national survey and key informant interviews, a national stakeholder event and analysis of patient safety incident reports. In phase two we collected and analysed qualitative (observations/interviews) and quantitative data (accessed via NHS Digital/NWIS for interrupted time series analysis) from a purposive sample of 13 case study sites. Phase three involved the triangulation of each data set to refine initial theories and develop a programme theory along with a toolkit for stakeholders based on our findings."

## Dr Vanessa Botan presents at the Australasian College of Paramedicine International Conference



Dr Vanessa Botan, Postdoctoral Research Associate at CaHRU, presented at the Australasian College of Paramedicine International Conference ([ACPIC](#)) which was held on the 25th and 26th of November 2021.

Vanessa gave an oral presentation on the findings of the 'Hypos can strike twice study ([Ambu-HS2](#))' which investigated the effects of a leaflet-based intervention, 'Hypos can strike twice', on recurrent hypoglycaemic attendances by ambulance services. She was invited to present at the [ACPIC](#) as the winner of the Highest Quality Research prize at the [999 EMS Research Forum conference](#) in 2021.

The study used a non-randomised stepped wedge-controlled design, where the intervention, which consisted in handing out the leaflet to patients following a hypoglycaemic event, was introduced at different times (steps) in different areas (clusters) in the East Midlands region of the UK. Analysis using a generalised linear mixed model showed a reduction in the number of repeat attendances in the final step of the intervention when compared to the first (OR: 0.50, 95%CI: 0.33-0.76,  $p=0.001$ ). This was supported by an interrupted time series analysis which showed a significant decrease in repeat ambulance attendances for hypoglycaemia relative to the pre-intervention trend ( $p=0.008$ ). The quality of care, as measured by a hypoglycaemia care bundle increased significantly to from 63% of attendances in the period prior to the intervention to 71% of attendances during the intervention period ( $p<0.001$ ).

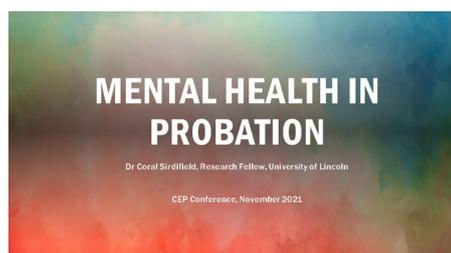
The 'Hypos can strike twice' intervention had a positive effect on reducing numbers of repeat attendances for hypoglycaemia and in achieving the hypoglycaemia care bundle. The study supports the wider use of this intervention to prevent future attendances for recurrent hypoglycaemic events and it re-iterates the importance of informing and educating diabetes patients about the recurrent risks of hypoglycaemia to prevent future episodes. The study has implications for the development of future interventions focusing on providing the necessary tools to patients that can help them to 'live independently and for longer', in line with the [NHS Long Term Plan](#).

For further details of the study please see the recording of the presentation given at the ACPIC and the published article: Botan V, Law GR, Lapidou D, Rowan E, Smith MD, Ridyard C., ... & Siriwardena, A. N. (2021). [The effects of a leaflet-based intervention, 'Hypos can strike twice', on recurrent hypoglycaemic attendances by ambulance services: A Non-Randomised Stepped Wedge Study](#). *Diabetic Medicine*, e14612.

## Confederation of European Probation Conference Presentation

Dr Coral Sirdifield provided a presentation on Mental Health in Probation for the ninth conference for Directors General of Probation 'Probation in the New Normality' which was held by the Confederation of European Probation (CEP) on the 23<sup>rd</sup> – 25<sup>th</sup> of November 2021.

Dr Sirdifield discussed why it is important to focus on mental health in probation, probation's health-related role in England and Wales, and recent research on the mental health of people on probation and the support available to them.



The presentation concluded with a number of points for discussion – Is mental health provision for people on probation adequate, and if not how could it be improved? How could probation staff support improvements in this area? Are difficulties faced by probation a reflection of wider challenges with mental health provision, and if so how do we fix this? Is it possible to identify examples of good practice?

## CaHRU at THIS Space 2021 on the evidence for improving cross-sector working

Prof Niro Siriwardena gave an invited keynote presentation on 24 November at THIS Space 2021, the annual flagship event of The Healthcare Improvement Studies Institute at Cambridge University led by Prof Mary Dixon-Woods, on the topic of, 'Improving the evidence for improving cross-sector working'. The event seeks to provide a focus for knowledge sharing in healthcare improvement, stimulate innovation and fresh thinking, connect colleagues from across different disciplines, and help support professional growth.



Working across multiple sectors is important to quality and safety in the care of patients, but is hard to do well. The session looked at the evidence base for cross-sector working, drawing on examples from pre-hospital emergency care, given by Niro Siriwardena and care homes, given by Claire Goodman, Professor of Health Care Research at the University of Hertfordshire.

The presentation defined cross-sectoral working, discussed its importance for all quality improvement because of the need to involve patient and service user contributors and experts, and different organisations particularly where improvement efforts cross or might affect intra- or inter organisational boundaries, processes or outcomes, to account for complexity and address fragmentation, and to ensure connectedness and relevance, ownership and credibility of the problem and its solutions. Examples from the Prehospital Outcomes for Evidence Based Evaluation to develop ambulance outcome measures, work improving prehospital pain management and the recently published 'Ambulance 'Hypos' can strike twice' (Ambu-HS2) study were provided as examples of cross sector working. Vivienne Parry OBE facilitated questions from the audience at the end.

## International Paramedic Research Conference 2021: Malcolm Woollard Lecture by Dr Gregory Whitley



The first 24-hour international paramedic research conference was hosted by the College of Paramedics (UK), the Australasian College of Paramedicine and the Prehospital Care Research Forum at the UCLA Centre for Prehospital Care on the 30<sup>th</sup> November 2021.

The first presentation was the Malcolm Woollard Lecture, titled "The Painful Truth", delivered by CaHRU member Dr Gregory Whitley. The Malcolm Woollard Lecture commemorates the life and outstanding contribution of the late Professor Malcolm Woollard FCPara to the paramedic profession, in particular Malcolm's contribution to research and evidence-based practice.

Dr Gregory Whitley completed his PhD in 2020 titled "Pre-hospital pain management in children: A mixed methods study". He is currently a paramedic research fellow at the East Midlands Ambulance Service NHS Trust, a lecturer in paramedic science at the University of Lincoln and a post-doctoral bridging fellow funded by Health Education England.

The session included a brief history of pain, a discussion around the International Association for the Study of Pain (IASP) definition of pain, consideration of some of the challenges and solutions to pre-hospital pain management, followed by *The Painful Truth*. The session was closed with the following quote, attributed to Maya Angelou: "Do the best you can until you know better. Then when you know better, do better".

### Professor Malcolm Woollard FCPara

- Founding member and past Chair of College of Paramedics
- Recipient of a CoP Lifetime Achievement Award
- First UK paramedic Professor
- Huge advocate for pre-hospital research and evidence-based practice
- Research interest in pain



The presentation was recorded and will be available within the College of Paramedics CPD Hub [membership required]. If you have any questions for Dr Gregory Whitley, please contact via email: [gwhitley@lincoln.ac.uk](mailto:gwhitley@lincoln.ac.uk)

## Bids

Siriwardena AN. Evaluation of ambulance innovations. East Midlands Ambulance Service NHS Trust, £25,000.

Siriwardena AN, Botan V, Asghar Z, Law GR. Investigating validity, reliability and fairness of the MRCGP examination. Royal College of General Practitioners, £10,000.

## Publications

Moore H, Siriwardena AN, Hill B, Gussy M, Tanser F, Spaight R (2022). Exploring the impact of the COVID-19 pandemic on male mental health emergencies attended by ambulances during the first national 'lockdown' in the East Midlands of the UK. *American Journal of Men's Health* (in press).

Mason R, Roberts A, Spaight R, Shaw D, Whitley GA, Hogue T, Siriwardena AN, Rogers J, Law GR (2022). Ambulance attendance for Substance and/or Alcohol use in a Pandemic (ASAP): Interrupted time series analysis of incidents. *Drug and Alcohol Review* (online first).

Siriwardena AN, Akanuwe JNA, Botan V, Laparidou D, Curtis F, Jackson J, Asghar ZB, Hodgson TL (2022). Patient reported symptoms and experience following Guillain-Barré Syndrome and related conditions: questionnaire development and validation. *Health Expectations* 25:223–231.

Laparidou D, Botan V, Law G, Rowan E, Smith M, Brewster A, Spaight R, Mountain P, Dunmore S, James J, Roberts L, Khunti K, Siriwardena AN (2022). People with diabetes and ambulance staff perceptions of a booklet-based intervention for diabetic hypoglycaemia, "Hypos can strike twice": A mixed methods process evaluation. *BMC Emergency Medicine* 22:21.

Nelson D, Law GR, McGonagle I, Turner P, Jackson C, Kane R (2022). The effect of rural residence on cancer-related self-efficacy with UK cancer survivors following treatment. *The Journal of Rural Health* 38; 28-33.

Garjani A, Patel S, Bharkhad D, Rashid W, Coles A, Law GR, Evangelou N (2022). Impact of mass vaccination on SARS-CoV-2 infections among multiple sclerosis patients taking immunomodulatory disease-modifying therapies in England. *Multiple Sclerosis and Related Disorders* 57; 103458.

Price D, Edwards M, Davies F, Cooper A, McFazean J, Carson-Stevens A, Cooke M, Dale J, Evans BA, Harrington B, Hepburn J, Siriwardena AN, Snooks H, Edwards A (2022). Patients' experiences of attending emergency departments where primary care services are located: qualitative findings from patient and clinician interviews from a realist evaluation. *BMC Emergency Medicine* 22:12.

Tunnage B, Woodhouse LJ, Dixon M, Anderson C, Ankolekar S, Appleton J, Cala L, England T, Krishnan K, Havard D, Mair G, Muir K, Phillips S, Potter J, Price C, Randall M, Robinson TG, Roffe C, Sandset E, Siriwardena AN, Scutt P, Wardlaw JM, Sprigg N, Bath PM on behalf of the RIGHT-2 Investigators (2022). Pre-hospital transdermal glyceryl trinitrate in patients with stroke mimics: data from the RIGHT-2 randomised-controlled ambulance trial. *BMC Emergency Medicine* 22: 2.

Moore H, Hill B, Gussy M, Siriwardena AN, Tanser F, Spaight R, Law G, Thomas C (2022). An exploration of factors characterising unusual spatial clusters of COVID-19 cases in the East Midlands region, UK: a geospatial analysis of ambulance 999 data. *Landscape and Urban Planning* 219: 104299.

Schofield BJ, Andreani NA, Günther CS, Law GR, McMahon G et al. (2022). Livestock microbial landscape patterns: Retail poultry microbiomes significantly vary by region and season. *Food Microbiology* 101: 103878.

Hewson DW, Sprinks J, Smith MD, Buchanan H, Breedon P, Hardman JG, Bedfordth NM (2022). Patient-maintained versus anaesthetist-controlled propofol sedation during elective primary lower-limb arthroplasty performed under spinal anaesthesia: a randomised controlled trial *British Journal of Anaesthesia* 28 (1): 186-197.

Laparidou D, Curtis F, Akanuwe J, Goher K, Siriwardena AN, Kucukyilmaz A (2021). Patient, carer, and staff perceptions of robotics in motor rehabilitation: a systematic review and qualitative meta-synthesis. *Journal of NeuroEngineering and Rehabilitation* 18: 181.

Kordowicz M, Malby B, Mervyn K (2021). Primary care networks: navigating new organisational forms. *BMJ Open* 0092.