CHARM
Canberra Health
Annual Research Meeting

16 – 20 June 2025

CHARM 2025: Oral presentation abstract summaries

TUESDAY 17 JUNE 2025

11:15 – 12:30

TITLE: Feasibility of Parkrun Prescriptions for People with Dementia to be Physically Active and Socially Connected: Scoping Review

AUTHORS: Georgina R Chelberg, University of Canberra; Ian Walker, Canberra Health Services; Nathan M D'Cuhna, University of Canberra; Sona Jerry, University of Canberra

ABSTRACT

Background: Dementia Australia estimates more than 420,000 Australians and 6,000 residents of the Canberra region are living with dementia. While managing lifestyle and social changes following diagnosis, people with dementia and care partners commonly experience challenges in accessing support and rehabilitation. Parkrun is a free, community-based initiative and global success for inclusivity and population-level physical activity. However, there is limited understanding of whether people with dementia engage in parkrun.

Aims: This scoping review explored the potential of parkrun as a community-based intervention for individuals with dementia and disabilities by identifying evidence of engagement and what interventions have been trialled to facilitate engagement.

Methods: The protocol followed the PRISMA-ScR guidelines (Tricco et al., 2018) and was registered on OpenScienceFramework (doi:10.17605/OSF.IO/QDK8A). Systematic searches were conducted across databases (PubMed, Scopus, Web of Science, EBSCOhost) and grey literature (Google, parkrun blogs). Duplicates were removed, titles and abstracts screened using specified criteria.

Results: A total of 1,737 records were identified and screened, with 214 articles retained for full review. Preliminary literature themes confirm the engagement of people with dementia in parkrun events including volunteer roles, with positive mental, social and physical impacts. Further,

collaborative projects, particularly in the United Kingdom, have explored initiatives (e.g. social prescription) to enhance involvement for people with dementia and other disabilities.

Conclusion: It is acknowledged the preliminary findings currently prevent conclusive statements about parkrun and people with dementia. However, the finalised scoping review will achieve the research aims and provide deeper insights into the feasibility of parkrun as an inclusive and sustainable intervention for individuals with dementia and disabilities.

TITLE: A digital alert feedback system (Aged Care Electronic Dashboard Information Tool ACED-IT) to enhance quality nursing care: participatory action research

AUTHORS: Kasia Bail, University of Canberra; Juliana De Mendonca, Laura Hants; Stephen Isbel, University of Canberra; Nathan M D'Cunha, University of Canberra; Mark Sheldon-Stemm; Matt Elks; Desmond McGuirk; Joshua Roussos; Ping YU; Bernice Redley; Diane Gibson, University of Canberra

ABSTRACT

Background: Data overload is a substantial challenge in aged care. There is a disparity between the amount of data collected across various systems and the limited way this data is employed to inform critical care decisions for residents. Developing a user-friendly system is crucial to leverage this data effectively, enhancing decision-making and harm prevention.

Aim: Develop and simulation test a digital alert dashboard drawing from existing data to support nurses, care workers and managers in residential aged care

Methods: Mixed-method participatory action research, with a co-designed digital alert dashboard in a 64-bed residential aged care home in Australia. Qualitative data was collected through focus groups and analysed using reflective thematic analysis.

Results: Nursing-theory and evidence-based Nursing Data Domain Standards (NDDS) were developed to support internal triaging of fundamental and clinical care in a non-clinical environment. A co-designed retrospective digital alert dashboard (Aged Care Electronic Dashboard Information Tool - ACED-IT) representing the Standards was created and tested. Twenty aged care nurses, care workers and managers found it had promise in enhancing quality of care, improving resident health and reducing adverse events.

Conclusions: Maximising efficient use of resident-level data with a system that empowers nurse decision-makers is crucial to support effective care design and harm prevention.

Impact: ACED-IT has the potential to improve visibility of resident needs, support staff to adjust their workflow based on in-house triage, enhance supervision of staff and quality of care, and reduce preventable complications.

TITLE: Exploring the Molecular Mechanisms of Aging the Rodent Retina to Prevent Vision Loss

AUTHORS: Nicholas W Bariesheff, Australian National University; Jereme Spiers, The Australian National University; Natasha Vassileff, Australian National University; Riccardo Natoli, Australian National University; Adrian Cioanca, Australian National University

ABSTRACT

Background: Aging is a major risk factor for ocular diseases like age-related macular degeneration (AMD), the leading cause of blindness in Australia. Current AMD treatments primarily target inflammation, but they are limited. A broader understanding of retinal aging mechanisms, including oxidative stress and molecular dysregulation, is essential for developing more comprehensive and effective therapeutic strategies.

Aims/Question: This study aims to identify molecular targets dysregulated in the aging retina, with the potential to slow or reverse age-related degeneration.

Methods: Using aged animals, we employed omic methods, including miRNA sequencing, RNA sequencing, and total proteomics, to quantify gene and protein expression changes in aged animal retinas, employing bioinformatic analyses to correlate these datasets and identify novel molecular targets.

Results: Several novel molecular targets were identified to be dysregulated during retinal aging, including those related to inflammation, immune signalling and oxidative stress pathways. By correlating predicted miRNA targets, mRNA and protein expression changes, we were able to find several novel molecules that if targeted, could slow or reverse age-related degeneration in the retina.

Conclusions: These molecular targets highlight key mechanisms of retinal aging, particularly oxidative stress and inflammation, offering potential intervention points for therapeutic strategies.

Impact: This research identifies novel therapeutic targets that could slow or reverse age-related retinal degeneration, with clear potential for real-world therapies that improve clinical outcomes and quality of life for AMD patients, ultimately reducing its prevalence and associated burdens.

TITLE: ‘Gentle CPR. Defib preferred’: A snapshot of advance care planning in ACT residential aged care homes

AUTHORS: Tricia O'Connor, CHS Palliative Care; Rodd Hansell, CHS Palliative Care; Simon Sinclair, CHS Palliative Care; Moira McLaughlin, CHS Palliative Care; Evelyn McDonald, CHS Palliative Care

ABSTRACT

Background: Advance care planning (ACP) is key to preparing for end-of-life care. Residential aged care (RAC) residents often suffer the burden of transfer to hospital because essential conversations have not occurred. Early planning and decision-making can improve residents’ quality of life and quality of dying, including facilitating dying in their preferred place of death (PPOD).

Aim: To obtain a snapshot of ACP documentation in ACT RAC.

Method: Five ACPs from each of the 27 facilities (n=135) in ACT were retrospectively examined using a standardised tool to measure adequacy of ACP documentation, where adequate is defined as ‘contains the minimum information requirements to guide RAC staff’s clinical decisions in the instance of an acute event when the resident is no longer able to articulate a decision at that time’. Percentage analysis was used.

Results:

10 different documents were used across 27 facilities.

One fifth of residents (20%, n=27) did not have a document stating their wishes.

38% (n=51) were for CPR.

19% (n=26) stated they wanted to be transferred to hospital in an acute event, whereas 28% (n=38) definitively did not, with hospitalisation not mentioned in 39% of ACPs.

Only 26% (n=35) signed their own ACP.

Most (79.3%, n=107) ACPs did not have PPOD documented

Conclusion: Findings highlight significant gaps in ACP documentation and a lack of clear direction on crucial aspects of care. This lack of direction impacts nurses’ clinical decision-making, resulting in poor end-of-life care.

Impact: Further work strengthening RAC staff confidence and knowledge of ACP may enhance residents’ quality of end-of-life care.

TITLE: Assessment of Canberra Hospital's 2024 performance against the National Hip Fracture Clinical Care Standard

AUTHORS: Helen Lodge, Trauma and Orthopaedic Research Unit; Saqib Zafar, Trauma and Orthopaedic Research Unit; Ashleigh Wilson, Canberra Health Services; Joe Lynch, Trauma and Orthopaedic Research Unit; Paul Smith, Trauma and Orthopaedic Research Unit

ABSTRACT

Introduction: In Australia, there are approximately 19,000 hip fractures in people over the age of 50 with this group is at risk of poor outcomes. The Australian and New Zealand Hip Fracture Registry (ANZHFR) records compliance with the National Hip Fracture Clinical Care Standard. Canberra Health Service began contributing to the ANZHFR in January 2024. There are 12 key indicators used to assess compliance against the clinical standard.

Aims/Question: This study aimed to assess Canberra Hospital’s performance in its first year of contributing to the ANZHFR to the national average.

Methods: 2024 registry data was collated manually through patient interview and information available on the Digital Health Records. Indicator data included time-to-theatre, first-day mobilisation, and patient delirium assessments. This information was compared to the national averages as provided by the ANZHFR.

Results: 385 hip fractures were treated at The Canberra Hospital (6th highest in the country). The most common fracture type was per/intertrochanteric (39.56%) with 89.6% of these being repaired with intermedullary nail. Time-to-surgery was shorter compared to national average (32.9 vs 39 hours). TCH had higher rates of first day mobilization (69% vs 57%) and preoperative delirium assessments (97% vs 83%) when compared to the national average.

Conclusion: The ANZHFR indicators were developed to improve patient outcomes by decreasing morbidity and mortality. Canberra Hospital performed well above the national average in most of these indicators.

Impact: Hip fracture patients receive high-quality care likely due to TCH’s multidisciplinary care model. Further refinement will be to build this pathway into DHR.

TITLE: Starting with students: supporting gerontological nursing through Clinical Placements with Older People

AUTHORS: Kasia Bail, University of Canberra

ABSTRACT

Background: Pre-registration nursing students are traditionally allocated clinical placements in aged care early in their degree, focus on fundamental care skills, and may be paired with care staff more than registered nurses. This approach has influenced misinformation of the complexity of the nursing role, and negative perceptions regarding potential future career trajectories (Rayner et al 2023).

Aim: The Clinical Placement with Older People program (CPOP) was developed to support later year nursing students to engage with the gerontological nursing work undertaken by registered nurses. The CPOP prepares clinical facilitators with an evidence-based mentorship program, the Gerontological Nursing Competencies (Traynor et al 2024). Students work alongside a registered nurse for the duration of their placement (2-4 weeks), completing a reflective workbook to support expanding scope of practice and facilitate engagement with staff. The clinical placement occurred in both residential and non-residential settings, recognising that older people are everywhere.

Method: Mixed method participatory action research design was used that incorporated participant pre- and post-surveys, semi-structured interviews, and qualitative analysis of the reflective workbooks. Nursing students, their clinical facilitators and industry partners were invited to participate.

Results/Conclusion: CPOP is increasing the accessibility and visibility of expert gerontological nursing care for student nurses, which is crucial to improving the broader public understanding and valuing of the RN role. Facilitators, students and industry partners are recognising gerontological nursing as a specialty in response to the program.

Impact: These workforce developments are essential to supporting the aged care reform, making registered nursing work visible and admirable.

TITLE: Changes in Mechanical Stress of the Patella using Novel Tracking Device

AUTHORS: Olivia Scheide, Australian National University; Catherine Galvin; Joseph Lynch, Canberra Health Services; Nicolo Malagutti, Australian National University; Paul Smith; Tom Ward, Canberra Health Services

ABSTRACT

Background: There has been a growing interest in understanding patellofemoral kinematics to address lingering patient dissatisfaction following total knee replacement (TKR). We designed a novel device for measuring patellar kinematics which attaches to the anterior surface of the patella via three screws. It is important that this device does not increase bone stress and subsequently increase risk of fracture compared to the standard procedure.

Aim: This study compared the difference in patellar mechanical stress between native patellae and patellae with the tracker screw holes.

Methods: 3D meshes of patellae were segmented from CT scans. The patellae were modelled at extension with the patellar and quadriceps tendons generating forces on the bone. Finite Element Models (FEM) were created using ANSYS to evaluate the bone stress distribution.

Results: Initial results indicated that the there was only a 6.61% increase in maximum stress in the patella between the native bone compared to the bone with tracker holes. Importantly, the maximum stress between models was located near the patellar tendon insertion, which was not near the tracker holes.

Conclusions: These results indicate that adding the tracker screw holes to the patella does not greatly alter the stress distribution of the bone nor do they cause any localised increases within the screw holes.

Impact: The addition of the tracker to assess patellofemoral kinematics will likely not increase fracture risk of the patella. This should enable clinicians to understand kinematics to have a more holistic understanding of the knee joint during TKR.

TUESDAY 17 JUNE 2025

13:45 – 15:00

TITLE: Codesigned Framework for Maximising the Therapeutic Value of Mealtimes in Rehabilitation

AUTHORS: Alice Pashley, University of Canberra; Adrienne Young, University of Queensland; Emmah Doig, University of Queensland; Meredith Fay, University of Queensland; Rachel Levine, Surgical, Treatment, and Rehabilitation Services; Janette Moore; Dale Trevor; Olivia Wright, University of Queensland

ABSTRACT

Introduction: Mealtimes present an opportunity for rehabilitation patients to obtain nutritional intake, practice therapeutic tasks, and support psychosocial wellbeing. Currently, there is little evidence to guide how this can be achieved in practice.

Aim: To co-design a framework with rehabilitation consumers and staff to maximise the therapeutic value of mealtimes.

Method: A workshop was held with consumers (n=5) and rehabilitation staff (n=5) utilising Values-Focused Thinking processes. The framework was constructed by developing objectives important for delivering a therapeutic mealtime experience, categorised as fundamental (i.e., those that are important in and of themselves) or means (i.e., those that are important for achieving the fundamental objectives). Workshop Two involved developing a suite of strategies to operationalise the means objectives to deliver a therapeutic mealtime experience.

Results: Four fundamental objectives were identified: ‘provide holistic, practical, caring, and safe experiences’, ‘share ownership of mealtime imperatives’, ‘maximise all possible outcomes’, and ‘enhance rehabilitation’. A total of twenty-three means objectives were identified to support achievement of the fundamental objectives (n=10-20 per fundamental objective), with ‘enable access’, ‘obtain feedback and monitor’, ‘identify needs’, ‘plan the mealtime’, and ‘provide information’ classified as ‘important’ in achieving all fundamental objectives.

Conclusion: This is the first study to provide a framework to support delivery of a therapeutic mealtime experience aligned with rehabilitation principles, based on the values and priorities determined by consumers and staff.

Impact: The framework for maximising the therapeutic value of mealtimes provides clinicians with practical strategies to tailor mealtime experiences to the needs of individual patients, incorporating rehabilitation goals such as promoting mobility, cognitive engagement, and social interaction.

TITLE: “Breaking the ceiling”- Empowering nurse-led mobilisation in intensive care: a quality improvement study

AUTHORS: Courtney Perman, Canberra Health Services; Gemma Everett, Canberra Health Services; Molly McDonnell, Canberra Hospital; Jillian Smith, Canberra Hospital; Jake McKenna, Canberra Health Services

ABSTRACT

Background: Mobilisation of intensive care unit (ICU) patients is a multidisciplinary responsibility. Nurse-led mobilisation is safe, feasible and results in decreased length of stay and improved functional outcomes. However, even an ICU with a well-established culture of mobilisation is vulnerable to declines in mobilisation practice with staff turnover and increased workforce pressures.

Objectives: To quantify current levels and increase frequency of nurse-led mobilisation of ICU patients, improve nursing self-reported ability to mobilise patients, and promote multidisciplinary mobility culture.

Methods: A quality improvement framework was used to conduct a pre-post evaluation. In March-April 2023 a prospective audit of usual nurse-led mobilisation practices and a survey of nurses’ confidence in and perceived barriers to mobilisation of ICU patients was conducted. Over 18 months, a co-designed nursing mobility program consisting of practical and theoretical education sessions, and implementation of nursing mobilisation flowsheets to guide mobility was instituted. The primary outcome (frequency of nurse-led mobilisation) and nurses’ confidence and barriers (September-October 2024) was repeated.

Results: Passive nurse-led mobility (e.g. transfer to chair) increased from 16% to 43%. Active nurse-led mobility increased from 33% to 55%. Adverse event rate was 0.8% of all mobilisation episodes. Nursing self- reported ability, clinical reasoning, manual handling, attachment management and confidence in mobilising ICU patients increased, regardless of nursing experience. Collaborative episodes of mobilisation with nurses and physiotherapists post program occurred passively with 57% of patients and actively with 91%;

Conclusions: Implementation of an education program increased nursing confidence, resulting in a safe increase in frequency of nurse-led mobilisation in ICU.

Impact: A multidisciplinary approach facilitates a positive mobility culture.

TITLE: Assessment of the mechanical power in severe hypoxic respiratory failure patients requiring mechanical ventilation and its impact on patient centred outcomes

AUTHORS: Dr Harshel Parikh, Canberra Health Services; Dr Christopher Wilder, Canberra Health Services; Dr Kiran Kumar Gudivada, Canberra Health Services

ABSTRACT

Background: Mechanical ventilation (MV), a life-sustaining supportive therapy in patients with severe respiratory failure (RF), can promote damage to the pulmonary structures and cause ventilator-induced-lung-injury (VILI) via energy transfer. Mechanical power (MP), a holistic concept that estimates the energy delivered to the respiratory system, can answer the knowledge gaps in this field rather than individual studied variables like tidal volume and driving pressures.

Aim: We aim to calculate the average daily MP in patients with RF requiring MV and correlate it with patient-centred outcomes. A secondary aim is to assess the impact of MP as a variable on other variables.

Methods: We conducted a retrospective-audit of adult patients admitted with hypoxic-RF requiring MV between January 1, 2020, and December 31, 2021, in Canberra-Hospital-ICU. We calculated the average daily MP for the entire episode on MV using universally accepted models.

Results: The median daily average MP was 19.8 J/min (IQR 15.4-23.7) for all 63 patients admitted with RF requiring MV. In comparison to the complete cohort of ICU patients, this cohort's hospital mortality rate was (29% vs 13.2%, $p<.001$), the median ICU-length-of-stay (LOS) was 223.5 (IQR 129.4-302.7) vs 50.4 (IQR 24-96) hours and the hospital-LOS was 400 (IQR 250.6-643.4) vs 232.4 (IQR 127.2-499.2) hours. On multivariate-regression analysis, average daily MP and patients' BMI were statistically significantly better predictors of ICU LOS than tidal volume, oxygenation status (PaO_2/FIO_2 ratio), APACHE III score and frailty.

Conclusion: Severe hypoxic-RF patients on MV had significantly worse patient-centred outcomes. Higher MP and lower BMI were independent predictors of longer ICU LOS in RF patients requiring MV.

TITLE: The novel use of robot-assisted gait training in the treatment of Functional Neurological Disorder: a case report

AUTHORS: Sam Smith, Canberra Health Services; Lydia Harland, Canberra Health Services; Bernie Bissett, University of Canberra & Canberra Health Services; Philip Gaughwin, Canberra Health Services

ABSTRACT

Introduction: Functional Neurological Disorder (FND) is a condition defined by motor and sensory symptoms with clinical features that do not fit with other neurological or medical diagnoses but can result in significant functional impairment. There is evidence supporting the use of robotics in other neurological conditions, but there is currently no published evidence for its use in the treatment of FND. This case using the Hocoma Lokomat robotic exoskeleton device represents the first known case of robot-assisted gait therapy in the treatment of FND.

Aims/Question: To determine if robot-assisted gait therapy could be a viable treatment option for patients with FND.

Methods: The patient completed 15 sessions on the Hocoma Lokomat robotic exoskeleton device over 8 weeks. Outcomes included the Functional Ambulatory Categories (FAC), Functional Independence Measure (FIM) Locomotion, 10-metre walk test (10MWT) and Oxford manual muscle testing (MMT).

Results: Muscle strength improved from 0/5 to 5/5 in all lower limb muscle groups (MMT). The patient achieved independent walking with the FAC improved from 0/5 to 5/5, FIM Locomotion improved from 1/7 to 7/7 and the 10MWT completed in 37.45sec. At 6 months follow-up, the patient reported zero FND relapses or functional impairments.

Conclusions: Robot-assisted gait therapy can be considered a potential intervention option in FND, specifically in cases with gait impairments, and can be associated with dramatic improvements in strength and mobility.

Impact: This is the first case of a patient with FND successfully completing robot-assisted gait therapy in the treatment of gait-related impairments. Studies exploring feasibility and patient acceptability of this novel therapy in FND are now warranted.

TITLE: Psychological symptoms, quality of life and dyadic relations in family members of intensive care survivors: a multicentre, prospective longitudinal cohort study

AUTHORS: Sumeet Rai, Canberra Health Services; Rhonda Brown, Australian National University; Teresa Neeman, Australian National University; Mary Nourse, Canberra Health Services; Frank M.P. van Haren, Australian National University; Imogen Mitchell, Canberra Hospital; Dale M Needham, John Hopkins University School of Medicine and School of Nursing

ABSTRACT

Background: There is scarce literature evaluating long term psychological or Quality of Life (QoL) outcomes in family members of ICU survivors, who have not experienced invasive ventilation.

Aims: To compare long-term psychological symptoms and QoL outcomes in family members of intubated versus non-intubated ICU survivors. To evaluate dyadic relationships between paired family and survivors.

Methods: Prospective, multicentre cohort study. Follow-up assessments for psychological symptoms and QoL problems, 3- and 12-months post-ICU discharge. Examination of dyadic relationships among paired family members and survivors.

Results: Overall, 83% (110/132) of eligible family members completed >1 follow-up. In family members of intubated vs non-intubated survivors, clinically significant psychological symptoms (PTSD/depression/anxiety) were reported by 48% vs 33% at 3-months (p=0.15); and 39% vs 25% at 12-months (p=0.23). Almost one-third family members reported problems in pain/discomfort or anxiety/depression QoL domains at 12-months. Family members were more likely to have persistent psychological symptoms of PTSD [OR 4.9, 95% CI (1.47-16.1), p=0.01] or depression [OR 14.6, 95% CI (2.9-72.6), p=0.001]; or QoL domain problems with pain/discomfort [OR 6.5, 95% CI (1.14-36.8), p=0.03] or anxiety/depression [OR 3.5, 95% CI (1.02-12.1), p=0.04], when the paired survivor also reported the same symptoms.

Conclusions: Almost one-third of the family members of ICU survivors reported persistent psychological symptoms and QoL problems at 12-months. There was a noticeable dyad effect with family members more likely to have persistent symptoms of PTSD, depression, and problems in QoL domains when the paired ICU survivors experienced similar symptoms.

Impact: The study provides insight into the long-term psychological effects of family members who provide caregiving to ICU survivors.

TITLE: Pushing the boundaries: The feasibility of getting critical care patients away from the bedspace

AUTHORS: Vincenzo Marzano, Canberra Health Services; Zoe Rodda, Canberra Health Services; Gemma Everett, Canberra Health Services

ABSTRACT

Background: Early rehabilitation for better outcomes in critical care survivors has become a focus of research. Factors identified that impact researchers in designing effective randomised control trials is the inability to provide the correct dosage of therapy or environmental limitations for patients who are critically unwell. At Canberra Hospital, construction of the new intensive care unit (ICU) included a purpose-built therapy gym designed to enable an increase in therapy to critically unwell patients.

Aims: To establish clinical guidelines and processes for safe provision of physiotherapy to ICU patients away from the bedspace, and to determine feasibility of providing rehabilitation in this environment.

Methods: Clinical guidelines and processes were developed with input from ICU consultants, nursing staff, occupational and physiotherapy staff. These utilised already established processes for non-critical care therapy spaces and internationally published. Patient acuity, types and time of therapy provided, and adverse event rates were prospectively collected from August 2024 to February 2025.

Results: Over a 6-month period, 85 individual therapy sessions occurred. Of these, 63% occurred with ICU level patients, and 57% of had a tracheostomy. Patients spent an average of 38 mins in therapy with individualised programs. Patients had an average Acute Care Index of Function (ACIF) of 0.32 on commencement of gym therapy, with and average ACIF score of 0.53 on ICU discharge. There were no adverse events.

Conclusion: Rehabilitation of ICU patients is safe and feasible in a purpose built, co-located therapy space, resulting in functional improvements.

Impact: This data supports expanding the criteria for ICU patients receiving rehabilitation in a therapy gym.

TITLE: The effects on patient therapy time following the implementation of robotics therapy at University of Canberra Hospital

AUTHORS: Sam Smith, Canberra Health Services; Lydia Harland, Canberra Health Services; Ashlee Gould, Canberra Health Services; Emma Turton, Canberra Health Services

ABSTRACT

Background: The Lokomat is an electromechanical-assisted exoskeleton robotics device designed for intensive walking practice for patients with neurological conditions. It was installed at University of Canberra Hospital Stromlo ward in 2024. Lokomat robotics therapy requires two staff members to run each session whereas the Stromlo ward has typically used a semi-supervised structure for conventional gym-based physiotherapy.

Aims/Question: To determine what effects the implementation of robotics therapy has had on patient therapy time on Stromlo ward.

Methods: Patient therapy times were tracked during pre-intervention and post-intervention blocks each consisting of 13 weeks. The pre-intervention period consisted of conventional gym-based physiotherapy only. The post-intervention period included the time spent completing both conventional gym-based physiotherapy and robotics therapy.

Results: The results showed there was a decrease in therapy time provided to patients following the implementation of robotics therapy. There was a reduction in patient therapy time per staff member between the pre-intervention period and the post-intervention period of 55 minutes per day (415 minutes vs 360 minutes), while 0.86 less patients were seen in the post-intervention period per staff member per day (5.12 vs 4.26).

Conclusions: When implementing new technology such as the Lokomat that requires a different staffing structure, appropriate staffing levels are required to ensure it does not adversely affect the therapy time for other patients on the ward. If there is no change in staffing levels, a reduction in patient therapy time can be expected.

Impact: A Clinical Lead position dedicated to robotics therapy has been recommended to ensure the successful running of robotics therapy alongside conventional gym-based physiotherapy.

WEDNESDAY 18 JUNE 2025

SESSION 1

9:15 – 10:30

TITLE: Prioritising Pathogens for Genome Sequencing for Australia's Public Health Response: Insights from Expert Elicitation.

AUTHORS: Tehzeeb Zulfiqar, Australian National University; Angeline Ferdinand, The University of Melbourne at The Peter Doherty Institute for Infection and Immunity; Katherine Glass, Australian National University; Son Nghiem, Australian National University; Susan Trevenar, Australian National University; Nhung Mai, Australian National University; Patiyan Andersson, The University of Melbourne at The Peter Doherty Institute for Infection and Immunity; Danielle M Cribb; Martyn D Kirk, Australian National University

ABSTRACT

Introduction: Pathogen genomics has revolutionised infectious disease surveillance and control in public health., Optimising this technology requires strategic prioritisation of pathogens for sequencing, yet no systematic framework for prioritisation exists in Australia.

Aims: To establish evidence-based criteria for prioritising pathogens for genome sequencing to inform Australian public health surveillance through expert consensus.

Methods: A modified Delphi study was conducted over two rounds with public health, infection prevention, and pathogen genomics experts. The first round involved 83 experts rating 89 statements, followed by 38 participants rating 48 refined statements.

Results: Experts agreed on a nationally coordinated and state-specific priority pathogen lists, biennial reviews and situation-based flexibility. Prioritisation criteria included potential antimicrobial resistance, institutional transmission risks, impact on Aboriginal and Torres Strait Islander communities, and multijurisdictional spread potential. High-priority pathogens for sequencing in outbreak investigations included Shigella spp., Salmonella, Neisseria gonorrhoeae, Listeria monocytogenes, Mycobacterium tuberculosis, Group A Streptococcus, Escherichia coli, carbapenemase-producing Enterobacterales, and Neisseria meningitidis.

Conclusions: The study identified robust criteria to prioritise pathogens for genomic sequencing, reflecting both national and jurisdictional public health needs.

Impact: The criteria will inform a framework to optimise genomic sequencing resource allocation. Implementation will strengthen surveillance of high-priority pathogens and support evidence-based public health responses across Australian jurisdictions.

TITLE: From discovery to treatment of ITK autoimmunity

AUTHORS: Maurice Stanley, ANU; Somasundhari Shangmuganandam, Australian National University; Jean Capello, Australian National University; Tom Lea-Henry, Australian National University; Morgan Downes, Australian National University; Vicki Athanasopoulos, Australian National University; Simon Jiang, Canberra Health Services

ABSTRACT

Background: Genetic variation is a potent contributor to autoimmune disease and personalised medicine can advance our understanding of disease. These insights can be used personalise treatment and thus improve outcomes.

Aim: Understanding the genetic and cellular cause of complex autoimmunity.

Methods: Patients with complex autoimmunity underwent personalised phenotyping including whole genome sequencing, lymphocyte immunophenotyping, and single cell RNA sequencing. Identified gene variants were tested by overexpression assay and cell culture. CRISPR 'avatar' mice underwent immune phenotyping, T cell challenge assays, and therapeutic trials.

Results: We identify a novel ITKE42K variant in a family with complex autoimmunity. ITKE42K is associated with expanded activated T cells and increased inflammatory cytokines MCP 1 and IL-6. ItkE42K mice have increased T cell receptor(TCR) responses, skewing thymocyte development towards CD4+ thymocytes and naïve splenic CD4+ T cells to pro-inflammatory T helper(Th) 1 and Th 2 formation. Increased Th1/Th2 predisposes ItkE42K mice to arthritis, identifying ItkE42K as a gain-of-function(GoF) variant. We show ITKE42K gain-of-function results from increased localisation to the TCR synapse. We identify another variant, ITKT504S, in eight unrelated individuals with autoimmunity, demonstrating ITKT504S is another constitutively activated GoF allele. Both ITKE42K and ITKT504S GoF have a common endpoint of increased NFAT activity. Targeting NFAT with tacrolimus prevents exaggerated Th responses in ItkE42K mice, in patients with ITKE42K and ITKT504S induces disease remission.

Conclusions: We demonstrate ITK as a previously unrecognised cause of autoimmunity, using personalised models to successfully deliver personalised therapeutics.

Impact: Personalised medicine can identify novel causes of disease and treat previously refractory autoimmunity.

TITLE: Evaluating human cytokine assays for suitability as a diagnostic test

AUTHORS: Ainsley Davies, Australian National University; Vijay Bhoopalan, Australian National University; Zhijia Yu, Australian National University; Koula EM Diamand, Australian National University; Fei-Ju Li, Australian National University; Kristy Kwong, Australian National University; Pey-Tsyr Chiou, Australian National University; Euan McNaughton, Australian National University; Katrina Randall, Australian National University

ABSTRACT

Background: Cytokines are small proteins that mediate cellular communication and drive inflammation. Cytokine inhibitors are used to treat a range of conditions including rheumatoid arthritis, Crohn’s disease, osteoporosis, psoriasis, eczema, and asthma. In the year 2023-2024, these included 6 of the top 25 highest-cost medicines on the Pharmaceutical Benefits Scheme, with over 2.2 million prescriptions and a total government expenditure exceeding 1.9 billion dollars. Despite their widespread use and cost, these drugs are used empirically based on clinical judgement, as there are no TGA-approved cytokine tests.

Aim: Our aim is to develop an accredited test for circulating cytokine levels. The first step in this process is to identify a suitable assay for further development.

Methods: As there are no diagnostic grade kits available, we tested six “research grade” cytokine immunoassay kits. These kits use electrochemiluminescent or fluorescent capture-bead detection. To assess their suitability as in vitro diagnostic tests, we evaluated assay performance in terms of specificity, recovery, and reproducibility. Our test samples included WHO international cytokine standards, kit standards and human serum samples.

Results: Generally, the kits had low specificity, high cross-reactivity and significant matrix effects. A small number demonstrated acceptable performance, warranting further evaluation. We are currently conducting further analysis of the linearity, limits of detection, and inter-assay reproducibility of these kits.

Conclusion: Once a suitable kit is identified and validated, we will pursue approval by the TGA.

Impact: We anticipate that a validated cytokine test will transform the use of cytokine inhibitors across many diseases, leading to more personalised and effective treatment.

TITLE: Enhancing Value in Healthcare: Dalbavancin as a Cost-Effective Outpatient Treatment for Staphylococcus aureus Bacteraemia

AUTHORS: Eli Dunn, Canberra Health Services; Yolande Lindsay, Canberra Health Services; Ian Marr, Canberra Health Services; Fabian Chiong, Canberra Health Services

ABSTRACT

Background/Significance: With increasing strain on Australian hospitals, optimising treatments to improve outcomes, enable earlier outpatient management, and reduce costs is critical. Staphylococcus aureus bacteraemia (SAB) requires prolonged parenteral antibiotics, which are costly and linked to catheter-related complications. Dalbavancin, a long-acting lipoglycopeptide effective against SAB, including MRSA, has been explored internationally for discharge pathways but remains relatively unexamined in Australia. Its weekly to fortnightly dosing offers an outpatient alternative to daily HITH infusions, eliminating catheter need. Dalbavancin may reduce costs, ease system burden, and improve adherence for patients with healthcare barriers.

Aims/Question: This study evaluates the cost-effectiveness and clinical outcomes of dalbavancin for SAB in Canberra to inform future research.

Methods: A retrospective cohort study (06/2023–07/2024) of CHS HITH patients treated for SAB (cohort-1) or prescribed dalbavancin (cohort-2). Cohort-1 costs were compared to projected costs under an outpatient dalbavancin model. Cohort-2 outcomes included 90-day mortality, treatment failure, readmission, additional antibiotics, adherence, and adverse reactions.

Results: Among 40 SAB patients treated in HITH (age 58±21, 71% male, 5% IVDU, 82% complicated, 37% healthcare-acquired), treatment lasted 5±2.3 weeks, with 85% requiring PICCs and a 7.5% PICC-complication rate. Total 877 antibiotic-days (benzylpenicillin 36.5%, flucloxacillin 32.7%, cefazolin 20.8%, vancomycin 10.0%) cost $586,241 Projected dalbavancin cost: $390,807, 34 less PICCs, three less PICC-complications. Six patients received dalbavancin. Of 16 planned doses, non-adherence occurred in three (19%). No adverse reactions, mortality, recurrence, readmissions, or additional antibiotics occurred within 90 days.

Conclusion/Impact: Dalbavancin offers a cost-saving, catheter-free outpatient treatment alternative. A discharge pathway for SAB could reduce hospital burden, improve adherence, and optimise outpatient care, warranting further evaluation.

TITLE: Rare LYN and BLK variants in ACT in epistasis to cause autoimmunity.

AUTHORS: Sonia Babu Nambadan, John Curtin School of Medical Research , Australian National University; Tom Lea-Henry, John Curtin School of Medical Research, Australian National University; Morgan Downes, John Curtin School of Medical Research, Australian National University; Thuy Nguyen Huynh, John Curtin School of Medical Research, Australian National University; Gemma Hart, John Curtin School of Medical Research, Australian National University; Anju Babu, John Curtin School of Medical Research, Australian National University; Justin Chan, John Curtin School of Medical Research, Australian National University; Joanne Chow, John Curtin School of Medical Research, Australian National University; Richard Kitching, Monash University; Giles Walters, The Canberra Hospital; Vicki Athanasopoulos, John Curtin School of Medical Research, Australian National University; Simon Jiang, John Curtin School of Medical Research, Australian National University

ABSTRACT

Background: Systemic lupus erythematosus and related autoimmune diseases have a strong genetic risk. The Src B family members LYN and BLK are frequently associated with autoimmune disease. Rare gain of function (GoF) mutations in LYN are described to cause human SLE, although loss of function (LoF) BLK mutations have unclear effects on immune response. Indeed, BLK is thought to be immunologically redundant. We identify a family with complex autoimmunity with both a novel LYN and a rare BLK mutation potentially acting in epistasis.

Aim: To determine the individual and epistatic effects of novel LYN and rare BLK variants in a family with complex autoimmunity.

Methods: Overexpression assays with Interferon-β (IFN-β) to detect gene activity, CRISPR models of both alleles were crossed and underwent immunophenotyping, calcium flux experiments by flow cytometry, ELISA, and Hep-2 for autoantibody detection.

Results: Luciferase reporter assay identified LYN-var as a GoF variant and BLK-var as a LoF variant. We replicated orthologous mutations creating Lyn-var and Blk-var mouse strains which were then intercrossed. Lyn-var/var mice, develop antinuclear antibodies by 36 weeks. The marginal zone and marginal zone precursor cells showed significant differences in the intercrossed mice compared to that of the independent variant strains and wildtype. Lyn-var/var B cells had an increased B cell receptor calcium flux although it was markedly reduced in the presence of Blk-var/var.

Conclusion/Impact: We identify novel and rare mutations in Src B family members LYN and BLK, demonstrating disturbed immune disruption from these individual alleles in mice bearing orthologous mutations. Further, we demonstrate novel pathogenic interactions between Src B family kinase members.

TITLE: TLR9 as a driver of Scleroderma

AUTHORS: Morgan Downes, Australian National University; Joanne Chow, Australian National University; Tom Lea-Henry, Australian National University; Gemma Hart, Australian National University; Giles Walters, Canberra Health Services; Vicki Athanasopoulos, Australian National University; Simon Jiang, Australian National University

ABSTRACT

Background: Scleroderma is a rare, complex autoimmune connective tissue disorder hallmarked by immune activation, vascular damage and fibrosis of internal organs and skin. Despite the identification of a number of genetic markers, the cellular and molecular mechanisms underlying disease remain poorly understood. Further interrogation of gene variants is necessary to develop targeted therapies.

Aims/Question: To examine how a Toll-like receptor 9 (TLR9) variant contributes to autoimmunity in a patient with Scleroderma.

Methods: The proband and her two daughters underwent whole genome sequencing to identify candidate gene variants. Flow cytometry was used to assess patient B cell proliferation and activation, as well as immune cell populations in TLR9S12P mutant mice.

Results: We identified a novel variant in TLR9 (TLR9S12P) in the proband and two daughters. We observed increased B cell activation in the proband in response to TLR9 agonism. Despite normal B cell activation, the daughters B cells secreted more IL-6 and IL-10 and showed a higher tendency to proliferate. Mice carrying the orthologous TLR9 variant have a higher proportion of marginal zone B cells.

Conclusion: We report a novel TLR9 variant in a patient with Scleroderma and her two daughters - one who also shows signs of autoimmunity. We highlight that TLRS12P may drive autoimmunity via increased activation and expansion of B cells. The hyperactive B cells are a potential source of IL-6, a pro-fibrotic cytokine.

Impact: Continued interrogation of the TLR9 pathway will help unravel immunologic mechanisms underpinning Scleroderma and aid in the development of a personalised treatment strategy for the patient and pre-emptive treatment for her daughters.

TITLE: Molecular and biochemical methods in personalised medicine

AUTHORS: Lachlan Wilson, Australian National University; Jean Cappello, Australian National University; Jo Wai Wang, Canberra Health Services; Vicki Athanasopoulos, Australian National University; Simon Jiang, Australian National University

ABSTRACT

Background: Rare or novel genetic variants in protein coding regions contribute to the pathogenesis of autoimmune diseases. Studying these variants often relies on cellular assays performed upon boutique mouse models or patient samples. Whilst these techniques provide valuable insights, personalising therapeutic interventions requires an understanding of the molecular and biochemical consequences of variation, in addition to cellular and organismal ramifications.

Aim: To complement ongoing cellular studies on potentially deleterious variants with molecular and biochemical techniques.

Methods: Patients with complex autoimmunity underwent whole genome sequencing to identify rare or novel genetic variants. In-silico prioritisation identified the TNFAIP3N102S and TREX1S86R variants within different patient(s) as potentially pathogenic. These proteins were recombinantly expressed, purified and analysed using in vitro deubiquitinase and DNA cleavage assays, assessing TNFAIP3 and TREX1 function, respectively.

Results: TNFAIP3 is an anti-inflammatory protein that regulates key signalling pathways. The identified variant lies within a deubiquitinating domain, immediately upstream of a key catalytic residue, and hence may impact function. Indeed, in vitro deubiquitinase assays revealed impaired TNFAIP3N102S catalytic activity.

TREX1 is an exonuclease with a role in degrading immunostimulatory self-DNA. Preliminary structural modelling suggests that TREX1S86R may alter catalytic activity or DNA binding affinity. Corroborating modelling data, TREX1’s exonuclease activity was decreased in the presence of S86R.

Conclusions/Impact: We identify novel variants which affect the catalytic function of two immunologically important proteins, thus potentially explaining their molecular contribution to disease.

WEDNESDAY 18 JUNE 2025

SESSION 2

9:15 – 10:30

TITLE: Bridging Expertise Through Open Science: A Transdisciplinary Effort to Develop Artificial Intelligence Equipped Automated Insulin Delivery Systems for Glucose Regulation in Diabetes

AUTHORS: Chirath Hettiarachchi, Australian National University; David O'Neal, University of Melbourne & St Vincent's Hospital Melbourne; Christopher Nolan, Australian National University & Canberra Health Services; Hanna Suominen, Australian National University & University of Turku

ABSTRACT

Background: Introduction (Background and Significance): People with Type 1 Diabetes (PwT1D) are life dependent on exogenous insulin administration for glucose regulation. Current Automated Insulin Delivery (AID) Systems are hybrid in nature requiring the user input with meals.

Aims/Question: This transdisciplinary research developed fully automated treatment strategies that eliminate the need for manual input for meals (meal announcement and carbohydrate estimation), addressing complexities of the glucoregulatory system and limitations of classical control algorithms. By collaborating with PwT1D and their home and hospital-based carers, it integrated their expertise to improve AID and disseminate newly discovered knowledge.

Methods: Our AID was developed using deep Reinforcement Learning (RL), referring to Artificial Intelligence (AI) algorithms capable of discovering and validating novel complex treatment strategies using United States Food and Drug Administration (FDA) approved computer simulations for pre-clinical trials.

Results: Our best algorithm (https://github.com/RL4H/G2P2C) achieved a time-in-normoglycemic-range of 73% in in-silico adult cohorts, thus outperforming clinical treatment strategies with manual insulin dosing. We released its code as open source, also launching a free online demonstration and algorithmic benchmarking tool at https://capsml.com/, completed with a suite of developed RL and clinical algorithms. By February 2025, the launched tool had already attracted over 1,450 users across 50 countries.

Conclusions: Our algorithms show promise in further automation of AID and are currently being enhanced for safety and explainability. The shared code/tools are helping diabetes education and research.

Impact: Unlike prior closed-source AID work with limited sharing and replicability, our open-science approach fosters community engagement across disciplines and enhances real-world impact, as demonstrated by its widespread usage.

TITLE: Artificial Intelligence-Assisted Approaches for Emergency Department Triage Classification and Hospital Bed Allocation

AUTHORS: Khabir Panchal, UNSW Canberra; Patrick Cabot, UNSW Canberra; Ripon Chakrabortty, UNSW Canberra

ABSTRACT

Background: Machine learning can potentially improve healthcare by enhancing emergency department triage accuracy and optimizing hospital bed allocation. Efficient triage and resource management are critical to reducing patient wait times and improving care quality. However, traditional triage systems are subject to subjectivity, and bed allocation remains challenging due to unpredictable patient admissions and hospital capacity constraints.

Aims/Question: This study aims to (1) develop machine learning models to improve the accuracy and consistency of emergency department triage classification and (2) implement predictive modelling techniques to optimize hospital bed allocation and forecast the patient length of stay.

Methods: Data from national hospital records, including NHAMCS and MIMIC-IV, were analyzed using machine learning models such as Random Forest, XGBoost, and Feedforward Neural Networks for triage classification. For bed allocation, a predictive ensemble model incorporating XGBoost, Random Forest, and Support Vector Regression was developed to forecast patient length of stay.

Results: The XGBoost model achieved the highest accuracy for triage classification at 67.38%, improving decision consistency. For bed allocation, the ensemble model predicted patient length of stay with a root mean squared error of 0.190 and a mean absolute percentage error of 1.640%. However, challenges in handling long-term stay variability and class imbalances remain.

Conclusion: Machine learning models enhance decision-making in emergency departments and hospital resource management, but further refinement is needed for adaptability and interoperability.

Impact: These findings support the integration of machine learning into clinical workflows to improve hospital efficiency, reduce overcrowding, and enhance patient care outcomes through data-driven resource management for the Australian public healthcare system.

TITLE: KidneyVision

AUTHORS: Daniel Christiadi, Canberra Health Services; Benjamin Mashford, John Curtin School of Medical Research, Australian National University; Giles Walters, Canberra Health Services; Alice Kennard, Canberra Health Services; Richard Singer, Canberra Health Services; Krishna Karpe, Canberra Health Services; Girish Talaulikar, Canberra Health Services; Thomas Andrews, John Curtin School of Medical Research / School of Computing, Australian National University; Mitali Fadia, ACT Pathology; Simon Jiang, Canberra Health Services

ABSTRACT

Background: Glomerulonephritis (GN) is a kidney inflammation resulting from autoimmune or autoinflammatory processes. It is considered as one of the three most common causes of end-stage kidney disease (ESKD). Diagnosis primarily relies on the histopathological examination of biopsy samples by trained anatomical pathologists. However, this method is labour-intensive and susceptible to interobserver variability owing to qualitative analysis.

Aim: To develop deep learning (DL) algorithms capable of identifying and segmenting structures within all kidney biopsy compartments for quantitative morphological analysis.

Methods: Kidney biopsy slides were digitised to create whole-slide images (WSIs) using an Axio Scan at 40x magnification with a resolution of 0.11 micrometer/pixel. A pipeline was created using several trained DL models to extract morphological information from WSIs at different magnifications.

Results: A total of 99 normal kidney biopsies and 335 GN slides (IgA nephropathy, ANCA-associated vasculitis, minimal change disease, membranous nephropathy, focal segmental glomerulosclerosis, and class 3/4 lupus nephritis) were digitised. DL models identified and segmented the cortex, arteries, tubules, and glomerular structures with high fidelity. The extracted morphometric data were correlated with kidney function and demonstrated diagnostic capability. An application was designed to provide a user interface to facilitate the utilisation of the algorithm to support clinicians.

Conclusions/Impact: We have developed an automated pipeline that extracts quantitative morphological information from digitised GN kidney biopsy slides

TITLE: Optimising resource allocation through predictive modelling: a hybrid ensemble learning approach for length of stay prediction in ST-elevation myocardial infarction patients

AUTHORS: Anupam CA Rao, Canberra Health Services; Mehdi Neshat, Canberra Health Services; Peter J Scott, Canberra Health Services

ABSTRACT

Aim: Despite substantial advancements in interventional cardiology and reperfusion strategies, the accurate forecasting of healthcare resource utilisation for STEMI patients remains an elusive challenge within Australian tertiary centres. We aimed to develop a novel hybrid ensemble learning model for predicting length of stay (LOS) in STEMI patients, addressing the critical need for precision resource management.

Method: We analysed 37,684 STEMI admissions from Canberra Hospital using ICD-10 codes I21.0-I21.3 supplemented with hierarchical comorbidity classifications. A comparative evaluation of five distinct machine learning paradigms (Neural Network, Random Forest, XGBoost, CatBoost, LightGBM) was performed against our novel Hybrid Ensemble Method (Hybrid-EM), which synergistically integrates the algorithmic strengths of CatBoost and LightGBM. Model performance was assessed using R-value, Explained Variance Score, accuracy, and Mean Absolute Error.

Results: The Hybrid-EM model achieved 79% accuracy with a Mean Absolute Error of 1.6 days. Demographic analysis revealed 16% higher admission rates for males, with peak ad-mission ages of 80 years for men versus 85 for women. Male patients had 11% longer aver-age LOS. Overall, 79% of patients were discharged within the first week.

Conclusion: Our pioneering Hybrid-EM framework represents a significant methodological advancement in predictive analytics for STEMI management within the Australian healthcare ecosystem. Through the synergistic integration of complementary algorithmic approaches, we have engineered a robust prediction tool that consistently outperforms conventional single-algorithm methodologies. Clinical implementation could substantially enhance bed capacity management and care pathway optimisation while addressing the historically underutilised potential of machine learning in cardiovascular resource planning.

TITLE: Transforming discharges from acute to residential care in the ACT using a participatory action approach

AUTHORS: Kate Gorell; Clare Stephenson; Chrysta Bridge, ACT Health; Shrijana Gautam, Warrigal Aged Care; Rebecca Heland; Carol Chan; Laura Hants; Kim Bradshaw; Ash Smyth, University of Canberra; Kasia Bail, University of Canberra

ABSTRACT

Background: Current discharge processes between CHS acute settings and residential aged care homes (RACH) in the ACT is suboptimal, with anecdotal evidence suggesting information sharing is ad hoc, with often inadequate information regarding nursing and allied health care plans and medication changes.

Aims: This research aimed to improve discharge processes by:

Effectively streamline transition paperwork from CHS acute settings to RACH

Co-develop a ‘single source of truth’ discharge package containing nursing and allied health information.

Co-develop an electronically produced medication chart meeting the Aged Care Commission standards improving communication with RACH.

Methods: Participatory action mixed methods research was utilised to co-develop a digitally derived documentation package for relevant patients, in conjunction with key stakeholders. Pre- and post-implementation phone surveys were conducted, incorporating both quantitative and qualitative questions to evaluate the acceptability of the revised digital discharge documentation.

Results: Overall, Participants reported improved information to support care. Nine out of ten interviewees reported that the new paperwork met the expected level for providing safe care. All ten participants confirmed that prescribed medications were accurately provided, and the documentation system enabled safer care.

Conclusion: The new digitally derived discharge paperwork package was well-received by participants and proved to be a constructive and practical innovation in improving care transitions.

Impact: Addressing challenges in transitions of care for some of the most complex patient cases is crucial for effective patient flow in hospitals. It was deemed feasible and valuable for broader

implementation across the hospital, highlighting the integration of systems to ensure patient safety and enhance communication between healthcare providers.

TITLE: The rise and fall of desflurane - using interactive dashboards to communicate health research

AUTHORS: Anna-Maree Syme, University of Canberra; Luise Kazda, University of Canberra

ABSTRACT

Background: Effective communication of health research outcomes is crucial to achieve impact on decision-making and policy development but is often neglected. This case study uses an interactive dashboard to track CO2e emissions from desflurane use in Australian hospitals. Desflurane is an anaesthetic agent and highly potent greenhouse gas with a global warming potential of more than 2,500 times carbon dioxide.

Aims: To provide up-to-date, easily accessible, reliable, tailorable and relevant research findings to policy makers, hospital managers and clinicians for utilisation in benchmarking, evaluation of interventions and policy decision-making in working towards a net-zero health system.

Methods: A robust and comprehensive dataset was sourced from IQVIA, containing all desflurane purchases between 2002 and 2022. Data were aggregated by year, hospital type and jurisdiction. Researchers and data visualisation experts collaboratively developed the dashboard using PowerBI with focus on dynamic data visualisation and user interaction. To ensure continuous improvement and stakeholder engagement a feedback mechanism evaluating effectiveness and user friendliness was incorporated.

Results: This dashboard is publicly accessible on several websites with links disseminated to key stakeholders. It shows a continuing success in phasing out desflurane in Australian hospitals.

Conclusions: Accessible, clear and concise presentation of research outcomes paired with stakeholder engagement can enhance usability and impact of findings in policy formulation and implementation. This case study highlights the value of interactive dashboards as tools for effective communication in healthcare.

Impact: The desflurane dashboard has been welcomed by federal policy makers who have already used it in response to the OECD on the feasibility of collecting data on health and climate indicators

WEDNESDAY 18 JUNE 2025

SESSION 3

9:15 – 10:30

TITLE: Frailty myth-busting: Clinical implications of frailty among patients with chronic kidney disease

AUTHORS: Alice Kennard, Canberra Health Services; Alice Richardson, Australian National University; Suzanne Rainsford, Australian National University; Kelly Hamilton, Canberra Health Services; Nicholas Glasgow, Australian National University; Kate Pumpa, University College Dublin; Angela Douglas, University of Canberra; Girish Talaulikar, Canberra Health Services

ABSTRACT

Background: Conceptualised as a state of accelerated aging, frailty interacts with uraemia to produce a number of adverse patient outcomes in people living with chronic kidney disease (CKD). Despite practice recommendations to incorporate frailty assessment into nephrology care, evaluation of frailty is underused and there is a paucity of data outside of European and American settings.

Aim: Describe the prevalence, characteristics and longitudinal changes in frailty among outpatient CKD and haemodialysis populations and their impact on survival.

Methods: Prospective observational cohort study examined Fried frailty phenotype in adults with advanced CKD (eGFR<20ml/min) or undergoing haemodialysis at baseline, 6 months and 12 months of longitudinal follow-up. Consent model was informed opt-out consent. Data linkage with digital health record (DHR) captured all-cause mortality and kidney transplantation events.

Results: Frailty was present in 36.3% of 256 participants and a further 46.5% demonstrated prefrailty. Frailty was equally common among CKD and HD cohorts. Frailty outperformed age, comorbidity and laboratory parameters in predicting mortality risk with Hazard Ratio 2.83 (95% CI 1.44-5.56, P <0.001). Frailty also substantially reduced access to transplantation. While most participants exhibited static Fried phenotype over longitudinal assessment, improvements in frailty were observed as frequently as frailty progression. Female gender and symptom burden predicted frailty progression.

Conclusions: Frailty is highly prevalent and closely aligned with survival outcomes. Frailty among patients attending routine outpatient care may demonstrate responsiveness to intervention with subsequent improvements in mortality and other patient-level outcomes.

Impact: This local study demonstrates the clinical utility and feasibility of frailty assessment in ambulatory care settings. We showcase the research potential of DHR.

TITLE: Pulmonary Rehabilitation: Using Technology to Improve Access

AUTHORS: Gemma Everett, Canberra Health Services; Katherine Goodsell, Canberra Health Services; Ann-Maree Daley, Canberra Health Services; Timothy Daley; Cassandra Sanders

ABSTRACT

Background: Pulmonary rehabilitation (PR) improves health outcomes for individuals with respiratory disease, but access in the Australian Capital Territory (ACT) is limited by high demand, few providers, and disruptions like COVID-19. Telehealth PR programs have proven effective and resource-efficient, offering a potential solution to enhance access in the ACT.

Aim: This project aimed to implement a telehealth PR program in the ACT during the COVID-19 lockdown, targeting clinically significant outcomes—defined as a 0.5-point improvement on the Chronic Respiratory Disease Questionnaire (CRDQ) and a 10% increase on the 6-minute walk test (6MWT)—and positive consumer reception.

Methods: The program included face-to-face assessment, home exercise prescription, weekly physiotherapist phone calls with motivational interviewing, and online multidisciplinary education. Screening identified eligible consumers for telehealth. Prospective data was collected for outcome measures, qualitative feedback, and adverse events.

Results: The program serviced 18 consumers over 8-weeks with 50% (n=9) completing discharge assessments. Clinically significant improvements were seen in 6MWT (21.6%) and Mastery domain of CRDQ (0.72). The other domains of CRDQ demonstrated non-significant improvements (dyspnoea 0.3, fatigue 0.03, emotional functioning 0.45). Consumers reported low dissatisfaction (35%) with the program. There were no adverse events or hospitalisations reported.

Conclusion: Phone-based telehealth PR for ACT clients was safe, feasible and effective, however had a high non-completion rate.

Impact: Telehealth using independent exercise with motivational interviewing may enhance access to pulmonary rehabilitation in the ACT for this cohort.

TITLE: "Best Practice Pathway for Knee Osteoarthritis (OA)": Impact of Advanced Practice Physiotherapy (AP) Screening in orthopaedic clinics 2022-2024.

AUTHORS: Jennie Scarvell, University of Canberra; Danealle Gilfillan, Canberra Health Service; Joe Lynch, Canberra Health Services; Tahlia Stewart, Canberra Health Services; Carol McCrum, Canberra Health Services; Phil Townsend, University of Canberra; Theo Niyonsenga, University of Canberra

ABSTRACT

Introduction: Advanced Practice Physiotherapist (APP) screening clinics are best practice in Orthopaedic pathways internationally and assist with long waits for specialist consultations. This knowledge translation project aimed to analyse Orthopaedic referral outcomes for knee osteoarthritis over 3 years of increasing APP screening clinic implementation.

Methods: Data snapshots (March-Sept 2022/2023/2024) of Orthopaedic referrals, wait-times and clinic outcomes were analysed, and informed by stakeholder interviews. During this period APP screening FTE increased and digital health records were implemented.

Results: In the 2022 snapshot, APPs screened 21% of 177 patients; increasing to 81% of 182 in 2023 and 74% of 167 in 2024. In 2022 surgeons saw 84% of patients. As screening increased, surgeons saw less patients after shorter waits; in 2023 surgeons saw 59% and in 2024 53% of patients.

2022 category 3 patients waited median 821 days (range 228-1935) and category 2 patients 57 days (7-1983) to see a surgeon. In 2023 and 2024 APP diverted most category 3 patients to non-surgical management. Category 2 patients waited 63 (12-484) and 68 days (7-257) respectively. In 2022 surgeons discharged 27% patients following consultation, and 10% in 2023.

Stakeholders reported satisfaction with APP screening and that it should be extended to other conditions and clinics. Patients felt more engaged and confident of their care decisions.

Conclusion: APP screening provided efficient access to quality examination and advice and surgeons saw more patients ready for surgery.

Impact: Patients are received expert advice in good time, and surgeon consultation was used more effectively. This model of care has met expectations of patients, health professionals and decision-makers.

TITLE: Early onset of breast cancer in the ACT 1982-2021

AUTHORS: Pramod Adhikari, ACT Health; Mirka Smith, ACT Health Directorate; Elizabeth Chalker, ACT Health Directorate, Lindy Fritsche, ACT Health Directorate

ABSTRACT

Introduction: Early-onset cancer refers to cancers diagnosed at a younger-than-expected age. This can be cancer-specific but generally means developing cancer before the age of 50. In this presentation, early-onset is defined as cancers diagnosed in ACT adults aged 18–49 years.

Aims: To analyse the incidence and survival rates of early-onset cancers in ACT adults aged 18-49 years, with a specific focus on breast cancer, using data from the ACT Cancer Registry.

Methods: Incidence and survival rates were estimated using the diagnosis and death dates from ACT Cancer Registry data. Survival analysis was conducted using the Kaplan–Meier method.

Results: Between 1982 and 2021, nearly one in six cancer diagnoses were early onset. Females were twice as likely as males to be diagnosed with early-onset cancer. More than a quarter of female breast cancer diagnoses during this period were early onset. In 2021, 82 of the 309 female breast cancers (27%) were among women aged 18-49 years.

The survival analysis suggests women diagnosed with early-onset breast cancer had better overall survival outcomes. Encouragingly, those diagnosed more recently showed even better survival rates. The relative survival analysis revealed that the one-year survival rate for female early-onset breast cancer is 99%, with five- and ten- year survival at 89% and 83% respectively.

Conclusion/Impact: These findings underscore the importance of early detection and advancements in treatment, as evidenced by the improved survival rates over time. The results emphasize the need for continued focus on early-onset cancer research and targeted interventions to further improve patient outcomes including relating to survivorship.

TITLE: Targeting epigenetic co-dependencies to develop new therapies for diffuse large B-cell lymphoma

AUTHORS: Rachel Woodhouse, Australian National University; Elizabeth Mee, Australian National University; Yilan Yu, Australian National University; Xianghan Li, Australian National University; Juliana Gomez, Australian National University; Christina Sparbier, Peter MacCallum Cancer Centre; Marian Burr, Australian National University

ABSTRACT

Background: Diffuse large B-cell lymphoma (DLBCL) is an aggressive malignancy, with one-third of patients developing treatment-refractory disease. Approximately 22% of germinal centre B-cell DLBCL and 25% of follicular lymphoma harbour activating mutations in the epigenetic regulator EZH2. While EZH2 inhibitors are FDA-approved for relapsed/refractory EZH2-mutant follicular lymphoma and in trials for DLBCL, their limited efficacy in DLBCL highlights the need for new therapies. Our lab found that EZH2 dependency predicts co-dependency on another epigenetic regulator, Menin, across tumour types. Menin inhibitors show great promise in acute leukemia trials, offering a chance to repurpose them for EZH2-dependent cancers including DLBCL.

Aims: To evaluate Menin inhibition as a therapeutic strategy for EZH2-dependent DLBCL and identify resistance mechanisms to EZH2 and Menin inhibition.

Methods: We assessed Menin inhibition effects on lymphoma cell growth, cell cycle, and immunogenicity in cell lines. A whole-genome CRISPR screen in an EZH2-mutant DLBCL cell line was conducted to explore resistance mechanisms.

Results: Menin inhibition led to specific lymphoma cell growth inhibition, G1 cell cycle arrest, and enhanced immunogenicity, suggesting potential as monotherapy or with immunotherapy. The CRISPR screen identified cell cycle dysregulation as a common mechanism of resistance to EZH2 and Menin inhibition. Mutations in cell cycle regulators are present in ~50% of DLBCL tumours. Combining Menin and EZH2 inhibitors enhanced growth inhibition and overcame cell cycle–mediated resistance.

Conclusion: Combining Menin and EZH2 inhibition offers a promising approach for treating EZH2-dependent DLBCL, particularly against cell cycle–driven resistance.

Impact: These findings support clinical evaluation of Menin inhibitors in EZH2-dependent DLBCL and highlight novel targets to improve treatment outcomes.

TITLE: Physical outcomes from an Australian Long COVID Recovery Clinic incorporating personalised exercise prescription: an observational cohort study

AUTHORS: Tanya Buettikofer, Canberra Health Services; Allison Maher, Canberra Health Services; Michelle Bennett, Canberra Health Services; Veronica Rainbird, University of Canberra; Hsin-Chia Carol Huang, Canberra Health Services; Philip Gaughwin, Canberra Health Services; Miriam Vandermeide, Canberra Health Services; Rory Carlyle, Canberra Health Services; Marc Nickels, Queensland Health; Wendy Ho, Canberra Health Services; Mary Johnson, Canberra Health Services; Madeleine Brady, Canberra Health Services; Kacie Paterson, Canberra Health Services; Jo Morris, Canberra Health Services; Prof Imogen Mitchell, Canberra Health Services & Australian National University; Prof Jenny Paratz, The Royal Brisbane and Women's Hospital, Brisbane; Prof Bernie Bissett, University of Canberra & Canberra Health Services

ABSTRACT

Background: In Australia, Long COVID affects 5-10% of COVID-19 cases. Few multidisciplinary services exist to support recovery from Long COVID. Incorporation of exercise therapy remains controversial in this consumer group.

Aims/Question: To investigate the physical outcomes of a novel Australian multidisciplinary Long COVID Recovery Clinic that incorporates personalised exercise prescription including respiratory and peripheral strengthening and carefully monitored cardiovascular training.

Methods: Design: single-centre prospective observational study. Setting and participants: consumers ≥18 years old who had completed the Long COVID Recovery Clinic at University of Canberra Hospital by 30/06/2023. Outcome measures on enrolment and completion: Modified COVID-19 Yorkshire Rehabilitation Scale (C19-YRSm), spirometry, maximum inspiratory pressure (MIP) and 6-minute-walk-test (6MWT). Data analysis: descriptive statistics and comparison of assessment and reassessment of outcome measures.

Results: 208 consumers were referred, 95(46%) of whom were vaccinated for coronavirus; 2(3%) consumers identified as Aboriginal and/or Torres Strait Islander. 72(35%) completed the program, 41(57%) female, mean age46, mean duration 123clinic days (range 1 to 384, SD 64.0). Consumers showed improvement in C19-YRSm (MD 4.9, SD 16.2) and 6MWT distance (MD 56.3, SD 133.0). Spirometry values were similar before and after (FVC MD 0.04L, SD 1.01; FEV1 MD 0.02L, SD 0.88)

while there was a modest improvement in MIP (MD 7.9cmH2O, SD 27.3). There were no adverse events as a result of participation in exercise.

Conclusion: The majority of participants showed improvement in some physical outcome measures after attending the multidisciplinary Long COVID Recovery Clinic that incorporates supervised exercise and pacing, without deleterious effects.

Impact: Our findings can inform future planning of services for consumers with Long COVID.

TITLE: Telehealth Pulmonary Rehabilitation: Can It Keep Up with Face-to-Face Care in the ACT?

AUTHORS: Gemma Everett, Canberra Health Services; Katherine Goodsell; Thomas Goodhew; Cassandra Sanders

ABSTRACT

Introduction: Telehealth Pulmonary Rehabilitation (PR) has been successfully implemented across Australia, offering health benefits to low-acuity respiratory patients. In the Australian Capital Territory (ACT), access to PR is limited. Telehealth PR may improve access for patients in the ACT.

Aim: This project aimed to evaluate the feasibility of teleconferencing PR for low-acuity ACT consumers including assessing eligibility, identifying barriers and comparing effectiveness to face-to-face PR. Clinical effectiveness was defined as 0.5-point improvement on the Chronic Respiratory Disease Questionnaire (CRDQ) and 10% increase on the 6-minute walk test (6MWT).

Methods: This program was designed from benchmarked Australian guidelines and involved supervised exercise via Healthdirect. 3-months of eligibility screening was completed and barriers for consumers identified. A pilot program was trialled over 8-weeks with prospective data for outcome measures, adverse events, staffing requirements, capacity and qualitative feedback.

Results: Of 69 consumers screened, 20% (n=13) were eligible, with barriers including home oxygen (18%), no internet (12%), and difficulty contacting patients (16%). Due to Healthdirect limits, three of four completed the program. Change in CRDQ for dyspnoea, fatigue, emotional function and mastery was 0.33, 0.83, 0.28 and 0.58 respectively. 6MWT improved by 2.47%. Client dissatisfaction was 36.25%. Full-time-equivalent requirements were equal to face-to-face PR with lower capacity. No adverse events occurred.

Conclusion: Teleconferencing PR was feasible but not clinically effective, with limited capacity. Small sample numbers likely confounded outcome measure data.

Impact: Telehealth PR is currently less effective than face-to-face and cannot be recommended in the ACT. Enhancements in eligibility, platform stability, and program design are needed to encourage future implementation.

WEDNESDAY 18 JUNE 2025

SESSION 1

11:15 – 12:30

TITLE: Palliative care content recommendations for Australian pre-registration nursing curricula: A modified Delphi study

AUTHORS: Sylvia Nilsson, University of Canberra; Jo Gibson, University of Canberra; Angie Fearon, University of Canberra; Catherine Paterson, Flinders University; Patrick Crookes, University of Canberra

ABSTRACT

Background: Pre-registration nursing curricula provides the foundation for future clinical practice; however, graduate nurses report being inadequately prepared to partake in palliative care delivery. In addition, little empirical data exists on the specific palliative care content to be included in Australian pre-registration nursing curricula.

Aim: To develop palliative care content recommendations for Australian pre-registration nursing curricula by obtaining consensus from a panel of palliative care experts on essential palliative care content.

Design: A two-round modified Delphi study.

Methods: The results of a systematic review informed, international focus group formed the basis for the modified Delphi. In Round 1, using a 9-point Likert scale, a panel of palliative care experts was asked to rate the importance of 105 items to be included in the final palliative care curricula content recommendations. Free text comment was also sought. To facilitate an iterative discussion between rounds, no threshold for consensus was applied to the Round 1 results, which informed Round 2.

Results: Thirty-one palliative care experts representing six countries completed two questionnaire rounds. Following the analysis of Round 1, 36 items were reworded for clarity and to reflect best practice. By the end of Round 2, 101 items within five categories were identified as meriting

inclusion. Categories include introduction to palliative care, professional knowledge, nursing care, legal and ethical considerations, and economics and environment

Conclusion: This research provides an evidence-informed list of palliative care curricula content recommendations for Australian pre-registration nursing curricula. The recommendations highlight the level of importance international palliative care experts attribute to each item being included in pre-registration nursing curricula.

TITLE: Empowering end-of-life choices: A cohort study

AUTHORS: Tricia O'Connor, Flinders University; Raymond (Wai-Man) Liu, ANU; Juliane Samara, NSW Health; Joanne Lewis, Avondale University; Karen Strickland, Edith Cowan University; Catherine Paterson, Flinders University

ABSTRACT

Background: Dying is sometimes not recognised, leading to continued treatments that delay decision-making and preparation for end-of-life. Being able to better predict time to death while patients are still able to make important decisions and choices enhances the likelihood of a ‘good death’. A proactive and anticipatory approach to increase patients’ autonomy, reduces the emotional burden on families, and may reduce complicated grief. However, little is known about predicting time trajectories until death.

Aim: To use Australia-Modified Performance Status (AKPS) scores to predict the time until death, to enhance decision-making and patient autonomy.

Methods: This retrospective ACT cohort study included 2,438 patients, with 49,842 AKPS data points from patients receiving either home-based or hospice-based palliative care services and who died between January 2017 and December 2021. An Interval-Censored Cox Proportional Hazards regression model was employed to analyse the time from the first AKPS score of 20 (dependent and bedbound) to either becoming comatose (AKPS 10), or death (AKPS 0).

Results: On average, patients scored AKPS 20 for 24 days before becoming comatose or dying. A significant difference in life expectancy was observed between cancer and non-cancer patients: mean of 14.4 days (median = 2, SD = 38.8), versus 53.3 days (median = 5, SD = 157.1) respectively.

Conclusion: Results offer clinicians validated data to help inform end-of-life planning. Anticipatory consultations will help encourage patients to have meaningful conversations with their loved ones. The importance of considering a cancer diagnosis when determining timeframes to death should be considered

Impact: Results will impact end-of-life choices knowing when decision-making capacity may be lost.

TITLE: Consumer Engagement in Palliative Care: A Synthesis of Australian Policies and Frameworks

AUTHORS: Zijian Wang, University College London; Zijian Wang, Australian National University

ABSTRACT

Background: Incorporating the lived-experience of patients and their families into palliative care is advocated. Previous studies have identified organisational barriers to meaningful consumer involvement, with engagement often remaining tokenistic at the organisational level.

Aim: This policy review aims to synthesise existing consumer incorporation policies across government, care provision facilities, and educational institutions to provide a comprehensive portrait of current Australian consumer engagement in palliative care, identify policy gaps, and provide recommendations for translating policy into practice.

Methods: A narrative synthesis approach was adopted to accommodate the heterogeneity of included documents. The review examined consumer engagement and lived-experience incorporation policies and frameworks relevant to palliative care within Australia's healthcare system.

Results: The review analysed policies from diverse sources including four government documents, four specific palliative care policy frameworks, and materials from 12 peak bodies and organizations, four regulatory and accreditation bodies, and ten academic and research institutions. Additional resources were extracted from three policy databases and four legislative resources. Findings highlight various national and state-level initiatives enhancing palliative care provision and research, such as support programs for home-based care and other investments in research and education.

Conclusion: This policy search reveals both progress and persistent gaps in consumer engagement within Australian palliative care. While frameworks exist to promote consumer involvement, implementation remains inconsistent across settings, with varying degrees of meaningful engagement.

Impact: This review offers valuable insights for the long-term development and implementation of consumer and carer leadership in palliative care. The findings provide a foundation for the ongoing evolution of evidence-based, consumer-centred end-of-life care policies and practices in Australia

TITLE: The experiences of care workers in end-of-life care with culturally and linguistically diverse populations: An Interpretative Phenomenological Analysis

AUTHORS: Dr Jo Gibson, University of Canberra; Jo Gibson, University of Canberra; Kasia Bail, University of Canberra

ABSTRACT

Background: Care workers are crucial in Australia's healthcare system, particularly in palliative care. However, they often lack formal training or professional registration.

Aim: To investigate care workers' lived experiences caring for people of culturally and linguistically diverse backgrounds during end-of-life care.

Design: Interpretative Phenomenological Analysis

Methods: The lived experiences of eleven care workers were collected within the Australian Capital Territory and region who had provided end-of-life care for someone of a culturally and linguistically diverse background. Each care worker was interviewed with semi-structured open-ended questions.

Results: Using interpretative phenomenological analysis, three group experiential themes were derived: (i) Navigating cultural shock and death, (ii) The hard work of communication, and (iii) Searching for deeper connections with client and self. Within these were key elements: care workers worked hard to embrace cultural diversity, but struggled to meet cultural needs, particularly in relation to the unpredictable timeline of dying. Care workers relied on themselves and their improvisation, but experienced self-blame for inadequate care and unexpected challenges in communication. Blurred boundaries in relation to therapeutic relationships were apparent, and care workers felt alone with emotional burden, but also found belonging and joy in their work.

Conclusion: Care workers are vital to providing culturally appropriate end-of-life care. Care workers experienced emotional burden and vicarious trauma in their work but were self-reliant. Care workers reported a need for increased education, training, resources, and support.

Impact: Care workers need access to support and resources including professional translators to provide culturally appropriate end-of-life care. Workplaces and registered nurses should facilitate training and provide guidance to care workers.

TITLE: Platelet TLT-1 shedding in health and trauma patients

AUTHORS: Amandeep Kaur, Australian National University; Sidra A Ali, Australian National University; Samantha Montague, University of Birmingham; Paul Armstrong, Barts and The London School of Medicine and Dentistry, Queen Mary University of London; Paul Vulliamy, The London School of Medicine and Dentistry, Queen Mary University of London; Marcus Alim; Yee Lin Thong, Australian National University; Philip Yi Choi, Canberra Health Services; Elizabeth Gardiner, Australian National University

ABSTRACT

Background: Active Factor X (FXa), shear stress or ligands, initiates A Disintegrin And Metalloproteinase (ADAM)-mediated receptor shedding of platelet glycoprotein (GP) VI. Triggering Receptor Expressed on Myeloid (TREM)-like transcript (TLT)-1 is a platelet-specific receptor for fibrinogen and is shed in sepsis and inflammation by an unknown mechanism.

Aim: To characterise TLT-1 regulation and production of soluble (s) TLT-1 in healthy donors and trauma patients

Methods: TLT-1 levels on resting, coagulated, shear, or ligand-activated human platelets were assessed by flow cytometry and immunoblotting. sTLT-1 in samples from healthy donors and trauma patients was quantified by ELISA. Temporal loss and extent of TLT-1 proteolysis were compared with metalloproteolysis of GPVI.

Results: TLT-1 levels increased 2.5-fold on protease-activated receptor (PAR)-1 activated platelets. Incubation with GPVI ligand, convulxin, triggered the release of TLT-1 that was inhibited by broad-spectrum metalloproteinase inhibitors or predominantly an ADAM17 inhibitor (>90%), resulting in loss of intact TLT-1 and release of a 10-17 kDa fragment of TLT-1 by immunoblotting. In recalcified plasma, the FXa or metalloprotease inhibitors blocked the release of sGPVI (85%) and sTLT-1 (60%). High shear stress (7,000-15,000 s^{-1}) enhanced TLT-1 surface expression and metalloproteolysis ($p<0.01$). sTLT-1 levels were significantly elevated with increased trauma severity ($p<0.001$) and in non-survivors ($p<0.05$) among trauma patients.

Conclusions: Unlike GPVI, TLT-1 levels increased on activated platelets and regulated predominantly by ADAM17 metalloproteinase. TLT-1 release in serum involved FXa and metalloproteinase activation.

Impact: sTLT-1 has implications as a potential biomarker for disease severity and mortality risk among trauma patients.

TITLE: Ribosomal biogenesis inhibition drives the differentiation of stem cells towards the MK/platelet lineage

AUTHORS: Vijay Bhoopalan, Australian National University; Amandeep Kaur, Australian National University; James I Hearn, Australian National University; Nadine Hein, Australian National University; Rita Ferreira, Australian National University; Kylee H Maclachlan, Memorial Sloan Kettering Cancer Center; Gretchen Poortinga, Peter MacCallum Cancer Centre; Simon J Harrison, Peter MacCallum Cancer Centre; Ross D Hannan, Australian National University; Elizabeth E Gardiner, Australian National University

ABSTRACT

Background: CX-5461, an RNA Polymerase I inhibitor, is an anti-cancer therapeutic that has completed phase I/II clinical trials. Pre-clinical studies identified that CX-5461 treatment increased circulating platelet counts in mice, suggesting its potential to mitigate thrombocytopenia. Treatment of poor platelet production and thrombocytopenia remains a major clinical challenge.

Aim: To explore mechanisms underpinning CX-5461-mediated thrombopoiesis.

Methods: C57BL/6 or TPO-receptor-deficient mice received three doses/week of 35 mg/kg CX-5461 or vehicle. Blood cells were enumerated and platelet lifespan, receptor levels, and function were assessed. Bone marrow (BM) was isolated, and MK number/ploidy and haematopoietic cell subpopulations were quantified. TPO levels were assessed by ELISA, and liver TPO mRNA by RT-qPCR. Whole BM or FACS-sorted mouse Lineage-Sca1+c-Kit+ (LSK) cells were cultured to quantify MK colony forming units (CFU).

Results: A single-dose of CX-5461 increased platelet counts 1-34% in 9/16 haematological malignancy patients. CX-5461-treated mice showed rapid, reversible 1.7-fold platelet increases (d7); lymphocytes and neutrophils remained unchanged; erythrocytes decreased. Key platelet receptors retained normal levels and function. New platelets were increased 2.3-fold, but platelet lifespan was unchanged. While MK ploidy levels remained comparable, a >2-fold increase in MK numbers, alongside increased Sca1+MK ($p<0.01$), MK-biased multipotent progenitor-2 ($p> 0.0005$). CX-5461 treatment induced a >3-fold increase in MK-CFU. CX-5461 induced thrombopoiesis without altering plasma or liver TPO mRNA levels and increased platelet counts 5-fold ($p<0.0005$) in TPO receptor-/- mice

Conclusions: CX-5461 treatment rapidly increases circulating platelet levels. CX-5461 promotes a TPO signalling independent MK-biased haematopoietic pathway

Impact: RNA-Polymerase I inhibition offer a novel target for treating thrombocytopenia and a tool to further our understanding of thrombopoiesis.

TITLE: Incidents and Mechanisms of Geriatric Trauma treated at the Canberra Hospital

AUTHORS: Tom Harrysson, Australian National University; Rebecca Brown, Canberra Health Services; Joe Lynch, Australian National University

ABSTRACT

Introduction: Trauma is a leading cause of death and morbidity in Australia, with an increasing burden of geriatric (≥65) trauma as the population ages. With Australians living longer, more individuals are at risk of sustaining major trauma. Research on local data is crucial for understanding the nature of the problem and how it affects our healthcare service and informing future directions of care.

Aim: This study examined trends in geriatric trauma burden at Canberra Hospital over time and compared injury mechanisms and mortality between geriatric (≥65) and non-geriatric (<65) patients.

Methods: All ACT Trauma Registry patients from 2014–2023 with an Injury Severity Score (ISS) >12 (major trauma) were included (n=3164). Proportional analysis and descriptive statistics assessed incidence, mechanism of injury, mortality, and ISS between the groups and over time.

Results: While major trauma increased by 70.1%, the proportion of geriatric trauma remained relatively stable (19.1%–32.6%). However, mortality was significantly higher in geriatric patients (13.8% vs 5.6%). There was also higher mortality from falls from standing height (55.1% vs 6.3%) and lower intentional mortality (1.3% vs 29.1%). Surprisingly the age range 45-55 has the highest incidence (15.8%) but the lowest mortality (2.6%). Surprisingly, ISS distribution was similar between groups.

Conclusion/Impact: These findings highlight the disproportionate mortality risk faced by older adults, especially from low-energy mechanisms. This work is particularly important as low mechanisms of injury are not currently included in trauma activation criteria. Understanding local trauma trends and mechanisms of injury is critical for informing future research and care directions for this vulnerable population.

WEDNESDAY 18 JUNE 2025

SESSION 2

11:15 – 12:30

TITLE: Life in the .FAST lane: save intravenous fluid, staff time, hospital expenses and reduce waste through best practise fasting protocols in Emergency General Surgery, a prospective study at the Canberra Hospital

AUTHORS: Denna Fryer, Canberra Health Services; Che Marfleet, Canberra Health Services; Alexandra Jolley, The Royal Melbourne Hospital; Kristy Mansour, The Royal Melbourne Hospital; Benjamin Loveday, The Royal Melbourne Hospital; Manasi Rai, Canberra Health Services; Edwin Beenen, Canberra Health Services; Ngee-Soon Lau, Canberra Health Services

ABSTRACT

Background: The world-wide shortage of intravenous fluid (IVF) highlights the need to review IVF use. ‘Fast from midnight’ (FFMN) and ‘nil by mouth’ (NBM) are commonly used despite Australian and New Zealand College of Anaesthetists (ANZCA) guidelines encouraging fasting six hours prior to surgery and sips of clear fluids until sent for surgery.

Aim/Methodology: An initial retrospective clinical audit from 21/08/24 to 18/09/24 of EGS fasting practices and IVF use from data obtained using DHR Epic Hyperspace® was analysed for fasting type, time fasted, and fasting IVF. A staff education campaign regarding implementation of a smart phrase “.FAST” was then conducted. Finally, a clinical audit of uptake was conducted from 28/10/25 to 20/01/25. This data was then modelled to calculate projected impact.

Results: Only 18% of all patients had IVF charted after the .FAST protocol was implemented, compared to 48% of patients prior. Of those on .FAST, only 8% had IVF charted, compared to 39% of patients NBM (previously 64%) and 24% of patients FFM (previously 43%). Projected annual savings with the implementation of .FAST protocol at 100% uptake are 23 doctor workdays, 46 nurse workdays, and $2,460 in costs of IVF. No surgeries were cancelled utilising the .FAST protocol.

Conclusion/impact: .FAST education and DHR smart phrase led to decreased IVF use and time spent fasting, projected to save more than a month of doctor's time, more than two months of nurse's time, thousands in hospital funds, and reduce landfill from IVF bags. This study justifies the need for implementing .FAST throughout all surgical wards at TCH with follow-up auditing.

TITLE: Investigating self-care amongst care professions: Practices, barriers and future needs.

AUTHORS: Dimity Crisp, University of Canberra

ABSTRACT

Introduction: Mental health professionals, and clinicians in training, report high rates of stress and burnout. Engagement in self-care practices is essential in enabling healthy coping strategies to combat the professional stressors faced.

Aim: Acknowledging the different environments and contexts in which the mental health workforce resides, this research investigated the extent to which Australian health professionals are engaging in self-care practices, the perceived barriers to self-care, and the supports needed.

Methods: The project incorporated both a survey (n=435) of psychologists, occupational therapists and nurses engaged in mental health care and a series of semi-structured interviews (n=34) to examine the experiences and challenges faced.

Results: The majority of participants reported to engage in some self-care on a regular basis. However, role demands, a lack of time and workplace culture were reported as major barriers. Professionals' own needs were often downgraded as a priority and sacrificed in place of other tasks that needed attention. Participants reported a need for improvements in the promotion of self-care and focused training at all levels.

Conclusion: Professionals, and those in training (clinical students), recognize the benefits of self-care for both their own health and work safety. Open communication and genuine support for self-care is needed at all workforce levels in order to support change.

Impact: The study offers important considerations for clinical training programs and the development of workplace initiatives that support employee wellbeing.

TITLE: Interprofessional health workforce dynamics and the growing reliance on international graduates in the ACT, 2013 – 2023

AUTHORS: Joanna Mills, Australian National University; Monica Rayson, Canberra Health Services; Jodi Glading, ACT Health Directorate

ABSTRACT

Introduction: Interprofessional teams are integral to modern healthcare, and international graduates (IGs) play a critical role in delivering services and addressing workforce shortages in the Australian Capital Territory (ACT).

Aim: To analyse trends and characteristics of registered Australian and New Zealand (ANZ) and IG health practitioners in the ACT over time.

Methods: A retrospective analysis (2013-2023) of the National Health Workforce Dataset examined age, sex, and country of qualification across seven ACT health professions: Medical Practitioners, Medical Radiation Practitioners, Nurses and Midwives, Occupational Therapists, Pharmacists, Physiotherapists, and Psychologists. Qualification data for Nurses and Midwives was unavailable. Descriptive statistics, chi-square tests, and logistic regression assessed workforce composition and predictors of overseas qualification.

Results: Between 2013 and 2023, the ACT health workforce grew by 48.3% (9,707 to 14,393), led by Nurses and Midwives (56.7%; 73,504/129,675). IGs, comprising 16.6% (8,506/51,222), increased by 58.3% (609 to 964). Medical Practitioners consistently had the highest proportion of IGs (27.6% in 2013 to 28.3% in 2023), while Allied Health professionals averaged 8.0%. IGs were older (45-54 years: 24.8%) than their ANZ counterparts (20-34 years: 93.3%; ($\chi^2(5, N = 51,222) = 1765.16$, p<0.001). They were also more likely to be female (OR: 1.182, 95% CI: 1.123-1.244, p<.001), aged 45-54 (OR: 3.651, 95% CI: 3.372-3.952, p<.001), and Medical Practitioners (OR: 4.653, 95% CI: 4.419-4.901, p<.001).

Conclusion: The ACT healthcare system relies heavily on IGs with key demographic and professional variations from ANZ graduates.

Impact: Generational differences and work restrictions among ACT health professionals may influence team dynamics, offering insights to guide policy and workforce planning for diversity and sustainability.

TITLE: Mental Health Consumers and Participation in Occupational Therapy Education (MH-CAPOTE); A stigma-reducing teaching intervention using coproduction

AUTHORS: Julia Bocking, University of Canberra; Holly Northam, University of Western Sydney; Douglas Boer, University of Canberra; Claire Pearce, University of Canberra; Kate Holland, University of Canberra; Aine O'Donovan, University College Cork

ABSTRACT

Introduction: Mental health stigma is a major inhibitor of providing quality mental health services in Australia. It has wide adverse impacts; affecting public perceptions, self-esteem, funding and help-seeking. Clinical outcomes remain suboptimal despite substantial reform in legislation, policy, funding arrangements and new clinical standards. Clinical students have limited opportunity to engage with people who access public mental health services until they join the workforce. The new curriculum is focused on exploring fear, discrimination, recovery and responses to distress.

Aims: Does exposure to consumers during university training reduce mental health stigma in students?

Mental Health Consumers and Participation in Occupational Therapy Education (MH-CAPOTE) investigated the impact of incorporating consumer perspectives into the Occupational Therapy unit ‘Mental Health Practice’ at the University of Canberra. MH-CAPOTE offered multiple opportunities for students to enhance their clinical readiness. The aim of this research is to embed and promote traditionally silenced consumer perspectives; and promote self-reflection and more positive attitudes in students.

Methods: The mixed method design included a pre and post-test of student stigma using an adapted Opening Minds Scale for Health Care (OMS-HC) and student focus groups to share their perceptions of the experience. Qualitative data was analysed thematically using a constructivist lens.

Results: Student feedback was very positive, and showed a statistically significant drop in stigma.

Conclusion: Coproduced mental health education is worthy of further investigation. It can reduce stigma and ensure practice keeps pace with recovery-based policy.

Impact: The findings from MH-CAPOTE could assist other academic conveners to implement coproduction in their courses, and improve student capacity to engage with consumers.

TITLE: Experiences of people undergoing chemotherapy, their carers and staff engaging in physical activity in the ACT.

AUTHORS: Rebecca Cesnik, University of Canberra; Kellie Toohey, Southern Cross University; Nicole Freene, University of Canberra; Alanah Pike, University of Canberra; Stuart Semple, University of Canberra

ABSTRACT

Background: Cancer is a leading cause of death and disability. Physical activity (PA) may improve treatment side-effects, cancer outcomes, utilisation of healthcare services and quality-of-life. Despite this, people are insufficiently active during chemotherapy.

Aims: This study aims to understand the experiences, barriers and facilitators of people with cancer undergoing chemotherapy, their carers and staff engaging in PA.

Methodology: Participants currently undergoing outpatient chemotherapy in the ACT, their carers/family and staff completed an interview or focus group; and a questionnaire. Qualitative data was analysed using inductive thematic analysis. Quantitative data classified activity status and supported qualitative responses.

Results: Participants(n=73) from the three ACT chemotherapy centres were involved (undergoing chemotherapy=23, carers=10, staff=40). Preliminary themes included PA is part of life, ‘It’s all too much’, PA as part of chemotherapy, tailored access to services, physical capability; and organisational and workforce structures. Most staff (nursing=21, medical=5, allied health=14) believed PA during chemotherapy was important but reported challenges to encouraging PA. Overall people undergoing chemotherapy were insufficiently active (57%) and did not meet resistance exercise frequency guidelines (78%).

Conclusion: People undergoing chemotherapy felt PA was important if it was supported as part of treatment. History of PA, physical capability and mental capacity impacted experiences with PA. Tailored and individualised education and access; and workforce and organisational structures impacted participation in PA and availability of support.

Impact: There are opportunities to improve PA and experience the health benefits in people undergoing chemotherapy developing or expanding services and support structures to ensure equitable and tailored access. There was a desire to integrate PA services into standard care.

TITLE: Preclinical Trial Using Sheep Model – 3B Materials for Future Orthopaedic Implants

AUTHORS: Xingjian Gong, Australian National University; Paul Smith, Canberra Health Services; Rachel Li, Australian National University; Alexander Bobinskas, Canberra Health Services

ABSTRACT

Background: Orthopaedic implants play a crucial role in fracture fixation, joint replacement, and treating bone deformities. Traditional titanium implants provide excellent mechanical properties and biocompatibility but lack biodegradability and may require removal due to infection or long-term complications. Magnesium-based materials, with mechanical properties similar to bone, offer an alternative due to their biodegradability and osteogenic potential. However, rapid degradation remains a major limitation. This study investigates gallium-strontium phosphate-coated magnesium (GaSrPO4@Mg) implants in a sheep model to assess their biodegradability and bioactivity compared to titanium.

Question: This study aimed to evaluate the performance of GaSrPO4@Mg implants in bone integration and degradation in a large animal model, hypothesizing improved bone healing and prompt degradation over titanium implants.

Methods: GaSrPO4@Mg and titanium implants were placed in the maxilla bones of sheep and assessed over 13 weeks. Bone microstructure and implant performance were analyzed using micro-computed tomography and histology. Statistical analyses compared the bone microarchitecture between groups.

Results: Contrary to the hypothesis, the magnesium implants caused significant bone damage and severe cavitation due to rapid degradation. Statistical analyses confirmed significant differences in bone quality metrics between the magnesium and titanium groups.

Conclusion: The findings indicate that gallium-strontium phosphate coatings were insufficient to control magnesium degradation, leading to compromised bone integration. The results highlight the challenges in translating biomaterials from small animal models to larger, clinically relevant systems.

Impact: These findings emphasize the need for advanced coatings or alloys to regulate magnesium dissolution. Future research should focus on optimizing the material to balance degradation and therapeutic benefits for safer, more effective biodegradable orthopaedic implants.

TITLE: Secondary Osteon and Haversian canal size and growth in the femur and rib: Implications for bone-specific metabolic constraints.

AUTHORS: Tahlia J Stewart, Canberra Health Services & Australian National University; Eline MJ Schotsmans, University of Wollongong / Université de Bordeaux; Gina McFarlane, University of Kent; Patrick Mahoney, University of Kent; Justyna J Miszkiewicz, University of Queensland

ABSTRACT

Background: Remodeling continually resorbs old and deposits new bone, creating (secondary) osteons – microstructures visible in transverse cross-section as concentric rings of bone enveloping central Haversian canals. Bones have different metabolic rates and osteon and Haversian canal sizes, likely due to distinct biomechanical pressures.

Aims: We investigate osteon (On.Ar) and Haversian canal area (H.Ar) and allometry/isometry relationships between rib and femoral histology to test for scaling relationships.

Methods: Rib cross-sections (n=71) and ~1cm2 samples from the anterior (n=28) and posterior (n=53) femur in English and Australian donors were measured under light and polarised microscopy (10x magnification). Wilcoxon and Friedman's ranks compared rib, anterior and posterior femur On.Ar and H.Ar. Reduced major axis regressions (RMA) investigated On.Ar and H.Ar scaling relationships in the rib and femur.

Results: Femoral On.Ar and H.Ar were larger than the rib (p<0.001-p=0.048). Rib RMA suggested mostly isometric (proportionate) On.Ar and H.Ar growth (β=1.120, intercept=-1.605, 95%CI 0.791-1.402, r2=0.298, p<0.001), while anterior (β=1.683, intercept=-4.178, 95%CI 1.244-2.128, r2=0.479, p<0.001) and posterior femur (β=1.934, intercept=-5.266, 95%CI 1.386-2.336, r2=0.379, p<0.001) suggested positive allometry (On.Ar growing faster than H.Ar). However, some rib donor sub-groups (by age-at-death and sex) demonstrated positive allometry, or borderline negative allometry (On.Ar growing slower than H.Ar), compromising cortical bone.

Conclusion: H.Ar and On.Ar growth ratios differ, perhaps related to bone health or age degeneration. Rib On.Ar and H.Ar have mostly isometric relationships, but positive allometric femoral relationships, possibly reflecting low-magnitude rib, but high-magnitude femoral loading.

Impact: This is the first RMA application to bone microstructure scaling in the rib and femur and informs us on human bone metabolism.

WEDNESDAY 18 JUNE 2025

SESSION 3

11:15 – 12:30

TITLE: Targeting epigenetic regulators as a therapeutic strategy to enhance anti-tumour immunity in small cell lung cancer

AUTHORS: Chelisa Cardinez, Australian National University; Mazhar Hussain, Australian National University; Erin Brotherton, Australian National University; Juliana Gomez, Australian National University; Xianghan Li, Australian National University; Sarah Popp, Australian National University; Binu Bakhati, Australian National University; Daniel Pavlich, Australian National University; Neha Aggarwal, Australian National University; Kate Sutherland, Walter and Eliza Hall Institute; Marian Burr, Australian National University

ABSTRACT

Background: Small cell lung cancer (SCLC) is an aggressive neuroendocrine carcinoma with poor survival rates. While immune checkpoint inhibitors (ICIs) are effective in cancers with high mutation burdens, their success in SCLC has been limited. Distinct subtypes of SCLC have been defined according to expression of specific neuroendocrine transcription factors ASCL1, NEUROD1, and POU2F3. An additional “inflamed” subtype, termed SCLC-I, lacks expression of these transcription factors but shows high expression of antigen presentation pathway (APP) genes including MHC-I. Importantly, SCLC-I tumours have shown improved responses to ICI therapy. SCLC cells can transition between neuroendocrine and inflamed (SCLC-I) states, a process likely driven by epigenetic regulation. Targeting key epigenetic mechanisms could enhance antigen presentation and immune responses in SCLC, boosting the effectiveness of immune checkpoint blockade.

Our study aims to identify epigenetic regulators that modulate immune evasion in SCLC, paving the way for novel immunotherapy strategies. To achieve this, we conducted a targeted epigenetic CRISPR screen to identify key regulators of immune evasion in SCLC. We identified the Polycomb Repressive Complex 2 (PRC2) and the Menin-MLL complex as key repressors of MHC-I expression, maintaining an immune-silent phenotype. Genetic and pharmacological inhibition of these complexes in SCLC cells induced MHC-I expression and promoted a global inflammatory response. Furthermore, targeting these epigenetic complexes in vivo leads to enhanced anti-tumour immune

responses. Our findings highlight that targeting specific epigenetic regulators can help overcome immune evasion in SCLC. By modulating key epigenetic pathways, this approach could improve antigen presentation and responsiveness to immune checkpoint inhibitor therapy, offering new therapeutic strategies for this challenging disease.

TITLE: Carer experience of a delirium resource (PREDICT) to support care partnerships with healthcare professionals: a qualitative study.

AUTHORS: Christina Aggar, Southern Cross University; Kasia Bail, University of Canberra & ACT Health Directorate; Alison Craswell, University of the Sunshine Coast; Erin Davis, Southern Cross University/ Northern NSW Local Health District; Rachel Langheim, Southern Cross University/ Northern NSW Local Health District; Mark Hughes, Southern Cross University; Roslyn Compton, University of the Saskatchewan; Golam Solwar, Southern Cross University; JR Baker, Southern Cross University; Jennene Greenhill, Southern Cross University

ABSTRACT

Background: Empowering carers to participate in healthcare decision-making benefits patients at risk of delirium as carers are well placed to detect small behavioural and cognitive changes. Carers of older adults play a vital role in safe, equitable healthcare, with growing recognition of the importance of collaborative partnerships between carers and healthcare professionals. The co-designed Prevention & Early Delirium Identification Carer Toolkit (PREDICT) supports these partnerships to prevent and manage delirium in the acute hospital setting.

Aims/Question: To explore carers' experiences of the PREDICT toolkit in preventing delirium.

Method: A qualitative study underpinned by empowerment theory explored carers’ experience of PREDICT to support care partnerships in the prevention and management of delirium. Carers of patients at risk of delirium on a general medical ward in a regional hospital were exposed to PREDICT. Semi structured interviews were conducted with these carers following discharge.

Results: Two key themes were identified: ‘Carers Well Placed’ and ‘They Weren’t Quite Themselves’, and two sub themes: ‘Feeling Unsupported’ and ‘Grief, Loss, and Fear‘.

Conclusions: PREDICT has the potential to enhance the quality of care for older adults and support partnerships with carers. Additionally, this study proposes the five ‘E’s model: Engagement, Empowerment, Empathy, Emotional Support, and Education.

Impact: Implementing PREDICT, supported by the 5 E’s, supports strategies toward the prevention and management of delirium. Thereby improving health outcomes for older adults’ hospitalisation.

Overall: Integrating PREDICT presents an opportunity to strengthen carer involvement, improve patient care, and support better health service outcomes for hospitalised older adults.

TITLE: Co-design workshops to inform an at-home rehabilitation intervention for people with dementia: A qualitative analysis

AUTHORS: Clare Stephenson, University of Canberra; Sophia Hadjimichael, University of Canberra; Kasia Bail, University of Canberra; Diane Gibson, University of Canberra; Stephen Isbel, University of Canberra; Michelle Bennett, University of Canberra; Rachael Mitterfellner, University of Canberra; Nathan D'Cunha, University of Canberra

ABSTRACT

Introduction: At-home rehabilitation programs for people with dementia require person-centred and goal-directed components. This research investigates end-user priorities for developing a cost-effective, accessible home-based dementia rehabilitation program, for people experiencing challenges participating in group settings.

Aims: To determine end-user priorities of a home-based dementia rehabilitation program.

Methods: A co-design process ensured stakeholders' views contributed to the intervention design, funded for six home visits per participant. An occupational therapist and physiotherapist will design and monitor the intervention, delivered by an allied health assistant. Four two-hour co-design workshops were held over six months. Sixteen experts were recruited, comprising three dyads, and ten healthcare professionals with a minimum of three years cumulative experience working with people with dementia. Workshops were recorded and transcribed and thematically analysed.

Results: Four themes and seven subthemes were identified.

1) Awareness, acceptance and access;
2) Person-centred care: Understanding unique needs, preferences, and goals, with two subthemes: a) Respect and dignity, b) Flexibility and adaptability;
3) Empowerment through community engagement & continuous support, with three subthemes: a) Building confidence & self-efficacy, b) A gateway to engaging with other services, c) Preventing information overload & overwhelm; and
4) Multidisciplinary coordinated care, with two subthemes: a) creating a raft and b) ensuring robust handover processes.

Conclusion: Participants demonstrated confidence in the program's feasibility and value to people with dementia living at home. The intervention's feasibility and effectiveness should be assessed, to determine whether it should be implemented in the ACT public health system.

Impact: The research findings have informed the development of a pilot trial for implementation in the ACT.

TITLE: Increasing Incidence of Paediatric Inflammatory Bowel Disease in the ACT

AUTHORS: Joelle Mahmoud, Canberra Health Services; Celine Hamid, Canberra Health Services; David Croaker, Canberra Health Services

ABSTRACT

Background: Approximately 25% of inflammatory bowel disease (IBD) sufferers have had the disease since childhood. The incidence of paediatric IBD (PIBD) has been increasing globally.

Aim: We aimed to investigate how PIBD epidemiology in our practice fits into this trend.

Methods: A retrospective review of PIBD cases presenting to our unit between 1994 and 2023. Patients ≤16 years with a histologically-confirmed diagnosis of IBD were included. Basic demographic and diagnostic data was collected. The 30-year investigation period was divided into five-year intervals, and an incidence for each interval was calculated using the number of new PIBD cases presenting to the hospital in that period relative to the estimated local population of ≤19 year old residents, as published by the Bureau of Census and Statistics.

Results: Overall 152 children presented with PIBD within the study period. The first and last five-year intervals yielded an incidence of 13 versus 38 new cases per 100,000 population, respectively. The change in incidence was plotted and yielded a correlation coefficient of 0.9156 ($p=0.0104$). There was approximately a 3-fold difference in the incidence between the first and last five-year intervals of the study (2.98x increase, $\chi 2=10.61$, $p=0.0011$).

Conclusions: PIBD incidence in the ACT has increased significantly over the last three decades, similar to its national and international counterparts. While the causes of this trend are unknown, the Canberra population is exhibiting the same features as those described elsewhere globally.

Impact: As IBD is usually a lifetime condition, we need to prepare for a heavier case load. This worrying trend deserves sustained attention and further work.

TITLE: "And we feel success" – Participant reflections of a multi-component group reablement program for people with dementia and their care partners

AUTHORS: Georgina Chelberg, University of Canberra; Diane Gibson, University of Canberra; Stephen Isbel, University of Canberra; Poulomi Chowdhury, University of Canberra; Lara Wiseman, University of Canberra; Rachael Mitterfellner, Canberra Health Services; Helen Holloway, University of Canberra; Kasia Bail, University of Canberra; Michelle Bennett, Canberra Health Services; Nathan D'Cunha, University of Canberra

ABSTRACT

Background: Australia's National Dementia Action Plan further highlights the challenging post-diagnostic journey experienced by people with dementia and care partners. In 2021, Canberra Health Services and University of Canberra collaborated to design a group-based, multi-component, program. The SPICE Program (Sustainable Personalised Interventions for Cognition, Care, and Engagement) is delivered over twelve weeks by allied health professionals, and includes cognitive stimulation therapy, COPE® Program, care partner education, exercise and dietetics advice. This study presents the perspectives of participants from the first ten SPICE Programs during 2022-2024.

Methods: Participants were invited to complete a brief, audio-recorded interview following a two-stage consent process. A total of 60 people with dementia (M=79yrs;42% female) and 58 care partners (M=75yrs;67%female) consented. Transcripts were grouped and underwent content analysis by four researchers, driven by a line of enquiry about self-reported changes and program feedback.

Results: People with dementia shared themes of SPICE being 'stimulating and useful' with social 'connections', 'enjoyment' and increased 'confidence' through peer and staff friendships. Care partners reported positive changes for loved ones with similar themes of 'connection', 'enjoyment', 'being understood', and enhanced physical and social capacity. Self-reflection by care partners involved themes of 'belonging', 'sharing and learning together', increased 'understanding' and caring breakthroughs.

Conclusion: impact: Self-reported and proxy-reflections of SPICE participation revealed consistently positive experiences and wellbeing impacts. The group context offered important opportunities for social connection - acting as catalyst that enhanced potential benefits in other wellbeing domains. Findings extend the evidence for wider availability of early intervention dementia care in Australia with further research needed to develop implementation guidelines.

TITLE: Pawsitive Care: Effects of Canine-Assisted Intervention on Anxiety Among Intensive Care Unit Patients and Family Members – A Single-Centre, Single-Arm Interventional Study

AUTHORS: Kathleen Cook, Canberra Health Service; Clare Robertson, Canberra Hospital; Dr Sumeet Rai, The Canberra Hospital; Dr Kiran Gudivada, Canberra Health Services; Mary Nourse, The Canberra Hospital; Dr Imogen Mitchell, Canberra Health Services; Catherine Paterson, Caring Futures Institute, Flinders University

ABSTRACT

Background: Canine-assisted interventions (CAI) are recognized for alleviating psychological distress in hospital settings. However, evidence on their efficacy and safety in intensive care unit (ICU) environments is limited.

Aims/Question: This study aimed to evaluate the effects of CAI on anxiety in ICU patients and their family members. Secondary outcomes, including pain, physiological stress markers, and adverse events, were also assessed.

Methods: A single-centre, single-arm intervention study was conducted at The Canberra Hospital ICU. Anxiety and pain were measured using the Visual Analogue Scale for Anxiety (VAS-A) and the Numeric Pain Rating Scale (NPRS) pre- and post-CAI. Primary outcomes focused on anxiety reduction, with secondary outcomes examining pain, stress markers, and adverse events.

Results: A total of 141 participants (70 patients, 71 family members) were enrolled, with median ages of 63 for patients and 51 for family members. Significant reductions in anxiety were observed, with VAS-A scores changing from 5 to 0 ($p < 0.001$) for patients, and from 6 to 3 ($p < 0.001$) for family members. Patients (62%) and family members (93%) showed a ≥2-point reduction in anxiety. Pain scores also decreased post-intervention. No significant changes in vital signs or adverse events were reported.

Conclusions: CAI reduces anxiety in ICU patients and families without adverse effects and may complement pain management therapy.

Impact: This study contributes to the limited research on the efficacy and safety of CAI in ICU settings and offers insights for larger trials

WEDNESDAY 18 JUNE 2025

SESSION 1

15:30 – 17:00

TITLE: Self-recognition and formal help-seeking behaviour for mental health conditions among Australian adults

AUTHORS: Sonali Varma, Australian National University; Philip Batterham, Australian National University

ABSTRACT

Background: Mental health issues affect one in five Australians annually, yet approximately half of those affected do not receive care. While poor self-recognition of mental health may inhibit service use, the literature is limited.

Aim: This study aimed to identify targets to enhance self-recognition and formal help-seeking among Australian adults.

Methods: Using a cross-sectional survey (n=3175), this investigation examined demographic, lifestyle, clinical and help-seeking variables. Participants completed DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) checklists and screening tools for depression, anxiety, social phobia, panic disorder, and posttraumatic stress disorder, and reported if they had experienced each condition. Logistic regression identified factors associated with poor self-recognition and formal help-seeking, adjusting for potential confounders.

Results and Conclusion: Among 1135 participants with a DSM-5-defined condition, 19% exhibited poor self-recognition. Factors associated with poor self-recognition included older age, comorbidity presence, and greater distress. Those with poor self-recognition had approximately 20% lower odds of seeking formal help compared to those with accurate self-recognition. This association was significant based on screening tools ($p=0.025$) but not DSM-5 checklists ($p=0.265$). Variables associated with formal help-seeking behaviour included informal help-seeking, older age, speaking only English at home, reduced occupational functioning, and greater distress.

Impact: Strategies to improve self-recognition, particularly among older adults, could enhance service utilisation and reduce the mental health treatment gap. Targeted interventions to increase problem identification are crucial to addressing the unmet needs of those with mental ill-health. These findings highlight the importance of public health initiatives focused on early detection and intervention to improve mental health outcomes for Australians.

TITLE: A community-based screening protocol for children with speech and language concerns

AUTHORS: Kate Newall, Canberra Health Services

ABSTRACT

Introduction: The Speech Pathology Drop-in Clinic (SPDIC) refer all attendees to the Canberra Health Services, Children's Hearing Service (CHearS) for a diagnostic hearing assessment. This is based on a strong professional opinion that speech and language concerns are highly associated with hearing loss. An audit of clinical outcomes identified 89% normal hearing in this population.

Aims: To determine if providing a quick screen of hearing functionality at the SPDIC, would provide a more targeted referral pathway to CHearS, and minimise normal hearing referrals.

Methods: CHearS clinicians attended the SPDIC for 12 months and performed a hearing screen on all children that attended. A clinical protocol was developed with the following recommendations:

1. 'Refer' result: follow up diagnostic assessment required.
2. 'Pass' result: No follow up required.

Results: 288 children were screened and 4.5% hearing loss identified. Ad hoc analysis of clinical risk factors identified a stronger relationship between risk factors and hearing loss, than compared to the normal hearing group.

Conclusion: Parental reported Speech and Language concerns are not a strong predictor in identifying hearing loss. A referral protocol based on clinical risk factors was found to be more effective at identifying hearing loss in this population.

Impact: The wider audiological community can benefit from this research by better understanding the relationship between hearing disorders and speech and language concerns. A reduction in unnecessary referrals reduces anxiety for families and improves access to CHearS appointments for other children. Clinically, this research can aid in the development of referral protocols to improve access.

TITLE: The Safety of Psilocybin-Assisted Therapy: A Systematic Review

AUTHORS: Rosana R. Freitas, Australian National University; Efstathia S. Gotsis, Australian National University; Alexander T. Gallo, Australian National University; Bernadette M. Fitzgibbon, Australian National University; Neil W. Bailey, Australian National University; Paul B. Fitzgerald, Australian National University

ABSTRACT

Background: Psilocybin has recently been approved for use in psychedelic-assisted psychotherapy (PAP) for treatment-resistant depression in Australia. Despite promising evidence of efficacy, it is imperative to understand the potential risks involved.

Aims: To compile information on adverse events (AEs) and severe adverse events (SAEs) from clinical trials involving PAP and evaluate methods of measurement and reporting.

Methods: This review was registered in PROSPERO and conducted following PRISMA guidelines. It reviewed clinical trials of PAP in adults published in peer-reviewed journals in English since 2000. Data extraction focused on the measurement and reporting quality of AEs and SAEs.

Results: Twenty-four articles were included, with varying psilocybin doses, study designs, and treatment indications. Physical and psychological AEs during and after psilocybin sessions showed varied reporting methods and occurrences. Common AEs included elevated blood pressure, headaches, nausea, vomiting, fatigue, and anxiety. Suicidal ideation and behaviour were infrequent, predominantly noted in participants with a history of suicidal ideation or attempts.

Conclusion: The review highlights the need for standardized AE reporting across studies. Screening participants for a history of suicidality and ongoing monitoring remains crucial due to identified risks. While current data support PAP's generally favourable safety profile (with no fatalities linked to psilocybin), cautious optimism is advised given the preliminary nature and variability in AE and SAE measurement and reporting.

Impact: This study is necessary for ACT Health, as psilocybin-assisted psychotherapy (PAP) was recently approved in Australia for treatment-resistant depression. It provides essential safety data, highlighting the need for standardized AE reporting to ensure safe clinical practice.

TITLE: The impact of telehealth expansion on the out-of-pocket costs of Medicare-reimbursed psychiatric consultations: A person-linked data analysis

AUTHORS: Luke Woon, Australian National University; Jeffrey Looi, Australian National University; Wai-Man Liu, The Australian National University

ABSTRACT

Introduction: Medicare-reimbursed psychiatric consultation usage has changed considerably since telehealth expansion during COVID-19, but detailed out-of-pocket cost analyses are lacking.

Aims: To examine bulk-billing rates and fee gaps of Medicare-reimbursed psychiatric consultations by modes and other factors.

Methods: We analysed person-linked Medicare and Pharmaceutical Benefits Schedule records (2017–2023) and Census 2021 data. We compared average bulk-billing rates and fee gaps by consultation modes, MBS items, and policy periods (pre-telehealth expansion, expansion [March 2020–December 2021], consolidation [January 2022 onward]), and by patient demographics including age, gender, Socio-Economic Indexes for Areas (SEIFA), provider and patient remoteness, and stimulant prescriptions.

Results: There were 12,227,341 consultations (74.6% face-to-face, 15.0% videoconferencing, 10.4% telephone) for 1,123,164 individuals. Videoconferencing had the highest bulk-billing rate (65.5%), but overall, bulk-billing declined significantly, alongside increased fee gaps across all modes (videoconferencing: $120, face-to-face: $101, telephone: $92). Gaps were smaller among older patients, females, and the most disadvantaged. Outer regional patients were most bulk-billed, whereas patients in major cities and inner regions paid the lowest gaps. Metropolitan providers bulk-billed the least, while remote providers charged the largest gaps. Consultations involving stimulant prescriptions had higher fee gaps and fewer bulk-billing. Since 2022, there has been an increase in service provision from rural providers to metropolitan patients and vice versa.

Conclusion: Out-of-pocket costs varied significantly across patient, provider, and consultation characteristics and policy periods. Telepsychiatry helps facilitate service provision across different regions. High fee gaps of stimulant prescriptions reflect high demand.

Impact: Changes in reimbursement policies for telepsychiatry may impact healthcare costs. Further cost analysis can improve the Medicare telehealth funding model.

TITLE: The Differing Profiles of Mental Health Legislation in the Australian Capital Territory (ACT) and England and Wales (E&W) and impacts on Involuntary Hospitalisation Rates and Duration

AUTHORS: Dr Anju Soni, Canberra Health Services; Dr Ian Treasaden, West London NHS trust

ABSTRACT

Background: Introduction: Mental health legislation, such as the Australian Capital Territory (ACT) Mental Health Act (MHA) 2015 and the England and Wales (E&W) MHA 1983 (as amended 2007), evolves and varies between legislatures with differing impacts on patient rights and involuntary treatment outcomes.

Aims: To describe and compare ACT and E&W MHAs and rates of involuntary hospitalisation and tribunal reviews to provide evidence for future reform.

Methods: A comparative legislative analysis of both Acts was undertaken and datasets from the Office for National Statistics (E&W) and ACT Health Services used to evaluate resulting involuntary admission rates, mean detention duration, and tribunal review frequency across both jurisdictions.

Results: ACT has a narrower definition of mental disorder, shorter renewable detention orders and broader tribunal powers, including in detention and medication authorisation.

Annual involuntary hospitalisation rates were comparable (E&W: 0.087%, ACT: 0.075%). E&W have longer average detention durations (30-45 days vs. 21-35 days). ACT had significantly more tribunal reviews per patient detained ($p<0.0001$).

Conclusions: The differing legislative frameworks between jurisdictions influence involuntary treatment patterns. ACT's shorter detention durations may reflect both its MHA and lesser provision of forensic and secure services than E&W. ACT's integrated hospital-community treatment orders offer more flexible care delivery. Its tribunals may enhance patient safeguards via their broader powers and more frequent reviews.

Impact: Comparative analysis identifies each legislation can inform reform of the other and provide frameworks for its services, particularly around tribunal powers and treatment order flexibility.

However, service improvements require both legislative frameworks and adequate resourcing to effectively support patient care

TITLE: The Biopsychosocial Impact of Excessive Device Use Among School Age Children: A Systematic Review of Observational Studies.

AUTHORS: David Nwokeocha, Canberra Health Services; Abdel-Latif Mohamed, Canberra Health Services & Australian National University

ABSTRACT

Background: The widespread use of digital devices in the 21st century has transformed children's social interactions, reducing outdoor play, decreasing sleep duration, and contributing to adverse health outcomes. Understanding the biopsychosocial effects of excessive device use is critical to informing public health strategies and policy recommendations.

Objective: To systematically evaluate the physical, psychological, and social consequences of EDU among school-aged children (6–16 years).

Methods: We conducted a literature search on Embase, Ovid Medline(R), Cochrane CENTRAL, CINAHL, Global Health, and PubMed for papers focused on the physical, psychological and social effects of EDU. Study quality was evaluated using the Newcastle-Ottawa Scale (NOS). A thematic analysis was conducted using Braun and Clarke's framework and a quantitative analysis was conducted where possible.

Results: Among the 4,008 articles screened, six cross-sectional studies, one case-control study, and one conference abstract met the inclusion criteria. The devices analysed in this study included smartphones, computers, tablets (e.g., iPads), digital gaming consoles, gaming applications, televisions, video games, and internet usage. EDU was defined as usage exceeding two hours per day. The findings indicated a strong association between EDU and negative impacts on physical, psychological social well-being.

Conclusion: EDU impairs physical, mental, and social well-being, disrupting family dynamics and peer relationships. Regulatory bodies should prioritize structured screen time practices that promote outdoor activities and in person social interactions to mitigate these effects.

Impact: EDU influences social interactions and family dynamics. While current guidelines advocate for screen time restrictions, emerging evidence suggests that content quality, interactive engagement, and structured device use may be more effective than rigid time-based limitations.

TITLE: Orienting around the ‘un-recover-from-able’: Problematising recovery concepts in mental health service provision

AUTHORS: Terri Warner, Australian National University

ABSTRACT

Background & Significance: Mental health services have embraced recovery-oriented approaches to treatment, care and support. This approach has been extended to support provided to National Disability Insurance Scheme (NDIS) participants with a primary psychosocial disability. However, there is tension between the concept of mental health recovery and the NDIS permanence criterion, and mental health consumers have critiqued the application of recovery principles by both mainstream and non-mainstream services. Both service providers and policymakers need a way forward that supports positive outcomes for consumers.

Aims/Question: The aim of this project was to critically analyse the causes and effects of the introduction of the psychosocial disability category of eligibility for the NDIS.

Methods: The project involved three qualitative components: policy analysis; interviews with people with mental health diagnoses, carers, and clinicians; and a case study of an advocacy organisation that supports people with mental health conditions to access the NDIS.

Results: In qualitative interviews exploring their views on the concept of psychosocial disability, consumers and carers expressed dissenting views about the value of recovery-oriented services for people with psychosocial disability, and dissatisfaction with how recovery principles are applied in mainstream mental health services.

Conclusion: Mental health services should consider how to deliver individualised support that is respectful of consumers’ views on whether recovery as understood in mental health is a useful concept for them.

Impact: This research has implications for models of care in mental health services and for integrated service delivery across mainstream and non-mainstream providers, as well as for for clinician’s interactions and relationships with consumers.

WEDNESDAY 18 JUNE 2025

SESSION 2

15:30 – 17:00

TITLE: Exploring Social Determinants for Aboriginal and Torres Strait Islander Studies on Cardiovascular Disease (CVD)

AUTHORS: Abeshanth G Shanthakumar, Australian National University; Uday N Yadav, Australian National University; Chelsea Liu, Australian National University

ABSTRACT

Background: Cardiovascular disease (CVD) is a leading cause of morbidity and mortality among Aboriginal and Torres Strait Islander peoples, with social determinants of health playing a significant role in shaping health outcomes. However, ambiguities exist in which determinants are reported in CVD research. Identifying patterns of social determinants in CVD research is critical for improving evidence-based interventions and policies.

Aims/Question: This scoping review aims to assess, analyse, and synthesise the patterns of social determinants of health recorded and reported in research on CVD among Aboriginal and Torres Strait Islander populations.

Methods: A systematic search will be conducted across four electronic databases: PubMed, ProQuest, Scopus, and WebofScience, following PRISMA-Scoping Review guidelines. Studies published from 01/01/2015–01/01/2025 will be screened based on predefined criteria and data will be extracted focusing on the extent, consistency, and context of social determinant reporting. Extracted data will be summarised using a narrative synthesis approach.

Results: Preliminary analysis suggests significant variability in the patterns and reporting of social determinants across studies. Many studies lack standardised frameworks, with some providing detailed contextual information, while others mention determinants either briefly or not at all.

Conclusion: The preliminary findings highlight the inconsistencies in how social determinants of health are recorded and reported in CVD research. Addressing these gaps by implementing

standardised frameworks could improve data quality, providing a clearer understanding of the role social determinants play in health inequities

Impact: Addressing these discrepancies will hopefully guide future research methodologies, inform policy development, and support culturally appropriate interventions to improve cardiovascular health outcomes for Aboriginal and Torres Strait Islander peoples

TITLE: 6-month outcomes following PCI for Indigenous Australians in the ACT and surrounding areas over 22 years

AUTHORS: Anupam CA Rao, Canberra Health Services & Australian National University; Sue Morberger, Canberra Health Services; Peter Scott, Canberra Health Services & Australian National University

ABSTRACT

Background: There is a paucity of long-term outcome data post percutaneous coronary intervention (PCI) for Indigenous Australians in the Australian Capital Territory (ACT) and its large catchment area. We present baseline characteristics and 6-month outcomes of the public service at Canberra Hospital over 22 years.

Methods: We analysed data from 13,176 patients undergoing PCI between 1998-2020. Baseline characteristics including age, gender and comorbidities were compared. Primary outcome was all-cause mortality at 6 months and secondary outcomes included acute myocardial infarction (AMI), coronary restenosis, repeat PCI, and coronary artery bypass grafting (CABG).

Results: Indigenous patients comprised 2.2% (n=295) of the cohort. At baseline, Indigenous patients were younger (mean age 53 vs 65 years, $p<0.001$), more likely to be female (35% vs 23%, $p<0.001$), and had higher rates of diabetes (43% vs 25%, $p<0.001$), insulin-treated diabetes (22% vs 7%, $p<0.001$), smoking history (85% vs 67%, $p<0.001$), and end-stage kidney disease (10% vs 3%, $p<0.001$). At 6 months post-PCI, Indigenous patients experienced significantly higher all-cause mortality compared to non-Indigenous patients (12.5% vs 10.1%, $p<0.05$). Indigenous patients also had higher rates of AMI (11.5% vs 4.2%, $p<0.05$), restenosis (6.8% vs 5.7%, $p<0.05$), repeat PCI (6.4% vs 4.7%, $p<0.05$), and CABG (1.7% vs 1.3%, $p<0.05$).

Conclusion: We report for the first time, 6-month outcomes following PCI for Indigenous patients in the ACT and surrounding areas over two decades. Poorer outcomes were noted for Indigenous Australians undergoing PCI, despite being younger. This highlights disparity and emphasises the important need to address health inequality in the ACT.

TITLE: Exploring the Impact of the Built Environment on High Subjective Wellbeing among Adults: A Multilevel Analysis

AUTHORS: Joseph Uche Anumba, University of Canberra; Nasser Bagheri, University of Canberra; Soumya Mazumdar, University of Canberra; Théophile Niyonsenga, University of Canberra; Victor M Oguoma, University of Queensland; Vincent Learnihan, University of Canberra; Jacki Schirmer, University of Canberra

ABSTRACT

Background: Governments are increasingly interested in improving people's subjective wellbeing (SWB) due to its strong associations with health and overall life satisfaction. However, evidence for built environment (BE) influences on SWB remains mixed, particularly in urban contexts like Canberra.

Aim: This study investigated the association between five objective BE indicators—three park accessibility measures, residential density, and local living index— and high SWB among adults in Canberra, Australia.

Methods: Using data from 2,177 adults in the 'Living Well in the ACT region' survey, high SWB was measured using the Personal Wellbeing Index (PWI) and Global Life Satisfaction (GLS). Built environment indicators were constructed via Geographic Information System (GIS). Multilevel logistic regression was then used to estimate the associations between these indicators and high SWB, adjusting for sociodemographic factors.

Results: Park proximity was associated with higher odds of reporting high SWB. Although effect sizes were small after adjusting for sociodemographic variables, park count explained the largest proportion of variance in GLS (33.1%), and residential density explained the most variance in PWI (84.4%). Despite some non-significant associations, these indicators accounted for meaningful neighbourhood-level variance in high SWB.

Conclusions: Although the effect of the BE indicators was modest, they highlight how strategic urban planning—such as enhancing park access and optimising residential density—can support better health and wellbeing.

Impact: These findings underscore the importance of localised spatial approaches for capturing nuanced urban dynamics, offering actionable insights to health policymakers and city planners seeking to foster population wellbeing.

TITLE: Understanding implementation outcomes of Cardiovascular Rehabilitation for people with Transient Ischemic Attack and Mild Stroke: A Process Evaluation

AUTHORS: Lucy Walton, University of Canberra; Nicole Freene, University of Canberra; Allyson Flynn, University of Canberra; Elisabeth Preston, University of Canberra; Rachel Davey, University of Canberra

ABSTRACT

Introduction: Despite evidence supporting inclusion of transient ischemic attack (TIA) and mild stroke patients in cardiac rehabilitation, the lack of focus on implementation of integrated (TIA, mild stroke, coronary heart disease (CHD)) cardiovascular rehabilitation (CVR) programs has hindered their adoption.

Aims: Identify factors influencing CVR implementation success/failure, and evaluate CVR implementation outcomes (reach, effectiveness, adoption, implementation, maintenance) from clinician perspectives.

Methods: A mixed-methods process evaluation, guided by the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework, collected quantitative process-level data, and qualitative data (semi-structured interviews, field notes, observations). Qualitative data was deductively coded to the Consolidated Framework for Implementation Research. All data was mapped to RE-AIM dimensions.

Results: Reach was 44% (140/315) of the eligible patient population, with referral adoption highest at site 1 (74%), influenced by larger referral teams and program awareness. Clinicians perceived CVR as effective, but more evidence is needed. CVR was delivered as intended, with fidelity linked to adequate staffing and clinicians' confidence in delivery. Sixty-six percent (46/70) of patients completed >5 of 6 CVR sessions. Clear referral pathways and access to resources to support clinicians are necessary for CVR maintenance.

Conclusions: CVR was successfully implemented. Greater program awareness and streamlining referral pathways are indicated to improve reach and adoption. Access to resources to support clinicians, and increasing clinician confidence in CVR delivery, are key for implementation and maintenance.

Impact: Expanding cardiac rehabilitation to implement CVR could be a viable secondary prevention option for TIA and mild stroke. Findings provide clinicians with the evidence base to implement CVR into routine care for TIA and mild stroke patients.

TITLE: Is Canberra up for the challenge? Tracking progress towards a healthy and sustainable city

AUTHORS: Vincent Learnihan, University of Canberra; Gweneth Leigh, University of Canberra

ABSTRACT

Background: The 1,000 Cities Challenge is an initiative led by the Global Observatory for Healthy and Sustainable Cities to provide evidence-based spatial and urban policy indicators to advocate for and track progress towards healthy and sustainable cities for all.

Aim: To join the 1,000 Cities Challenge and develop evidence-based spatial and urban policy indicators for the city of Canberra, Australia for local use and global comparison.

Methods: We examined the spatial distribution of urban design and transport features and the presence and quality of city planning policies that promote health and sustainability. Open spatial data were used to calculate spatial indicators including walkability, accessibility to local destinations, density and public transport frequency. The 1000 Cities Challenge Policy Checklist was used to assess the presence and quality of policies aligned with evidence and principles for healthy and sustainable cities.

Results: Canberra performed exceptionally well on presence of urban and transport policies supporting health and sustainability (93.8%). However, the policy quality score was low (42.7%) indicating improvement is needed to ensure alignment with healthy cities evidence and setting of measurable targets. Particular attention is needed in the area of cycling and pedestrian infrastructure, street connectivity, mix of local destinations and employment distribution requirements.

Conclusion: The findings for Canberra could inform changes needed to local city policies. Our research team has met with local officials to share and determine the useability of our findings and to further prioritise actions.

Impact: Globally, uptake of evidence informed targets could facilitate progress towards the Sustainable Development Goals by aiding policy implementation, accountability and reducing spatial inequities.

TITLE: Social and Environmental Determinants of Dementia

AUTHORS: Saba Ghiasvand, University of Canberra

ABSTRACT

Background: Dementia poses a growing global health challenge, with mounting evidence indicating that social and environmental factors play a crucial role in cognitive decline. While genetics contribute, modifiable environmental influences—like air pollution, workplace hazards, and urban planning—affect cognitive health significantly. Our umbrella review synthesizes data from systematic reviews and meta-analyses examining how social and environmental factors influence dementia risk. We searched CINAHL, PsycINFO, PubMed, Scopus, and Web of Science for reviews from January 2004 to September 2024. Studies focusing on associations between these factors and dementia—including Alzheimer's disease—were assessed through rigorous selection, data extraction, and quality appraisal using AMSTAR-2. Research highlights a link between fine particulate matter (PM2.5) exposure and increased dementia risk, with every 10-unit PM2.5 rise correlating to a 3% to 226% higher risk.

Occupational exposures to metals, pesticides, and electromagnetic fields also heighten neurodegeneration risk. Conversely, features like residential greenery and neighbourhood walkability may mitigate risk. Socially, higher education, socioeconomic status, and social engagement foster cognitive resilience, while disparities exacerbate dementia risk by limiting healthcare access and increasing stress. However, studies on neighbourhood cohesion and individual vulnerability are lacking. Furthermore, although healthcare access and public space accessibility impact dementia outcomes, these aspects remain underexplored. This study underscores the profound impact of environmental and social factors on dementia risk, emphasizing the urgency for public health interventions to mitigate environmental exposures and address social disparities to promote brain health.

WEDNESDAY 18 JUNE 2025

SESSION 3

15:30 – 17:00

TITLE: Two Decades of Climate Change and its Impact on Emergency Department Presentations in the Australian Capital Territory: Past Trend and Future Projection

AUTHORS: Michael Tong, Australian National University; Nicole Vargas; Nikhil Jha; Mehdi Neshat; Peng Bi; Hilary Bambrick

ABSTRACT

Introduction: Increasing ambient temperatures arising from climate change pose a significant threat to population health in Australia. While most studies have only focused on major cities along Australia's coastline, few studies have examined the health impacts in the unique inland areas of Australia.

Aims: To explore health impact of climate change over last two decades in the Australian Capital Territory, and to project future changes under climate change.

Methods: Time series design was employed to assess temperature increases due to climate change and Emergency Department (ED) presentations.

Results: Total of 1,442,354 ED presentations occurred, with 2.49% of ED presentations attributed to heat and 4.00% attributed to cold. Future projections indicated heat attributable fraction will increase to 2.72%, and cold attributable fraction will decline to 3.21% by middle of this century. Younger age group exhibited highest relative risks (RR) from both heat and cold over four-week lag, middle age group was particularly sensitive to heat within one-week lag, while older adults were most vulnerable to cold over two-week lag.

Conclusions: Heat and cold contribute to increased emergency department presentations, with distinct age-specific vulnerabilities to temperature extremes. Projections indicate rising health burden associated with non-optimal temperatures, primarily driven by increasing heat-attributable fraction and concurrent decline in the cold-attributable fraction.

Impact: These findings highlight the urgent need for regional-specific climate change adaptation strategies to mitigate the growing health impacts of temperature extremes, protect vulnerable populations, and prepare healthcare systems for projected changes of ED presentations in Australian Capital Territory under future climate conditions.

TITLE: Some good news in a changing world? Is pyloric stenosis disappearing?

AUTHORS: Chun Fai (Tommy) Chan, Australian National University; Celine Hamid, Canberra Health Services; David Croaker, Canberra Health Services

ABSTRACT

Background: Infantile hypertrophic pyloric stenosis (IHPS) is a common cause of intestinal obstruction in infancy, but its incidence in the ACT region has not been previously studied. This study aimed to analyze changes in IHPS incidence from 1992 to 2022 and evaluate factors related to IHPS, including antibiotic use, proton pump inhibitor (PPI) use, and feeding methods.

Methods: We retrospectively analyzed the clinical records of IHPS patients from 1992 to 2022. A linear regression was performed to analyze the change in incidence rates. Factors such as feeding methods, antibiotic use, and PPI use were analyzed using logistic regression.

Results: There were 154,026 registered births in the ACT region from 1992 to 2022. A total of 327 cases of IHPS were identified, with an overall incidence rate of 2.12 per 1,000 live births. Although there were some fluctuations, the incidence rate showed a decreasing trend overall, from 3.16 per 1,000 live births in 1992 to 0.94 per 1,000 live births in 2022. Breastfeeding was associated with a significant reduction in risk (59.5%) ($p = 0.00004$) of IHPS compared to formula feeding. PPI use was associated with a significant increase in risk (approximately 400%) ($p=0.032$) compared to infants without PPI exposure.

Conclusion: Our data indicate a trend of decreasing IHPS incidence from 1992 to 2022. The results suggest that breastfeeding reduces the risk of developing IHPS, while PPI use is associated with increased risk.

Impact: The result is encouraging. Our study provides another piece of evidence for the importance of breastfeeding, and could be used as evidence to encourage mothers to breastfeed.

TITLE: Chronic constipation and growth

AUTHORS: Hua Long Li, Canberra Health Services; Celine Hamid, Canberra Health Services; David Croaker, Canberra Health Services

ABSTRACT

Aim: Parents of chronically constipated children often complain that their children have poor appetite. In addition, some have restrictive eating. The authors hypothesise that successful treatment improves appetite and growth. This project aims to determine whether successful laxative treatment improves growth.

Method: A retrospective cohort study of children aged <16 who presented to our hospital's paediatric surgical outpatient clinic between 2003-2021. Patients on regular laxatives were included if diagnosed with chronic constipation by ROME IV criteria. Excluded patients were those lost to follow up, lacking anthropometric data, symptoms resolved by first appointment or organic cause of constipation (e.g. Hirschsprung). Height, and weight at first and final encounters were obtained from medical records. Growth velocity was assessed using height-for age, weight-for-age and BMI-for-age z-scores. Patient growth was compared by treatment response, in three outcome groups: 'symptoms controlled', 'symptoms improving' and 'treatment failure'.

Results: Of 865 identified patients with any form of constipation, 295 were included. In none of the groups was the z score negative at initial encounter. Successfully treated patients had a significant increase in mean weight-for-age z-scores (+0.025. p = 0.025). Patients with improving symptoms showed significant change in mean height-for-age z-scores (+0.307 p = 0.037), and a slight improvement (NS) in weight for age. The treatment failure group had small declines in both height and weight z scores (NS) after a mean 1.53 years on treatment.

Conclusion: Chronic constipation likely does have small effects on growth.

Impact: This study demonstrates that what is often thought of as an irritating, but relatively minor condition may have potentially long-term effects.

TITLE: Reducing extreme premature infant skin injury secondary to antiseptic cleaning procedure during umbilical line placement

AUTHORS: Olive Tan, Canberra Health Services; Nadia Schmidt, Canberra Health Services

ABSTRACT

Introduction: Antiseptic solution is used for skin cleaning prior to umbilical lines insertion (ULI) in neonates but has been linked to skin injuries in premature infants. The Neonatal Intensive Care Unit (NICU) team at Canberra Hospital (TCH) noted increased periumbilical skin injury in infants <28 weeks gestation age (GA) post-ULI. From January 2021 to June 2023, 54 infants <28 weeks GA required ULI, and 19 infants (35%) had periumbilical skin injury. A quality improvement project was developed to address this issue.

Aims/Question: To reduce skin injury from the antiseptic cleaning process in infants born at <28 weeks GA at TCH by 30% over 18 months.

Methods: This project was developed from July 2023 till December 2024. PDSA cycles included: 1) reviewing the antiseptic cleaning process before ULI; 2) identifying modifiable steps to reduce skin injury, 3) changes to skin cleaning process and education to all NICU staff, 4) monitoring skin area post-procedure, 5) changing the solution from 2%chlorhexidine/70% alcohol to 0.5% chlorhexidine.

Results: Between July 2023 and December 2024, 31 infants <28 weeks GA were born at TCH. During this period, 9 out of 31 babies (29%) had skin injury which is a reduction of 21%. No severe injuries occurred post-PDSA cycles, and all cases were mild.

Conclusions: Standardizing and modifying the process of antiseptic cleaning prior to ULI reduced skin injury in extreme premature neonates. Severe skin injuries were eliminated.

Impact: This project fostered a team-based approach to skin care and reduced injury rates in this vulnerable population.

TITLE: Barriers to implementing EBP and improving midwifery scope of practice; a scoping review.

AUTHORS: Kylie Hodges, University of Canberra; Deborah Davis, University of Canberra; Mary Bushell, University of Canberra; Mohamed Abdel-Latif, ACT Health; Marjorie Atchan, University of Canberra

ABSTRACT

Background: Evidence-based practice (EBP) uses new or improved knowledge to support and guide alterations in healthcare practice to achieve positive impacts on patient outcomes, service cost delivery and/or efficiency. Traditionally only empirical knowledge guided EBP. However, the midwifery profession has demonstrated a deep respect for knowledge co-created with women and families and supporting woman-centred care. EBP is the ultimate midwifery care provision goal, yet its implementation can be challenging due to complicated and uncertain processes that ultimately impact on midwives' ability to work within their full scope of practice and negatively impact patient care.

Aim: To explore and synthesis the available literature discussing midwives' perspectives on the barriers to implementing EBP into midwifery practice.

Methods: This rapid scoping review was undertaken in six databases (Medline, Scopus, CINAHL, Web of Science, Cochran and CENTRAL) in 2025 with specific keywords ("evidence-based practice" or "EBP", "midwife* or midwive*", "qualitative", "experience*", "implement*", "barrier", "facilitate"). A clear set of inclusion criteria was used for screening. Analysis used the Glaser thematic coding method to build analysis and develop themes.

Results: Four articles met the inclusion criteria. The four (4) themes: time, management and organisational support, opportunities and access to knowledge, were apparent in all included papers. The impact of organisational support and behaviour on midwifery motivation, capacity and success was also evident.

Impact: Organisational culture and management practices are linked to the success or failure of the implementation of EBP, which has a direct effect on midwives' capacity to work to their full scope of practice and outcomes for women and their babies.

TITLE: Working in triadic partnership with families of children with long-term condition to improve quality of care

AUTHORS: Macey Barratt, University of Canberra; Kasia Bail, University of Canberra; Natasha Jojo, University of Canberra; Peter Lewis, Western Sydney University; Catherine Paterson, Flinders University

ABSTRACT

Background: Children with long-term conditions often requiring multiple hospital admissions, repeated painful procedures and have poor quality of life due to disease progression and treatment. It is important to maintain healthy partnerships with these families, and that nursing staff work towards seeing a partnership that works with both the parent and child together, rather than separately.

Aim: To determine if triadic partnership exists, and how is it developed, experienced and maintained by nurses, parents and children.

Methods: A case series approach informed by symbolic interactionism was completed. Nine cases were observed within an paediatric day stay unit. A total of nine children, eleven parents and eight nurses (one nurse caring for two cases) were included. Semi-structured interviews and observations took place for all nine cases, with cases representing a variety of long-term conditions, children ages and cultural backgrounds.

Results: Triadic partnerships were observed in all nine cases with participation from nurse, parents and children. Partnerships were individualised according to the needs f of the family and child. The fluidity of the triadic partnership created an environment that allowed the child and parent to feel safe and developed trusting relationships with the nursing staff.

Conclusion: Paediatric nursing staff need to view the relationships they develop with patients and their families as a singular partnership – the triad. Focusing on developing a partnership where each member of the triad is recognised for their expertise and knowledge is important to developing mutual trust and respect.

Impact: Building triadic partnerships in nursing practice can enhance quality of care for children and their families.

TITLE: Winter Waves: Respiratory Syncytial Virus burden on little kids in the ACT

AUTHORS: Shevaun Ey, Canberra Health Services; Nicola Irwin, Canberra Health Services; Deepti Raina, Canberra Health Services; Charlotte Chen, Australian National University

ABSTRACT

Introduction: Respiratory Syncytial Virus (RSV)-related illnesses are the leading cause of hospitalisation in young children. RSV is ubiquitous, with almost all children infected before their second birthday. Infections typically follow a seasonal pattern, peaking in winter, but atypical patterns emerged during the COVID-19 pandemic.

Aim: This study aims to describe the incidence, severity, and hospital management of RSV infection in children under 2 years in the ACT.

Methods: This retrospective review used routinely collected data for RSV notifications, Emergency Department presentations, and hospital admissions to identify all cases of laboratory-confirmed RSV during 1/4/2022-31/3/2025. Age-adjusted incidence rates were calculated using ACT population data. Length of stay and indicators of severity, including level of respiratory support, are presented.

Results: Data collection continues, however in May-June of 2023 and 2024, 154 children under 2 presented to the Emergency Department with RSV, of which 133 were admitted. Mean length of stay was 58 hours. Sixty percent of admitted children required oxygen therapy. Of these, 42.5% needed only standard low-flow oxygen, 47.6% needed high-flow nasal cannula therapy at ≤2 L/kg, and 10% required Bubble Continuous Positive Airway Pressure (CPAP). In our cohort, children under one and those born prematurely required more intensive oxygen therapy and had longer length of stay (61 hours and 73 hours, respectively).

Conclusions: Early results confirm the ongoing burden of RSV in ACT children and indicate more severe disease among younger and prematurely born children.

Impact: These findings highlight the need for new strategies to reduce the burden of RSV disease in young children and provide a baseline for ongoing surveillance.

TITLE: Nirsevimab in Action: A Real-World Study of Respiratory Syncytial Virus Prevention in ACT Infants

AUTHORS: Charlotte Chen, Australian National University; Deepti Raina, Canberra Health Services; Nicola Irwin, Canberra Health Services; Shevaun Ey, Canberra Health Services

ABSTRACT

Background: RSV is a high burden disease in infants, and a leading cause of hospitalisation. Immunoprophylaxis has been restricted to selected high-risks groups, however in 2024 a novel monoclonal antibody, nirsevimab, became available for a broader group of at-risk infants, with the literature suggesting an 88% reduction in hospitalisation risk.

Aim: This study aims to describe the first year of the nirsevimab program for infants in the ACT.

Methods: We analysed routinely collected health data to describe the cohort of ACT-resident infants receiving nirsevimab in 2024 and report the clinical outcomes of laboratory-confirmed RSV infection, emergency department presentation, hospital admission, and indicators of severity of disease. Results are presented as simple proportions and median/mean as relevant.

Results: Data collection and analysis continues, however 286 babies received nirsevimab between April and September 2024, with most doses occurring in May. The most common indication for nirsevimab was prematurity (<37 weeks gestation) (71%), followed by being an Aboriginal or Torres Strait Islander, with or without prematurity (14%). A quarter (26.2%) of the children received nirsevimab in the first week of life, and 38.5% in their first month. Among the cohort, just six had laboratory confirmed RSV and only four required hospital admission.

Conclusion: We present a real-world description of the first year of nirsevimab RSV immunoprophylaxis for infants residing in the ACT. Early analysis signals efficacy in reducing hospitalisation for infants at most risk for severe disease.

Impact: Our findings contribute to the evaluation of the ACT nirsevimab program and suggest a benefit to extending RSV immunoprophylaxis to a wider group of infants. Respiratory symptoms are common and contribute significantly to functional decline and reduced quality of life. Despite growing.

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