Alfred Research Alliance

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Alfred Research Alliance
Scientific Abstracts 2026

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Alfred Research Alliance

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Scientific Abstracts Competition Winners 2026

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Winner

Winner: Alfred Research Alliance - Aboriginal and Torres Strait Islander Peoples' Research

EVALUATION FOR SELF-DETERMINATION: CO-DESIGNING IMPACT WITH A FIRST NATIONS-LED ORGANISATION

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Aim: Evaluation of First Nations programs can reproduce extractive research practices when external researchers determine what constitutes evidence, impact, and success. The Torch, a First Nations-led arts organisation supporting First Peoples in Victorian prisons and community, partnered with Burnet Institute to evaluate its program while co-designing an enduring, culturally grounded impact measurement system.

Methods: A developmental, mixed-methods evaluation combined Indigenous and Western methods, including Yarning, Groundwater Method, qualitative analysis and descriptive statistics. Aboriginal researchers provided leadership across the research, supported by a majority First Nations advisory group including artists, people with lived experience and Indigenous Data Sovereignty expertise. Evaluation findings iteratively informed three co-design workshops with The Torch staff and artists to define what impact means, identify stories the organisation prioritised telling, and develop ways to capture them.

Results: Evaluation findings demonstrated that The Torch operates as a cultural and relational ecosystem in which culture, continuity, belonging, and trusted relationships underpin change. Rather than concluding with an external account of these impacts, findings became the foundation for a co-designed impact system. Outputs included a culturally grounded Story of Change, impact indicators, artist-defined pathways, tools capturing quantitative and qualitative evidence, reporting approaches and processes for integration into organisational systems. Together, these enable The Torch to determine, measure, and communicate impact longitudinally, while retaining cultural context and recognising non-linear, self-determined artist journeys.

Conclusion: Evaluation can do more than measure the impact of First Nations-led organisations. When Indigenous leadership, lived experience, cultural governance, and co-design shape how evidence is generated and used, evaluation can build enduring organisational capability and support self-determination. This project demonstrates a shift from researchers telling the story of First Nations programs towards First Nations organisations determining what matters, what constitutes impact and how their stories are told.

Winner

Winner: Alfred Research Alliance - Consumer Involvement in research

FROM COMPLAINTS TO CHANGE: CO-PRODUCING BETTER HEALTHCARE COMMUNICATION

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Effective healthcare communication is fundamental to person-centred care, but complex healthcare environments and diverse consumer needs often lead to suboptimal communication. Improving communication requires consumers, healthcare professionals (HPs) and researchers to co-design feasible, meaningful solutions.

AIM: To investigate clinical communication deficiencies, priorities, and interventions across Alfred to improve care and patient safety.

METHOD: Consumers and clinicians conceptualised and co-produced a project with an embedded co-design process. Guided by the Double Diamond design approach, the study: 1) discovered causes of communication complaints (2018-2024) using machine learning, 2) defined communication enablers, challenges, and opportunities through interviews with 29 consumers and 15 HPs, and 3) developed improvement opportunities through a co-design workshop with 10 consumers and 8 HPs. An Expert Advisory Group (EAG) of three lived-experience consumers and eight Alfred executive and operational leaders reviewed findings, prioritised interventions and advised on operational issues. Extensive consultation with the EAG, Patients Come First, Communicating for Safety, and Bayside Health Community Advisory Committee refined recommendations and prioritised a pilot intervention to test feasibility and acceptability.

RESULTS: Communication issues were identified in 7.9% of complaints over 7-years. The complaints and interviews identified key themes relating to: communication information management, tailoring and knowledge sharing; barriers; and communication skills and strategies. Consumers and HPs co-designed 22 communication improvement opportunities, informing 40 communication recommendations, sorted into four categories: transitions of care; person-centred, inclusive, and accessible communication; information sharing and digital communication; and the systems, workforce and infrastructure necessary to support communication. Consultation prioritised patient orientation on admission and discharge planning communication, which were co-designed into a consumer-enabled pilot intervention.

CONCLUSION: Research collaboration and co-production with consumers transformed communication related complaints into organisational action, by listening, learning and building solutions to improve care. The final recommendations provide the organisation with clear directions to improve patient experience, healthcare communication and health systems.

Winner

Winner: Alfred Health Senior Medical Staff Clinical Research - Junior Medical Researcher

THE IMPACT OF CLINICAL AND BIOCHEMICAL FRAILTY ON OUTCOMES FOLLOWING TRANSCATHETER AORTIC VALVE IMPLANTATION

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AIMS: Frailty results from declining reserve and function and is a modifiable cardiovascular risk-factor. There is limited evidence surrounding its role in TAVI. This study aimed to evaluate frailty among contemporary TAVI patients, delineate the impact of biochemical and clinical frailty and understand its additive value to existing risk-prediction tools.

METHODS: Analysis of a multicentre Australian Registry. Biochemical-Frailty (BF) was defined as serum albumin<35g/L and Clinical-Frailty (CF) as a Rockwood Clinical Frailty Score≥5. Patients meeting either BF or CF criteria were categorised as frail.

REUSLTS: Of 2661 patients, 920 (35%) were considered frail with 171 (19%) fulfilling both BF and CF criteria. The frail group was older (83 vs 81), more female (43% vs 38%) with higher STS scores (4 vs 3) (all p<0.001). Frail patients more often resided in care-facilities (8% vs 2%) and had higher prevalence of insulin-dependent diabetes (9% vs 6%), peripheral vascular disease (17% vs 12%), chronic kidney disease (47% vs 38%) and anaemia (45% vs 24%) (all p≤0.001). The frail cohort had higher non-home discharge (14% vs 7%, p<0.001), in-hospital (1.4% vs 0.5%, p=0.016) and 30-day mortality (2% vs 1%, p=0.001). Kaplan Meier analysis showed a stepwise increase in 12-month mortality with increasing frailty (No-Frailty: 4% vs BF or CF: 7% vs BF + CF: 16%, Log-rank p<0.001). In Cox regression BF or CF (aHR 1.6, 95% CI 1.0-2.4, p=0.033) and BF + CF (aHR 3.3, 95% CI 1.9-5.6, p<0.001) independently predicted this endpoint. Addition of frailty to STS Score improved mortality prediction (AUC 0.608 vs 0.664, DeLong's p=0.021), with Shapley analysis demonstrating significant contribution from frailty.

CONCLUSION: Frailty is common with significant implications in TAVI. Patients meeting biochemical and clinical frailty criteria are highest risk. Including frailty within TAVI risk prediction models improves performance. Development of pre-procedural strategies to address frailty is critical.

Winner

Highly Commended/Runner Up: Alfred Health Senior Medical Staff Clinical Research - Junior Medical Researcher

CT ORAL CONTRAST AND CONTEMPORARY IMAGING PATHWAYS FOR SUSPECTED OESOPHAGEAL PERFORATION IN THE EMERGENCY DEPARTMENT: A RETROSPECTIVE OBSERVATIONAL STUDY

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AIM: To evaluate contemporary computed tomography (CT) imaging pathways for Emergency Department (ED) patients with suspected oesophageal perforation or leak, with a particular focus on oral contrast utilisation, radiologic findings and downstream investigations following the index CT examination.

METHODS: We performed a single-centre retrospective observational study of all adult ED patients who underwent CT imaging including the chest for suspected oesophageal perforation or leak between January 2015 and March 2026. Patients were identified through radiology database search. Demographics, clinical indications, oral contrast use, radiologic findings and investigations performed within five days of the index CT were recorded.

RESULTS: A total of 107 patients were included, with six (5.6%) confirmed oesophageal perforations. Oral contrast was administered in 62 (57.9%) CT examinations. Overall, 45 patients (42.1%) underwent downstream investigations, with similar rates regardless of oral contrast administration (43.5% vs. 40.0%). However, repeat CT was less frequent following oral contrast-enhanced CT (3.2% vs. 17.8%). Among patients with confirmed perforation, direct signs including oesophageal wall defect and extraluminal contrast leak were common (66.7% each), whilst indirect signs were also frequently present, including pneumomediastinum and pleural effusion (83.3% each). Pneumomediastinum was also frequently observed in patients without perforation.

CONCLUSION: Rates of downstream investigation were similar regardless of oral contrast administration, however, repeat CT was less frequently performed following oral contrast-enhanced examinations. These findings suggest that oral contrast may influence subsequent imaging pathways. Prospective studies are warranted to determine whether selective oral contrast administration can improve diagnostic confidence while reducing unnecessary CT examinations.

Winner

Winner: Alfred Health Senior Medical Staff Clinical Research - Senior Medical Researcher

TRANEXAMIC ACID TO REDUCE INFECTION AFTER GASTROINTESTINAL SURGERY (TRIGS): AN INTERNATIONAL RANDOMISED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL

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AIM Tranexamic acid is an antifibrinolytic drug that inhibits plasmin generation in response to tissue injury, thereby reducing bleeding and blood transfusions after surgery. Since plasmin can also impair immune function and antimicrobial activity, we investigated whether tranexamic acid reduced surgical site infections in patients undergoing gastrointestinal surgery.

METHOD This international, pragmatic, randomised, double-blind, placebo-controlled trial was undertaken in 40 hospitals across 4 countries. We recruited adult patients undergoing major gastrointestinal surgery. Randomisation (1:1) was performed using permuted blocks of sizes 6 to 12 from a computer-generated code, accessed via a web-based service, stratified by site and diabetes status. The patients, clinicians, and data collectors were masked as to whether patients received a 15 mg/kg bolus of tranexamic acid followed by 5 mg/kg/h infusion until the end of surgery (maximum dose 3 g) or placebo. The primary outcome was surgical site infection up to 30 days after surgery. Secondary outcomes included blood transfusion requirements, other healthcare-associated infections, and thromboembolic events. The trial was registered on ClinicalTrials.gov (NCT04192435).

RESULTS Between May 2022, and August 2025, 7649 participants were screened; 3300 were randomised, and 1638 patients were assigned to tranexamic acid and 1634 patients to placebo. There were 279 (17·1%) surgical site infections in patients assigned to tranexamic acid and 259 (15·9%) surgical site infections in patients receiving placebo, relative risk 1×06 (95% CI 0·91-1·24); p=0·44. Red cell transfusions were given to 139 patients (8·5%) in the tranexamic acid group and 162 patients (9·9%) in the placebo group (relative risk 0·86, 95% CI 0·70-1·06; p=0·15). There were no differences in other healthcare-associated infections, thromboembolic events, seizures, or adverse events.

CONCLUSION Among patients undergoing major gastrointestinal surgery, tranexamic acid was not associated with a reduction in surgical site infections or red cell transfusions after surgery.

Winner

Highly Commended/Runner Up: Alfred Health Senior Medical Staff Clinical Research - Senior Medical Researcher

CLEARANCE OF *TREPONEMA PALLIDUM* FROM ORAL AND ANAL SITES AFTER TREATMENT OF SECONDARY SYPHILIS: RESULTS FROM A MULTI-CENTRE, PROSPECTIVE, CROSS-SECTIONAL STUDY.

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Syphilis is increasing worldwide, and secondary syphilis may represent its most infectious stage. Scarce data exist on *Treponema pallidum* clearance after treatment.

AIM: We aimed to determine the frequency and load of *T. pallidum* mucosal shedding, and time to clearance following treatment of secondary syphilis.

METHODS: Men-who-have-sex-with-men (MSM) and transgender women with secondary syphilis were recruited from Australian clinics between January 27, 2023, and August 19, 2024. Oral, anal or genital lesions were swabbed, and non-lesion samples (blood, oral cavity and anal canal swabs were collected on the day of treatment (baseline).

Non-lesion oral cavity and anal canal swabs were repeated three, seven, 14 and 30 days post-treatment. *Treponema pallidum* bacterial load was determined by quantitative PCR.

RESULTS: 78 cis-men and one trans-woman, who reported sex with men, were included. At baseline, *T. pallidum* was detected in the participants' oral cavity, anal canal and blood of 81% (64/79), 70% (55/79) and 24% (19/79), respectively. When detected at oral and anal sites, 22/64 (36%) had oral lesions and 31/55 (59%) had anal lesions, respectively. The median oral and anal bacterial loads decreased significantly from baseline to day three, [cycle thresholds 35·7 to 37·7, (1·7 to 1·2 copies/uL), ($p = 0·013$), and 30·2 to 38·2 (3·3 to 1·0 copies/uL), ($p < 0·001$), respectively]. Treponema pallidum cleared from 99% (96/97) of non-lesion, paired samples from 58 participants by day seven, 95% confidence interval (94-100%).

CONCLUSIONS: During secondary syphilis, most MSM had *T. pallidum* DNA detected in oral and anal mucosa. Bacterial load dropped markedly three days post-treatment and cleared in almost all samples by seven days.

Winner

Highly Commended/Runner Up: Alfred Health Senior Medical Staff Clinical Research - Senior Medical Researcher

REDUCING BLOOD WASTAGE THROUGH INTRODUCTION OF A TRANSFUSION TEAM

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In the intense setting of reception and resuscitation of critically bleeding patients, wastage of up to 10% of blood components occur, commonly due to prolonged breaks in the cold chain. Additionally, some transfusions may be avoidable.

AIM: To assess the impact of dedicated transfusion teams (staff focused solely on blood handling during resuscitation) on blood component wastage and transfusion volumes.

METHODS: This was a retrospective pre- and post-intervention study. We introduced a transfusion team for all episodes of blood transfusion in a level 1 trauma centre. The core elements of the intervention were: (1) dedicated 'blood checkers' without other competing duties during the resuscitation, (2) a 17-minute timer activated on receipt of blood components, (3) telephone for communication with the blood bank, and (4) a pre-determined process of blood component request, usage and return discussed at the initial team huddle.

RESULTS: Patient demographics, indications for transfusion and massive transfusion rates were similar between the pre- and post-intervention periods. During the pre-intervention period, 109 (1.7%) of 6619 blood component units dispensed were wasted. Following the intervention, 73 (1.1%) of 6575 units were wasted ($p = 0.008$). In the post intervention period, median patient transfusion volumes were significantly lower at 2 (inter-quartile range; IQR 2-6) compared to 3 (IQR 2-6) units ($p = 0.002$).

CONCLUSIONS: Dedicated transfusion teams during emergency use of blood were associated with lower wastage and lower transfusion volumes. Transfusion teams may lead to more precise management of critical bleeding, while enabling cognitive capacity for the team leader to focus on identifying and controlling haemorrhage.

Winner

Winner: Burnet Institute Prize for Infectious Diseases Research

IMPACT AND EFFICIENCY OF PREVENTATIVE AND REACTIVE VACCINATION STRATEGIES IN THE AFRICAN MENINGITIS BELT: A MODELLING STUDY

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Meningococcal meningitis causes significant health burdens in the African meningitis belt, with outbreaks primarily caused by serogroups C, W, and X.

AIM

To estimate the efficiencies of preventative versus reactive vaccination strategies for meningococcal meningitis outbreaks in the African Meningitis Belt using mathematical modelling.

METHODS

Meningococcal meningitis outbreaks were simulated across 19 countries over 10 years (2025–2034). Outbreaks were defined as two sequential weeks above 10 suspected cases per 100,000 population per week in a subnational location. Monthly outbreak probabilities and subnational risks were estimated from surveillance data. Scenarios included a baseline, reactive strategies with varied coverage (50–80%) and response times (30–60 days), and preventative vaccination of the 10–50% highest-risk subnational locations. The primary outcome was the number needed to vaccinate (NNV) to avert one outbreak-associated case of invasive meningococcal disease (IMD).

RESULTS

During preventative vaccination scenarios, increasing the proportion of high-risk locations vaccinated from 10% to 50% averted 2.7% (0.0–5.4%) to 32.4% (23.2–41.5%) of outbreak-associated IMD cases, with the annual number of outbreaks decreasing from 62 to 42–58. Varying reactive vaccination coverage between 50% and 80% increased the proportion of IMD cases averted from 8.3% (2.9–13.7%) to 11.8% (5.5–18.1%), with higher coverage building more immunity and reducing outbreak risk. Improving reactive vaccination response times from 60-days to 30-days averted up to 15.4% (8.3–22.5%). Reactive scenarios produced NNV estimates of 167 (158–177) to 250 (219–280) to avert a single outbreak-associated IMD case, while preventative scenarios ranged from 134 (126–143) to 245 (165–325).

CONCLUSION

Reactive vaccination is an efficient use of vaccine doses, but targeted preventative vaccination to high-risk areas is more efficient and prevents more disease burden. Improving outbreak response times and expanding preventative campaigns could substantially reduce the burden of meningococcal meningitis in the region.

Winner

Winner: Monash University School of Translational Medicine Prize for Neuroscience Research

CASE-MIX, CARE PATHWAYS AND OUTCOMES IN PATIENTS WITH TRAUMATIC BRAIN INJURY IN PRECISION-TBI: AN AUSTRALIAN AND NEW ZEALAND PROSPECTIVE, MULTICENTRE, LONGITUDINAL COHORT STUDY

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[1]Australian and New Zealand Intensive Care Research Centre (ANZIC-RC), Monash University; [2]The Alfred Hospital, department of intensive care and hyperbaric medicine

Moderate-to-severe traumatic brain injury (TBI) is a major cause of death and disability, but contemporary case-mix, care pathways and outcomes remain incompletely characterised in Australia and New Zealand (ANZ).

AIM: To describe the case-mix, care pathways and 6-month outcomes of a contemporary ANZ cohort with moderate-to-severe TBI, and to assess calibration of the IMPACT Core prognostic model against observed outcomes.

METHOD: PRECISION-TBI is a prospective, multicentre, longitudinal cohort study across 12 ANZ neurotrauma centres. 300 patients requiring ICU admission for invasive neuromonitoring were enrolled within 48 hours of injury (56 Moderate, GCS 9–12; 240 Severe, GCS 3–8; 4 unclassified). Demographic, injury, care-pathway and outcome data were collected via REDCap. Six-month functional outcome (Glasgow Outcome Scale-Extended, GOSE) was assessed by telephone interview. Observed mortality and unfavourable outcome (GOSE≤4) were compared with IMPACT Core model-predicted probabilities using observed:expected (O:E) ratios with exact 95% confidence intervals; between-site variation was assessed using case-mix-adjusted O:E funnel plots.

RESULTS: Median age was 41 years (IQR 27–57) and median Injury Severity Score 30 (25–41). Pre-hospital hypoxia occurred in 29.3% and hypotension in 23.4% of patients, both more common in Severe than Moderate injury ($p<0.001$). Six-month GOSE was available for 258/300 (86%): mortality was 31% and unfavourable outcome 54%. Observed mortality was significantly lower than IMPACT-predicted (O:E 0.78, 95% CI 0.64–0.93), while unfavourable outcome was accurately calibrated (O:E 0.99, 95% CI 0.88–1.10). No site fell outside 95% control limits on case-mix-adjusted funnel plots, indicating relative homogeneity of practice across sites.

CONCLUSION: This first ANZ-wide prospective TBI cohort demonstrates lower-than-predicted mortality but accurately predicted unfavourable outcome, suggesting contemporary care may convert previously fatal injuries into survival with severe disability rather than favourable recovery. PRECISION-TBI provides infrastructure for ongoing case-mix-adjusted benchmarking to support a learning healthcare system in ANZ TBI care.

Winner

Winner: MPCCC Prize for Best Abstract in Cancer Research

TUMOUR ANTIGEN-SPECIFIC ANTIBODY SIGNATURES AS DIAGNOSTIC BIOMARKERS FOR MELANOMA

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Melanoma outcomes depend strongly on early detection, yet current diagnostic tools cannot reliably distinguish early or borderline lesions, contributing to unnecessary biopsies, delayed diagnosis and psychological burden for patients. Minimally invasive, blood-based biomarkers are needed to complement existing diagnostic pathways.

AIM: To identify circulating IgG and IgM antibody signatures against tumour antigens that distinguish early- and advanced-stage melanoma, and individuals with prior cancer in remission, from healthy controls.

METHODS: Plasma IgG and IgM reactivity against 263 cancer-testis and related tumour antigens was profiled using a cancer protein microarray in two independent cohorts: early-stage melanoma (Stages 0-II, n=65; ACEMID national platform) with 32 healthy controls and 37 individuals with prior cancer in remission, and advanced-stage melanoma (Stages III-IV, n=77; Victorian Cancer Biobank) with 54 healthy controls. Univariate ROC and multivariate CombiROC analyses identified candidate diagnostic antibody signatures.

RESULTS: Early-stage melanoma was distinguished from healthy controls by a novel nine-antigen IgM signature (AUC=0.939), outperforming a six-antigen IgG signature (AUC=0.827), a finding that addresses an underexplored area of melanoma serology, which has traditionally focused on IgG. Advanced-stage melanoma showed broader, complementary IgG (AUC=0.865) and IgM (AUC=0.889) signatures. Individuals in cancer remission displayed persistent, distinct antibody profiles that differed from early-stage melanoma and healthy controls. Overlap between IgG and IgM antigen repertoires was minimal across all cohorts, indicating that the two isotypes capture complementary components of the anti-tumour humoral response.

CONCLUSION: Combined IgG/IgM antibody profiling offers a minimally invasive strategy with potential to support earlier melanoma detection, reduce unnecessary biopsies, and potentially support surveillance of patients in remission. These discovery-stage biomarkers now require independent validation in larger, prospective, multi-site cohorts to guide clinical translation and future integration into melanoma care pathways.

Winner

Winner: Multidisciplinary Alfred Psychiatry Research Centre

CLINICIAN EXPERIENCE OF PARENTAL SEPARATION IN AUTISM SPECTRUM DISORDER ASSESSMENT AND DIAGNOSIS: A QUALITATIVE STUDY

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Autism Spectrum Disorder (ASD) has greater rates of parental separation, but there has been no research that examines potential differences and challenges with provision of ASD assessment and diagnosis with separated parents.

AIM: To explore and identify the experiences of clinicians working with separated parents in the assessment and diagnosis of ASD in a metropolitan public mental health service. The study aimed to identify if differences existed, and if so, how these differences are experienced by clinicians.

METHODS: Qualitative methodology using semi-structured interviews with 11 mental health clinicians in an outpatient mental health clinic were used to generate data. Mean interview length was 37 minutes 55 seconds. Interviews were transcribed verbatim and then analysed using Braun & Clarke's Reflexive Thematic Analysis to systematically code the qualitative data and generate overarching themes.

RESULTS: Thematic analysis generated five interrelated themes that captured clinicians' experiences of working with separated parents in ASD assessment and diagnosis: (1) Tensions in maintaining interpersonal neutrality, (2) Working in an adversarial system, (3) Diagnostic uncertainty in the context of relational disruptions, (4) Burdened by the 'hidden' workload, and (5) Increased reliance on collective support.

CONCLUSION: The themes highlight forms of invisible labour and emotional strain that are often overlooked in psychiatric service design, offering new insight into the systemic and interpersonal pressures that exist when working with separated parents. These factors are important as they contribute to clinician burnout and diagnostic complexity for families accessing mental health services. These themes highlight challenges that can inform workforce wellbeing initiatives, service-level policy and training programs, and point to areas of further research needed.

Winner

Winner: Multidisciplinary Alfred Psychiatry Research Centre

PATTERNS OF PSYCHOTHERAPY UTILISATION AMONG WOMEN WITH TRAUMA HISTORIES REFERRED TO A SPECIALIST WOMEN'S MENTAL HEALTH CLINIC: A RETROSPECTIVE, CROSS-SECTIONAL STUDY

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Women are over-represented in psychiatric populations due to biological, psychological and sociocultural factors. Psychotherapy is an evidence-based treatment alleviating symptoms of trauma, depression, anxiety and other broad psychological difficulties. Uptake and satisfaction with psychotherapy is understudied in real-world settings but may inform public health strategy to improve women's mental health outcomes.

AIM: To describe patterns of psychotherapy utilisation, including modality, duration, and subjective satisfaction, among women with trauma histories attending a specialist women's mental health clinic.

METHODS: Single-centre, retrospective, cross-sectional study of women attending a specialist mental health clinic between January 2016 and June 2025. Demographic, trauma- and psychotherapy-related data was extracted from clinical records. Data was reported as proportions, with associations assessed using Pearson chi-square tests.

RESULTS: Of 308 participants, the mean age was 40.7 years (SD 11.9 years). Major depressive disorder was the most common diagnosis (54.6%). Overall, 74.0% of this cohort had accessed psychotherapy, with non-specific psychotherapy (63.6%) and cognitive behavioural therapy (32.5%) being most common. Half of those with a psychotherapy history had been engaged in psychotherapy for over five years. Most women reported previous trauma (83.8%), and this was significantly associated with psychotherapy use ($p=0.013$), particularly experiences of emotional abuse ($p=0.043$) and peer bullying ($p=0.019$). University-level education was also significantly associated with psychotherapy use ($p<0.001$). Psychotherapy satisfaction was predominantly positive (74.1%), though mixed (15.4%) and negative (10.5%) experiences were also reported.

CONCLUSION: Psychotherapy was commonly accessed by women prior to specialist psychiatric consultation, with the majority reporting positive experiences. Together with the high prevalence of trauma and psychiatric comorbidity in this population, these findings highlight unmet need for long-term psychotherapy services, gaps in trauma-specific treatment access, and support for policy initiatives expanding psychotherapy delivery.

Winner

Winner: Dr Michael J Hall Memorial Prize for Respiratory Medicine

INDUCED AIRWAY REACTIVITY REDUCES FRACTIONAL EXHALED NITRIC OXIDE (FENO): A SYSTEMATIC REVIEW AND META-ANALYSIS.

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BACKGROUND: Fractional exhaled nitric oxide (FeNO) is a routinely used biomarker of airway inflammation in asthma. Acute airway reactivity may alter FeNO measurements; however, the magnitude of this effect remains unclear. Bronchial provocation tests (BPTs) induce airway reactivity under controlled conditions and provide a useful model for examining its impact on FeNO.

AIM: To perform a systematic review and meta-analysis to quantify changes in FeNO following BPT-induced airway reactivity and determine whether these changes are related to airway obstruction.

METHODS: EMBASE, MEDLINE, Scopus, and Web of Science were searched from inception to June 2026 for studies measuring FeNO immediately before and after BPT. Meta-analysis quantified changes in FeNO, while meta-regression examined associations between changes in FeNO and changes in FEV_1 (ΔFEV_1). Risk of bias was assessed using ROBINS-I.

RESULTS: Twenty-five studies comprising 959 participants were included. Baseline FeNO was higher in BPT responders (n=614; 49.4 ppb, 95% CI 39.3 to 59.5) than in non-responders (n=345; 22.1 ppb, 95% CI 17.1 to 27.1) ($p<0.001$). Following induction of airway reactivity, FeNO decreased significantly in both groups, with greater absolute reductions in responders ($p=0.002$). However, percentage reductions were similar between groups: responders, -22.9% (95% CI -28.2 to -17.7); non-responders, -18.0% (95% CI -25.4 to -10.6) ($p=0.282$). Meta-regression demonstrated that percentage changes in FeNO were largely independent of baseline FeNO, ΔFEV_1, and BPT response status. Most studies were judged to have low-moderate risk of bias.

CONCLUSION: BPT-induced airway reactivity is associated with clinically meaningful reductions in FeNO. This effect occurs irrespective of bronchial responsiveness and appears independent of the degree of airway obstruction. These findings suggest that acute airway reactivity may transiently suppress FeNO production or release, potentially leading to underestimation of airway inflammation. Clinicians should therefore interpret unexpectedly low FeNO measurements with caution in patients experiencing symptoms or signs of acute airway reactivity.

Winner

Winner: Professor Daniel Czarny Prize for Allergy, Asthma and Clinical Immunology

RECURRENT ANAPHYLAXIS WITHOUT IDENTIFIED TRIGGERS: UTILITY OF ALEX2 MULTIPLEX ALLERGEN TESTING WHEN ADDED TO PROTOCOLISED CLINICAL EVALUATION

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Recurrent anaphylaxis without an identifiable trigger leaves patients at risk of further episodes without a clear avoidance strategy. ALEX2 (Allergy Explorer 2; Macro Array Diagnostics, Vienna, Austria) is a multiplex macroarray that measures specific IgE to 295 allergen extracts and components, but its incremental value after specialist assessment is uncertain.

AIM: To test the hypothesis that ALEX2 identifies clinically relevant triggers beyond protocolised evaluation in patients with complex recurrent anaphylaxis.

METHODS: We retrospectively studied patients referred to the Alfred Health Difficult Anaphylaxis Clinic. Assessment comprised clinical history, targeted skin-prick testing, serum specific IgE, ALEX2 macroarray and multidisciplinary team review. The primary analysis included patients attending six-month review who had an intermediate or high probability of true anaphylaxis. Outcomes were trigger identification and the independent diagnostic contribution of ALEX2.

RESULTS: Of 106 referred patients, 47 met inclusion criteria: 23 (49%) had intermediate-probability and 24 (51%) high-probability anaphylaxis. Systematic clinical review and targeted investigation identified a trigger in 8/47 patients (17%). ALEX2 was concordant in three cases but did not independently establish any diagnosis, giving an incremental diagnostic yield of 0%. Among 39 patients with no identified trigger, ALEX2 was negative in 29 (74%) and detected only non-causative sensitisation in 10 (26%), including environmental sensitisation and cross-reactive carbohydrate determinant patterns. A further 23 patients had low-probability anaphylaxis; common alternative diagnoses included inducible laryngeal obstruction, chronic spontaneous urticaria with angioedema, and stress/anxiety responses.

CONCLUSION: In this specialist cohort, ALEX2 added no independent diagnostic yield to structured clinical and multidisciplinary assessment. Broad multiplex testing should not substitute for careful phenotyping and targeted investigation in complex recurrent anaphylaxis and may be better reserved for selected clinical questions.

Winner

Winner: Noel and Imelda Foster Prize for Cardiovascular Research

MINE-FIRE $PM_{2.5}$ IS ASSOCIATED WITH CARDIOVASCULAR EVENTS AND MORTALITY

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Introduction/Aim: In February 2014 a fire in an open cut brown coal mine shrouded neighbouring rural communities in smoke and ash for 6 weeks. Whilst urban fine particles ≤2.5µm ($PM_{2.5}$) are known to be associated with short term increases in daily cardiorespiratory mortality and major adverse cardiovascular events (MACE), longer term effects remained uncertain.

Methods: A cohort of 4,056 adults was recruited (3,096 from the most exposed town of Morwell), of whom 2,725 consented to record linkage. Survey data from 2016-17 were linked from March 2014 with ambulance attendances, emergency department presentations, hospital admissions (to June 2022), and the National Death Index (to June 2023). All-cause based mortality by fire-related $PM_{2.5}$ exposure was evaluated with Cox proportional-hazards and cause-specific mortality with competing risk survival models. The association between $PM_{2.5}$ exposure and time to MACE was analysed with recurrent event survival analysis, adjusting for key confounders.

Results: Up to 9 years after the fire, 318 (11%) of the sample died, 90 from cardiac and 28 from respiratory causes. All-cause and respiratory mortality were not associated with $PM_{2.5}$ exposure, but a 10µg/m^3 increase in $PM_{2.5}$ was associated with a 1.18 (95%CI: 1.02-1.37) higher risk of cardiac mortality. Analyses that excluded non-emergency hospital admissions, also found a detectable increase in MACE risk in the first 3 years post-fire, with hazard ratios ranging from 1.12-1.17 per 10µg/m^3 of daily average $PM_{2.5}$.

Conclusions: $PM_{2.5}$ from the mine fire was associated with persistently elevated cardiac mortality up to 9 years post-exposure. This concords with a growing body of evidence after acute exposure to wildfires and chronic exposures from household or ambient urban air pollution. Cardiovascular risk screening should be a routine component of planning recovery after landscape fires.

Grant Support: Victorian Department of Health. The views in this abstract are those of the authors and not the Department.

Winner

Winner: Baker Heart and Diabetes Institute Prize for Cardiovascular Research

CHRONIC MITOCHONDRIAL DNA DAMAGE INDUCES THE INTEGRATED STRESS RESPONSE AND CARDIAC DYSFUNCTION

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The integrated stress response (ISR) is an evolutionarily conserved signalling network that coordinates cellular adaptation to stress. While transient ISR activation promotes stress resolution, chronic activation is increasingly implicated in disease pathogenesis. Mitochondrial DNA (mtDNA) instability is a potent stressor capable of activating the ISR, but the mechanisms linking mtDNA damage to chronic ISR-driven pathology remain poorly defined.

AIM: To determine how mtDNA instability initiates chronic ISR activation and drives cardiac pathology, identify downstream effectors, and assess whether targeted modulation of ISR pathways can modify disease progression.

METHODS: Conditional PolG mutator mice were crossed with inducible MHCα-Cre mice to generate mature mice with cardiomyocyte-specific PolG mutation (Hrt-PolG^{mut}), which resulted in cardiac specific mtDNA damage. Mice were assessed for 30-weeks following mutation induction to characterise the temporal development of mitochondrial dysfunction, ISR activation and cardiac pathology. Transcriptomic, proteomic and cardiac functional analyses were combined with assessment of circulating ISR markers.

RESULTS: Hrt-PolG^{mut} mice remained phenotypically healthy until approximately ~24-weeks post-tamoxifen, after which they developed progressive weight loss, cardiac hypertrophy, reduced cardiac output and eventually premature mortality at ~30-weeks. At ~17-weeks, before overt weight loss or cardiac pathology, *Fgf21*, *Gdf15*, *Atf4* and *Mthfd2* expression was increased, with marked elevations in circulating GDF15, consistent with ISR activation. Furthermore, proteomic analysis demonstrated reduced respiratory chain complex abundance, with transcriptomic profiling revealing robust ISR activation, suppression of protein translation, and pronounced remodelling of one-carbon (1-C) metabolism.

CONCLUSION: Hrt-PolG^{mut} mice provide a temporal and cardiac-specific model of mtDNA damage-driven ISR activation with progressive cardiac dysfunction. Early ISR activation preceded overt cardiac pathology, with pronounced remodelling of 1-C metabolism, providing a rationale for targeting 1-C metabolism to reduce disease severity. Given the essential role of 1-C metabolism in cellular processes, targeting this pathway via supplementation with serine or folate derivatives may mitigate chronic ISR-driven cardiac disease.

Winner

Baker Heart and Diabetes Institute Prize for Diabetes Research

UNTARGETED LIPIDOMICS AND PROTEOMICS TO IDENTIFY HUMAN MILK BIOACTIVES RELEVANT TO DIABETES RISK REDUCTION

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Early-life nutrition can influence immune and metabolic development and thereby modify susceptibility to type 1 and type 2 diabetes. As the biological pathways underlying diabetes risk can be established early in life, identifying modifiable protective exposures from birth is an important prevention priority. However, the molecular composition of human milk remains comparatively under-characterised, limiting our ability to identify milk bioactives that may contribute to diabetes risk reduction.

AIM: To apply untargeted lipidomics and proteomics to expand the molecular coverage of human milk and identify candidate bioactives relevant to immune regulation and metabolic programming.

METHODS: Matched colostrum and mature human milk samples were extracted using butanol–methanol (1:1) and aqueous butanol–methanol (1:2:2) protocols to maximise the recovery of chemically diverse lipid species. Extracts were analysed using 60-minute reverse-phase liquid chromatography–quadrupole time-of-flight mass spectrometry (LC-QTOF-MS). Remaining protein pellets underwent tryptic digestion followed by LC-QTOF-MS proteomic analysis. MS-DIAL and MSFragger were used for feature detection.

RESULTS: To date, more than 1,000 lipid species from ~10,000 detected features have been curated based on consistent accurate mass, retention time and fragmentation characteristics. Distinct profiles were observed between colostrum and mature milk and between extraction methods, demonstrating complementary recovery of the milk lipidome. Expanded coverage included immune- and metabolism-associated lipid classes, including many gangliosides and lysophospholipids, which underwent marked remodelling across lactation. Proteomic profiling identified more than 240 proteins and revealed substantial differences between colostrum and mature milk, consistent with a transition from an immune-enriched colostrum proteome to a distinct mature milk proteome.

CONCLUSION: These findings broaden the molecular landscape of human milk and identify candidate lipids and proteins that may influence early immune maturation and metabolic health. This resource provides a foundation for targeted studies investigating whether specific human milk bioactives contribute to lowering diabetes risk from early life.

Winner

Winner: Lucy Battistel Memorial Prize for Best Allied Health Researcher

PREDICTING ANXIETY ON DISCHARGE FOLLOWING TRAUMA USING FACTORS AVAILABLE ON ADMISSION

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INTRODUCTION: Psychological issues following trauma are common and can affect short and long-term outcomes. Early intervention may be beneficial, but resources are scarce. The aim of this project was to use factors available early in a patient's trauma admission to predict discharge anxiety/depression.

METHODS: Retrospective data from July 1, 2023, to June 30 2024 for patients admitted to the trauma ward were reviewed and factors associated with discharge anxiety/depression (as measured by the EuroQol 5-dimensions 5-Level – EQ5D-5L) of moderate or more were collected. A prediction model was developed using these factors and the performance measures of the tool were assessed.

RESULTS: 2731 patients provided information regarding their admission and discharge anxiety/depression. 444 (16%) reported anxiety/depression >=moderate on discharge, down from 21% (n=566) on admission. The most significant factor associated with reporting discharge anxiety was admission reporting [slight: OR 2.29 (2.01 to 3.88); moderate OR 15.98 (10.82 to 20.72); severe/extreme OR 24.65 (16.68 to 36.44)]. Other associated factors were protective including working prior to injury [OR 0.75 (0.57 to 0.99)] and having had an intensive care unit stay [OR 0.63 (0.48 to 0.84)]. The prediction model included these factors along with age, gender and residential status and displayed a good C-statistic [AUC (0.79)], with a sensitivity of 81.7% and specificity of 64.5%.

CONCLUSION: Being able to accurately predict discharge anxiety will allow social work and psychology resources to be used for those patients most at need. Further work to determine if these factors are also associated with 6-month outcomes will be undertaken.

Winner

Winner: Henrietta Law Memorial Prize for Best Novice Allied Health Researcher

MOBILITY RECOVERY FOLLOWING MODERATE TO SEVERE TRAUMATIC BRAIN INJURY: IDENTIFYING KEY INJURY-RELATED FACTORS

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Mobility recovery is an important goal for individuals following Traumatic Brain Injury and is closely linked with their overall health-related quality of life. The modifiable injury-related factors (e.g., spasticity or weakness) that can influence mobility recovery following moderate to severe Traumatic Brain Injury (msTBI) are unclear. Identifying specific factors associated with walking recovery which can be targeted in therapy may assist with refining rehabilitation approaches in individuals who are unable to walk after injury.

AIM: To identify the key modifiable injury-related factors which may influence mobility recovery in the first 6-12 months following msTBI.

METHOD: An international multi-disciplinary group of 26 experienced healthcare professionals were asked to identify modifiable injury-related factors which may influence mobility recovery in adults. An iterative item generation process was utilised which included Nominal Group Technique (NGT) principles for factor generation and a Modified Delphi process for rating factor importance.

RESULTS: Forty-three modifiable injury-related factors were identified following the NGT meetings. The subsequent Delphi process rated 21 modifiable factors such as arousal, weakness and contracture as 'critically important'. A further 21 factors were rated 'important', and one factor was rated 'not important', in influencing mobility recovery following msTBI

CONCLUSION: The study highlights the breadth of potentially modifiable factors that may be important for mobility recovery post msTBI. Experienced clinicians identified known and novel factors that warrant further investigation to determine their contribution to mobility recovery in the first 6-12 months post injury. These findings create a foundation for future research focused on advancing rehabilitation outcomes in this population.

Winner

Winner: Best Allied Health Research into Practice Award

EVALUATION OF AN ONLINE EDUCATIONAL PROGRAM TO ENHANCE NOVICE CLINICIANS' CLINICAL REASONING IN COGNITIVE REHABILITATION FOLLOWING BRAIN INJURY

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Introduction: Developing cognitive rehabilitation recommendations for people with acquired brain injury requires advanced clinical reasoning. Novice occupational therapists often struggle with this process, which can, in turn, affect the rehabilitation patients receive. Educational strategies that incorporate case-based learning, videos, and interactive activities may support novices in developing clinical reasoning skills in cognitive rehabilitation.

Objectives: To evaluate whether an 8-week online cognitive rehabilitation learning package improved clinical reasoning and self-perceived knowledge, skills and confidence among novice occupational therapists.

Methods: A mixed-methods repeated-measures study used patient video case studies to elicit verbal think-aloud responses from 8 novice participants before and after completing the COG-LEARN (Cognitive Learning & Education for Advanced Reasoning in Neurorehabilitation) program. Participants also completed the Self-Assessment of Clinical Reflection and Reasoning (SACRR) and a survey of knowledge, confidence, and skills. Inductive content analysis identified and compared cognitive rehabilitation recommendations, while deductive content analysis classified types of clinical reasoning. Data on the frequency of clinical reasoning behaviours, number of rehabilitation recommendations, and SACRR and Knowledge/Skills Confidence scores pre- and post-intervention were compared using Wilcoxon signed-rank tests, with statistical significance set at $p < 0.05$.

Results: After completion of COG-LEARN, participants identified a significantly higher number of cognitive rehabilitation recommendations, notably errorless learning, and made fewer suggestions for additional assessments. Self-reported knowledge, confidence, and skills increased significantly. Additionally, the overall volume of clinical reasoning increased significantly, as did the use of generalisation reasoning.

Conclusion: The COG-LEARN program enhanced novice occupational therapists' clinical reasoning, increased confidence, knowledge, and perceived skills in cognitive rehabilitation, and reduced potentially unnecessary further assessments. These findings support the development and integration of innovative educational initiatives, such as COG-LEARN, into early-career training frameworks to advance clinical reasoning capabilities in neurological rehabilitation practice. Further research should evaluate effectiveness across a larger group and diverse settings.

Winner

Winner: Nursing Research Award for Best Abstract

IMPLEMENTING GROUP CLINICAL SUPERVISION FOR MENTAL HEALTH NURSES IN ACUTE ADULT INPATIENT WARDS. A QUALITATIVE DESCRIPTIVE STUDY.

Johnson, W[1], Kelly, M[1]., Poole, B[1]., Ulger, J[1]. & Hopkins, L[1].

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Clinical supervision for health care workers is well established across many disciplines; however, supervision for nurses has proven more difficult to implement and sustain.

AIM: To evaluate the implementation and experience of establishing regular, ongoing group clinical supervision for mental health nurses in two acute adult inpatient wards.

METHODS: A qualitative descriptive study gathered and triangulated data from nurses attending group supervision sessions, the supervision session facilitators, and ward managers. Data were collected through an anonymous online survey with open text options (n=21) and semi-structured interviews (n=10). Interviews explored the experience of taking part in group supervision sessions, barriers and facilitators to implementation, enabling environmental factors, and ways to overcome challenges, and build psychological safety for participants as well as a sustainable program. Quantitative survey data were analysed using simple counting, while qualitative data were independently coded by the authors using an inductive grounded theory approach to identify emergent themes.

RESULTS: Successful implementation of group supervision required careful program design, strong support from all levels of management, and attention to administrative and logistic requirements. Sustainability was supported by protected time and structures that enabled nurses to attend, skilled and consistent facilitation, and organisational commitment to embedding supervision within ward culture. Participants described the supervision sessions as psychologically safe and supportive, with perceived benefits for clinical practice, team connection, professional identity, and confidence in managing the demands of inpatient mental health nursing.

CONCLUSION: Group clinical supervision can be successfully implemented and sustained within acute inpatient mental health settings when supported by skilled facilitation, protected attendance, strong leadership commitment, and an organisational culture that values reflective practice. The findings demonstrate benefits at individual, team, and organisational levels, and provide practical guidance for services seeking to embed group clinical supervision within routine nursing practice.

Winner

Winner: Nursing Research Awards Emerging Nurse Researcher Award

A REALIST EVALUATION OF A RAPID RESPONSE SYSTEM FOR MENTAL STATE DETERIORATION IN ACUTE HOSPITAL SETTINGS

Tendayi Bruce Dziruni, Alison M. Hutchinson, Sandra Keppich-Arnold, Tracey Bucknall

Dziruni, T. B., A. M. Hutchinson, S. Keppich-Arnold, and T. Bucknall. 2026. "A Realist Evaluation of a Rapid Response System for Mental State Deterioration in Acute Hospital Settings." Journal of Advanced Nursing 82, no. 9: 8763–8781. https://doi.org/10.1111/jan.70492.

Background: Patient mental state deterioration presents significant challenges in acute hospital settings, affecting outcomes, increasing reliance on restrictive interventions, and placing additional strain on healthcare staff. Despite its prevalence, consensus on best practice remains limited. The De- escalation, Intervention, Early Response Team (DIvERT) is a pilot rapid response system introduced to improve early identification, enable timely interventions, reduce crisis incidents, and support ward staff in caring for patients with mental state deterioration.

Methods: A realist evaluation approach was used to test, validate, and refine program theories explaining DIvERT's mechanisms. Data collection included a cross- sectional survey, semi- structured interviews, field observations, a medical record audit, and incident report analysis. Analysis was guided by the Context- Mechanism- Outcome framework to explain DIvERT effective functioning in responding to patient deterioration.

Findings: DIvERT facilitated early intervention through multidisciplinary collaboration, though organisational factors such as staffing constraints, workload pressures, and inconsistent assessment practices influenced effectiveness. Key mechanisms included structured escalation pathways, clinical skills, staff training, and interprofessional collaboration. Challenges included limited after- hours availability, reflecting the constraints of a pilot initiative, underreporting of incidents, and hierarchical decision- making. While causation cannot be directly established, trends indicate DIvERT was associated with fewer Code Grey responses, particularly during initial episodes of mental state deterioration.

Conclusion: This realist evaluation highlights the value of structured escalation pathways, multidisciplinary collaboration, organisational support, and tailored training in managing mental state deterioration. Preliminary trends suggest DIvERT may enable more proactive and timely early intervention, whereas traditional reactive hospital emergency response for aggression (Code Grey) was more often linked to repeat incidents. Workforce constraints and inconsistent assessment limited effective functioning, underscoring the need for strengthened training, integration into workflows, and improved after- hours coverage to support scalability and long- term success.

Winner

Winner: Nursing Research Award Best Nursing Publication

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Winner

Winner: Nursing Research Award for Nursing Research Encouragement Award

OPTIMISING ELRANATAMAB TREATMENT DELIVERY IN RELAPSED REFRACTORY MULTIPLE MYELOMA: A NURSE PRACTITIONER-LED DELIVERY MODEL AT A SINGLE TERTIARY CENTRE

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Elranatamab, a B-cell maturation antigen bispecific antibody was approved in 2025 to treat relapsed/refractory multiple myeloma (RRMM). During step-up dosing (SUD) and beyond, adverse events (AEs) are common, requiring close monitoring and management. Limited real-world data exists on patient response to this therapy or nurse-led models of delivery.

AIM: To evaluate patient response to elranatamab for RRMM including the safety of outpatient SUD using a nurse-practitioner led delivery model.

METHOD: A prospective cohort study design was adopted. Patients received elranatamab SUD during a 5-day inpatient admission or as an outpatient. Clear escalation and management pathways were developed by the multiple myeloma nurse practitioner (MMNP) to support the safe outpatient administration of elranatamab. A REDCap database was used to collect patient demographics, prior lines of therapy, adverse events, and treatment response. Descriptive statistics were used to describe the clinical outcomes and adverse events.

RESULTS: To date 30 patients have received elranatamab. The median age was 67 (range 49-78) years. Patients received a median of 5 (range 3-10) prior lines of therapy and were a median of 5 (range 1-22) years post-diagnosis. 63% of patients achieved a complete response with 73% achieving an overall response rate. Adverse events included cytokine release syndrome (CRS) (50%, all grade 1-2) with no patients experiencing CRS in the outpatient SUD group with prophylactic tocilizumab; multiple infections including cytomegalovirus with 24% requiring antiviral therapy; grade 4 neutropenia (43%) requiring regular filgrastim; skin toxicities including desquamation (11%) and injection site reactions (24%); and fatigue (68%).

CONCLUSION: A MMNP-led elranatamab delivery model is safe and effective in the management of RRMM patients. Elranatamab achieves high response rates in heavily pre-treated patients, and an MMNP-led model enables rapid identification and management of adverse events, particularly during outpatient delivery. Further evaluation of patient outcomes and an economic evaluation is planned as outpatient delivery participation increases.

Winner

Winner: Nursing Research Award for Nursing Research Encouragement Award for Early Career Researchers

CLICKING INTO CARE: PATIENT PORTAL USE AFTER LUNG TRANSPLANTATION

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Although lung transplantation can extend survival for patients with end-stage lung disease, recipients face complex, long-term health management challenges. Patient portals offer a digital solution to support patients with chronic conditions. However, patient adoption and engagement with portals remain limited.

AIM: To describe lung transplant recipients' perceptions and experiences with the patient portal system.

METHODS: A lung transplant recipients' survey was developed using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. Experts then validated the content. The survey was distributed at the lung transplant clinic, in clinic newsletters, and through newsletters and email networks of state-based lung transplant organisations. Data analysis comprised descriptive statistics, chi-square and Mann-Whitney U tests, and open-ended question responses were deductively analysed against the UTAUT framework.

RESULTS: Of 251 eligible respondents, there were 178 portal users (70.9%) and 73 non-portal users (29.1%). Portal users were generally younger (U=5029.50, p=0.005), English speaking (χ^2=9.846, p=0.002) with a higher level of education (χ^2=19.590, p<0.001). Portal users attended more medical specialties (U=4782.0, p=0.002), placed greater value on accessing online health information (χ^2=15.566, p<0.001), and preferred to download medical records (χ^2=5.027, p=0.025) than non-portal users. Security concerns differed significantly, with more users reporting that they weighed the benefits of portal use over the potential risks (χ^2=8.754, p=0.013). Clinicians played a valuable role in encouraging portal use, and carers often facilitated portal use or used the portal to manage appointments and access medical information. Portal users desired a more user-friendly portal system with a wider range of medical information to support self-management.

CONCLUSION: To improve patient experience, enhanced functionality, more intuitive navigation, and greater availability of medical information online are required. Portal enhancement should be co-designed with patient, carer and clinician representatives. Organisation-wide education for clinicians is recommended to increase portal awareness and facilitate adoption.

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Scientific Abstracts

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Alfred Research Alliance Consumer Involvement in Research

HOSPITAL CARE AT HOME: A MIXED METHODS STUDY OF HEALTH PROFESSIONAL AND PUBLIC PERCEPTIONS.

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Background: In 2020, the Government of Victoria, Australia, launched its 'Better at Home' initiative, with the goal of providing HAH to an additional 15,000 patients annually. Understanding perceived barriers and enablers to HAH uptake is crucial to achieving this goal. This study, reaching a wide range of actual and prospective HAH consumers, offers insights on how the approach is currently perceived, and recommendations to clear up misunderstandings, enhance access, and allay concerns that might hinder HAH expansion.

Methods: Health Service Partnership organisations of the north-east, south-east, and western regions of Melbourne, partnered with a Market Research company to conduct consumer (n=2,061) and clinician (n=186) surveys, and consumer (n=41) and clinician (n=20) focus groups, exploring perceptions of the HAH approach. Analysis and findings are presented descriptively.

Results: Consumer awareness of Hospital-at-Home (HAH) reached 49%, with 95% acceptance and 41% high-to-very high confidence. Key drivers included timelier care (82%), avoiding hospital settings (81%), and faster recovery (75%). Of the 5% who declined, fear of system neglect (41%) was the main concern. Clinicians broadly supported HAH, with home monitoring boosting confidence in 65% of respondents. Practical support for patients and ease of access were enablers. 66% of clinicians advised more funding and resourcing was needed for increased HAH uptake. Overall, there was a net positive response to the HAH approach.

Conclusion: Addressing barriers to HAH uptake has high importance to the Government's Better at Home strategy. This study's findings can inform both local and system level improvements to increase confidence in HAH, and enhance opportunities for expansion.

Alfred Research Alliance Consumer Involvement in Research

BETWEEN AUTONOMY AND DUTY. MENTAL HEALTH NURSES' EXPERIENCES OF EARLY INTERVENTION IN A RIGHTS-PRIORITISED REFORM CONTEXT: A QUALITATIVE DESCRIPTIVE STUDY.

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Mental health reform represents a sustained effort to improve mental health systems through changes to policy, legislation and service delivery. The unprecedented growth of the lived and living experience workforce (LLEW) represents a significant shift in the mental health landscape. Victoria is currently undergoing the most significant mental health reform in its history.

AIM: To explore mental health nurses' (MHN) perceptions of the impacts of mental health reform on their (1) delivery of care in relation to consumer and carer safety and wellbeing and (2) experiences of working alongside lived experience workers within reformed service contexts.

METHODS: A qualitative descriptive design analysing semi-structured interviews conducted with MHNs working in Victoria, Australia (N=14). Data were analysed using Braun and Clarke's reflexive thematic analysis, with reporting guided by the COREQ guidelines.

RESULTS: Three themes were generated: (1) Mind the gap: Reform impacts to safety and risk; (2) When care comes too late: Reform impacts to care and treatment; and (3) Between sympathy and resistance: Ambivalent attitudes towards LLEW roles. Nurses described an increased legislative emphasis on consumer choice, relative to clinical decision-making, contributing to uncertainty and hesitancy in intervention, which they perceived as negatively affecting care outcomes in some situations. Participants described challenges integrating LLEW roles into services, particularly regarding role clarity and organisational support. Despite these challenges, nurses valued the contribution of LLEWs to consumer care, particularly their capacity to engage with consumers in distinctive ways and recognised their important role within the mental health workforce.

CONCLUSION: MHNs described significant changes to practice associated with mental health reform, including challenges navigating consumer choice, clinical decision-making, safety, and interdisciplinary practice. Findings highlight the importance of supporting nurses to navigate evolving models of care, while strengthening role clarity, organisational support and integration of LLEW to realise the value of these roles within services.

Alfred Research Alliance Consumer Involvement in Research

IMPROVING WRITTEN INFORMATION PROVISION THROUGH CONSUMER INVOLVEMENT AND ARTIFICIAL INTELLIGENCE IN A COGNITIVE CLINIC

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AIM: Individuals attending cognitive clinics frequently require clear written materials to support information retention. This study aimed to optimise an existing clinical feedback letter template by engaging end-users and a Large Language Model (LLM) within a co-design framework to rapidly generate and evaluate content.

METHOD: We conducted semi-structured interviews with patients and support persons at a specialist cognitive clinic prior to (n=10) and following (n=8) written feedback delivery. Transcripts were thematically analysed by two independent researchers. These themes were then embedded into ChatGPT (Model GPT-4, OpenAI) to create prototype letters. Clinic staff critically appraised the outputs during three 30-minute co-design workshops, before validation by two independent consumer advisory groups to ensure readability.

RESULTS: Pre-feedback interviews identified five themes: 1) reason for referral, 2) contextualised investigation results, 3) diagnosis and prognosis, 4) actions to modify risk of decline and 5) planning for the future. Post-feedback interviews revealed five themes: 1) the need for clear indication of target audience, 2) clear letter structure and navigability, 3) simple language, 4) alignment between written and verbal feedback and 5) actions to modify risk of decline. The revised, LLM-generated template achieved high health literacy metrics and was reviewed favourably by both consumer panels.

CONCLUSIONS: Patients and support persons valued personalised, accessible feedback that aligned with verbal consultations and outlined actionable strategies for maintaining independence and brain health. Integrating consumer preferences with LLM structural prototyping, balanced by rigorous, human-in-the-loop clinical governance offers a safe, scalable, and reproducible blueprint for health service optimisation and enhanced clinical communication.

Alfred Research Alliance Consumer Involvement in Research

PATIENT AND STAFF SATISFACTION WITH EMERGENCY DEPARTMENT METHOXYFLURANE USE

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BACKGROUND: Methoxyflurane is a fluorinated hydrocarbon historically used as an inhaled nonopioid volatile anaesthetic. In-hospital use focusing on emergency department (ED) presentations have demonstrated reductions in patient reported pain scores, ED procedure durations, recovery time and department length of stay.

Given the increasing evidence demonstrating the utility and potential benefits of use, methoxyflurane may be considered as a preferred alternative to traditional sedation or regional anaesthesia. Data in both patient and clinician focused outcomes specific to methoxyflurane for common procedures in the ED setting are limited.

AIM: To assess patient and clinician experience with methoxyflurane in the emergency setting after introduction in the clinical department.

METHODS: Patients managed with methoxyflurane and respective clinicians were prospectively enrolled. The primary outcome was patients' reported effectiveness and satisfaction with methoxyflurane use in the ED. Secondary outcomes included clinicians' satisfaction with methoxyflurane use, effectiveness of analgesia for intended procedure, median time to methoxyflurane administration and additional analgesia use. Satisfaction was assessed using a 5-point Likert scale and summarized using medians (interquartile range; IQR).

RESULTS: Of patients prescribed and administered methoxyflurane, 30 patients and 21 clinicians were enrolled. 30 patient responses and 28 clinician responses were received. Median patient reported effectiveness of methoxyflurane for the intended procedure was 4 out of 5 (IQR 3-5). Median patient satisfaction was 4 out of 5 (IQR 3-5). Median clinician satisfaction was 5 out of 5 (IQR 4-5). 92.9% of clinician responses reported methoxyflurane provided effective analgesia for the purposes of procedure completion. Median time to administration was 25 minutes (IQR 18-60 minutes). There were 13 patients (43.3%) that required additional analgesia (paracetamol/NSAIDs/opiates/regional block) prior to the procedure.

CONCLUSION: Positive patient and clinician experience suggests methoxyflurane to be an acceptable option for analgesia and procedural sedation in the ED.

Alfred Research Alliance Consumer Involvement in Research

A QUARTER CENTURY OF TRAUMA CARE: TRENDS, OUTCOMES AND LESSONS FROM 25 YEARS OF TRAUMA REGISTRY DATA

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AIM: To evaluate 25-year trends in trauma epidemiology, care delivery, and patient outcomes using data from the Alfred Hospital Trauma Registry (AHTR), and to examine how changes in demographics, injury patterns, and clinical practice have influenced outcomes over time.

METHODS: A retrospective cohort analysis was conducted using all trauma admissions recorded in the AHTR between 1st July 2001 to 30th June 2026, inclusive. The registry has documented over 91,000 patient records and more than 11.6 million data points, including demographic, injury, treatment, discharge and outcome information. Descriptive analyses were performed to assess temporal trends in patient characteristics, mechanisms of injury, care processes, and outcomes across the study period.

RESULTS: Over 25 years, the AHTR recorded more than 91,000 trauma admissions. Annual admissions meeting registry inclusion criteria has more than tripled, increasing from 1,301 in FY2001/02 to 4,391 in FY2025/26. The trauma population aged substantially, with median age increasing from 34 to 55 years and the proportion of patients aged ≥65 years rising from 14% to 38%. Injury patterns shifted, with low falls (<1 m) becoming the lead mechanism of injury alongside road trauma and high falls (>1 m). Despite increasing case volumes and an ageing patient population, outcomes have improved. Overall mortality decreased from 6.4% to 3.6%, median hospital length of stay reduced from 6.5 to 4.4 days, and discharge home rates increased from 45% to 70%. Admissions related to e-bike and e-scooter injuries also significantly increased in the recent few years. Core data completeness remained high at 98%.

CONCLUSION: Over a quarter century, trauma care at The Alfred has evolved alongside significant demographic and epidemiological changes. Improved outcomes despite increasing demand highlight the value of long-term trauma registry surveillance in measuring system performance, identifying emerging injury trends, and informing trauma system planning, quality improvement, and future research.

Alfred Research Alliance Consumer Involvement in Research

SUPPORTING REFERRAL TO PULMONARY REHABILITATION FOR PEOPLE WITH CHRONIC RESPIRATORY DISEASE: A TWO-PHASE CO-DESIGN STUDY

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Referral of people with chronic respiratory disease to pulmonary rehabilitation (PR) remains low despite program benefits.

AIM: We aimed to explore patient and health professional (HP) experiences of the PR referral process, to identify and co-design strategies to support referral.

METHODS: The study involved two phases. In Phase 1, focus groups and qualitative interviews were conducted to explore participants' experiences of the referral process to PR. In Phase 2, a co-design workshop was performed to develop the potential strategies that were identified in Phase 1. All meetings with participants were recorded and transcribed verbatim. Phase 1 findings were analysed using template analysis and content analysis was conducted to summarise findings from the co-design workshop.

RESULTS: Phase 1 included 14 people with lived experience of chronic respiratory disease (71% females; mean age 68 years; 86% with PR experience) and 10 HPs (70% females; 60% with >10 years clinical experience; 64% had PR referral experience). Patients and HPs both identified the need for more awareness and information of PR. While patients only expected brief information at the time of referral, they expressed the desire for referral from a trusted source and reassurances about attending PR. Health professionals emphasised the need for resources and support to improve their understanding of the referral process as well as referral feedback from PR services. In Phase 2, two people with lived experience, three HPs, and PR clinicians, worked together to develop referral support strategies including a patient information handout, referral acknowledgement and PR completion feedback templates, and the structure and content for a novel HP education program.

CONCLUSION: In this study, participants highlighted the need for engagement of all stakeholders for successful PR referral and co-developed strategies to support the referral process. Strategies to support referral to PR now require testing in real-world settings.

Alfred Research Alliance Consumer Involvement in Research

PATIENT-REPORTED OUTCOMES AND EXPERIENCES 1 TO 10 YEARS AFTER BARIATRIC SURGERY: PILOT DATA FROM A NEW CO-DESIGNED REGISTRY MODULE

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AIM: The Australia & New Zealand Bariatric Surgery Registry (BSR) is expanding its dataset through the implementation of bariatricspecific patientreported measures. A new patient-reported data module was developed in close collaboration with BSR leadership, surgeons, and the BSR Consumer Advisory Group (CAG) to capture critical data directly from patients. This study aimed to pilot-test the new co-designed module among post-surgical patients 1 to 10 years post-procedure.

METHODS: Relevant stakeholders and consumers selected and prioritised proposed variables. The BSR CAG co-designed the survey items and optimised electronic data collection. BSR patients due for annual follow-up completed the online REDCap module, capturing demographic and health data, the BSR Patient-Reported Outcome Measure (PROM), and the Australian Hospital Patient Experience Question Set (AHPEQS).

RESULTS: 4,438 participants completed the module (>100 per post-operative year; >84% completion rate). Participants were predominantly female (74.4%) and of nonIndigenous Australian (69.5%) or European (10.1%) ethnicity, with patient-reported data revealing a 4.7% Indigenous Australian participation rate (versus 0.6% historically recorded by clinicians). Co-occurring mental health conditions were reported most often (33.0%), validating consumer advocacy during item selection, followed by gastrointestinal conditions (21.3%), and hypertension (18.6%). Patients reported high obesity management medication use (26.6% in the past 12 months, peaking at 40.3% in year 8). Initial PROM quality of life and psychosocial improvements diminished over time, with participants at years 7-8 demonstrating the poorest outcomes. While 81.5% rated overall care quality as good or very good, qualitative consumer feedback highlighted the need for bariatric-specific PREMs to capture distinct care settings.

CONCLUSION: This preliminary data demonstrates the module's capacity to identify previously uncaptured priority groups within the Registry. Embedding the consumer voice directly into national Registry infrastructure strengthens our capacity to monitor and address inequities in bariatric surgical care, track long-term psychosocial trajectories, and deliver actionable, patient-centred feedback to clinicians and patients.

Alfred Research Alliance Consumer Involvement in Research

EMBEDDING LIVED-EXPERIENCE LEADERSHIP IN THE DEVELOPMENT OF AN EQUITABLE, DIGITALLY ENABLED CARDIOMETABOLIC HEALTH AND WELLBEING PATHWAY

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People with cardiometabolic multimorbidity often experience difficulties navigating fragmented health, social and community services. Connect4Health is a human-supported, digitally enabled pathway designed to connect people to available services and supports while addressing digital exclusion, limited health literacy, language barriers and socioeconomic disadvantage.

AIM: To identify lived-experience priorities for the development of an accessible and equitable, digitally enabled pathway connecting people with complex cardiometabolic conditions to coordinated health, social and community support.

METHODS: A seven-member Lived Experience Advisory Panel (LEAP) contributed to Connect4Health development through representation in project governance and review of the draft Terms of Reference. The LEAP Chair participated in the two-day inaugural project meeting, and LEAP representatives contributed to subsequent project meetings. Six members attended a two-hour facilitated inaugural LEAP session to examine the proposed pathway and identify barriers, enablers and development priorities. Meeting records were circulated for member review, and four attendees completed a post-session survey. Meeting and survey feedback were synthesised into recurring priorities and mapped to proposed project responses.

RESULTS: LEAP identified three requirements for the Connect4Health pathway. First, non-digital navigation options should remain available alongside digitally enabled services to avoid excluding people unable or unwilling to use digital tools. Second, trust, privacy and cybersecurity should be addressed explicitly in pathway design and communication. Third, lived-experience input should occur while design options remain open, supported by a roadmap specifying when and how LEAP advice will inform project decisions. Ongoing LEAP involvement was supported through flexible participation arrangements and a proposed recommendation–response process documenting how its advice informs project decisions.

CONCLUSION: Embedding lived experience early has identified and translated consumer priorities into actionable requirements for Connect4Health pathway development. Incorporating these priorities throughout development and implementation may support more accessible, trusted and equitable access to coordinated health, social and community services for people with cardiometabolic conditions.

Alfred Research Alliance Consumer Involvement in Research

EMBEDDING EQUITY IN DEVELOPING A DIGITALLY ENABLED SOCIAL PRESCRIBING FOR CARDIOMETABOLIC MULTIMORBIDITY: APPLYING SYSTEMATIC REVIEW FINDINGS TO LIVED-EXPERIENCE GOVERNANCE AND DEVELOPMENT OF CONNECT4HEALTH

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INTRODUCTION: Equity can be compromised when evidence-based interventions for cardiometabolic multimorbidity (CMM) do not adequately address cultural, linguistic and socioeconomic contexts, barriers to access and potential users' capacity to participate. Evidence is needed on what makes interventions accessible, acceptable and workable for diverse populations. We are developing a human-supported, digitally enabled social prescribing model, Connect4Health, for people with CMM. A systematic review of non-clinical health interventions for culturally and linguistically diverse (CALD) populations with CMM provided evidence on design and implementation principles relevant to Connect4Health.

OBJECTIVE: To identify equity-relevant design and implementation principles from the review and discuss how they are being adapted to Connect4Health's lived-experience approach to governance.

METHODS: We conducted a systematic review using JBI guidance. Eligible studies examined nonclinical CMM care and support interventions for CALD populations and identified strategies that enabled equitable design and implementation, including cultural appropriateness, feasibility, acceptability, and effectiveness of interventions. We then considered how these equity principles could be operationalised within the Connect4Health model.

RESULTS: We identified 4,268 records and included 49 studies. The review identified equity-relevant approaches that enhanced programme feasibility, acceptability and effectiveness. These included co-design, early stakeholder engagement, linguistic and sociocultural considerations, trusted personnel, and flexible, low-burden digital interventions. Intervention burden, technology anxiety, low digital confidence, time and financial pressures, language and health-literacy demands, and limited organisational capacity impeded equitable intervention access, uptake, implementation and effectiveness. To apply these findings within Connect4Health, we established a Lived Experience Advisory Panel (LEAP) with members from diverse cultural and linguistic backgrounds early in model development. LEAP co-developed its Terms of Reference and is embedded in project governance. Through meetings and workshops, members inform priorities, needs and model requirements across planning, design, implementation and evaluation.

CONCLUSIONS: Review-derived principles are informing Conenct4Health's governance and model development. Prospective evaluation will assess whether this approach influences participation, decisions and equity-relevant implementation outcomes.

Alfred Research Alliance - Aboriginal and Torres Strait Islander Peoples' Research

INEQUITIES IN ACUTE BURN OUTCOMES FOR ABORIGINAL AND TORRES STRAIT ISLANDER ADULTS IN AUSTRALIA: A 10-YEAR NATIONAL STUDY.

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AIM: To characterise the epidemiology, injury characteristics, management and acute outcomes for burns among Aboriginal and Torres Strait Islander adults in Australia.

METHOD: This was a multicentre retrospective cohort study of all adults admitted to an Australian Burn Centre between 2010 and 2020. This study utilise data from the Burns Registry of Australia and New Zealand.

RESULTS: A total of 13,513 patients were included in this study, of which 6.8% (n=780) identified as Aboriginal or Torres Strait Islander. Despite no differences in age or burn severity, Indigenous people experienced an 83% higher in-hospital mortality risk and a significantly longer length of hospital stay (6.9 days vs. 4.9 days). Lower rates of basic first aid treatment (26%) were identified for First Nations patients, along with greater delays to treatment (59 hours vs 22 hours). Burns occurring in very remote regions were greater for Indigenous patients (67% vs 2.1%) and burns due to assault were 10-times more likely to occur amongst these communities. Aboriginal patients were 2.7 times more likely to die from petrol burns without adjustment and 16 times more likely in a multivariate model. First Nations status was found to be a more significant risk-factor for death than age and ICU admission.

CONCLUSION: This study identified significant inequities in acute burn outcomes for Aboriginal and Torres Strait Islanders, which persist after adjustment for major clinical predictors of mortality. Strengthening primary prevention, improving early community-based first aid and ensuring that burn services are delivered within a culturally responsive healthcare system are critical steps towards closing the gap in health outcomes for these communities.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

RETROSPECTIVE ANALYSIS OF AI-BASED SOFTWARE FOR DETECTION OF PULMONARY EMBOLI

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Pulmonary embolisms (PE) are diagnosed with computed tomography pulmonary angiogram (CTPA). With an increase in demand for imaging worldwide, rapid growth of artificial intelligence (AI) in radiology has followed.

AIM: This study retrospectively evaluates the miss rate of a commercially available FDA-approved AI-based decision support system for PE detection at a tertiary metropolitan hospital in Australia.

METHODS: A single centre retrospective review of all CTPAs performed between January 2022 and December 2024 was conducted. The AI software evaluated was Aidoc (Aidoc Medical Ltd), an FDA-approved decision support system for pulmonary embolism detection. Manual review of each CTPA scan's radiologist report was conducted by two investigators. Scans with discordance between radiologist report and AI software were manually reviewed by one investigator and given a discrepancy classification.

RESULTS: 9797 CTPAs were included for analysis: 15% of these scans indicated the presence of PE, while 84% indicated no evidence of PE. The overall sensitivity of the AI algorithm for all PEs was 79.4% (95% Confidence Interval [CI] 77.3%-81.5%); specificity was 99.1% (95% CI 98.9%-99.3%). When stratified by type, sensitivity for acute PE detection was 88.5% (95% CI 87%-90%), compared to 30.4% (95% CI 25%-37%) for chronic PE. Among missed acute PEs, 26% were classified as subtle PEs, typically representing an isolated small thrombus at distal segmental or subsegmental level. In contrast, 20% were categorised as gross misses, involving high-volume emboli at a central or proximal segmental level

CONCLUSION: The evaluated AI software demonstrated markedly higher sensitivity for acute compared to chronic PEs, consistent with its intended clinical use. The identifiable discrepancy patterns observed in this study support the role of AI as an adjunctive decision-support tool to assist radiologist interpretation within routine clinical practice.

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Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

COVERAGE AND MISSED OPPORTUNITIES FOR ROUTINE VACCINATION IN ADULT TRAVELLERS: A SINGLE-CENTRE OBSERVATIONAL STUDY

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AIM: Reducing missed opportunities for vaccination (MOV) – where eligible individuals interact with health services but are not vaccinated – is a World Health Organisation priority for improving immunisation coverage. Even among patients with high levels of health service engagement, adult coverage for routine and catch-up vaccines remains low, increasing outbreak risk and severe outcomes. Improving coverage in high-risk populations is a priority in Australia's National Immunisation Strategy. Specialist travel clinics frequently see older and medically complex travellers and may be underutilised to improve routine vaccination uptake.

METHOD: Single-centre retrospective observational study of adults attending a specialist travel clinic based at The Alfred Hospital. Data collected from electronic medical records included demographics, travel itineraries, comorbidities, immunosuppressive therapy, vaccination history, serology, and funding eligibility. Pre-clinic vaccination coverage, eligibility, on-site vaccination and MOV were assessed for influenza, pneumococcal, zoster and measles-mumps-rubella (MMR) vaccines. We only assessed coverage for COVID-19 vaccination status, as COVID-19 vaccines were not available on-site. Descriptive analysis and multivariable logistic regression explored predictors of MOV.

RESULTS: Among 252 patients seen at the travel clinic based at The Alfred Hospital in 2024 (mean age 47, 52% female), 43.2% were immunocompromised, 43.7% planned >4 weeks of travel, and 33.3% were seen via telehealth. Pre-clinic coverage was 63.5% for influenza, 54.6% for pneumococcal, 27.5% for zoster, 34.9% for COVID-19, and 66.2% for MMR. MOV for influenza, pneumococcal or zoster occurred in 52.9% of patients. Immunocompromised patients had increased odds of MOV ([aOR] 2.59; 95% CI 1.39-4.81; p=0.003).

CONCLUSION: Substantial gaps in routine vaccination coverage remain among adult travellers. On-site vaccination rates at the clinic were low, and MOV were frequent, particularly among immunocompromised travellers. Specialist travel clinics represent an important and underutilised opportunity to strengthen routine vaccine delivery in targeted populations.

Original research, published 20 June 2026

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

IMPACT OF A MULTIDISCIPLINARY TEAM MEETING ON THE MANAGEMENT OF PATIENTS WITH CARDIAC SARCOIDOSIS: EXPERIENCE FROM A STATE-WIDE HEART TRANSPLANT SERVICE

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AIM: Cardiac sarcoidosis (CS), one of the most serious manifestations of systemic sarcoidosis, has significant diagnostic and therapeutic challenges, such that early diagnosis and tailored immunosuppressive therapy require a collaborative multidisciplinary approach. Patients with potential or confirmed CS are referred to Alfred Health, a state-wide heart transplant centre, for advanced diagnosis, management and consideration for heart transplantation. We established a CS Multidisciplinary Meeting (MDM), consisting of rheumatologists, cardiologists, nuclear medicine and respiratory physicians, and pathologists, to guide management. This study aims to examine the impact of this MDM on complex patient management.

METHODS: Retrospective electronic medical record review of all cases discussed in this MDM from its inception (14.07.2023) to 1.1.2025.

RESULTS: Twenty-four patients (mean age 52.5 ± 13.8; male 83.3%) were discussed. The most common presentation was arrythmias [13/24 (54.2%)], followed by dyspnoea or cough [6/24 (25%)] and chest pain [5/24 (20.8%)]. All patients had positive cardiac magnetic resonant imaging and cardiac positron emission tomography findings, with 20/24 (83%) having histological evidence. Most had extra-cardiac manifestations [23/24 (95.8%)]: nodal [21/24 (87.5%)]; pulmonary [14/24 (58.3%)]; splenic [4/24 (16.7%)]; hematological [4/24 (16.7%)]; hepatic [3/24 (12.5%)] and ophthalmic [1/24 (4.2%)]. All were already on immunosuppressants. Eight patients (33.3%) were discussed for diagnostic purpose, with 5 resulting in a change of diagnosis. Others were discussed for management (20/24, 83.3%). Of those, 20 (83.3%) had a change in immunosuppression regime: escalation (8/20,40%) and de-escalation (8/20,40%). Two patients proceeded to heart transplantation, due to ongoing malignant arrythmias despite immunosuppression escalation. All others had clinical improvement or stabilization, negating the need for consideration of heart transplantation.

CONCLUSION: This CS-MDM resulted in most patients having changes made to their immunosuppressants, leading to clinical improvement or stabilization, including negating the need for consideration of heart transplantation. Managing CS patients in a multidisciplinary setting has direct beneficial impact on patient care.

New Thinking.
Real Impact.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

EXPLORING REHOSPITALISATION RISK PREDICTION TOOLS IN GENERAL MEDICINE: A SCOPING REVIEW.

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Aim: In Australia, 30-day rehospitalisation from General Medicine patients ranges from 13% to 15%. However, the scope and effectiveness of existing predictive tools for rehospitalisation, that would enable early identification and intervention, are poorly understood. This review scopes published evidence on readmission risk prediction models and tools for General Medicine.

Methods: Key search concepts were: (1) risk prediction tools, (2) hospital readmission, and (3) General or Internal Medicine populations. Publications between 2015 to 2026 were identified using Embase, Ovid Emcare, and MEDLINE databases. Included criteria were (1) full text articles in English language (2) development or validation of a risk prediction model/tool, and (3) acute medicine, acute geriatrics, or cancer, mental health, and palliative care populations provided that care was conducted in a General Medicine setting. Studies in settings other than General/Internal Medicine, single organ programs, conference proceedings, theses, and grey literature were excluded. Articles were screened independently by two investigators; disagreements were adjudicated by consensus/or third investigator. After removing duplicates, 866 articles were screened at the abstract level. Of these, 89 progressed to full-text review, of which 45 were deemed eligible for data extraction.

Results: The top 5 countries represented were U.S (n=14), Israel (n=7), Switzerland (n=6), Canada (n=5), Australia (n=3). Psychosocial determinants informed 31% of studies. Model performance was largely contextual (population, location, hospital database) and use of coded data limited the utility of prospective performance. Conceptual consensus regarding what constitutes a “rehospitalisation prediction model study” was lacking. There was a paucity of systematic review (n=2)

Limitations: Only English language studies; no grey literature/theses; reference list checks limited to systematic reviews.

Conclusion: There is a clear need for effective screening tools that identify and address rehospitalisation risk among General Medicine patients. This scoping review increases understanding of the existing evidence on readmission risk prediction models for this population.

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PULMONARY VEIN RECONNECTION PATTERNS IN 'VERY LATE' REDO AF ABLATION

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Catheter ablation (CA) is an established rhythm control strategy for symptomatic atrial fibrillation (AF). Despite advances, atrial arrhythmia recurrence occurs in up to 50% of patients, with approximately one-third requiring repeat ablation during long-term follow-up. Early recurrence is most commonly due to PV reconnection; however, delayed recurrence is poorly characterised in the literature and may reflect a distinct phenotype.

Aim: To characterise patients undergoing very late redo (VLR) AF ablation (>5 years after prior ablation) and compare pulmonary vein findings across redo interval groups.

Methods: Consecutive patients undergoing redo AF ablation at Alfred Health and Cabrini Health (2007–2025) were included and grouped by redo interval (<1 year, 1-5 years, >5 years).

Results: Of 596 patients undergoing first redo AF ablation, 71 (12%) patients underwent VLR AF ablation (median redo interval 7.1 years [IQR 5.9-8.2]). VLR patients had a mean age of 62.1 years; 72% were male, and median CHA_2DS_2-VASc was 2 (IQR 1-3) with 57.7% having paroxysmal AF at redo procedure. PV reconnection (any) was less likely with increasing time from index PVI: At <1 year 80.1% (189/236), 1–5 years 65.1% (188/289), >5 years 49.3% (35/71); p<0.001. Each additional year from index to redo ablation was associated with an 8.6% lower expected number of reconnected PVs (RR 0.91, 95% CI 0.88–0.95; p<0.001). Among VLR patients with enduring PVI, 35/36 (97.2%) underwent non-PV ablation. In total 32/71 (45%) of patients undergoing VLR AF ablation developed recurrent AF at a median follow-up of 243 days (IQR 103–1097) from repeat procedure.

Conclusion: The likelihood of PV reconnection declines significantly with increasing time to redo AF ablation, with the majority of patients > 5 years having enduring PV isolation. This suggests a greater contribution from non-PV triggers and/or AF substrate in this cohort.

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CLINICAL TOOLS FOR ASSESSMENT OF PLASTER CAST QUALITY IN PATIENTS WITH LIMB FRACTURES IN THE EMERGENCY DEPARTMENT: A SYSTEMATIC REVIEW OF RADIOLOGICAL INDICES

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Limb fractures are common presentations to the emergency departments (ED). Effective fracture immobilisation depends on appropriate application and quality of plaster casts. Objective tools to assess cast quality are not routinely used in clinical practice.

AIM: The objectives of this systematic review were to: (i) collate indices developed to assess cast quality in limb fractures; (ii) summarise the radiological measurement components of these indices.

METHODS: Three databases (OVID MEDLINE, EMBASE and SCOPUS) were searched up to April 2026. Inclusion criteria were English-language observational and interventional studies reporting indices used to assess cast quality in limb fractures. Two reviewers independently assessed eligible studies. Risk of bias was assessed using the Newcastle–Ottawa Scale. Results were synthesised descriptively, with random-effects proportion meta-analysis conducted to estimate the frequency of each index reported across studies.

RESULTS: Forty-three studies were included; five cast quality indices were identified, including Cast Index, Gap Index, Padding Index, Three-Point Index and Canterbury Index. Twelve common variables were synthesised across these indices. Most studies were observational, predominantly involving paediatric upper limb fractures. Cast Index was most frequently assessed, included in 38 out of 43 studies (proportion 0.88, 95% CI 0.79–0.98). Canterbury Index was the least frequently reported index (proportion 0.30, 95% CI 0.17–0.44).

CONCLUSIONS: The five cast quality indices, incorporating twelve radiological measurement variables, provide a foundation for developing an objective checklist to evaluate cast quality in the ED. Further research is required to determine whether a “high-quality” cast based on these measurements correlates with clinically meaningful outcomes.

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FINCANCIAL BARRIERS TO ENTRY INTO COMPETITIVE MEDICAL SPECIALTY TRAINING: IMPLICATIONS FOR EQUITY, DIVERSITY AND WORKFORCE PLANNING IN AUSTRALIA AND NEW ZEALAND

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AIM: To quantify applicant-borne costs associated with entry into a competitive medical specialist training pathway and explore implications for workforce distribution and equity in Australia and New Zealand, using ophthalmology as a case study.

METHODS: A retrospective cross-sectional electronic survey was conducted among current ophthalmology trainees across Australia and New Zealand between January and October 2025. Participants were asked to retrospectively estimate direct out-of-pocket expenses incurred specifically to strengthen their application and achieve selection into ophthalmology training.

RESULTS: Thirty-three of 155 eligible trainees (21%) completed the survey. The mean (±SD) total cost incurred was $55 440 (± $33 650), with a median cost of $60,240. Trainees in New South Wales trainees incurred significantly higher costs (mean $78,917) than those in Victoria ($49,034; p=0.03) and New Zealand ($33,473; p=0.04). Female trainees spent, on average, $19,211 more than males, although this difference did not reach statistical significance (95% CI -$4613 – $43,034, p=0.11). Only two respondents (6%) self-identified as coming from a socioeconomically disadvantaged background. Qualitative analysis highlighted substantial non-financial burdens, including opportunity costs, time investment and psychological stress.

CONCLUSION: Gaining entry into ophthalmology training in Australia and New Zealand is associated with substantial personal financial cost, with marked variability between training networks. These costs may represent a barrier to equitable access and risk limiting workforce diversity. Consideration should be given to targeted financial support, reimbursement mechanisms and ongoing review of selection criteria to mitigate unintended financial disadvantage.

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RURALITY AND SOCIAL PARTICIPATION AFTER BURN INJURY: A MULTICENTRE AUS-LIBRE COHORT STUDY

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AIM: Rural and remote burn survivors may experience barriers to specialist care and rehabilitation, but the relationship between rurality and long-term social recovery is poorly understood. We investigated whether greater residential remoteness was associated with poorer social participation following burn injury.

METHODS: We conducted a secondary cross-sectional analysis of the multicentre Aus-LIBRE observational cohort. Adults with previous burn injury treated in Victoria or Western Australia who had residential postcode data and completed at least three Aus-LIBRE Profile domains were included. Outcomes were standardised T-scores across six social participation domains: Family and Friends, Social Activities, Social Interactions, Work and Employment, Romantic Relationships and Sexual Relationships. Residential remoteness was classified as major city, inner regional, or outer regional/remote using ASGS/ARIA+ categories. Associations were examined using rank-based models adjusted for time since injury and total body surface area burned.

RESULTS: Among 303 participants (153 Victoria; 150 Western Australia), rurality was associated with Family and Friends participation (P=0.019). Outer regional/remote participants had higher adjusted Family and Friends T-scores than inner regional participants (mean difference 6.3 points; 95% CI 1.5–11.0; Tukey–Kramer-adjusted P=0.008). Differences between outer regional/remote and major city participants were not statistically significant. Rurality was not associated with the remaining five social participation domains.

CONCLUSION: Rurality was not associated with consistently poorer social participation following burn injury. Outer regional/remote participants reported better Family and Friends participation than those living in inner regional areas, while other social domains showed no consistent association with rurality. These findings suggest that post-burn social recovery is shaped by more than geographic remoteness alone and highlight the importance of considering family, community and service supports when planning follow-up and rehabilitation. Larger studies incorporating direct measures of these factors are needed to confirm these findings.

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NORMATIVE DATA FOR THE TRAIL MAKING TEST A AND B IN OLDER AUSTRALIANS

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AIM: Complex attention is a key cognitive domain that contributes to executive functioning and is routinely assessed in the evaluation of cognitive impairment. The Trail Making Test (TMT) is a widely used two-part (A and B) cognitive screening measure that assesses complex attention, visuomotor tracking, and cognitive flexibility, and is sensitive to a range of neurocognitive deficits. Population-specific normative data are essential for the accurate interpretation of TMT performance in clinical practice. This study aimed to establish normative reference values for TMT-A and TMT-B in a large cohort of community-dwelling older Australians.

METHOD: Data were derived from the baseline assessment of the Statins in Reducing Events in the Elderly (STAREE) trial, which recruited community dwelling adults aged ≥ 70 without a history of dementia and with a Modified Mini-Mental State Examination (3MS) score ≥ 78. Completion rates and times for TMT-A and TMT-B were recorded. We present normative data disaggregated by age group, gender and educational attainment.

RESULTS: A total of 7786 participants attempted both TMT-A and TMT-B. The mean age of participants was 74.8 years (SD 4.5; range 70-98), 52% were women, and 52% reported tertiary-level education. Older age, absence of tertiary education and being a man were associated with slower completion times on both tasks ($p<0.001$). Women generally demonstrated superior performance (faster completion times) than men, except among tertiary-educated participants aged >80 years in the lower percentile brackets. Normative tables are presented as median scores and percentile distributions across age, gender and education strata.

CONCLUSION: This study provides comprehensive, disaggregated normative reference standards for TMT-A and TMT-B in older Australians. By providing robust, locally derived normative data from a large, well characterised cohort, this study facilitates the interpretation of the Trail Making Test in both clinical and research settings across Australia and internationally.

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HARMONISATION OF FACE TO FACE AND TELEPHONE ADMINISTERED COGNITIVE TESTING IN OLDER AUSTRALIANS

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AIM: Telephone-based cognitive assessments are increasingly used in clinical practice and research because they improve accessibility, reduce participant burden and facilitate follow-up when face-to-face (F2F) assessment is not feasible. However, modifications required for telephone administration may alter the measurement properties of cognitive tests, making direct comparison with F2F assessments challenging. We aimed to evaluate methods to harmonise telephone and F2F administration of the Modified Mini-Mental State (3MS) examination.

METHOD: We analysed baseline data from STAREE (Statin Therapy for Reducing Events in the Elderly) trial, a randomised placebo-controlled trial investigating the effects of atorvastatin for individuals in Australia aged ≥70 years without dementia. Cognition was assessed using the Modified Mini-Mental State (3MS) via F2F (F2F-3MS) or telephone (telephone-3MS). Harmonisation strategies included item reduction, linear score scaling and modality-specific z-score standardisation. Univariable and multivariable linear regression models adjusted for participant characteristics were used to compare centring between modalities.

RESULTS: Among 9,971 participants, 8,924 (89%) completed F2F-3MS and 1,047 (11%) telephone-3MS. Those who completed a F2F-3MS were different from those who completed a telephone-3MS on a number of attributes including being older (74.8 years vs 73.9 years) and being less likely to have a tertiary level of education (52% vs 65%). The median unaltered F2F-3MS score was 25 points greater than that of the unaltered telephone-3MS (95 vs 70). Removal of the five items that were not included in telephone-3MS reduced the between-modality difference to 0.7 (67.6 vs 68.3). Scaling the 73-point scale telephone-3MS score to a 100-point reduced the between modality difference to 0.5 (93.8 vs 94.3). Using modality-specific distributions to calculate Z-scores, the between-modality difference was 0.000001 (-2.5×10^{-7} vs 8.4×10^{-7}).

CONCLUSION: Different harmonisation approaches involve trade-offs between statistical comparability and clinical interpretability. Selection of an appropriate harmonisation strategy should consider the intended analytical purpose and account for differences in participant characteristics.

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FAVOURABLE RESUSCITATION AND CLINICAL OUTCOMES IN INITIALLY HAEMODYNAMICALLY UNSTABLE PATIENTS UNDERGOING EMERGENCY TRAUMA LAPAROTOMY: A SECONDARY ANALYSIS OF THE GOAL-TRAUMA COHORT

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AIM: To identify patient, treatment, and health-system factors associated with favourable resuscitation among haemodynamically unstable patients undergoing emergency trauma laparotomy, and to assess whether this physiological classification was associated with in-hospital mortality.

METHODS: This secondary analysis used the prospective international Global Outcomes After Laparotomy for Trauma cohort. Adults with arrival shock index ≥1.0 undergoing trauma laparotomy within 6 h of injury were included. Favourable resuscitation was defined as shock index <1.0 without vasopressor or inotropic support at anaesthetic induction. Candidate factors were assessed using elastic-net penalised logistic regression in modifiable patient, non-modifiable patient, system-level, and combined models, with bootstrap internal validation. The association between favourable resuscitation and mortality was assessed using multivariable logistic regression.

RESULTS: Of 351 patients, 231 (65.8%) met the favourable resuscitation definition and 120 (34.2%) did not. Variables most consistently retained in the combined model predominantly reflected baseline physiology and injury severity, including Glasgow Coma Scale score, systolic blood pressure, admission haemoglobin, heart rate, and Injury Severity Score. Colloid administration and middle-Human Development Index setting were also frequently retained. Overall, 73 patients (20.8%) died. Mortality was lower with favourable than unfavourable resuscitation (13.0% vs 35.8%; absolute risk difference −22.8 percentage points, 95% CI −32.5 to −13.2). After adjustment for age, Injury Severity Score, injury mechanism, arrival shock index, Glasgow Coma Scale score, and Human Development Index tertile, favourable resuscitation remained associated with lower odds of mortality (adjusted OR 0.41, 95% CI 0.22–0.77). This association persisted across arrival shock-index thresholds from ≥0.8 to ≥1.5.

CONCLUSION: Among haemodynamically unstable patients undergoing emergency trauma laparotomy, favourable resuscitation was associated with lower adjusted mortality. Retained factors primarily reflected baseline physiology and injury severity; no preoperative treatment variable showed a sufficiently consistent, independently interpretable association to support conclusions regarding treatment effects. Favourable resuscitation may therefore be a useful prognostic marker.

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PREDICTING POST-EMBOLIZATION SYNDROME AFTER UTERINE FIBROID EMBOLIZATION: THE PREDICT-PES STUDY

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AIMS: To identify the rate of clinically significant post-embolization syndrome (csPES) in our cohort of patients after uterine artery embolization (UAE) for symptomatic fibroids and to identify risk factors associated with the development of csPES.

METHODS: Retrospective case-control study. All patients who underwent UAE for symptomatic fibroids between the 18-month period of March 1, 2022 and September 1, 2023 were recruited. csPES was defined as maximum pain score on visual analogue scale of >5 out of 10, plus at least 1 of: morphine patient-controlled analgesia dose >10 mg, fever, or use of 2 or more antiemetics.

RESULTS: A total of 69 patients were included, mean age 46.2 years, and median uterine volume 393 mL (range 80-2288 mL). The rate of csPES was 47.8% (33 patients). After adjusting for confounding using multiparametric logistic regression, a positive association was seen between nulliparity and developing csPES (OR: 5.51, 95% CI: 1.297-23.410, P = .021). In addition, a trend was shown between increasing age and a reduced odds of developing csPES (OR: 0.87, 95% CI: 0.748-1.002, P = .054).

CONCLUSION: The rate of csPES in our cohort was 47.8%, and nulliparity was strongly associated with the development of csPES. We can use this to better counsel our patients regarding the odds of csPES when these risks are present at pre-procedure consultation and target additional interventions at reducing csPES in this population.

ADVANCES IN KNOWLEDGE: Clinically significant post-embolization syndrome is common after UAE for symptomatic fibroids. This study showed that nulliparity is a risk factor for developing, previously not known or reported.

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PREDICTORS OF BOWEL ISCHAEMIA ON CT IN SMALL BOWEL OBSTRUCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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INTRODUCTION:

Small bowel obstruction (SBO) complicated by intestinal ischaemia carries a mortality rate of 20–40%, and delayed diagnosis is associated with increased morbidity, hospitalisation costs, and non-home discharge. CT is widely used to assess ischaemia in SBO, but substantial heterogeneity across existing studies makes it difficult to determine the diagnostic utility of individual CT signs. No meta-analysis on this topic has been published in over a decade. This meta-analysis aims to evaluate the diagnostic performance of key CT findings for predicting bowel ischaemia in SBO.

METHOD

A systematic search of PubMed, MEDLINE and Embase was conducted using PRISMA guidelines. Studies were included if they evaluated adults with CT- or surgery-confirmed SBO and reported at least one CT finding suggestive of ischaemia (e.g., peritoneal fluid, reduced/absent bowel wall enhancement, elevated unenhanced bowel wall attenuation, mesenteric congestion, mesenteric fluid, mesenteric oedema, bowel wall thickening, pneumatosis intestinalis, portal venous gas) with sufficient data for 2×2 contingency tables. Methodological quality was assessed using QUADAS-2. A bivariate random-effects model was used to calculate pooled sensitivity, specificity, likelihood ratios, and diagnostic odds ratios (DOR). Subgroup analysis by ischaemia severity was also performed.

Results

3,810 patients from 33 studies were included. Of patients undergoing surgery, 60.0% had reversible or irreversible ischaemia and 35.5% underwent resection. Resection was associated with a higher odds of morbidity (OR 4.31, 95% CI 2.20–8.41) and mortality (OR 4.01, 95% CI 0.78–20.7). Reduced or absent bowel wall enhancement showed the best overall diagnostic performance (DOR 20.2, 95% CI: 10.6-38.4; specificity 94%; PLR 9.1), though sensitivity was modest (58%). Pneumatosis intestinalis had the highest specificity (99%) but very low sensitivity (7%). Peritoneal fluid and mesenteric-fluid related findings had the highest sensitivity (74-79%) but limited specificity (54–64%). All evaluated findings had an NLR > 0.2, indicating that no single CT finding could reliably exclude ischaemia.

Conclusion

Reduced or absent bowel wall enhancement is the strongest individual CT finding for ruling in bowel ischaemia in SBO. Pneumatosis intestinalis is highly specific but insensitive, while peritoneal and mesenteric fluid-related findings are relatively sensitive but nonspecific. Given the overall modest diagnostic performance of individual CT signs in isolation, radiological findings should be interpreted alongside clinical and biochemical parameters, with a low threshold for surgical exploration when ischaemia remains clinically suspected.

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LONG TERM SURVIVAL OF PATIENTS WITH PERSISTENT CRITICAL ILLNESS IN AUSTRALIA AND NEW ZEALAND; A RETROSPECTIVE REGISTRY-BASED COHORT STUDY

Ruvini Vithanage

Objective. To determine whether increasing intensive care unit (ICU) length of stay (LOS) is associated with reduced long-term survival among patients with persistent critical illness (PerCI) across Australian and New Zealand ICUs, and to identify patient-level factors driving mortality risk in this population.

Design. Population-based retrospective cohort study.

Setting. All Australian and New Zealand ICUs reporting to the Australia and New Zealand Intensive Care Society Adult Patient Database (ANZICS-APD).

Participants. Adult patients (age >16 years) with an index ICU admission between July 2019 and June 2024.

Main outcome. All-cause mortality at 12, 24, and 60 months following ICU discharge in patients with PerCI. PerCI was defined as ICU LOS ≥10 days, with outcomes compared across five pre-specified LOS categories: 10–13 days (reference), 14–20, 21–29, 30–89, and ≥90 days. Cox proportional hazards models adjusted for illness severity, age, frailty, and comorbidity.

Results. Of 985,594 ICU admissions, 35,573 (3.6%) met the PerCI criterion. Survival from ICU discharge was approximately 70% at 12 months and varied between 47.5% and 61.4% at 60 months across LOS groups. After adjustment, LOS was not independently associated with survival in the 21–29 or 30–89 day groups compared with the 10–13 day reference; however, the 14–20 day group (HR 1.06, 95% CI 1.02–1.11, p=0.005) and the ≥90 day group (HR 1.31, 95% CI 1.06–1.61, p=0.011) had significantly higher hazard of death. The strongest patient-level predictors of shorter survival were chronic liver disease (HR 1.76, 95% CI 1.62–1.92, p<0.001), frailty (HR 1.45, 95% CI 1.38–1.51, p<0.001), and dialysis-dependent renal failure (HR 1.34, 95% CI 1.23–1.45, p<0.001).

Conclusions. Most patients with persistent critical illness in Australia and New Zealand had favourable long-term survival, with no consistent LOS–mortality gradient across the 10–89 day range. The ≥90 day group emerged as a distinct exception, with significantly elevated hazard of death and five-year survival below 50% despite its small size (n=226). For the majority of PerCI patients, long-term outcome appears to be determined by underlying patient characteristics rather than duration of ICU care, with implications for prognostic communication and post-ICU care planning. Future work should examine functional outcomes, frailty trajectory, quality of life, out-of-hospital resource use, and the characteristics distinguishing long-term survivors from non-survivors.

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COLLECTIVE LEADERSHIP IN HEALTHCARE: WHAT IS THE EVIDENCE FOR SAFER PATIENT CARE? A SYSTEMATIC REVIEW

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Collective leadership involves distribution of leadership roles and responsibilities across various team members and has been proposed to replace traditional hierarchical leadership structures in healthcare.

AIM: To determine the relationship between collective leadership and 1) clinical outcomes 2) patient and healthcare worker experiences and 3) healthcare performance

METHOD: A systematic review of published and grey literature, utilising Medline and Emcare (Ovid) was conducted. Multidisciplinary collective leadership models in healthcare settings were included. Screening was undertaken in Covidence, and study quality was assessed using Joanna Briggs Institute tools. A narrative synthesis was completed.

RESULTS: From 3004 records, six studies were included. All studies were published in the past ten years, and half (n=3) were conducted in acute hospital settings. Designs were commonly quantitative (n=4); two studies met all quality criteria. Shared leadership was the most frequently evaluated subtype of collective leadership (n=3). There were no concrete clinical outcomes reported however participants in one study perceived positive impacts due to increased holistic care. Two studies reported positive impacts on patient experience through improved safety. Five studies explored healthcare worker experiences which included positive outcomes at the team level (teamwork and innovation) and lower stress at the individual level. No studies evaluated healthcare performance.

CONCLUSION: Collective leadership appears to positively influence perceived clinical care, patient experience, and healthcare worker wellbeing. However, the evidence base is limited, with an absence of objective outcomes reported. Robust research is required to evaluate impacts across diverse healthcare contexts, including subacute settings, and on measurable patient outcomes.

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DIAGNOSTIC INSIGHTS OF DUAL-ENERGY CT IN IDENTIFYING CONTRAST-INDUCED ENCEPHALOPATHY IN ELECTIVE NEUROINTERVENTION PATIENTS

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Background: Contrast-induced encephalopathy (CIE) is a rare neurological complication of cerebral iodinated contrast administration. Neuroimaging plays a critical role in its diagnosis; however, no study has provided recommendations on optimal neuroimaging to assess for CIE. We aimed to demonstrate the utility of dual-energy CT (DECT) as an effective first post-procedural neuroimaging technique for evaluating new neurological symptoms that may be suspected as CIE.

Methods: We conducted a retrospective review of all cases diagnosed with CIE at our institution between January 2023 and January 2026. Patients were eligible if they underwent an elective aneurysm repair and were asymptomatic pre-admission. A total of six cases were included.

Results: DECT was the first neuroimaging performed in five cases. Features observed on non-contrast CT sequence included parenchymal hyper attenuation (83%), cerebral oedema (67%) and sulcal effacement (67%). All five cases showed hyperdense iodine maps in the injected vascular territories, and abnormal features disappeared on virtual non-enhanced sequences, confirming contrast staining rather than cerebral haemorrhage. In one case, CT perfusion and CT angiography were initially performed, which may have exacerbated contrast load and CIE symptoms.

Common MRI features included post-angiographic punctate diffusion restriction (100%), T2 FLAIR hyperintensities (67%) and confluent regions of diffusion restriction suggestive of new infarct (33%). In two cases, MRI assisted in differentiating CIE from ischemic stroke by correlating extensive diffusion restriction with confirmed contrast-stained regions. Follow-up neuroimaging demonstrated irreversible changes on MRI DWI in ischemic stroke, whereas all CIE cases demonstrated reversible punctate post-angiographic changes.

Conclusion: DECT is an appropriate neuroimaging technique for evaluating CIE in the post-procedural setting to differentiate contrast staining and cerebral haemorrhage. Alongside MRI, it may also differentiate ischemic stroke from CIE, although both conditions may occur concurrently.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

CONCENTRATED ALBUMIN INFUSION PRIOR TO RESCUE INFLIXIMAB IN PATIENTS WITH STEROID REFRACTORY ACUTE SEVERE ULCERATIVE COLITIS (CAPRI): A BLINDED INTERIM ANALYSIS OF A RANDOMISED CONTROLLED TRIAL

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Background: Reduced infliximab efficacy in acute severe ulcerative colitis (ASUC) due to increased drug clearance is associated with hypoalbuminaemia. Our aim was to evaluate whether differences in infliximab pharmacokinetics could be observed between patients receiving albumin immediately prior to rescue infliximab versus placebo and therefore justify continuing recruitment for this study.

Materials and Methods: In this randomised double-blind placebo-controlled trial of patients with steroid-refractory ASUC requiring infliximab rescue, infliximab-naïve patients with albumin <35 g/L at rescue were randomised 1:1 to 200 mL placebo (0.9% saline) or concentrated albumin prior to 10 mg/kg infliximab. Drug levels were collected regularly over 72 hours. Clinical outcomes were measured to 3 months from admission. Primary outcome was infliximab clearance and exposure, measured as area-under-the-curve (AUC). Secondary outcomes included colectomy rates and time to second dose infliximab (at discretion of treating physician).

Results: 27 patients were randomised (14 Group A; 13 Group B). Baseline characteristics and disease activity indices were well matched between groups. There was a numerically greater median infliximab AUC in Group B vs A (382 vs 362 mg; p=0.09). Infliximab clearance over 72 hours was not different between Group A and B (1.21 vs 0.91 L/d; p=0.20). There was a trend towards higher infliximab levels (median (IQR)) 12 hours post infusion in Group B (159 (145-208) mg/L) compared with 141 (112-174) mg/L in Group A (p=0.08). Time to second dose infliximab was longer in Group B (14.2 (5.8-15.3) d) compared with Group A (3.4 (2.3-12.2) d; p=0.017). At 3 months, there was no difference in colectomy rates (A 14%; B 8%; p=0.53). Adverse events were similar in each group.

Conclusion: The observed trend to different infliximab pharmacokinetics in the two groups (greater infliximab AUC and higher earlier infliximab drug levels) and time to the second dose warrants ongoing recruitment for this study.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

IMPROVING INTER-HOSPITAL TRANSFER OF MAJOR TRAUMA PATIENTS: A MODIFIED DELPHI STUDY

Biswadev Mitra,[1,2] Madison Essery,[1] Belinda Gabbe,[2] Elyssia M Bourke,[3,4] Anna Davis,[5] Melanie Lloyd,[5] Reza Lass,[1,2] **Laura McLaren**,[1] Mark C. Fitzgerald,[6] Peter A. Cameron,[1,2] Delphi panel*

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Delphi panel: Ashford J, Braitberg G, Corcuera I, Dalton H, Daly J, Douglas N, Fahrer C, Foo G, Jones C, Kardailsky I, Kennedy N, Lade N, Laging R, Lynch M, Mak W, McFarlane J, Naidoo P, O'Neill E, Paton A, Plunkett G, Pui JK, Putland M, Schnekenburger M, Sikic M, Stevens S, Thomson H, Tullio F.

INTRODUCTION: Victoria's state trauma guidelines recommend that major trauma patients have definitive management at a major trauma service (MTS), or for older patients with isolated traumatic brain injury, designated metropolitan neurosurgical services. However, compliance with this guideline is incomplete, with patients having definitive care at non-MTS or undergoing more than one transfer before receiving care at an MTS. The aim of this study was to assess key stakeholder opinion on potential strategies for change or improvements in processes for the transfer of major trauma patients.

METHODS: We undertook a Delphi process amongst experts in trauma care on processes for the transfer of major trauma patients. A four round modified Delphi technique was used to explore subject-expert consensus and identify strategies that could improve compliance with major trauma transfer guidelines. After initial identification of potential strategies (round 1), consensus, defined as ≥80% responses of agree or strongly agree, was sought for a further three rounds.

RESULTS: There were 49 responses to the initial survey, 82 in round 2, 62 in round 3 and 38 in round 4. Among the 41 statements assessed, consensus was achieved for 29 statements and grouped into the following themes: trauma systems, geriatric trauma, paediatric trauma, trauma in pregnancy, trauma related to specific mechanisms and trauma to specific body regions.

CONCLUSIONS: Clinician consensus on some aspects of major trauma transfer indicates potential for review and improvement in state trauma transfer guidelines. Incorporation of these statements into guidelines may improve compliance.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

REVIEW OF MMA EMBOLISATION IN PATIENTS WITH NON-ACUTE SUBDURAL HAEMATOMA TO EVALUATE THE RECURRENCE AND ADVERSE EVENTS

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Non-acute subdural haematoma (SDH) is increasingly encountered in the elderly population, particularly in those on antiplatelet or anticoagulant therapy. Despite surgical evacuation, recurrence rates remain very high, and perioperative risks are significant.

AIM: To review patients with non-acute subdural haematoma who underwent MMA embolisation to evaluate recurrence and adverse events.

METHODS: A retrospective review was conducted of 37 patients who underwent MMA embolisation for non-acute SDH between January 2024 and June 2026. Patients were selected following multidisciplinary team discussions involving neurosurgeons and interventional neuroradiologists. Embolisation was performed using liquid or particle agents as sole therapy or as an adjunct to surgical evacuation. Demographic data, anticoagulant/antiplatelet use, adverse events, and recurrence were recorded. Clinical and radiological follow-up was undertaken in all patients.

RESULTS: Of the 42 patients who underwent 58 hemispheric MMA embolisation (bilateral or unilateral), 28 underwent surgical evacuation before and/or after MMA embolisation and 14 were managed with MMA embolisation alone. Thirty patients were on anticoagulation and/or antiplatelets due to secondary medical conditions. All patients underwent post-procedural imaging; thirty-four patients were discharged following outpatient review. In three cases, recurrences were noted, and two of the patients required return to theatre for surgical drainage of the haematoma. Of these two patients, one had a history of liver cirrhosis and associated coagulopathy, while the other patient was on warfarin. One patient experienced an MMA rupture interprocedurally, which was coiled without adverse outcome.

CONCLUSION: This preliminary cohort recorded three recurrences (7.1%) and minimal complications. The findings support incorporating MMA embolisation into standard management algorithms as a primary modality and/or adjunct to surgery for patients with non-acute SDH. Larger, robust prospective studies with longer follow-up are warranted to define treatment algorithm(s) in future.

New Thinking.
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CHARACTERISING SURGERY-SPECIFIC RISK PROFILES IN PATIENTS REFERRED TO GENERAL MEDICINE PERIOPERATIVE SERVICES: A VICTORIAN MULTICENTRE CROSS-SECTIONAL STUDY.

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On behalf of the Victorian General Medicine Perioperative Collaboration

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AIM: Perioperative risk assessment is usually based on patient characteristics, whilst surgery-specific risk is often underappreciated. We evaluated patient characteristics and outcomes based on surgical risk categories within general physician-led perioperative services in Victoria, Australia.

METHODS: Adult patients who underwent surgery at 11 public hospitals were stratified into low-, intermediate-, and high-risk categories per European Society of Cardiology guidelines. Perioperative models of care were classified as reactive, mixed, and proactive. Univariable and multivariable analyses of patient- and system-level outcomes were conducted across surgical risk profiles.

RESULTS: Overall, 697 (65.1%) patients underwent surgery [median age 73 (62-81) years, 43.3% female, median Charlson Comorbidity Index 4 (3-6), Clinical Frailty Scale 4 (3-5)]. Surgical risk was low in 28.4%, intermediate in 61.8%, and high in 9.8% of cases. Major vascular surgery accounted for 54% of high-risk procedures. Care models did not effectively discern surgical risk; 50% of high surgical risk patients were managed reactively, and high surgical risk cases were predominantly referred post-operatively (70.6%, $p = 0.024$). High surgical risk was significantly associated with ongoing perioperative input ($p = 0.031$), general medicine takeover of care ($p = 0.007$), and prolonged median length of stay ($p < 0.001$), but not mortality ($p = 0.190$). In multivariable analyses, high surgical risk remained significantly associated with prolonged length of stay (adjusted geometric mean 17.8 days, 95% CI 13.3–23.9, $p < 0.0001$) and lower odds of discharge to usual residence (adjusted OR 0.42, 95% CI 0.20–0.88, $p = 0.02$).

CONCLUSION: High-risk surgery is independently associated with poor patient outcomes and disproportionate hospital resource utilisation. We advocate for integration of patient- and surgery-specific risk profiling to proactively identify high-risk perioperative patients and deliver more effective care.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

EMPLOYMENT OUTCOMES OF ICU SURVIVORS: A NATIONAL DATA LINKAGE STUDY

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AIM: To quantify return to employment (RTE) one year after hospital discharge in a national cohort of Australian adults.

METHODS: In this retrospective cohort study, we used a national ICU registry to identify working-age adults admitted to ICU from September 2021 and discharged from hospital by June 2024. This cohort was then linked to national employment data to ascertain weekly employment status and income; those employed in the eight weeks before admission were included. RTE was defined as receiving at least 75% of pre-admission baseline weekly income. Weekly work status was modelled as a multistate process, and associations were estimated using a Fine–Gray model with death as a competing event.

RESULTS: Of 69,163 patients from 179 ICUs, 71.7% (95% CI 71.4-72.1) were in the RTE state one year after hospital discharge. RTE was less likely among labourers (sHR 0.85, 95% CI 0.83-0.87) and machinery operators or drivers (sHR 0.87, 0.85-0.89) than among professionals and was also less likely among those with lower baseline income and those admitted following stroke/intracerebral haemorrhage (sHR 0.67, 0.62–0.73) or traumatic brain injury (sHR 0.75, 0.71–0.80). Of those who returned, 16.8% ceased work within one year.

CONCLUSION: 71.7% of patients were employed and earning at least 75% of their pre-admission income one year after hospital discharge. Manual occupation, lower pre-admission income and neurological injury were associated with a lower likelihood of return.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

DETECTION OF NYSTAGMUS USING VESTICAM MONOCULAR INFRARED VIDEO GOGGLES IN THE EMERGENCY DEPARTMENT: A PROSPECTIVE PAIRED BEFORE-AFTER PILOT STUDY

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Dizziness and vertigo are common emergency department presentations. Detection and characterisation of nystagmus can assist diagnostic assessment, but vestibular nystagmus may be suppressed by visual fixation and missed on standard bedside examination. Infrared video goggles remove visual fixation and may improve its detection.

AIM: To compare the frequency of nystagmus detection using Vesticam monocular video goggles with standard unaided assessment in ED patients presenting with dizziness and/or vertigo.

METHODS: Prospective within-patient before-after pilot at two EDs. Adults with dizziness and/or vertigo underwent standard bedside assessment, followed by Vesticam assessment in the same encounter. Clinicians recorded their pre- and post-Vesticam findings, proposed management and self-rated confidence. The primary outcome, within-patient detection of nystagmus, was analysed by exact McNemar test, and confidence change by Wilcoxon signed-rank test. Other outcomes were summarised descriptively.

RESULTS: Forty-two patient encounters were analysed (median age 62 years, 54% female). Detection of nystagmus was 16/42 (38%) with standard assessment, and 29/42 (69%) with Vesticam (absolute increase 31 percentage points, 95% CI 17 to 45, exact McNemar p=0.0002). Self-reported diagnostic confidence, measured on a 5-point Likert scale, rose from median 2 (IQR 2 to 3) to 4 (IQR 4 to 5; p<0.001). The planned management changed in 22/42 encounters (52%; 95% CI 36 to 68). Clinicians reported wanting to use the Vesticam again after 41/42 encounters (98%) and reported it aided diagnosis in 40/42 (95%) encounters.

CONCLUSION: In this pilot assessment, the use of Vesticam was associated with higher bedside detection of nystagmus and clinician diagnostic confidence and was acceptable in routine ED practice. The observed discordance rate can inform sample-size calculations for a larger definitive trial.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

EVALUATING THE IMPACT OF AN INTEGRATED MULTIDISCIPLINARY PERIOPERATIVE MEDICINE SERVICE: STAFF PERCEPTIONS AND EXPERIENCES

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The novel Perioperative Medicine Service (PoMS) at The Alfred Hospital supports the needs of an increasingly multimorbid surgical patient population and follows a proactive model of care provision with criteria-led referrals in high-risk cohorts to pre-empt, prevent and manage surgical complications [1].

AIM: To evaluate staff perceptions of the Perioperative Medicine Service and its perceived impact on patient care, patient safety and surgical workflow.

METHODS: A 22-item survey comprising of 5-point Likert-scale and open-ended questions was distributed to medical staff across surgery, anaesthesia and intensive care, and surgical nurse unit managers at The Alfred Hospital. Data was collected using RedCap™ and statistical analysis was performed on the Likert-scale responses by assigning numerical values 1 (strongly disagree) to 5 (strongly agree). Free-text responses underwent inductive thematic analysis [2].

RESULTS: Fifty-nine medical (88.1%) and nursing (11.9%) staff across 13 specialties completed the survey. Overall, respondents perceived the service as improving patient care (mean composite score 4.4, SD 0.8), contributing to safer management of medically complex surgical patients (mean composite score 4.5, SD 0.8) and improving surgical workflow (mean composite score 4.0, SD 0.9). Free-text responses highlighted improved surgical workflow through enhanced perioperative planning and preoperative patient optimisation. Most free-text responses indicated that the service positively contributed to the clinical learning environment by supporting staff education in current evidence-based perioperative medicine practices.

DISCUSSION: Implementation of a multidisciplinary, proactive model of perioperative care was associated with perceived improvements in patient care, safety and surgical workflow. These findings emphasise the importance of adapting models of care to the evolving needs of the surgical population.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

SEX-BASED DIFFERENCES IN PERIOPERATIVE OUTCOMES BUT NOT LONG-TERM SURVIVAL OUTCOMES AFTER STAGE IV COLORECTAL CANCER SURGERY

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Sex-based differences in colorectal cancer outcomes are recognised, but their relevance among patients selected for surgery for stage IV disease is uncertain.

AIM: To determine whether presentation, perioperative outcomes, and survival after surgery for colorectal cancer varied by sex.

METHOD: We analysed a prospectively maintained database from Cabrini Hospital and The Alfred Hospital, including patients with stage IV colorectal cancer undergoing resection between 2010-2022. Characteristics were compared by sex. Overall survival (OS) and relapse-free survival (RFS) were assessed using Kaplan-Meier and Cox methods. Formal sex-by-predictor interactions were explored using likelihood-ratio tests in pooled Cox models.

RESULTS: Among 412 patients (208 males, 204 females), females more often had colon primaries (83.8% vs 74.0%, p=0.016), fewer surgical complications (14.8% vs 24.6%, p=0.013), and more anastomosis formation (78.3% vs 68.9%, p=0.033); males more often had stoma formation (41.3% vs 28.6%, p=0.009). Five-year OS was 30% in males and 26% in females; 5-year RFS was 22% and 19%, respectively. Neither OS (male vs female HR 0.83, 95% CI 0.64-1.07; p=0.152) nor RFS (HR 0.85, 95% CI 0.65-1.10; p=0.213) differed significantly. In adjusted analyses, adjuvant chemotherapy was associated with improved OS in both sexes and with improved RFS in males, while a higher lymph-node ratio was associated with poorer OS in both sexes and with poorer RFS in males. Exploratory interaction testing suggested sex-related effect modification for selected predictors, including age and operative urgency for OS and T stage and positive-node status for RFS.

CONCLUSION: Sex was associated with differences in presentation and perioperative management, but not with statistically significant differences in OS or RFS. Selected sex-by-predictor interactions were identified but should be considered exploratory and require validation in larger cohorts.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

EXTERNAL VALIDATION OF ECG-BUDDY, AN AI-ECG MODEL FOR DETECTING LEFT VENTRICULAR EJECTION FRACTION IN ASYMPTOMATIC CANCER SURVIVORS

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AI-enabled electrocardiography (AI-ECG) models can estimate left ventricular ejection fraction (LVEF), but their performance in asymptomatic cancer survivors is uncertain.

Aim: To externally validated AI-ECG in an asymptomatic cancer survivorship cohort against 3D echocardiography.

Methods: Electrocardiograms (ECGs) from 517 asymptomatic cancer survivors with paired 3D echocardiography performed within 24 hours were processed with ECG-Buddy to generate estimated LVEF. Agreement was assessed using mean bias, 95% limits of agreement (LoA), mean absolute error (MAE), Pearson correlation, Lin's concordance correlation coefficient (CCC), and regression for proportional bias. Discrimination for echocardiographic LVEF <50% was assessed using area under the receiver operating characteristic curve (AUROC) with 95% confidence intervals and compared with the ARIC-HF and CHERISH clinical risk scores and rank-fusion models. At Youden-optimal thresholds, positive predictive value (PPV) and negative predictive value (NPV) for echocardiographic LVEF <50% were calculated with 95% confidence intervals.

Results: Mean echocardiographic LVEF was 58.2%; 37 patients (7.2%) had LVEF <50%, limiting precision. Mean bias was +0.79%, with LoA of −12.5% to +14.1%, MAE of 5.02%, Pearson r=0.224, and CCC=0.217. Significant proportional bias was present (slope −0.349, p<0.001), with overestimation at lower LVEF and underestimation at higher LVEF. ECG-Buddy showed modest discrimination for LVEF <50% (AUROC 0.70, 95% CI 0.61–0.78). ARIC-HF and CHERISH had AUROCs of 0.64 (95% CI 0.54–0.74) and 0.63 (95% CI 0.53–0.72), respectively, while fusion with AI-ECG improved both to 0.71 (95% CI 0.63-0.80). For LVEF <50%, AI-ECG had a PPV of 0.16 (95% CI 0.10–0.23) and NPV of 0.96 (95% CI 0.94–0.98).

Conclusions: ECG-Buddy showed modest discrimination and poor agreement with 3D echocardiography limiting its use for direct LVEF estimation in asymptomatic cancer survivors. Its utility may be restricted to preliminary rule-out risk stratification rather than replacement of imaging.

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ADAPT REVIEW - RISK SCORE PREDICTING PERMANENT PACEMAKER INSERTION WITHIN 12 MONTHS OF TAVI

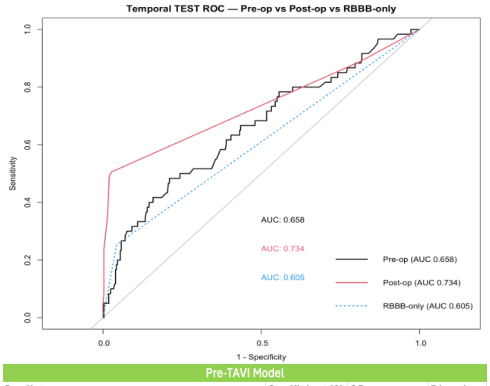
Dr Heshan Witanachchi, Gartner RN, Pedetti, Johnston, Gardner RN, Fernando, Dr Htun, a/Prof Palmer, Dr Noaman, Dr Sugumar, a/Prof Voskoboinik, Prof Kaye, Prof Walton, Prof Stub, a/Prof Nanayakkara

Introduction: Develop a risk score predicting 'PPM insertion within 12 months of TAVI'.

Methods: Our study evaluated all TAVI recipients (2008-2025, n=1535). Univariate analysis identified predictors of permanent pacemaker insertion (PPI). The pacemaker naive cohort (n=1366) was temporally split 70:30 for model training and testing respectively. Chosen parameters were trained (n=956) using penalised logistic regression to develop the WIT Score (Weighted Implantation Threshold Score). Each model and a third RBBB-only control model were assessed for pairwise statistical significance.

Results: PPI in 197 patients (14%). Key predictors included: Pre-Op RBBB OR 4.429 ([2.988,6.564], p<0.05), Paced Rhythm Prior to Discharge OR 9.667 ([6.909,13.526], p<0.0001), New Post Procedure CHB OR 8.445 ([5.702,12.510], p<0.0001) and New Post Procedure 2° AV Block OR 12.395 ([4.010,38.313], p<0.0001). Regarding risk scores; Pre-TAVI AUC 0.658 (p= 0.153), Post-TAVI AUC 0.734 (p= 0.001), RBBB only AUC 0.605 (Figure 1).

Discussion: Although discriminative performance is modest in contrast to other risk scores, the WIT Score is a clinically convenient tool offering a pragmatic early risk stratification framework.



Pre-TAVI Model			
Predictor	**Coefficient (β)**	**OR**	**Direction**
Small Annuli <430 mm²	−0.002	0.998	↓ risk
Pre-Op RBBB	0.004	1.004	↑ risk
Pre-Op Other Conduction	0.003	1.003	↑ risk
Pre-Op Sinus Rhythm	0.000	1.000	↓ risk
Male Gender	−0.002	0.998	↓ risk
Valve to Annulus Oversize Percentage	0.000	1.000 (per 5%)	↑ risk
Pre-Op AF/Flutter	0.001	1.000	↑ risk
Post-TAVI Model			
Predictor	**Coefficient (β)**	**OR**	**Direction**
Primary Rhythm Prior to Discharge: Paced Rhythm	0.003	1.003	↑ risk
New Post-procedure 3° AV Block (CHB)	0.002	1.002	↑ risk
New Post-procedure 2° AV Block	0.002	1.002	↑ risk
Sinus Rhythm Immediately Post Procedure	0.000	1.000	↑ risk

Figure 1: Risk Scores with AUC-ROC

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

RENAL ANGIOMYOLIPOMA: REASSESSING THE THRESHOLD FOR INTERVENTION

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Introduction: Renal angiomyolipomas (AMLs) are benign renal neoplasms and are a leading cause of spontaneous renal haemorrhage in young adults[1]. Optimal size indications for prophylactic intervention (arterial embolisation) in incidental AMLs remains uncertain, recent studies suggest a threshold of 6 cm[2,3]. This study evaluates AML size as a predictor of haemorrhage and symptomatic presentation.

Method: A retrospective cohort study of adult patients with a diagnosis of renal AML ≥2cm (1 January 2018 – 31 December 2022). Baseline demographics, imaging characteristics, management, outcomes, and follow-up until April 2026 were recorded. Continuous variables were compared using student's t-test and categorical variables using chi-square testing.

Results: 103 patients with renal AMLs ≥2cm were identified. Mean follow up duration was 59 months. Most renal AMLs measured 2–4cm (n=60, 58%), followed by 4–6cm (n=27, 26%) and ≥6cm (n=16, 16%). Symptomatic presentation (flank pain, haemorrhage, and/or haematuria) increased with size, occurring in 10% of 2–4cm lesions, 19% of 4–6cm lesions, and 38% of lesions ≥6cm. Renal AMLs ≥6cm were significantly more likely to present symptomatically than 2–4cm lesions (p=0.01), but there was no significant difference compared with 4–6cm lesions (p=0.24). Four patients presented with acute haemorrhage during the study period: two with 4–6cm renal AMLs and two with renal AMLs >6cm. 17 patients underwent 24 embolisations for acute haemorrhage (n=6) or prophylaxis (n=18), with technical success in 22 cases (92%) and no major post-procedural complications.

Conclusion: No renal AMLs 2–4cm presented with acute haemorrhage, supporting the typical conservative management approach at this size. AMLs over 6cm had significantly higher rates of acute haemorrhage, suggesting a strong rationale for prophylactic intervention. AMLs of 4-6cm trended towards higher rates of symptomatic presentation, but not significantly so, such that management decisions would be best made incorporating other clinical and imaging factors.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

APPLICATION OF HIGH-SENSITIVITY DATA-INDEPENDENT ACQUISITION MASS SPECTROMETRY COUPLED WITH IMMUNOPEPTIDOMICS TO IDENTIFY POSSIBLE HLA-C*06:02-DERIVED PSORIASIS AUTOANTIGENS

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Psoriasis is a T-cell-mediated autoimmune skin disease affecting 2-3% of the population and is strongly associated with carriage of HLA-C*06:02, which presents peptide antigens to T cells. Although autoantigens have been proposed, none have been confirmed to be presented by HLA-C*06:02 in psoriatic lesional skin.

AIM: To characterise peptide antigens enriched in HLA-C*06:02+ psoriatic lesional skin and identify possible autoantigen candidates.

METHODS: Skin biopsies from 11 healthy donors (3 HLA-C*06:02+) and 18 psoriasis patients (lesional and non-lesional biopsies, 10 HLA-C*06:02+) underwent HLA-C-specific immunoprecipitation, followed by liquid chromatography-tandem mass spectrometry (timsUltra AIP) analysis. To enable robust immunopeptide characterisation and quantification, data-dependent acquisition was followed by spectral library generation and data-independent acquisition. Autoantigen candidates were selected if they met all the following criteria: abundance in lesional skin (≧log2fold change compared to healthy and non-lesional skin) or presence solely in lesional skin, peptide length (8-12 mer), predicted HLA-C*06:02 binding, and prevalent in all HLA*06:02-positive lesional samples.

RESULTS: We identified 21,967 unique immunopeptides across all evaluated biopsies. Peptide sequences of previously nominated autoantigen candidates ADAMTSL5 and LL37 were not detected in any of the skin samples. Thirteen other immunopeptides met the selection criteria; these included source proteins from the mRNA processing pathway, structural proteins, enzymes, and others. Notably, a peptide derived from the fatty acid metabolism pathway was characterised in 13 of the 18 psoriatic lesional samples. Given the established increase in lipid metabolism in psoriatic lesional skin, this peptide represents one of 13 high-interest potential autoantigen triggers.

CONCLUSION: The HLA-C immunopeptidome in psoriatic lesional skin revealed 13 high-abundance, predicted HLA-C*06:02 binders for consideration as autoantigen triggers. These findings provide a valuable resource for follow-up validation studies of prevalent T cell responses in psoriasis patients.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

EVALUATION OF A PHARMACIST-LED TRAUMA AND ORTHOPAEDIC TRANSITIONAL CARE CLINIC

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Transitions of care (TOC) are associated with increased risks of medication-related errors. While pharmacist-led post-discharge clinics may improve medication safety, evidence in trauma populations remains limited, and patient experience remains unexplored.

AIM: To describe pharmacist interventions delivered through a trauma and orthopaedic post-discharge clinic, evaluate their clinical impact and assess patient experience of the service.

METHODS: A retrospective cross-sectional observational study was conducted involving patients who attended a pharmacist-led post-discharge clinic following an orthopaedic or trauma admission, August to September 2025. Demographic, admission, medication and clinic data were collected retrospectively. Pharmacist interventions were categorised into 15 themes, with interventions assessed using the validated CLEO tool[1] (rating scale -1 to 4) by two surgical consultants, two pharmacists, and one junior medical officer. Patient experience was evaluated using Likert-scale questions. Data were analysed using descriptive statistics.

RESULTS: A total of 197 included patients received 271 pharmacist interventions; 183 patients (92.9%) received at least one pharmacist intervention. Reinforcement of medication counselling was the most frequent intervention theme (n=145, 79.2%). Analgesia use was optimised for 82 patients (41.6%). The highest rated interventions received a clinical impact rating of 4 (potentially preventing a fatal outcome) from 80% respondents and related to optimisation of thromboprophylaxis (n=8; 4.3%). Opioid escalation for unresolved pain was the highest-rated analgesia intervention, receiving a clinical impact rating of 2-3 (preventing harm which may or may not cause hospital admission stay) by 80% of respondents. Of the 41 survey respondents, 83% reported that medication information provided by the pharmacist was very useful and 95% understood the information provided.

CONCLUSION: Pharmacist-led post-discharge clinics are a successful strategy to mitigate risk of medication-related harm on TOC after orthopaedic and trauma admission. The value of the service is further supported by the positive patient-reported experience.

REFERENCES:

Eriksson T. *Eur J Hosp Pharm*. 2021;28(4):181.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

ACCURACY OF CARDIAC POINT-OF-CARE ULTRASOUND FOR LEFT VENTRICULAR FUNCTION IN GENERAL MEDICINE: A 12-MONTH RETROSPECTIVE AGREEMENT STUDY WITH FORMAL TRANSTHORACIC ECHOCARDIOGRAPHY

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Cardiac point-of-care ultrasound (POCUS) is increasingly used by general medicine (GM) physicians, but its agreement with formal transthoracic echocardiography (TTE) for left ventricular (LV) systolic function is little studied in GM patients.

AIM: To determine the agreement between cardiac POCUS and TTE for LV systolic function in GM patients during the first 12 months of a new POCUS service.

METHODS: Retrospective agreement analysis of a prospective POCUS logbook at a quaternary hospital in Melbourne (February 2025–February 2026). Scans were performed by credentialled GM physicians and a supervised fellow. Cardiac POCUS was paired with TTE performed within 90 days before or after. LV ejection fraction (EF) was graded as preserved, mildly, moderately or severely reduced, then dichotomised as heart failure with reduced EF (HFrEF: moderately or severely reduced) or non-HFrEF. An independent clinician reviewed all pairs, with discrepancies adjudicated by POCUS-credentialled clinicians. Sensitivity, specificity, predictive values and Cohen's kappa were calculated against TTE.

RESULTS: Of 182 patients with paired studies, 180 had interpretable LV assessment on both modalities. POCUS and TTE agreed in 168 of 180 studies (93%). Of 38 HFrEF cases on TTE, POCUS identified 33 (sensitivity 87%, specificity 95%). Agreement was 95% (38/40) when LV function was the primary indication. Missed HFrEF cases included three graded mildly reduced by POCUS, one with an intervening serious clinical event.

CONCLUSION: Cardiac POCUS by credentialled GM physicians showed substantial agreement with TTE for identifying HFrEF, with high specificity and acceptable sensitivity. These findings support cardiac POCUS as a reliable adjunct to TTE in GM patients.

Alfred Health Medical Staff Clinical Research – Junior Medical Researcher

REAL-WORLD EXTERNAL VALIDATION OF DERMATOLOGY VISION-LANGUAGE MODELS

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Dermatology artificial intelligence (AI) models report high accuracy on curated benchmark datasets, but few have been evaluated on real-world clinical images spanning the breadth of skin disease.

AIMS: To externally validate publicly available vision-language models (VLMs) on a prospective real-world dermatology dataset.

METHODS: Patients with visible dermatological findings in Dermatology, Infectious Diseases, Rheumatology and Medical Oncology outpatient clinics at Alfred Health were photographed between May and August 2026. The reference standard was the diagnosis of the treating clinician or an independent reviewing dermatologist. Nine open-weight VLMs (two general, two biomedical, five dermatology-specific) performed zero-shot classification against an 85-diagnosis candidate label set on 847 images from 121 cases (101 patients). Macro-averaged area under the receiver operating characteristic curve (AUROC) was calculated overall and by diagnostic category, with 95% confidence intervals (CI) from patient-clustered bootstrapping, and compared with the results of HAM10000, a 7-class dermoscopic benchmark. Prediction consistency was assessed with Fleiss' kappa across repeat images of the same site captured with matched modality and framing.

RESULTS: Four of five dermatology-specific VLMs (macro AUROC 0.75-0.80; highest MAGEN-O-MAKE 0.80, 95% CI 0.74-0.82) exceeded general (0.62-0.64) and biomedical (0.69-0.72) VLMs. Dermatology-specific VLMs performed 0.03-0.19 lower on real-world images than on HAM10000, whereas general and biomedical VLMs performed similarly on both. Proliferative disease had the highest category AUROC (0.71-0.82), compared with inflammatory (0.54-0.76), infective (0.55-0.78) and other (0.52-0.71). Across repeat images, dermatology-specific VLMs showed moderate to substantial agreement (Fleiss' kappa 0.51-0.67).

CONCLUSION: Most dermatology-specific VLMs perform worse on real-world images than HAM10000. Performance varied by diagnostic category and predictions were not always consistent across repeat images. Larger real-world evaluations are needed to understand model performance across diverse clinical settings.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

A MULTICENTER PROSPECTIVE STUDY EVALUATING USE OF EMBOCUBE™ EMBOLIZATION GELATIN ALONE OR IN COMBINATION WITH OTHER EMBOLIC AGENTS TO CONTROL BLEEDING

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BACKGROUND: Embolization is a vital endovascular procedure that can be used to quickly achieve hemostasis in patients experiencing uncontrolled bleeding. This study was conducted to describe real-world outcomes following embolization with a pre-cut absorbable gelatin sponge to control bleeding.

METHODS: This prospective study was conducted across five hospitals in Australia and France. Inclusion criteria included adults ≥ 18 years who required embolization with EmboCube™ Embolization Gelatin for bleeding. Primary performance and safety endpoints were the proportion of patients that achieved clinical success (i.e., cessation of bleeding post-embolization, the absence of rebleeding at the treated site requiring reintervention within 24 h), and the absence of unanticipated serious adverse device effects within 24 h of the initial embolization, respectively. Secondary endpoints included technical success and serious device- and/or procedure-related adverse events 28 days post-initial embolization.

RESULTS: A total of 101 patients (54 males) were enrolled and treated. Sixty-six patients were treated with EmboCube only, 35 patients were treated with an additional embolic to control bleeding. Technical and clinical success rates were 100% and 99%, respectively. No patient experienced an unanticipated serious event related to the embolic. The mean time to hemostasis was 3.4 (± 3.96) minutes. Of the 90 patients that completed 28 days of follow-up, 4 (4.4%) experienced an adverse event (access site hematoma, n = 2; ischemic colitis, n = 1, peritonitis, n = 1).

CONCLUSION: EmboCube is safe and effective for control of acute and sub-acute arterial bleeding, alone or in combination with other embolic agents, when rapid hemostasis is required.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

A CROSS-SECTIONAL STUDY ASSESSING THE ROLE OF INTERVENTIONAL RADIOLOGY SERVICES IN REGIONAL AND REMOTE AUSTRALIA

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BACKGROUND: It is estimated that 8% of hospitalised patients require treatment from Interventional Radiology (IR). However, little is known about the potential impact of IR on regional and remote Australians, including Indigenous patients. This study aimed to assess treatments performed by IRs on regional/remote patients to predict future IR workforce and governance needs.

METHODS: Single-centre cross-sectional study at a tertiary Victorian hospital. Patients were identified when they had an advanced IR treatment between 1 January 2022 and 2024. Basic procedures such as biopsy and drain insertion were not included. The primary outcome was the type and volume of IR treatments performed on patients who were transferred from a regional or remote home location for treatment.

RESULTS: Of 3485 advanced IR interventions, 908 procedures (26.0%) from patients who lived in a regional or remote location were included with 36.5% female, of mean age 55.6 years (SD 17.9). 1.4% identified as Indigenous which is similar to the Indigenous population incidence in Victoria of 1.0%. Of this group, 350 (38.5%) were either a day procedure, overnight elective admission, or simple inpatient procedure which could have been performed in a regional centre, which included 1.1% Indigenous patients.

CONCLUSION: There is an unmet need for IR services in regional and remote Australia, with many patients being transferred to our metropolitan centre for treatment that could be performed in regional IR hubs. This data will be important to drive government and hospital planning including capital infrastructure, workforce modelling and future recognition of IR as a new specialty in Australia.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

A COMPARATIVE COST ANALYSIS OF TIPS AND BRTO FOR SECONDARY PROPHYLAXIS IN GASTRIC VARICEAL BLEEDING

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BACKGROUND: This study aimed to generate and compare TIPS and BRTO costing data to calculate the secondary prevention cost following gastric variceal bleeding, to encourage consideration of resource cost within decision-making.

METHODS: All costs were included for patients treated between 1 January 2017 and 1 January 2024. Data on procedure, non-procedure, and ward costs were collected. Ward costs were only calculated for elective admissions to reduce bias from inpatient emergency procedures. All costs were measured from a healthcare system perspective and included direct and indirect expenses where relevant. A 5% indexation for inflation was applied to non-fixed costs from 2017 to the 2024 cost year.

The cost to prevent gastric re-bleeding was then calculated by adjusting the costing data generated based on existing outcome data in the literature, utilising the largest existing meta-analysis on the efficacy of TIPS and BRTO in preventing re-bleeding.

RESULTS: There were 38 patients in the study cohort, with a mean age 56.8 years (SD 12.0), and 25 patients (66%) were male. TIPS was performed in 27 patients (71%). The TIPS and BRTO groups had similar mean age, proportion of male sex, CP grading, and proportions of elective admissions.

The median total cost for TIPS was AUD$11,922 (range $6307–$53,432), while the median total cost for BRTO was AUD$3632 (range $1818–$5174), $p < 0.001$. The adjusted cost to prevent future gastric re-bleed using TIPS was AUD$14,803, while the cost to prevent re-bleed using BRTO was AUD$3896.

CONCLUSION: The cost magnitude of both TIPS and BRTO was both low in an Australian model, and both remain good options for patients. However, the use of BRTO was associated with significantly lower upfront procedural costs than for TIPS for secondary prevention of gastric variceal bleeding. Costs should form a key component of the value of modern healthcare.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

PSYCHOTROPIC MEDICATION COMMUNITY PRESCRIBING TRENDS IN PATIENTS ADMITTED TO A SPECIALIST INPATIENT DEMENTIA UNIT: A RETROSPECTIVE STUDY

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AIMS: To compare pre-hospital psychotropic medication prescribing in patients with cognitive impairment admitted to a Specialist Inpatient Dementia Unit (SIDU) in 2017-18 versus 2022-23.

METHODS: A single-centre retrospective observational study in a metropolitan Melbourne SIDU, across two 12-month study periods (September 2017 - August 2018 and September 2022 - August 2023). All inpatients aged ≥50 years with cognitive impairment were included (n = 114 and n = 91 respectively). Pre-hospital prescribing of antipsychotics, benzodiazepines, and other psychotropics (composite of antidepressants, cholinesterase inhibitors, memantine, anticonvulsant mood stabilisers, melatonin) were examined. Chlorpromazine and diazepam-equivalent daily doses were calculated. Multivariable logistic regression assessed factors associated with antipsychotic prescribing.

RESULTS: Between 2017-18 and 2022-23, antipsychotic prevalence decreased (34.2% vs. 16.5%), with lower median chlorpromazine-equivalent doses (66.6 mg vs. 25 mg). Benzodiazepine prevalence decreased (28.1% vs. 14.3%), with similar median diazepam-equivalent doses (5.0 mg vs. 5.6 mg). There were fewer admissions from facilities (21.1% vs. 6.6%) and lower dementia prevalence (77.2% vs. 54.9%) in 2022-23 cohort. Antipsychotic use was associated with admission from facilities (adjusted Odds Ratio [aOR] 9.99, 95% confidence interval [CI] 3.79 - 26.33) and dementia (aOR 3.97, 95% CI 1.34 - 11.73), but not admission year (aOR 1.56, 95% CI 0.72 - 3.38). Median length of stay increased in 2022-23 (22 vs. 35 days), independent of antipsychotic exposure.

CONCLUSION: Pre-hospital antipsychotic and benzodiazepine use declined in 2022-23, with lower antipsychotic doses, no evidence of substitution to other psychotropics, and case-mix differences. Further research is needed to explore the determinants of these trends.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

RISK FACTORS FOR READMISSION IN GENERAL MEDICINE: A FOCUS ON NON-MEDICAL FACTORS AND DIFFERENCES AT 7 AND 30 DAYS

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Introduction: Unplanned hospital readmission is burdensome for patients and costly to health systems. Validated prediction models mostly focus on clinical variables despite evidence that social determinants are major drivers. We aim to further characterise risk factors for readmission using data routinely collected and available at the point of discharge.

Methods: This case-control study at Alfred Health, Melbourne, used administrative data from all General Medicine hospital inpatient separations. Cases: Separations that resulted in readmission via the Emergency Department within 7 days or 30 days Controls: Separations that did not result in readmission in 7 or 30 days. We performed descriptive statistics, univariate and multivariate analysis.

Results: From 1st July 2023 to 30th November 2024 there were 10943 separations from 7893 individuals resulting in 751(6.9%) readmissions in 7 days and 1896(17.3%) within 30 days.

Multivariate analysis showed NDIS participation n=127, OR 4.09 (95% CI 2.18-7.67) was the strongest risk factor followed by Aboriginal and Torres Strait islander Peoples n=122 OR 2.65 (95% CI 1.38 - 5.05), those who had formal Advance Care Directives n= 1683 OR 1.59 (95% CI 1.29-1.96), a high FRASS score OR 1.23 (95% CI 1.04-1.44) and the 4AT score OR 1.04 (95% CI 1.01-1.07).

Discussion: Social determinants were the strongest drivers of readmission. Despite previous evidence that social determinants and frailty factors are important in understanding readmission risk, previously validated risk prediction tools focus mostly on clinical variables. This study provides some routinely collected social determinant data points that could potentially be used to help predict readmission risk.

Conclusion: This study further highlights the importance of social determinants in characterising and predicting patterns of General Medicine Hospital Readmission and does so using routinely collected data readily available at the point of hospital discharge.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

INACCURACY OF SELF-REPORTED MIGRAINE: INSIGHTS FROM 601 PAIRED ASSESSMENTS FROM A SINGLE-CENTRE STUDY IN AUSTRALIA

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AIM: Clinical and research settings rely on accurate self-diagnosis of migraine for medical triage and population-based studies. Unfortunately, accessing neurologists for diagnosis may be cost-prohibitive, delayed due to workforce shortages or impractical given the significant burden of the condition on limited public health resources. We aimed to ensure concordance between self and specialist diagnosis to confirm reliability of this proxy diagnostic measure for clinical workflow and validate studies relying on self-reported migraine.

METHODS: Single-centre, prospective, cross-sectional study at a women's-specific mental health clinic, comparing self-reported lifetime migraine diagnosis to that of headache neurologist blinded to initial self-reported diagnosis. The primary endpoint was overall agreement between self and specialist diagnosis using binary yes and no classification. Secondary analyses were performed for inter-rater agreement using Cohen's kappa and systematic disagreement using McNemar test, in addition to reporting sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV).

RESULTS: Of 601 female patients (mean age 40.0y, SD 11.8), a third self-reported migraine (186/601, 30.9%) but neurologist assessment revealed a higher disease burden (345/601, 57.4%). The overall agreement between self-diagnosis and specialist was 69.6% (418/601). After correcting for chance, agreement between self-reported migraine and neurologist-diagnosed migraine was fair (κ = 0.424, 95% CI (0.354-0.493), $p<0.001$). Using neurologist diagnosis as the reference, self-reported migraine showed low sensitivity (50.4%) but high specificity (95.3%). Positive self-report was highly predictive of neurologist-diagnosed migraine (PPV = 93.6%), whereas negative self-report was less reliable (NPV = 58.8%). McNemar test was significant ($p<0.001$) indicating asymmetry between the two diagnostic methods. Specifically, self-diagnosis under-recognised migraine relative to specialist assessment.

CONCLUSION: These findings suggest that participants who self-identified migraine were usually confirmed by neurologist assessment. However, many participants who did not self-identify migraine nevertheless met diagnostic criteria. Reliance on self-reported migraine may significantly underestimate true disease burden in clinical and research settings.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

REVIEW OF MMA EMBOLISATION IN PATIENTS WITH NON-ACUTE SUBDURAL HAEMATOMA TO EVALUATE THE RECURRENCE AND ADVERSE EVENTS

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Non-acute subdural haematoma (SDH) is increasingly encountered in the elderly population, particularly in those on antiplatelet or anticoagulant therapy. Despite surgical evacuation, recurrence rates remain very high, and perioperative risks are significant.

AIM: To review patients with non-acute subdural haematoma who underwent MMA embolisation to evaluate recurrence and adverse events.

METHODS: A retrospective review was conducted of 42 patients who underwent MMA embolisation for non-acute SDH between January 2024 and June 2026. Patients were selected following multidisciplinary team discussions involving neurosurgeons and interventional neuroradiologists. Embolisation was performed using liquid or particle agents as sole therapy or as an adjunct to surgical evacuation. Demographic data, anticoagulant/antiplatelet use, adverse events, and recurrence were recorded. Clinical and radiological follow-up was undertaken in all patients.

RESULTS: Of the 42 patients who underwent 58 hemispheric MMA embolisation (bilateral or unilateral), 28 underwent surgical evacuation before and/or after MMA embolisation and 14 were managed with MMA embolisation alone. Thirty patients were on anticoagulation and/or antiplatelets due to secondary medical conditions. All patients underwent post-procedural imaging; thirty-four patients were discharged following outpatient review. In three cases, recurrences were noted, and two of the patients required return to theatre for surgical drainage of the haematoma. Of these two patients, one had a history of liver cirrhosis and associated coagulopathy, while the other patient was on warfarin. One patient experienced an MMA rupture interprocedurally, which was coiled without adverse outcome.

CONCLUSION: This preliminary cohort recorded three recurrences (7.1%) and minimal complications. The findings support incorporating MMA embolisation into standard management algorithms as a primary modality and/or adjunct to surgery for patients with non-acute SDH. Larger, robust prospective studies with longer follow-up are warranted to define treatment algorithm(s) in future.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

REFRAMING THE HOSPITAL AS AN ENABLING ENVIRONMENT: A QUALITATIVE STUDY OF SOCIAL, MATERIAL AND AFFECTIVE RESOURCES IN CARE PROVISION FOR INJECTING-RELATED INFECTIONS

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BACKGROUND: Injecting-related infections are rising globally, positioning hospitals as critical environments that shape patient outcomes. Understanding how institutional conditions support or constrain care is essential to improving outcomes for people who inject drugs.

AIM: To examine healthcare providers' (HCPs) reflections on caring for patients with invasive injecting-related infections. Guided by Duff's conceptualisation of enabling resources (social, material and affective), we explored how hospital-based HCPs used, negotiated or were constrained in using these resources, and how their interaction shaped care environments.

METHODS: We conducted in-depth qualitative interviews with HCPs in an acute care hospital in Melbourne, Australia, in 2023. Thematic analysis was guided by Duff's framework of enabling environments, focusing on how social, material and affective resources supported or constrained clinical practice.

RESULTS: Twenty HCPs participated, with clinical experience ranging from eight months to 31 years. Institutional policies and medicolegal requirements emerged as important *material resources* that could support patient-centred care. However, uncertainty, fear and inconsistent interpretations often limited their use. Supportive ward microcultures, particularly senior clinicians modelling harm reduction and multidisciplinary collaboration, functioned as *social resources* that enabled flexible, patientcentred care. In contrast, abstinencefocused norms produced more restrictive care environments. *Affective* resources, including clinicians' beliefs about the value, legitimacy and likely success of treatment, shaped the emotional climate of care and influenced clinical decision-making. Importantly, these resources rarely operated in isolation. Their alignment, or misalignment, determined whether clinicians were able to provide flexible, patient-centred care.

CONCLUSION: Key social, material and affective resources can enable optimal treatment and care for people with injecting-related infections. Improving treatment outcomes requires organisational strategies that align medicolegal supports, strengthen collaborative and harm reduction-oriented clinical cultures, and foster clinician confidence. Hospitals function not merely as treatment settings but as environments that can actively enable or constrain care.

New Thinking.
Real Impact.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

CARDIAC CARE AT HOME: EXTENDING SPECIALIST CARE BEYOND HOSPITAL FOR CARDIOTHORACIC SURGERY PATIENTS

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AIM: Increasing demand for cardiothoracic surgery services and pressure on acute bed capacity prompted the development of a digitally enabled Cardiac Care at Home model. This pilot evaluated whether selected post-operative cardiothoracic surgery patients could receive hospital-level care at home through remote monitoring, virtual review, and structured escalation pathways, while maintaining safety, improving patient experience, and increasing system capacity.

METHODS: A multidisciplinary team of cardiothoracic medical staff, nursing, pharmacy and hospital innovation designed and implemented an early supported discharge pathway between April and September 2026. Model development included literature review, benchmarking, review of local activity and bed utilisation data, clinical risk audits, staff surveys, and consumer interviews. For quality assurance a structured pre-mortem was completed to align risks and mitigations with Australian National Safety and Quality Health Service Standards. Eligible patients were transferred home with remote monitoring of vital signs (including ECG), twice-daily nursing reviews, daily medically led virtual ward rounds, defined escalation protocols and patient-centred education resources.

RESULTS: Fifty-nine patients discharged from the Cardiac Care at Home Service (May – Aug 2026) were compared with 1,317 pre-cohort patients (Jan 2025-Apr 2026). Patients enrolled in the service had significantly greater hospital care at home utilisation (2.25 vs 0.32 days, $p<0.001$), fewer total in-facility bed days (8.61 vs 11.38 days, $p<0.001$), and shorter post-operative in facility bed days (7.01 vs 9.15 days, $p<0.001$). Risk-adjusted analysis for age, funding unit and admission type (elective or emergency) retained significance for the reduction in-facility bed days and post-operative in-facility bed days. Patient experience was highly positive, with overall quality-of-care scores 100% (n=27). Two patients required return to hospital and one readmission, demonstrating the effectiveness of established monitoring and escalation processes.

CONCLUSION: The Cardiac Care at Home model demonstrates specialist post-operative care can be safely extended beyond the hospital setting. This service improved patient experience, reduced hospital bed utilisation, increased system capacity, and established a scalable framework for future specialist Hospital Care at Home models.

Alfred Health Medical Staff Clinical Research – Senior Medical Researcher

MANAGEMENT OF ACUTE MIGRAINE IN THE EMERGENCY DEPARTMENT: A FIVE-YEAR RETROSPECTIVE REVIEW OF TREATMENT PATTERNS AND OPIOID USE

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Migraine commonly presents to emergency departments (EDs). Guidelines prioritise non-opioid treatment, but opioid use persists.

AIM: To describe migraine management and opioid use in two metropolitan EDs.

METHOD: This retrospective cohort included adult presentations with coded migraine diagnoses (ICD-10 G43.x) at two EDs, December 2019–November 2024. Clinical Performance Unit data were supplemented by chart review. Cochran–Armitage tests assessed annual trends; a sensitivity analysis used each patient's first presentation to account for repeat attenders. Logistic regression assessed the association between opioid treatment and ward admission. The primary model adjusted for age, sex, hospital, calendar year and ambulance arrival; clinical sensitivity analyses added triage category, previous migraine diagnosis and initial pain score. Standard errors were clustered by patient.

RESULTS: There were 2,919 presentations by 2,440 patients; median age was 41 years (IQR 30–53). Recorded treatments included dopamine antagonists (64.2%), aspirin (40.1%), other NSAIDs (25.0%) and triptans (20.2%). Metoclopramide, triptan and dexamethasone increased; chlorpromazine decreased. Opioids were administered during ED or emergency short-stay care in 473 presentations (16.2%); no linear trend was detected (p=0.53), with similar findings when restricted to each patient's first presentation. Among 2,659 presentations discharged from ED or short-stay care, median stay was 7 hours with opioids versus 4 without. Ward admission occurred in 13.5% of opioid-treated presentations versus 6.4% without opioids (adjusted OR 2.20, 95% CI 1.55–3.11). Among 1,897 presentations with imaging recorded, imaging was performed in 67.1% of opioid-treated presentations versus 45.8% without opioids (OR 2.41, 95% CI 1.85–3.14).

CONCLUSION: Opioids were used in a minority (16.2%) of coded migraine presentations, without a linear trend over five years. More frequent imaging and ward admission among opioid-treated presentations may reflect diagnostic uncertainty or clinical complexity. Earlier recognition of likely migraine could allow appropriate migraine-directed therapies to be considered first line. Observational associations do not establish treatment effects.

Burnet Institute Prize for Infectious Diseases Research

DIABETES REMISSION PROGRAMS MAY NOT BE AN EFFECTIVE USE OF FIXED HEALTHCARE RESOURCES

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AIM: To achieve remission of type 2 diabetes, resources to support intensive lifestyle intervention (ILI) are directed toward people with diabetes for whom remission is achievable, that is, people with a short diabetes duration and a lower HbA1c. We aimed to determine if responses to ILI, other than diabetes remission, justify this resource allocation.

METHOD: We analysed participants from the Look AHEAD randomised controlled trial who were 20–65 years old with a BMI of 27–45 kg/m^2. The effect of ILI was assessed after stratification for remission eligibility at baseline (diabetes duration ≤6 years and no insulin therapy). Cox proportional hazards models evaluated the effect of ILI on incident CVD, chronic kidney disease (CKD), and mortality. Linear models with generalised least squares assessed the effect of ILI on weight, HbA1c, systolic blood pressure, LDL, and eGFR.

RESULTS: There were 3105 participants included — 60% women, median age 58 years, and median follow-up time 9 years (IQR 8–10 years). At baseline, 54% were eligible for diabetes remission. Remission eligibility status did not modify the effect of ILI on CVD, CKD, or mortality. ILI led to 2.4 kg greater weight loss (−5.53 kg (95% CI −6.02, −5.03) vs. −3.17 kg (95% CI −3.86, −2.49)), and 0.1% greater HbA1c reduction (−0.28% (95% CI −0.33, −0.23) vs. −0.17% (95% CI −0.23, −0.11)) in eligible compared with ineligible people.

CONCLUSION: The small additional benefit of intervention in people eligible for remission, compared to ineligible people, may not be enough to justify restricting resources to such eligible people. People with a longer duration of diabetes can improve cardiometabolic parameters, just like people with a shorter duration of diabetes.

Burnet Institute Prize for Infectious Diseases Research

UNTARGETED LIPIDOMICS AND PROTEOMICS TO IDENTIFY HUMAN MILK BIOACTIVES RELEVANT TO DIABETES RISK REDUCTION

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Early-life nutrition can influence immune and metabolic development and thereby modify susceptibility to type 1 and type 2 diabetes. As the biological pathways underlying diabetes risk can be established early in life, identifying modifiable protective exposures from birth is an important prevention priority. However, the molecular composition of human milk remains comparatively under-characterised, limiting our ability to identify milk bioactives that may contribute to diabetes risk reduction.

AIM: To apply untargeted lipidomics and proteomics to expand the molecular coverage of human milk and identify candidate bioactives relevant to immune regulation and metabolic programming.

METHODS: Matched colostrum and mature human milk samples were extracted using butanol–methanol (1:1) and aqueous butanol–methanol (1:2:2) protocols to maximise the recovery of chemically diverse lipid species. Extracts were analysed using 60-minute reverse-phase liquid chromatography–quadrupole time-of-flight mass spectrometry (LC-QTOF-MS). Remaining protein pellets underwent tryptic digestion followed by LC-QTOF-MS proteomic analysis. MS-DIAL and MSFragger were used for feature detection.

RESULTS: To date, more than 1,000 lipid species from ~10,000 detected features have been curated based on consistent accurate mass, retention time and fragmentation characteristics. Distinct profiles were observed between colostrum and mature milk and between extraction methods, demonstrating complementary recovery of the milk lipidome. Expanded coverage included immune- and metabolism-associated lipid classes, including many gangliosides and lysophospholipids, which underwent marked remodelling across lactation. Proteomic profiling identified more than 240 proteins and revealed substantial differences between colostrum and mature milk, consistent with a transition from an immune-enriched colostrum proteome to a distinct mature milk proteome.

CONCLUSION: These findings broaden the molecular landscape of human milk and identify candidate lipids and proteins that may influence early immune maturation and metabolic health. This resource provides a foundation for targeted studies investigating whether specific human milk bioactives contribute to lowering diabetes risk from early life.

Burnet Institute Prize for Infectious Diseases Research

ROLE OF EZH2 IN EPIGENETIC REPROGRAMMING IN DIABETIC KIDNEY DISEASE

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BACKGROUND: Diabetic kidney disease (DKD) is a major microvascular complication of diabetes and a leading cause of chronic kidney disease worldwide. Epigenetic modifications, including histone trimethylation, have emerged as important regulators of renal injury in diabetes. However, the contribution of EZH2-mediated H3K27me3 to DKD progression and the therapeutic potential of targeting these pathways remain unknown.

AIM: To identify role of EZH2 in diabetic kidney disease.

METHODS: Diabetes was induced in a diabetic mouse model, and renal injury was assessed in the presence or absence of EZH2-mediated H3K27me3 activity inhibitor, GSK-126. Kidney weight, glomerular injury, and histone trimethylation were evaluated. Renal morphology was assessed by histological analysis and glomerulosclerosis index. Gene expression analyses were performed to quantify inflammatory mediators, oxidative stress markers, and collagen-related fibrotic genes.

RESULTS: Diabetes significantly increased renal histone trimethylation and kidney weight/body weight ratio, indicating epigenetic dysregulation and renal hypertrophy in diabetic mice. These changes were accompanied by marked glomerular injury, reflected by an elevated GSI, increased inflammatory gene expression, enhanced oxidative stress, and upregulation of fibrosis-associated collagen genes. GSK-126 treatment effectively attenuated diabetes-induced renal injury by reducing enhanced trimethylation levels and reducing kidney hypertrophy. Importantly, treated animals exhibited significant improvements in GSI and renal histopathology. GSK-126 treatment also suppressed inflammatory and oxidative stress pathways and reduced the expression of collagen and extracellular matrix genes associated with renal fibrosis.

CONCLUSION: Pharmacological intervention with epigenetic inhibitor GSK-126 effectively reduced these pathological changes. These findings suggest that targeting diabetes-induced enhanced EZH2 mediated H3k27me3 may represent a promising therapeutic strategy for the treatment of diabetic kidney disease.

Burnet Institute Prize for Infectious Diseases Research

IS ALL WEIGHT LOSS EQUAL FOLLOWING SLEEVE GASTRECTOMY? DEFINING BODY COMPOSITION AND ANTHROPOMETRIC THRESHOLDS FOR HYPERGLYCAEMIA REMISSION IN WOMEN FROM A PROSPECTIVE COHORT STUDY

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The amount and distribution of body fat influence the risk of prediabetes and type 2 diabetes (T2D); however, optimal anthropometric and body composition targets for hyperglycaemia remission following metabolic bariatric surgery remain undefined.

AIM: To identify weight loss, body composition and central adiposity thresholds associated with hyperglycaemia remission following sleeve gastrectomy in women.

METHODS: In this prospective cohort study, women undergoing sleeve gastrectomy in Melbourne, Australia (2019–2022) underwent anthropometric, biochemical and dual-energy X-ray absorptiometry (DXA)-derived body composition assessment at baseline and 12 months postoperatively. Hyperglycaemia remission was defined as HbA1c <6.0% or fasting glucose <6.0 mmol/L without glucose-lowering medications. Receiver operating characteristic analyses were used to identify weight loss, body composition and central adiposity thresholds associated with remission.

RESULTS: Of 50 women recruited, 39 completed 12-month follow-up, with paired DXA data available for 29. All seven participants with T2D achieved hyperglycaemia remission, with five discontinuing glucose-lowering therapy. Among those with prediabetes/T2D (n=14), 93% achieved hyperglycaemia remission. ROC analyses identified candidate thresholds associated with remission, including ≥21.9% TBWL (AUC 0.85), ≥75.8% fatmass contribution to weight loss (AUC 0.85), postoperative waist circumference ≤107 cm (AUC 0.93), and waisttoheight ratio ≤0.72 (AUC 0.85).

CONCLUSION: Total weight loss, fat-mass contribution to weight loss and central adiposity were associated with hyperglycaemia remission after sleeve gastrectomy in women. Achieving 20–25% TBWL, ≥75% fat-mass contribution to weight loss, postoperative waist circumference ≤107 cm and waist-to-height ratio ≤0.72 may represent candidate treatment targets but require validation in larger independent cohorts.

Burnet Institute Prize for Infectious Diseases Research

SINGLE-TARGET MODULATION OF THE GUT-KIDNEY AXIS IS INSUFFICIENT TO PREVENT RENAL INJURY IN EXPERIMENTAL DIABETES

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BACKGROUND: Growing evidence implicates disruption of the gut-kidney axis, including intestinal barrier dysfunction, dysbiosis, and inflammation, in diabetic kidney disease (DKD), although the underlying mechanisms remain incompletely understood.

AIM: To investigate whether modulating intestinal barrier regulation through zonulin inhibition or complement receptor C5aR2 signalling could attenuate renal injury in experimental diabetes.

METHODS: In Study 1, db/db mice and non-diabetic db/m controls received larazotide acetate or vehicle for 10 weeks. Metabolic, renal, and gastrointestinal phenotypes were assessed. In Study 2, wild-type and C5aR2-knockout (C5aR2 KO) mice were rendered diabetic using repeated low-dose streptozotocin and followed for 10 or 20 weeks, with corresponding metabolic, renal, intestinal, inflammatory, and microbial assessments.

RESULTS: In db/db mice, larazotide did not improve glycaemia, intestinal permeability ([vehicle:1.597±1.126] vs [larazotide:4.322±1.081] µg/mL plasma FITC-dextran,P<0.05), or gastrointestinal transit ([247.6±60.47] vs [295.7±43.06] min,P<0.05). Instead, larazotide increased albuminuria ([81.81±28.38] vs [125.6±34.93] µg/µmol,P<0.05) and kidney weight ([0.013±0.001] vs [0.014±0.002] g,P<0.05). Larazotide altered caecal microbial community composition (beta diversity, PERMANOVA P = 0.0072) and enriched *Bifidobacterium pseudolongum*, without affecting alpha diversity.

C5aR2 deletion did not alter glycaemia or body weight in STZ-induced diabetes. It also did not attenuate albuminuria at either 10 weeks ([WT: 141.197 ± 21.530] vs [KO: 137.293 ± 16.366],P>0.05) or 20 weeks ([121.494 ± 16.682] vs [176.999 ± 36.891],P>0.05). At 20 weeks, C5aR2 deletion altered *Cldn4* and *Cldn7* expression in non-diabetic mice and increased the Firmicutes-to-Bacteroidetes ratio in diabetic mice ([63.727 ± 17.191] vs [294.234 ± 87.984], P=0.027). Plasma LBP was unaffected by genotype.

CONCLUSION: Neither zonulin inhibition with larazotide nor C5aR2 deletion improved renal disturbances in the experimental models examined. These findings suggest that gut-kidney crosstalk involves complex, bidirectional interactions among intestinal, metabolic, immune, microbial, and intrarenal processes, rather than a linear pathway responsive to single-target modulation.

Burnet Institute Prize for Infectious Diseases Research

TRANSLATING DIABETES RISK STRATIFICATION: A 9-YEAR EVALUATION OF THE INDIAN DIABETES RISK SCORE

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Early identification of individuals at risk of type 2 diabetes can enable prevention before disease onset. The Indian Diabetes Risk Score (IDRS) is a low-cost, non-laboratory questionnaire based on age, waist circumference, physical activity and family history, originally developed for large-scale screening in . However, its predictive and longitudinal performance remains unclear.

AIM: To evaluate the ability of baseline IDRS to predict diabetes incidence and reflect longitudinal glycaemic change over 9 years

METHODS: In a secondary analysis of 1508 adults without diabetes from the Kerala Diabetes Prevention Program, logistic regression assessed associations between baseline IDRS and 9-year incident diabetes, with discrimination evaluated using AUC-ROC. Linear regression examined cross-sectional associations between IDRS and fasting plasma glucose (FPG) at years 2 and 9, and associations between change in IDRS (ΔIDRS) and concurrent change in FPG (ΔFPG).

RESULTS: Higher baseline IDRS was associated with increased odds of incident diabetes (continuous IDRS: adjusted OR 1.041, $p<0.001$) but discrimination was poor (AUC-ROC=0.577). The IDRS≥60 threshold yielded a sensitivity of 71.2% and specificity 34.7%. IDRS was positively associated with FPG at both 2 and 9 years, with a stronger cross-sectional association at 9 years. Baseline risk classification was also associated with subsequent glycaemic trajectory, with a 9.6 mg/dL smaller increase in FPG from year 2 to year 9 in the low-risk group compared with the high-risk control group. However, ΔIDRS was not associated with ΔFPG ($\beta=0.050$, $p=0.513$).

CONCLUSION: Higher IDRS was associated with future diabetes incidence and higher cross-sectional FPG, suggesting the score captures between-person differences in diabetes risk. However, it showed limited discrimination between individuals who did and did not subsequently develop diabetes and did not reflect within-person changes in FPG. IDRS therefore may be useful as a population-level risk stratification tool to identify individuals who may benefit from targeted diabetes prevention interventions particularly where laboratory screening is impractical but is not suitable for individual-level prediction or dynamic glycaemic monitoring.

Monash School of Translational Medicine Prize for Neuroscience Research

STEREO-ELECTROENCEPHALOGRAPHY-GUIDED CROSS-ELECTRODE RADIOFREQUENCY THERMOCOAGULATION IN FOCAL EPILEPSY: A REVIEW OF CURRENT METHODOLOGIES AND OUTCOMES

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Advances in stereo-electroencephalography-guided radiofrequency thermocoagulation (SEEG-guided RFTC) have led to the development of cross-electrode RFTC, which has been shown to result in significantly larger lesions and higher seizure-freedom rates compared to standard RFTC methods. Given the novelty of cross-electrode RFTC, herein we review the reported surgical techniques and treatment-related outcomes to date to identify current research gaps and future directions. Ten articles were identified for review including 187 participants who underwent cross-electrode RFTC. Hypothalamic hamartoma (HH) and hippocampal sclerosis (HS) accounted for 52% and 26% of all cases, respectively. The proportion of cases with seizure freedom at last follow-up was 71%, including 84% of the HH cases, 54% of all temporal lobe cases, and 56% of the HS cases. Long-term efficacy in one HS study dropped from 72% at 12 months to 43% at 5 years post-treatment. Most (94%) reported complications resolved. One study reported favorable neuropsychological outcomes in HS cross-electrode RFTC compared to standard resective epilepsy surgery; however, it did not use memory tasks known to be reliable proximal markers of mesial temporal dysfunction/disease. In conclusion, extending RFTC boundaries through cross-electrode methods may improve RFTC efficacy and produce seizure-freedom rates comparable to established epilepsy surgical interventions in the treatment of HH and HS at 12 months, with a low risk of postoperative complications. There is limited research exploring efficacy in non-lesional epilepsy despite these cases often undergoing SEEG for diagnostic purposes and being well placed for cross-electrode RFTC. In addition, there is a lack of research exploring the neurocognitive and psychiatric risks of cross-electrode RFTC.

Monash School of Translational Medicine Prize for Neuroscience Research

BLOOD BIOMARKERS OF ACUTE MILD TRAUMATIC BRAIN INJURY CAUSED BY INTIMATE PARTNER VIOLENCE

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Mild traumatic brain injury (mTBI) is among the most prevalent and consequential health outcomes of intimate partner violence (IPV). IPV-caused mTBI (IPV-mTBI) is rarely screened for, and diagnosis is complicated by limited injury disclosure, unwitnessed assaults, and overlapping comorbidities.

AIM: To assess conventional mTBI blood- based biomarkers and self-reported symptoms for identifying acute IPV-mTBI relative to healthy and trauma-exposed controls, and to explore novel plasma biomarkers using high-dimensional proteomics.

METHODS: Individuals presenting to the Emergency Department with IPV-mTBI, orthopaedic trauma controls (TC), and healthy controls (HC) were enrolled. Symptoms were assessed with the Rivermead Post-Concussion Symptoms Questionnaire (RPQ). Plasma was analysed using a 120-plex NULISA proteomic panel. Conventional mTBI biomarkers (GFAP, NfL, Tau, S100B, IL-6) were examined and classification accuracy quantified by area under the receiver operating characteristic curve (AUC). Differential expression analysis of the full NULISA panel, adjusted for age and sex, was conducted.

RESULTS: Ninety participants were enrolled (HC n=31, TC n=26, IPV-mTBI n=33; 87.8% female); 42.4% of IPV-mTBI participants had experienced concomitant non-fatal strangulation. IPV-mTBI participants reported greater RPQ symptom severity than HC and TC (both $p < 0.001$). GFAP, NfL, IL-6, and Tau were elevated relative to HC (all $p \leq 0.013$); NfL was the only marker also elevated relative to TC ($p < 0.001$). Against HC, classification accuracy was good for symptom severity (AUC 0.876) and IL-6 (AUC 0.840), and acceptable for NfL (AUC 0.792) and GFAP (AUC 0.740). Against TC, only NfL retained good accuracy (AUC 0.804). Differential expression analysis identified 24 proteins altered in IPV-mTBI versus HC, spanning axonal injury, neuroinflammation, and neurodegeneration.

CONCLUSION: Blood biomarkers, particularly NfL, and self-reported symptoms distinguished acute IPV-mTBI from healthy and trauma-exposed controls, supporting their potential to provide objective evidence of brain injury in a population where diagnosis is uniquely challenging.

Monash School of Translational Medicine Prize for Neuroscience Research

PRE-EXISTING COGNITIVE IMPAIRMENTS ARE ASSOCIATED WITH INCREASED RISK OF IMMUNE EFFECTOR CELL-ASSOCIATED NEUROTOXICITY SYNDROME AFTER CHIMERIC ANTIGEN RECEPTOR T-CELL THERAPY

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AIM: The management of common and potentially fatal toxicities, such as immune effector cell-associated neurotoxicity syndrome (ICANS), following chimeric antigen receptor T-cell therapy (CAR-T) has become a clinical priority. There is an urgent need to better understand the risk factors of ICANS to improve risk stratification and support proactive interventions in high-risk patients. The predictive utility of gold-standard psychometric cognitive markers has yet to be explored.

METHODS: In this prospective two-centre study, 228 CAR-T recipients (61% male, mean age=64 years) completed comprehensive cognitive assessments prior to CAR-T.

RESULTS: Eighty-five (37%) patients developed ICANS. Multivariable logistic regression models revealed that z-score decreases in attention and processing speed (odds ratio [OR]=1.64, 95% CI 1.09 – 2.50, p=.019), memory acquisition (OR=1.46, 95% CI 1.08 – 2.00, p=.015), memory retrieval (OR=1.49, 95% CI 1.11 – 2.00, p=.008), and total cognition (OR=2.01, 95% CI 1.25 – 3.23, p=.004) are associated with the development of ICANS. Binarised pre-infusion cognition (intact vs impairment) was also associated with ICANS development ((1)=11.60, p<.001). Eighteen (64%) of the 28 patients with cognitive impairment developed ICANS compared to 58 (31%) of 128 cognitively intact patients. Patients with cognitive impairment had almost double the relative risk of developing ICANS relative to cognitively intact patients (RR=1.93, 95% CI 1.16 – 3.20).

CONCLUSION: This is the largest and most comprehensive study to examine cognition in CAR-T to date. CAR-T recipients with pre-existing cognitive impairment as assessed using a comprehensive cognitive battery had almost double the risk of developing ICANS compared to those without cognitive impairment. Baseline cognitive testing may offer valuable and non-invasive means of improving neurotoxicity risk prediction. Validation in prospective cohorts is warranted to determine whether integrating cognitive performance into clinical risk scores can support personalised preventative strategies that reduce treatment-related neurotoxicity without diminishing efficacy.

Monash School of Translational Medicine Prize for Neuroscience Research

HIGHER CUMULATIVE LIFETIME PSYCHIATRIC BURDEN IN WOMEN WITH MIGRAINE: RESULTS FROM A WOMEN'S-SPECIFIC MENTAL HEALTH CLINIC IN AUSTRALIA

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AIM: There is a strong bidirectional association between psychiatric conditions and migraine, especially in women who are disproportionately affected by such conditions. The co-occurrence of migraine with psychiatric conditions can increase migraine severity, duration and frequency. In turn, migraine may worsen mood and anxiety symptoms, increase rapid cycling disease and suicide risk. This high comorbidity has downstream impacts on quality of life, medication compliance and healthcare utilisation. Though individual associations between psychiatric conditions and migraine are well described, their additive burden is under-studied. We aimed to compare lifetime psychiatric burden and suicide attempts in women with and without migraine.

METHODS: We compared total numbers and types of lifetime psychiatric diagnoses in women with and without migraine attending a specialist women's mental health clinic using retrospective chart analysis. We targeted this population to allow opportunistic overlay of migraine diagnoses against medical, psychiatric and social histories. Comparisons between independent groups, with and without migraine, were compared using binary logistic regression and Chi Square tests.

RESULTS: Of 1435 patients seen during the 11-year study period from 2016-2026, 627 patients consented to the study. Compared to women without migraine, women with migraine more commonly fulfilled diagnostic criteria for major depressive disorder($p<0.0001$), generalised anxiety disorder($p<0.0001$), premenstrual dysphoric disorder($p<0.0001$) and complex post-traumatic stress disorder($p<0.001$). Women with migraine reported higher DASS21 scores for depression($p=0.041$), anxiety($p=0.014$) and stress($p=0.016$). Odds of migraine increased by 66% with each accumulating psychiatric diagnosis (OR 1.660, 95% CI: 1.466-1.879, $p<0.001$) compared to counterparts without migraine. Women with migraine also reported more passive suicidal thoughts ($p=0.014$) and active suicide attempts ($p=0.028$) compared to women without migraine.

CONCLUSION: Women with migraine report a higher cumulative burden of lifetime psychiatric conditions when compared to women without migraine, and this is associated with higher depression, anxiety and stress scores, as well as higher suicide attempts.

Monash School of Translational Medicine Prize for Neuroscience Research

EVALUATING SYNTHSR FOR MRI HARMONIZATION AND QUANTIATIVE ANALYSIS OF HIPPOCAMPAL VOLUME IN AUTOIMMUNE NEUROLOGIC DISEASES

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Variability in acquisition protocols limit the use of retrospective clinical magnetic resonance imaging (MRI) for quantitative analysis. SynthSR is an AI tool that harmonizes heterogeneous brain scans into synthetic 1-mm isotropic structural images.

AIM: to evaluate the performance of SynthSR in autoimmune encephalitis (AE) and mimics.

METHODS: Multicentre study including 102 patients from the Australian Autoimmune Encephalitis Consortium, and 28 controls without structural neurological disease. High-resolution reference standard T1-weighted structural scans were compared against low-resolution (n=27) or contrast-enhanced counterparts (n=76), with one patient having both. Images were processed via SynthSR, with hippocampal volume measured using FastSurfer.

RESULTS: SynthSR processing systematically overestimated hippocampal volume, with high interindividual variability. Nevertheless, relative consistency between SynthSR-processed and original reference standard remained high (ICC=0.88, 95% CI 0.75-0.94). Contrast enhancement did not substantially alter performance, but inclusion may require caution. While agreement between synthetic images derived from low-resolution scans and reference standard was moderate (ICC=0.75, 95% CI 0.36-0.90), agreement with SynthSR-processed reference standard was excellent (ICC=0.90, 95% CI 0.76-0.96). Longitudinally, volume change did not differ between reference standard and synthetic images, albeit with considerable individual-level variance.

CONCLUSION: SynthSR facilitates harmonization of heterogeneous MRI for group-level volumetric analyses, provided a consistent processing pipeline is maintained. However, it is not reliable for individual-level or small-group patient assessments.

Monash School of Translational Medicine Prize for Neuroscience Research

PATIENT-SPECIFIC DEEP BRAIN STIMULATION USING TRIAL STIMULATION DURING STEREO-EEG

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BACKGROUND: Deep brain stimulation (DBS) is an established therapy for drug-resistant epilepsy, yet treatment response remains variable. This variability may stem from a one-size-fits-all approach to selecting thalamic nuclei targets and stimulation parameters. Temporary trials of stimulation during stereo-EEG (SEEG) allow candidate targets and parameters to be evaluated before long-term implantation and could ultimately improve DBS outcomes. Changes in interictal epileptiform discharge (IED) rate offer a potential biomarker of long-term DBS response. Reports of IED suppression are emerging; however, the temporal dynamics of these IED rate changes remain underexamined, despite being vital to reliably measuring IED suppression.

METHODS: Eight patients undergoing thalamic SEEG received trial stimulation at one or more nuclei: the anterior (ANT, n=6), centromedian (CMN, n=3), and/or medial pulvinar (PuM, n=7). Stimulation was continuous low-frequency (2-10 Hz), intermittent high-frequency (100-145 Hz; 1 minute on, 3-5 minutes off), or continuous high-frequency (100-130 Hz). IED rate was quantified in 20s bins using a validated detector after semi-automated artefact exclusion. Three windows were compared to baseline: stimulation-on, stimulation-off, and post-stimulation.

RESULTS: IED rate change following stimulation differed markedly across patients, targets, and parameters. All 8 patients showed ≥25% and 4/8 showed ≥50% on-phase suppression in at least one trial. Across 9 intermittent high-frequency trials, stimulation produced immediate, often prominent on-phase suppression (>50% in 3/9). Post-stimulation IED rate returned to baseline in 5/9 and rebounded above baseline in 3/9. Temporal profiles also varied: suppression increased throughout on-periods in 2/9 intermittent trials, and accumulated over 'on'-phase with continuous stimulation, sometimes taking 2–10 min to peak.

CONCLUSION: Trial stimulation shows patient-, target-, and parameter-specific responses, with promise for customising DBS. Because IED suppression follows complex dynamics, it may be better characterised as features (magnitude, temporal profile, recovery) than a single marker. These features should inform the design and interpretation of stimulation trials.

Monash School of Translational Medicine Prize for Neuroscience Research

THE INFLUENCE OF HOLOGRAPHIC CUING ON MOVEMENT EXECUTION IN LIMB APRAXIA

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Limb apraxia is a higher-order motor disorder affecting 30-50% of individuals following left hemisphere damage and is characterized by impaired execution of learned, purposeful actions that cannot be explained by elementary motor or sensory deficits. Defective pantomime of tool use, a hallmark feature of apraxia, can significantly impair activities of daily living and independence. Augmented reality provides a unique opportunity to investigate the role of visual information during pantomiming by delivering holographic information of differing saliency (static vs dynamic) and may help elucidate the underlying mechanisms of apraxia.

AIM: To determine whether Augmented Reality based holographic cues can improve pantomime performance in apraxia.

METHODS: 21 adults post-stroke with signs of apraxia (10 male, 70 y) and 23 healthy control subjects (10 male, 66 y) were randomized to mime the use of five objects (hammer, bulb, iron, watering can, key), presented in two *Environments* (Screen vs. Head Mounted Display, HMD) and two *Modes* (Static vs. Dynamic) resulting in four conditions ($Screen^{Stat}$, $Screen^{Dyn}$, HMD^{Stat}, HMD^{Dyn}), followed by a real tool demonstration. Pantomiming was analysed by a scoring system using video recordings. Kinematic analyses were run to verify the findings.

RESULTS: Healthy control participants performed close to ceiling and significantly better than patients. Patients achieved significantly higher scores with holographic (−1.2; 95%-CI [−2.1,−0.19], $p = 0.021$) or dynamic cues (−0.91; 95%-CI [−1.7,−0.16], $p = 0.019$). Remarkably, when their performance was supported by dynamic holographic cues (e.g., striking hammer), it did not differ significantly from real tool demonstration.

CONCLUSION: Patients' performance improved with visual stimuli of increasing saliency, making holographic cueing a promising tool for both apraxia research and rehabilitation.

Monash School of Translational Medicine Prize for Neuroscience Research

IS CHILDHOOD ADVERSITY ASSOCIATED WITH WORSE DISABILITY OUTCOMES IN MULTIPLE SCLEROSIS?

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Approximately 33,000 Australians live with MS. Factors that increase MS risk are well understood, but the factors that influence disease severity are now a field of growing interest. Childhood adversity has shown to be predictive of long-term health outcomes across many diseases, however this association in people with MS is not well-explored.

AIM: To investigate if childhood adversity was associated with worse MS disability outcomes, and if this association was mediated by smoking status, overweight at 15 years of age, and timeliness of disease modifying therapy.

METHOD: This was a cross-sectional single centre observational cohort study. Participants were adults with a diagnosis of MS seen at Alfred Health MS clinics between January 2026 and August 2026 consenting to participation. Childhood adversity was assessed in two ways: First, using the Adverse Childhood Experiences Questionnaire (ACE-Q) score; people reporting ≥4/10 ACEs were categorised as having adversity. Second, Childhood socioeconomic status (SES) was estimated by matching participants' childhood postcodes to the respective area-based index of relative socioeconomic disadvantage; adversity was measured by decile of disadvantage. Primary outcome was disability severity, measured using the Age-Related Multiple Sclerosis Severity score. This is calculated using patients' disability scores assessed by neurologists during routine clinic visits. Bootstrapped linear regression and logistic regression models were used to investigate these associations.

RESULTS: 117 people with MS were enrolled in this study. No associations were seen between the two models of childhood adversity and MS severity. Experiencing ≥4 ACEs was significantly associated with ever-smoking (OR = 4.0, 95%CI 1.54-11.0). Childhood adversity was not associated with treatment timeliness.

CONCLUSION: This single-centre study demonstrated that childhood adversity was not associated with worse MS disability outcomes, possibly due to equitable treatment despite socioeconomic disadvantage. However, these results warrant further investigation utilizing samples that are more representative of the broader Australian experience.

Monash School of Translational Medicine Prize for Neuroscience Research

QUANTITATIVE FDG-PET REFLECTS HIPPOCAMPAL SEEG-DEFINED EPILEPTOGENICITY

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The hippocampus is the brain structure most frequently involved in drug-resistant focal epilepsy (DRFE), with a spectrum of epileptogenicity across temporal lobe (TLE) and extratemporal epilepsy. Approximately one-third of people with TLE have a normal-appearing hippocampus on MRI, and in ~60% of these, ^18F-fluorodeoxyglucose positron emission tomography (FDG-PET) demonstrates hypometabolism associated with favorable surgical outcome. However, the biological basis of FDG-PET signal and its relationship to epileptogenicity remain largely unknown. We sought to identify determinants of quantitative hippocampal FDG-PET signal using stereo-EEG (SEEG)-defined epileptogenicity as ground truth.

Sixty-two adults with DRFE undergoing SEEG at The Alfred, with ≥1 hippocampal head electrode, contributed 102 hippocampi classified as within or outside the epileptogenic zone (EZ) by multidisciplinary post-SEEG consensus. Using PETSurfer and FreeSurfer v7.3.2, we calculated hippocampal head FDG-PET standardized uptake value ratios (SUVR) relative to pontine metabolism. Clinical and SEEG data, including interictal and ictal measures, were analysed using univariate and multivariate mixed-effects regression.

EZ hippocampi (N=34) demonstrated lower SUVR than extra-EZ hippocampi (N=68), with EZ status the strongest predictor in the multivariate model (P<0.001). FDG-PET provided acceptable discrimination of hippocampal EZ status (AUC 0.747; P<0.001), independent of SUVR reduction associated with hippocampal lesions (N=10; 8 with hippocampal sclerosis; P=0.015). SUVR was inversely associated with age (P=0.045) and hippocampal interictal spike rates (P=0.006), although neither remained significant multivariately. Among extra-EZ hippocampi, SUVR did not differ between those within the propagation zone (N=49) and non-involved hippocampi (N=19; P=0.106). However, extra-EZ hippocampi generating spontaneous seizures (N=10) had higher SUVR in both univariate and multivariate analyses (P=0.008).

Overall, quantitatively derived hippocampal FDG-PET signal primarily reflects inclusion within the EZ, significantly predicting the conclusion of comprehensive invasive assessment. The absence of association with seizure propagation, together with higher SUVR in rare extra-EZ seizure-generating hippocampi, challenge common explanations for discordant hippocampal hypometabolism.

Monash School of Translational Medicine Prize for Neuroscience Research

ICTAL ASYSTOLE IN EPILEPSY PATIENTS UNDERGOING STEREOTACTIC ELECTROENCEPHALOGRAPHY (SEEG)

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OBJECTIVE: Ictal asystole (IA) is a rare phenomenon observed in 0.3-0.4% of Epilepsy Monitoring Unit (EMU) admission, however, there is a paucity of intracranial EEG data. We describe two SEEG cases with IA associated with spontaneous seizures and induced by cortical stimulation and radiofrequency thermo-coagulation (RF-THC).

METHODS: Two patients with MRI-negative non-dominant mesial temporal lobe epilepsy underwent SEEG implantation of the right temporal lobe. SEEG data was visually analysed. IA was classified as an R-R interval >3 seconds[1].

RESULTS: P1 had no history of IA prior to SEEG. No spontaneous seizures were captured during 20 days of SEEG monitoring. Cortical stimulation of the right amygdala/hippocampal head induced two habitual seizures associated with 11-26-second IA. Amygdala/hippocampal head RF-THC induced a seizure with 22-second IA. The remaining RF-THC was performed under general anaesthesia (GA). These findings resulted in the establishment of a multidisciplinary protocol for patients at risk of IA.

P2 had a seizure with IA captured in the EMU. During SEEG monitoring, 7 spontaneous right hippocampal seizures were recorded with ictal bradycardia and one with 6-second IA. Cortical stimulation with cardiorespiratory monitoring induced two habitual seizures from the right hippocampus, one associated with apnoea. RF-THC was performed under GA with electrocorticography, during which an electrographic right hippocampal seizure was captured, with no recurrence of IA.

CONCLUSION: IA has been reported as a rare finding of temporal and frontal lobe seizures. Our data captured IA in seizures associated with a non-dominant mesial temporal epileptogenic zone. IA was induced by cortical stimulation and RF-THC, which has implications for safety and planning. These findings led to establishment of a protocol for patients at risk of IA undergoing SEEG.

Monash School of Translational Medicine Prize for Neuroscience Research

HLA-ASSOCIATED AMINO-ACID RESIDUES PROVIDE A MECHANISTIC BASIS FOR MULTIPLE SCLEROSIS SUSCEPTIBILITY

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Study Group: ANZGene Consortium
** These authors share first authorship on this work.*

Multiple sclerosis (MS) shows its strongest genetic association within the major histocompatibility complex (MHC). However, extensive polymorphism and linkage disequilibrium obscure the structurally interpretable determinants underlying this signal.

AIM: To resolve human leukocyte antigen (HLA) associations in MS at amino acid resolution and investigate how associated residues shape self and viral peptide presentation.

METHODS: We performed HLA fine-mapping in an Australian case–control cohort (4,114 cases and 2,631 controls). Classical HLA alleles and amino-acid polymorphisms were imputed and tested for association, with conditional and haplotype-based modelling used to identify independent signals and minimal amino-acid motifs. Structural consequences of MS-associated HLA-DRB1 residues were characterised using the experimentally determined HLA-DR15–MBP_{85-99} complex and computational modelling of the HLA-DR15–EBV glycoprotein B ($gB_{103-116}$) complex, evaluating peptide-binding pocket properties, binding register and peptide–HLA interactions.

RESULTS: The dominant HLA-DRB1 association was explained by three residues (β71, β13 and β86), which occupy the P4 and P1 anchor pockets and recapitulate risk encoded by classical DRB1 alleles (r=0.98), indicating that allelic heterogeneity largely reflects shared peptide-binding properties. Conditional analyses localized the protective HLA-A*02:01 association to HLA-A position 95 and identified an independent signal at HLA-DPβ1 position 65. Together, five class I and II residues explained 14.1% of MHC case–control variance. Structurally, β13Arg and β71Ala shape P4, which accommodates MBP Phe92, while β86Val constrains P1 geometry and hydrophobicity, accommodating Val89. $gB_{103-116}$ modelling predicted a consistent binding register, with Tyr109 engaging the β13Arg/β71Ala-shaped P4 pocket and Ile106 engaging β86Val at P1.

CONCLUSIONS: A small set of amino acid residues explains most HLA-associated susceptibility to MS, reducing its complex HLA architecture to structurally interpretable determinants of antigen presentation. These findings link HLA-DRB1 genetic risk to peptide-binding properties that accommodate both MBP and EBV gB epitopes, providing a mechanistic framework for MS susceptibility.

Monash School of Translational Medicine Prize for Neuroscience Research

ASSOCIATION BETWEEN RADIOFREQUENCY THERMOCOAGULATION VOLUME IN THE EPILEPTOGENIC ZONE AND SURGICAL OUTCOMES IN DRUG-RESISTANT EPILEPSY

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Stereo-EEG (SEEG) guided radiofrequency thermocoagulation (RF-THC) is commonly utilised in many centres. However, seizure freedom is limited to 10–40%, and predictors of treatment success remain inconsistent.

AIM: to investigate the predictive factor and the proportion of the epileptogenic zone (EZ) undergoing RF-THC with seizure outcome.

METHODS: We analysed patients who underwent SEEG at a single Australian hospital. RF-THC lesion volume was calculated using pre- and post-RF-THC MRI. The presumed EZ volume was determined by clinical team consensus utilising SEEG data. Associations between RF-THC/EZ volume ratio and seizure outcomes at 6 months and the last follow-up (≥3 months) were assessed using logistic regression. Kaplan–Meier analysis evaluated time to seizure recurrence across RF-THC/EZ ratio tertiles.

RESULTS: Fifty-four patients (mean age 35.1 ± 9.7 years) were included. The median total RF-THC volume was 0.74[IQR 0.41-1.19] cm³, and the median EZ volume was 9.30 cm³ (IQR 4.56–24.9). RF-THC volume alone was not associated with seizure freedom at 6 months ($p = 0.45$) or at the last follow-up ($p = 0.52$). In contrast, both smaller EZ volume and a higher RF-THC/EZ volume ratio were associated with seizure freedom at 6 months ($p = 0.012$ and $p = 0.03$) and at the last follow-up (median follow-up 14.45 months; $p = 0.04$ and $p = 0.03$). The KM analysis demonstrated that patients in the highest RF-THC/EZ ratio tertile had a significantly lower risk of seizure recurrence than those in the lowest tertile (log-rank $p = 0.001$)

DISCUSSION: Patients with a smaller EZ volume were more likely to achieve seizure freedom following RF-THC. A greater proportion of EZ treated with RF-THC was associated with an increased likelihood of seizure freedom and reduced risk of seizure recurrence, potentially avoiding subsequent resective surgery. This has implications for SEEG trajectory planning in cases with presumed restricted EZ.

Monash School of Translational Medicine Prize for Neuroscience Research

PREDICTORS OF HYPONATRAEMIA ASSOCIATED WITH STEREO-EEG

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Stereo-electroencephalography (SEEG) is an invasive procedure used in the pre-surgical evaluation of patients with drug resistant epilepsy. SEEG patients are at risk of metabolic complications including hyponatraemia.

AIM: To investigate rates of hyponatraemia and predictors of hyponatraemia associated with SEEG and radio frequency thermo-coagulation (RF-THC).

METHODS: Consecutive patients aged 17 and above who underwent SEEG at The Alfred Hospital, Melbourne Australia between August 2019 and June 2026 were analysed. Sodium concentrations were reviewed retrospectively pre-implantation, during implantation and post-explantation. The primary outcome was hyponatraemia (<135mmol/L) during SEEG implantation; secondary outcomes were the change in sodium concentration during implantation and explantation. Clinical and surgical predictors were additionally analysed.

RESULTS: Among the 105 included patients, the median baseline serum sodium concentration was 139 mmol/L (IQR 127–141). During implantation, 22 patients (21%) met criteria for hyponatraemia; 15 (14%) mild, 4 (4%) moderate and 3 (3%) severe hyponatraemia. The median lowest sodium concentration during implantation was 137 mmol/L (IQR 123–138), with a median change from baseline to nadir of -3 mmol/L (IQR −10 to -2). Antiepileptics carbamazepine and oxcarbazepine were associated with higher odds of developing hyponatraemia during implantation (OR 2.071, 95% CI 1.046–4.098; p=0.037), while a higher baseline sodium was associated with decreased odds (OR 0.508, 95% CI 0.367–0.704, p<0.001). 89 patients had post-explantation sodium measurements; hyponatraemia was recorded in 13 patients (15%) with 10 (11%) mild, 3 (3%) moderate, and none (0%) severe. Other SEEG factors were not associated with primary or secondary outcomes.

CONCLUSION: Hyponatraemia occurred in approximately one-fifth of patients during SEEG implantation, with cases ranging from mild to severe. Carbamazepine and oxcarbazepine exposure and a lower baseline sodium was associated with increased odds of hyponatraemia. Better understanding of this complication may help clinicians identify patients at increased risk to optimise sodium levels peri-operatively.

Monash School of Translational Medicine Prize for Neuroscience Research

GYNAECOLOGICAL INFECTIONS AND INFLAMMATORY CONDITIONS IN WOMEN WITH MS ON ANTI-CD20 THERAPY: A CASE SERIES

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AIM: To characterise the spectrum, clinical features and outcomes of gynaecological infections and inflammatory conditions occurring in women with multiple sclerosis (MS) treated with anti-CD20 therapy.

METHOD: Retrospective case series of ten women with relapsing-remitting MS who developed gynaecological symptoms during ocrelizumab or ofatumumab therapy, identified via a national call-out to neurologists across Australia. Standardised data were collected on demographics, disease-modifying therapy, gynaecological presentation, microbiology, immunoglobulin levels, treatment and outcome. All patients provided informed consent.

RESULTS: Presentations ranged from recurrent bacterial vaginosis and inflammatory vaginitis (six cases) to severe pelvic inflammatory disease and necrotising infection with multi-organ fistulae (four cases). Ureaplasma urealyticum or Mycoplasma hominis were confirmed as causative organisms in all four severe cases; routine vaginal swabs were negative in five of ten cases overall. Immunoglobulin levels were normal in all patients at symptom onset. Anti-CD20 therapy was ceased in the four most severe cases, with subsequent, non-B-cell depleting disease-modifying therapy switches required in two.

CONCLUSION: These findings represent an under-recognised complication of anti-CD20 therapy in women with MS, occurring independently of hypogammaglobulinaemia and potentially reflecting mucosal immune dysregulation. Diagnostic delay was common, as routine microbiology does not reliably detect Ureaplasma or Mycoplasma species, and stigma may prevent symptoms being raised to a neurologist. We propose routine screening and a low threshold for targeted PCR testing, supported by multidisciplinary management.

Monash School of Translational Medicine Prize for Neuroscience Research

OUTCOMES FROM VAGUS NERVE STIMULATION FOR DRUG-RESISTANT EPILEPSY IN A LARGE TERTIARY CENTRE COHORT: THE ROLE OF STIMULATION PARAMETERS, SYNDROME, AND AETIOLOGY

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Epilepsy is a disabling neurological disorder characterised by recurrent unprovoked seizures, with one third remaining drug-resistant despite pharmacological intervention. Vagus Nerve Stimulation (VNS) is an effective adjunctive treatment, though approved only for focal epilepsy, despite widespread off-label use in generalised epilepsies, and developmental and epileptic encephalopathies.

AIM: To evaluate the efficacy of VNS across all epilepsy syndromes to justify its expanded use, and explore clinical predictors of outcomes.

METHODS: A single-centre retrospective analysis was conducted, consisting of 90 patients (49 female) with drug-resistant epilepsy treated with VNS between 1 January 2004 and 31 December 2025. Seizure reduction rates were calculated for those with ≥6 months of follow-up, who had countable seizures both at baseline and at last follow-up. Seizure freedom rates were calculated for those with ≥12 months of follow-up who were seizure-free at both 6- and 12-months follow-up. Responder rates were defined as those achieving a ≥50% reduction in seizure frequency.

RESULTS: The overall responder rate was 70%, with a median seizure reduction of 69%, positively correlated with follow-up duration ($p = 0.020$). Seizure freedom was highest in generalised epilepsy (20%), followed by focal epilepsy (15%), with greatest reductions seen in post-traumatic focal epilepsy; poorest outcomes were noted with autoimmune and tumour-associated epilepsies. A difference was noted between lateralisations, with poorer outcomes noted in left-sided onset seizures, compared to those with right or bilateral onset ($p = 0.020$). Autostimulation use was independently associated with better outcomes ($p = 0.017$).

CONCLUSION: In this large cohort of carefully phenotyped patients, we demonstrate that the use of VNS is at least as effective in generalised epilepsies as in focal epilepsy, supporting broader use beyond its currently approved, but limited indications. Aetiological and parameter-based predictors identified here may assist patient selection and device programming, though some findings warrant confirmation in larger cohorts.

Monash School of Translational Medicine Prize for Neuroscience Research

DIAGNOSTIC YIELD OF IMMEDIATE VERSUS DELAYED WHOLE-GENOME SEQUENCING IN SUSPECTED GENETIC DRUG-RESISTANT EPILEPSY

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Whole genome sequencing (WGS) offers the potential to improve diagnosis in epilepsy, including in drug-resistant cases with suspected genetic **aetiology**. However, its clinical utility, cost-effectiveness, and broader impact remain to be evaluated, particularly in the adult population.

AIM: To compare six-month diagnostic efficiency between immediate and delayed whole-genome sequencing (WGS) and to report whole-cohort diagnostic yield.

METHODS: This multicentre trial enrolled participants aged 1 month to 65 years with epilepsy onset ≤18 years and drug-resistant epilepsy of suspected genetic cause. Participants were randomised to immediate WGS or WGS delayed by 12 months and were followed for 2 years.

RESULTS: Eighty-nine participants were enrolled: 46 female (51.7%), median age 29.6 years (IQR 18.7–39.1), 21 children (23.6%), and 45 with intellectual disability (50.6%). Clinical syndromes were developmental and epileptic encephalopathy (DEE; 33.7%), malformations of cortical development (MCD; 33.7%), non-lesional focal epilepsy (nIFE; 19.1%), mesial temporal sclerosis (MTS; 7.9%), and other syndromes (5.6%). At six months, 11/46 (23.9%) participants in the immediate group had a genetic diagnosis versus 0/43 (0%) in the delayed group ($p<0.001$). Overall, 20/89 (22.5%) participants had a genetic diagnosis: 8 pathogenic and 12 likely pathogenic variants. By end of follow-up, yield was descriptively higher in children versus adults (33.3% vs 19.1%) and in participants with or without intellectual disability respectively (26.7% vs 18.2%), but neither comparison was statistically significant. Yield was highest in DEE (30.0%), followed by MCD (23.3%), other syndromes (20.0%), nIFE (17.6%), with no diagnoses in MTS.

CONCLUSIONS: Immediate WGS increased six-month diagnostic ascertainment in drug-resistant epilepsy of suspected genetic aetiology. Whole-cohort diagnostic yield was 22.5%, with diagnoses identified in both children and adults and the highest descriptive yields in DEE and MCD. Clinical and economic outcomes remain under analysis.

Monash School of Translational Medicine Prize for Neuroscience Research

REWARD-SPECIFIC LEARNING RATE (A) AND BRAIN STRUCTURE PREDICT VULNERABILITY TO UNCONTROLLED OVEREATING IN OBESITY

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Only some individuals exposed to an obesogenic environment develop obesity through chronic overeating of highly palatable foods, yet the neurobehavioural determinants of this susceptibility remain poorly understood. Our previous work has shown that lower learning rate (α), reflecting reduced updating of reward value in response to feedback during reinforcement learning, predicts weight gain in a preclinical model of diet-induced obesity (DIO). Here, we used longitudinal structural and diffusion weighted MRI to identify both pre-existing neuroanatomical features associated with vulnerability to DIO and diet induced alterations associated with the emergence of obesity.

Forty outbred male rats were stratified into high-/low-α subgroups, and by weight-gain trajectory into DIO-prone/DIO-resistant subgroups following a 10-week high-fat/high-sugar (HFHS) diet protocol. MRI scans were acquired before and after HFHS diet exposure. Regional grey matter density was compared within and between groups using voxel-based morphometry, and analysis of white matter microstructure is ongoing.

Before diet exposure, both low-α (p=0.006) and DIO-prone (p=0.001) rats showed lower grey matter density in the piriform cortex and ventral pallidum relative to their high-α and DIO-resistant counterparts. Following diet exposure, somatosensory cortex density increased more in DIO-prone than DIO-resistant rats (p<0.002). Distinct regional increases also emerged in the lateral hypothalamus of DIO-prone rats (p<0.001) and posterior thalamic nuclei of DIO-resistant rats (p<0.001).

Together, these findings show that vulnerability to DIO may arise from pre-existing structural differences within reward- and olfactory-related circuitry that also underlie diminished reward value updating (lower α), alongside distinct diet-induced structural remodelling in somatosensory, hypothalamic and thalamic systems.

Monash School of Translational Medicine Prize for Neuroscience Research

DOES EPILEPSY INCREASE VULNERABILITY TO DEVELOP ALCOHOL USE DISORDER? A STUDY IN THE GENETIC ABSENCE EPILEPSY RATS FROM STRASBOURG

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AIM: Despite the high comorbidity of epilepsy and alcohol use disorder (AUD), their aetiological relationship remains poorly understood and may reflect shared neuropsychiatric risk factors such as anxiety and depression. We assessed AUD-like behaviour in a model of genetic generalised epilepsy.

METHOD: Genetic Absence Epilepsy Rats from Strasbourg (GAERS; n=9, 5M/4F) and non-epileptic controls (NEC; n=14, 10M/4F) underwent behavioural phenotyping (sucrose preference, elevated plus maze, open field, novelty place preference) before 12 weeks of chronic intermittent two-bottle ethanol access. Three AUD-like dimensions were assessed: escalation of intake, punishment resistance (quinine adulteration, 0.003–3 g/L), and relapse following abstinence.

RESULTS: At baseline, GAERS showed higher sucrose preference than NEC ($p=0.008$), no difference in anxiety-like behaviour on the elevated plus maze ($p=0.26$), and greater locomotor activity across all tasks ($p\leq0.003$). During the 10% phase, ethanol preference differed between groups ($p<0.0001$), driven entirely by GAERS females (57%) relative to GAERS males, NEC females and NEC males (20–25%), which did not differ from one another (all $p<0.001$ vs GAERS females); this difference was absent at 20% ethanol intake ($p=0.38$). Following abstinence, GAERS escalated preference across relapse sessions, from 40% to 62% ($p=0.002$), while NEC did not (36% to 38%, $p=0.50$; interaction $p=0.022$), in both sexes. Quinine suppressed intake ($p<0.0001$) but identically across groups ($p=0.77$; interaction $p=0.93$).

CONCLUSION: GAERS drank more and relapsed more but were not more compulsive, and this was not explained by anxiety- or depression-like behaviour. Epilepsy appears to confer partial, not global, vulnerability to AUD.

Monash School of Translational Medicine Prize for Neuroscience Research

PERIPHERAL INNATE IMMUNE BIOMARKERS IN MULTIPLE SCLEROSIS RELAPSE VERUS REMISSION

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The mechanisms driving relapse in multiple sclerosis (MS), including the role of the innate immune system, remain poorly understood. Accurate diagnostic tools are lacking and may not reliably distinguish relapse from remission or pseudo-relapse. Understanding innate immune mechanisms and identifying objective biomarkers of relapse are therefore important unmet needs.

AIM: To characterise innate immune responses in MS patients via analysis of peripheral immune cell ratios, monocyte cell surface markers and the innate immune receptor P2X7 receptor (P2X7R) across relapse and remission.

METHODS: Paired whole blood samples were prospectively collected from 57 MS patients during relapse and remission. From this we derived multiple cell ratios including the neutrophil to lymphocyte ratio (NLR), monocyte to lymphocyte ratio (MLR), platelet to lymphocyte ratio (PLR) and the systemic immune inflammation index (SII: neutrophils × platelets/ lymphocytes). Isolated monocytes were analysed via flow cytometry whereby both phenotypic profiling (using the following markers: CD11b, HLADR, CD14, CD16 and P2X7R) and functional assays (measuring the pore activity of the P2X7R receptor) were performed. Soluble P2X7R in plasma was measured via ELISA. Results from all experiments were compared across disease states and correlated with clinical outcomes using linear mixed modelling and logistic regression.

RESULTS: Monocyte counts were lower in relapse versus remission (p=0.046) whilst NLR was higher (p=0.049). This decrease in peripheral monocytes during relapse was associated with presence of a new lesion on MRI brain (OR=0.012, p=0.048). The $CD14^{lo}$ $CD16^{+}$ population of monocytes was lower during relapse compared to remission (p=0.032). P2X7R expression was lower during relapse on both $CD14^{+}$ $CD16^{-}$ (p=0.026) and $CD14^{+}$ $CD16^{+}$ (p=0.040) monocytes, with lower soluble P2X7R levels also detected in plasma (p=0.035).

CONCLUSION: These findings provide new insights into the innate immune mechanisms underlying MS relapse and may support the development of objective biomarkers to more accurately distinguish relapse from remission.

Monash School of Translational Medicine Prize for Neuroscience Research

BASELINE NEUROLOGICAL COMORBIDITY AND IMMUNE EFFECTOR CELL-ASSOCIATED NEUROTOXICITY FOLLOWING CAR-T CELL THERAPY: A PROSPECTIVE COHORT STUDY

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AIM: To evaluate the association between baseline neurological factors, including comorbidities and examination findings, and the development of ICANS following CAR-T cell therapy.

METHODS: We conducted a prospective cohort study of consecutive adults undergoing CAR-T therapy for B-cell lymphoma, B-cell acute lymphoblastic leukaemia (B-ALL), or multiple myeloma at The Alfred Hospital, between July 1, 2022 and March 31, 2026. All patients underwent a neurologist-led, structured baseline neurological assessment and brain MRI before infusion, followed by daily neurological review for at least 14 days and longitudinal follow-up for up to two years. Baseline central and peripheral nervous system comorbidity were defined according to neuroimmunology consensus. Univariable and multivariable logistic regression evaluated associations between baseline clinical variables and all-grade or high-grade (grade ≥3) ICANS.

RESULTS: A total of 203 patients were included in the analysis. Median age was 67.7 years (IQR 58.3–73.3), and 132 (65.0%) patients were male. Most patients had lymphoma (149 [73.4%]), followed by multiple myeloma (45 [22.2%]) and B-ALL (nine [4.4%]). ICANS occurred in 65 (32.0%) patients, including 25 (12.3%) with high-grade ICANS. On multivariable analysis, baseline central nervous system (CNS) comorbidity was independently associated with ICANS (OR 3.49, 95% CI 1.42–9.09, p=0.008) and high-grade ICANS (OR 5.35, 95% CI 1.84–15.46, p=0.002). In a lymphoma-only analysis, CNS comorbidity was the only variable independently associated with all-grade ICANS (OR 4.62, 95% CI 1.71–14.13, p=0.004).

CONCLUSION: Pre-existing CNS comorbidity was the most consistent baseline predictor of ICANS following CAR-T cell therapy. These findings suggest that pre-existing CNS vulnerability contributes to ICANS susceptibility and support structured neurological assessment before infusion as a component of pre-CAR-T risk stratification.

Monash School of Translational Medicine Prize for Neuroscience Research

PLASMA PROTEOME IN LGI-1 AUTOIMMUNE ENCEPHALITIS

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AIM: Leucine-rich glioma-inactivated antibody associated autoimmune encephalitis (LGI-1 AE) is a rare neuroinflammatory disease resulting in seizures and cognitive impairment. We have previously identified perturbations of peripheral innate immune cells (monocytes) in LGI-1 AE in the treated (chronic) phase. To further understand these changes, we performed a proteomic analysis of plasma from individuals with LGI-1 AE in the untreated (acute) and chronic phase of the illness.

METHODS: We perfomed high-throughput proteomic profiling on plasma samples from nine acute and 27 chronic LGI-1 AE participants and 16 age- and sex-matched controls using the SomaLogic 11k proteomic panel and differentially expressed proteins (DEP) were identified using limma. Bulk RNA sequencing was performed on monocytes from ten of the participants with chronic LGI-1 AE and 28 controls. Pathway analysis was performed on both datasets with gene set enrichment analysis.

RESULTS: We identified 1230 DEP in the acute cohort compared with the healthy cohort. Upregulated proteins included proteins related to innate immune activation, chemoattractants for myeloid cells, components of the complement cascade as well as lymphocyte signalling and activation molecules. Downregulated pathways included those related to autophagy. Monocyte transcriptomic analysis revealed 18 upregulated and 170 downregulated genes, highlighting IL-6 as a key upregulated gene..

CONCLUSIONS: We identified IL-6 signalling and activation of the terminal complement cascade as potential pathophysiological mechanisms, highlighting opportunities for therapeutic repurposing using existing agents in LGI-1 AE. In addition, the observed suppression of autophagy- related pathways suggests a previously underappreciated mechanism that may contribute to disease pathogenesis, warranting further investigation.

Monash School of Translational Medicine Prize for Neuroscience Research

CHRONIC LESION EXPANSION AS A PREDICTOR OF DISABILITY PROGRESSION IN RELAPSING MULTIPLE SCLEROSIS

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AIM: Radiological biomarkers of chronic lesion activity are potential prognostic and monitoring tools in multiple sclerosis (MS) but require further validation. Our objective was to determine whether chronic lesion tissue expansion (CLTE), measured across three magnetic resonance imaging (MRI) scans, is associated with disability progression independent of relapse activity (PIRA).

METHOD: This cohort study used data collected prospectively at six Australian tertiary MS centres. Inclusion criteria were a diagnosis of relapsing-remitting MS (RRMS) or clinically isolated syndrome, three suitable MRI scans, at least 1 mL of intracranial T2 lesion volume at baseline and sufficient clinical follow-up to potentially record confirmed PIRA events. CLTE was measured using an established pipeline. Associations between CLTE and PIRA were evaluated using adjusted Cox proportional hazards models.

RESULTS: Among 261 participants (74.3% women), mean (SD) age at baseline clinical visit was 44.9 (10.4) years and clinical follow-up was 3.7 (1.2) years. PIRA was experienced by 34 participants (13.0%). During the first 12 months of follow-up, CLTE was not associated with PIRA, but thereafter, a higher rate of CLTE (mL) was significantly associated with a higher hazard of PIRA (HR, 1.35; 95% CI 1.09–1.67; p = 0.007).

CONCLUSION: CLTE is associated with subsequent PIRA in RRMS, highlighting its potential utility as a prognostic and monitoring marker. The clinical lag in this relationship suggests that CLTE drives insidious tissue damage; however, a histopathological correlation study is required to definitively confirm whether CLTE is a specific biomarker of smouldering inflammation.

Monash School of Translational Medicine Prize for Neuroscience Research

THE EFFECT OF NEUROPEPTIDE Y ON SEIZURE CONTROL IN PRECLINICAL ANIMAL MODELS OF EPILEPSY ABSTRACT

Gurmeet Gurmeet, Afaf S. Altalhi, Nigel C. Jones, Tamara L. Baker, Muhammad S. Javaid, Bianca Jupp, Terence J. O'Brien, Ana Antonic-Baker

Introduction: Drug-resistant epilepsy remains a major clinical challenge and better approaches to seizure control are needed. Neuropeptide Y (NPY) is an endogenous neuromodulator widely expressed in the brain and has been investigated for its ability to reduce seizures by limiting neuronal excitability, primarily through Y2 receptor signalling. This study evaluated the antiseizure efficacy of exogenous NPY-based interventions in animal models of epilepsy.

Methodology: We used multiple databases such as Ovid MEDLINE, Ovid Embase, and Web of Science to identify controlled in vivo studies in which NPY was the primary intervention and quantitative seizure outcomes were measured. Covidence was used for screening and study selection, and CAMARADES for meta-analysis and meta-regression. Normalized effect sizes were calculated as percentage improvement in seizure outcomes and pooled using a random-effects model. Heterogeneity was assessed using I^2, subgroup meta-analysis, and meta-regression.

Results: Of 958 studies identified, 21 publications met the inclusion criteria, where NPY improved seizure outcomes by 42.2% (95% CI, 35.9–48.6), with substantial heterogeneity ($I^2 = 83.0\%$, $\tau^2 = 612.7$, $p < .01$). Epilepsy model, animal sex, route of administration, targeted brain region, and laterality were significantly associated with treatment-effect heterogeneity, with route of administration accounting for the greatest proportion of heterogeneity ($R^2 = 39.44\%$). Egger's regression indicated significant small-study effects ($p = .0086$), while trim-and-fill analysis predicted missing studies. The PTZ model showed a larger pooled effect than the kainic acid model, while unspecified animal sex showed a larger pooled effect than male-only studies.

Conclusion: NPY showed an anticonvulsant effect across preclinical epilepsy models, while efficacy varied with experimental design, intervention and seizure models. These findings provide quantitative evidence that NPY may have the potential to improve seizure control.

Monash School of Translational Medicine Prize for Neuroscience Research

POPULATION-BASED BRAIN TEMPLATES FOR ULTRA-LOW-FIELD MRI

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AIM: Ultra-low-field (ULF) magnetic resonance imaging (MRI) is increasingly used for point-of-care neuroimaging; however, standardized population-based brain templates tailored to ULF image characteristics are not available. We aimed to develop and publicly release the first population-based and age-specific brain templates for 64 mT ULF MRI.

METHODS: Brain templates were constructed from T1- and T2-weighted MRI acquired in 100 healthy adults (18–81 years) using a portable 64 mT MRI scanner. Images underwent bias-field correction, skull stripping, isotropic resampling, affine registration, and iterative nonlinear registration using Advanced Normalization Tools (ANTs). Population-wide and age-stratified templates were generated for young, middle-aged, and older adults. Template quality was evaluated using anatomical correspondence, inter-subject coefficient of variation, and deformation-based morphometry.

RESULTS: Iterative nonlinear registration substantially improved anatomical definition and reduced inter-subject variability. Median coefficient of variation decreased by approximately 73% for T1-weighted images and 54% for T2-weighted images following template refinement. The resulting templates demonstrated anatomically coherent cortical and subcortical structures and captured biologically plausible age-related differences, including ventricular enlargement and regional morphological variation. Population and age-specific templates, segmentation resources, and the complete processing pipeline have been released as open-access resources.

CONCLUSION: We present the first publicly available population-based brain templates specifically developed for 64 mT ultra-low-field MRI. These resources provide standardized spatial references for image normalization, atlas-based analysis, quantitative neuroimaging, and development of future AI methods, supporting reproducible research and broader adoption of portable MRI.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

PREDICTING TREATMENT DELAYS IN LUNG CANCER USING MACHINE LEARNING: A POPULATION-BASED STUDY.

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Aim: To use machine learning (ML) approaches to identify and compare patient- and health service-level factors associated with delays from lung cancer diagnosis to treatment (>14 days) among patients with non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC) in Victoria, Australia.

Method: Using data from 10,969 patients in Victoria, Australia, ML algorithms were employed to identify key predictors of treatment delays associated with NSCLC and SCLC. Twelve commonly used ML algorithms were applied and their performances were compared using various performance metrices including ROC, Precision-Recall and Calibration curves.

Results: For NSCLC, the Extreme Gradient Booster model had the highest performed metrics (precision 64.7%, ROC 72.2%). Delays were more likely in patients with earlier-stage NSCLC, older age, and completion of supportive care screening. For SCLC, the Naïve Bayes model performed better in several metrics (precision 58.3%, ROC 62%). Delays for patients with SCLC were associated with not receiving guideline-concordant treatment, supportive care screening completion, discussion at a multidisciplinary meeting (MDM), older age, and treatment at inner-regional hospitals. While MDMs and supportive care assessments improve clinical decision-making and adherence to guidelines, they were linked to longer times to treatment.

Conclusion: ML models effectively identified predictors of delays to treatment in lung cancer, revealing differences between NSCLC and SCLC and across cancer stages. These findings emphasize the importance of balancing comprehensive and guideline-concordant care with timely treatment initiation. Streamlining care pathways, improving regional hospital resources, and integrating supportive care screening may efficiently help reduce delays and improve outcomes for patients across all stages of lung cancer.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

REAL-WORLD HER2 TESTING IN ADVANCED GASTRIC/GOJ CANCER IN AUSTRALIA: A RETROSPECTIVE REVIEW OF PATHOLOGY LABORATORIES.

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Aim: To assess adherence to local GaTHER guideline recommendations for HER2 testing in advanced gastric/gastro-oesophageal junction (GOJ) cancers, and to characterise real-world HER2 testing practices, including biopsy adequacy, HER2 positivity rates, ISH testing characteristics, and the reported number of tumour-containing biopsy fragments across Australian pathology laboratories.

Method: This was a retrospective, multicentre review of de-identified pathology reports from eight Australian pathology laboratories. Each laboratory contributed 50 consecutive eligible cases of advanced gastric/GOJ cancer diagnosed on or before 31 December 2024, yielding 400 reports. The primary endpoint was adherence to the overall GaTHER guideline recommendations for HER2 testing (≥5 tumour-containing biopsy fragments). Secondary outcomes included HER2 testing practices, IHC and ISH results, biopsy adequacy, and HER2 positivity rates. Descriptive statistics were used to summarise data. Data collection and analysis were conducted in 2025–2026.

Results: Of 400 reports, 69.5% were endoscopic biopsies, 16.0% resection specimens, and 13.0% metastatic biopsies. Among endoscopic biopsies (n=278), 58.3% had ≥5 tumour-containing biopsy fragments and 36.0% had <5 fragments. Overall HER2-IHC (n=400) distribution was 0 (27.0%), 1+ (10.0%), 2+ (45.5%), and 3+ (17.0%). Remaining reports (0.5%) had no documentation of HER2-IHC score. Confirmatory ISH testing was performed in 97.6% of IHC 2+/3+ cases, with SISH most commonly used (55%). Among ISH-tested cases (n=244), HER2 amplification was identified in 38.5% and no amplification in 61.5%, with an overall HER2 positivity rate of 23.5%.

Conclusion: This study demonstrates high adherence to guideline-recommended confirmatory HER2-ISH testing where indicated, but highlights variability in biopsy adequacy. These findings suggest that improvements in pre-analytical sampling and standardised reporting are needed to ensure consistent and accurate HER2 assessment. Future efforts should focus on optimising biopsy practices and standardise pathology reporting to reduce variability and to support equitable access to targeted therapies.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

BUILDING A SKILLED AND CONFIDENT CAR-T NURSING WORKFORCE: ASSESSING THE IMPACT OF NURSE-LED CAR-T EDUCATION

Cassandra Abbott[1] Pippin Ellis[1], Olivia Cook[1'2], Ty Simpson[1], Georgina Lea[1], Caitlin Wesols[1], Madeleine Sloane[1], Yumei Lew[1], Elli Foley[1], Aaron Hill[1], Christina Kazzi[1'2], Miriam WronskiÂ[1]Ë'Â[2], Katherine Ko[1'2], Elizabeth Cole[1'2], Akshay Bapat[1], Nermen Tawfik[1], Jian Li[1'2], Shu Min Wong[1], Shafqat Inam[1], Shevon FernandoÂ[1], Michael SwainÂ[1], Mastura MonifÂ[1]Ë'Â[2], Danielle LeeÂ[1], Ellen Heywood[1], Constantine Tam[1'2], Andrew Spencer

Background: Chimeric Antigen Receptor T-cell (CAR-T) therapy is a highly specialised treatment that re-engineers a patient's immune cells and is associated with significant toxicities. Early recognition of patient deterioration and timely delivery of specialised care are critical. To support workforce capability, a comprehensive nurse-led CAR-T education day was developed.

Aim: To evaluate the impact of a nurse-led CAR-T education day on participants' knowledge and confidence in caring for people receiving CAR-T therapy.

Methods: A multidisciplinary curriculum was designed around the CAR-T patient journey, from assessment to post-treatment recovery. Topics included CAR-T mechanisms, T-cell collection, cell processing, Immune Effector Cell-Associated Neurotoxicity Syndrome (ICANS), emerging clinical trial evidence, and medication management. Evaluation used a pre- and post-education survey design. Knowledge was self-rated across nine domains using a five-point Likert scale, while confidence was measured on a 0-10 scale (0 = not at all confident; 10 = very confident). Descriptive statistics and independent samples t-tests were used, with significance set at $p<0.05$.

Results: Between March 2023 and November 2025, nine education days were delivered to 255 participants. Pre- and post-education surveys were completed by 239 and 218 participants, respectively. Attendees included registered nurses (47.1%), clinical trial coordinators (21%), clinical nurse specialists/ consultants (11.2%), nurse managers (9.2%), nurse educators (2.5%), ICU liaison nurses (2.5%), scientists (1.5%), and others (5%). Significant improvements in self-assessed knowledge were observed across all domains ($p<0.001$), with mean scores increasing from 2.54-3.32 before education to 4.30-4.58 afterwards. Confidence also improved significantly, increasing from a mean of 5.20 to 8.18 ($p<0.001$).

Conclusion: A structured, nurse-led CAR-T education day significantly improved participants' knowledge and confidence in CAR-T care. As CAR-T therapies continue to expand, specialised nursing education remains essential for building a skilled workforce and supporting optimal patient outcomes.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

STUDYING T CELL ECTOSOMES IN T CELL SURVEILLANCE

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T cells recognise antigen-presenting cells by forming immune synapses, which coordinate activation and effector function. We recently discovered that T cells release activated T cell receptors (TCRs) in membrane vesicles called ectosomes at the end of immune synapses. This challenges the prevailing view that TCR downregulation after stimulation occurs primarily through degradation and suggests that T cells may transfer information to neighbouring cells.

AIM: To study the biogenesis, composition, and dynamics of T cell ectosomes in T cell surveillance using advanced imaging techniques.

METHODS: We combined high-throughput live-cell imaging and super-resolution confocal microscopy to track immune synapse formation and ectosome behaviour. Isolated ectosomes were characterised using cryo-electron tomography (Cryo-ET) and nanoparticle tracking analysis. RNA sequencing was performed on cell lines treated with ectosomes containing matching or non-matching TCRs to investigate their effects on target-cell signalling.

RESULTS: The number of ectosomes released by individual T cells increased with stimulation strength. Unexpectedly, ectosomes were produced not only following mature immune synapse formation, but also during antigen scanning of antigen-negative cells and from membrane nanotube tethers. Ectosomes deposited during antigen scanning remained on target-cell surfaces for several hours, whereas those released at mature synapses were predominantly internalised. Isolated ectosomes had a median diameter of approximately 150 nm and varied substantially in size and internal cargo by Cryo-ET. RNA sequencing showed that ectosome treatment induced transcriptional changes associated with antigen presentation and cellular stress in a B cell line, but not in a melanoma cell line. These effects were independent of TCR engagement.

SIGNIFICANCE: Our findings reveal that T cells release ectosomes in multiple contexts, including during antigen scanning before mature immune synapse formation. Ectosomes can persist on target-cell surfaces or be internalised and alter target-cell gene expression independently of TCR recognition, identifying ectosomes as a previously underappreciated mechanism of T cell communication.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

PA28Aβ PROMOTES TUMOUR GROWTH AND SHAPES THE HLA-I IMMUNOPEPTIDMOE IN LUNG CANCER

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Immune checkpoint blockade (ICB) is the first-line treatment for advanced non-small cell lung cancer (NSCLC), yet durable responses are achieved in only ~40% of NSCLC patients. Our previous studies have reported that elevated expression of the proteasome activator PA28αβ, encoded by *PSME1* and *PSME2*, is associated with improved response to ICB; however, the functional role of PA28αβ in lung cancer remains poorly understood.

AIM: To define the tumour-intrinsic and immune-regulatory functions of PSME1/PSME2 in lung cancer.

METHODS: PSME1/PSME2 expression and survival associations were assessed using TCGA lung cancer datasets. PSME1 was knocked out by CRISPR-Cas9 in NCI-H441 lung cancer cells. Cell proliferation and proteasome activity were measured, and HLA-I-associated peptides were profiled by mass spectrometry-based immunopeptidomics in wild-type and PSME1-knockout cells with or without IFN-γ treatment. Total protein abundance was assessed by mass spectrometry.

RESULTS: *PSME1* and *PSME2* mRNA expression was elevated in lung cancer tissues compared with adjacent normal tissues, and higher *PSME2* expression was associated with poorer survival. *PSME1* knockout markedly reduced *PSME2* protein abundance, cell proliferation and proteasome activity, supporting a tumour-intrinsic role for PA28αβ in promoting cancer-cell fitness. Although the total number of HLA-I-bound peptides was similar between wild-type and PSME1-knockout cells, IFN-γ-treated PSME1-knockout cells showed reduced presentation of HLA-I peptides derived from the cancer-associated proteins POTEE, PGK1 and HSPB1. Importantly, the total abundance of these source proteins was unchanged, suggesting that PSME1 regulates their antigen processing or presentation rather than protein expression.

CONCLUSION: These findings identify a potential dual role for PA28αβ in lung cancer: supporting tumour-cell growth while selectively shaping the HLA-I immunopeptidome. This dual function may help explain why high *PSME1/PSME2* expression is associated with poor prognosis yet improved response to ICB and provides a rationale for further investigation of PA28αβ as a biomarker and therapeutic target in lung cancer immunotherapy.

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CANCER OR NON-CANCER DEATH AFTER COLORECTAL CANCER SURGERY: PREDICTING COMPETING RISKS FOR CLINICAL CARE

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After colorectal cancer surgery, the risk of dying from cancer competes with the risk of dying from other illnesses. For older and medically complex patients, separating these risks may provide more useful information than estimating all-cause mortality alone.

AIM: To determine whether routinely available clinical information can distinguish cancer-related from non-cancer mortality after colorectal cancer surgery, and whether a machine-learning approach improves clinically relevant prediction.

METHOD: We analysed 3,048 patients from the Cabrini Monash Colorectal Neoplasia Database (CMCND), using data from Cabrini Hospital and Alfred Hospital. Cancer-related and non-cancer deaths were modelled simultaneously so that each patient received coherent estimates of cancer-death risk, non-cancer-death risk and survival. Conventional competing-risk models were compared with a neural-network approach and evaluated in patients not used for model development.

RESULTS: During follow-up, 441 patients died from colorectal cancer and 188 from non-cancer causes. At five years, the cumulative risk was approximately 16% for cancer-related death and 7% for non-cancer death. Conventional and machine-learning approaches showed very similar five-year predictive performance; the neural network did not demonstrate a clear overall advantage. The clinical drivers differed by cause: advanced cancer characteristics contributed more strongly to cancer-related mortality, whereas non-cancer mortality was closely related to age and physiological health. Patients aged 75 years or older, those with ASA class III-IV and those with high comorbidity burden had markedly greater non-cancer mortality.

CONCLUSION: Two patients with similar cancers may have substantially different overall prognoses because of competing health risks. Separating cancer and non-cancer mortality may improve postoperative counselling, survivorship planning and multidisciplinary decision-making, particularly for older and comorbid patients. External validation is required before clinical implementation.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

DOES DELAYED SYSTEMIC THERAPY AFFECT SURVIVAL AFTER STAGE IV COLORECTAL CANCER RESECTION?

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After surgery for stage IV colorectal cancer, recovery can delay systemic therapy. Whether this delay is associated with poorer survival remains clinically important.

AIM: To examine whether failure to commence systemic therapy within 42 days of discharge was associated with subsequent overall survival, with 60- and 90-day landmarks as secondary analyses.

METHOD: We analysed 423 patients who underwent resection for stage IV colorectal cancer at Cabrini and Alfred hospitals. The primary analysis included patients alive and under follow-up 42 days after discharge. Treatment status was defined at day 42, and survival was measured from that landmark to reduce immortal-time bias. Multivariable Cox models adjusted for age, sex, hospital sector, ASA class, operative urgency, treatment intent, postoperative complications, tumour site and nodal stage. Because the treatment association changed over time, time-varying hazard ratios were used for interpretation.

RESULTS: At 42 days, 345 patients were eligible: 153 had commenced systemic therapy, and 192 had not. The adjusted analysis included 308 patients and 197 deaths. Failure to commence therapy by day 42 was associated with higher early mortality: HR 2.65 (95% CI, 1.44-4.85) at 3 months and HR 1.81 (95% CI, 1.16-2.80) at 6 months. The association attenuated and was no longer statistically significant by 1 year. Secondary 60- and 90-day analyses showed the same pattern, with stronger early associations at later treatment thresholds.

CONCLUSION: Failure to commence systemic therapy within 42 days of discharge was associated with substantially higher early mortality after resection of stage IV colorectal cancer. These findings support early postoperative recovery, timely oncology review and coordinated transition to systemic therapy, while recognising that treatment timing may also reflect complications, disease burden and patient fitness.

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TOWARDS BESPOKE TARGETING OF CANCER TARGETS USING AI-DESIGNED PROTEIN BINDERS

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Multiple myeloma is characterised by clonal plasma-cell expansion and production of a monoclonal immunoglobulin with a clonotypic variable region. These distinctive molecular features provide highly selective recognition sites, but developing bespoke binders by conventional experimental screening can be slow and resource intensive. AI-enabled de novo protein design may provide a faster route from target structure to experimentally testable candidates.

AIM: To determine whether structure-based de novo design can generate candidate protein binders against the variable-region surface of Newm Fab (PDB 7FAB), a human myeloma-derived IgG1 fragment.

METHODS: Hotspot residues spanning the unique surfaces were defined as the intended binding site. Candidate binders were generated using BindCraft, followed by ProteinMPNN sequence design and AlphaFold2-based complex validation. Designs were filtered using predicted structural confidence and interface-quality criteria, and accepted candidates were evaluated for sequence and backbone diversity.

RESULTS: A total of 206 designs passed the predefined computational filters, comprising 206 unique sequences derived from 140 distinct design backbones. Accepted candidates showed favourable predicted structural and interface confidence, with a median binder pLDDT of 0.93 and median i_pTM of 0.79. Nearly half of the designs (93/206) achieved i_pTM ≥0.80. Re-predicted complexes largely retained the intended binding geometry, with a median hotspot RMSD of 2.02 Å, yielding a broad candidate pool for diversity-guided experimental prioritisation.

CONCLUSION: AI-enabled structure-based design can rapidly generate diverse, computationally high-confidence candidate binders against a clonotypic myeloma immunoglobulin surface. By narrowing the molecular search space before laboratory testing, this approach offers a route towards bespoke molecular recognition reagents for clone-specific cancer-associated targets.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

LANDSCAPE OF T-CELL LEVERAGING THERAPIES IN METASTATIC MELANOMA

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AIM: Modern melanoma therapies rely on T-cell function. Although immune checkpoint inhibitors have revolutionised the treatment of metastatic melanoma, a significant proportion of patients have suboptimal responses. Tumour infiltrating lymphocytes (TILs) are effective but challenging to administer. Better therapies are needed. Newer therapies harness T-cells and the T-cell receptor (TCR) to augment antigen-directed cytotoxicity: T-cell engagers (TCEs) (eg. tebentafusp– the first TCE with survival benefit in uveal melanoma), engineered TILs (eTILs), chimeric antigen receptor T-cell therapies (CAR-T) and TCR-therapies (TCR-T). We review the status of emerging T-cell leveraging therapies in metastatic melanoma and identify areas for further development.

METHOD: Medline, Embase and PubMed databases and the Clinical Trials Register (clinicaltrials.gov) were searched from 2000 to 2026, using keywords related to advanced/metastatic melanoma, clinical trials and T-cell therapies. Active, recruiting or completed trials were identified. All identified trials were checked for any published results (articles or abstracts), which were also included.

RESULTS: In total 30 reports and 35 active or completed clinical trials, representing 67 individual drugs were identified. The majority were TCR-Ts (41.8%) and eTILs (31.3%), CAR-Ts (19.4%) and TCEs (7.5%). The cancer testis antigens (37.3%) and melanocyte differentiation antigens (22.4%) were the most common targets. Cytokine or chemokine-regulator transduction was a frequent approach in eTILs. Most agents (62.7%) were restricted to patients with certain human leukocyte antigens. Almost all (61/65) studies were early phase trials, with variable early efficacy data. One study (PRISM-MEL-301) was in the first-line setting.

CONCLUSION: T-cell leveraging therapies in metastatic melanoma are a growing frontier, evidenced by numerous active early phase trials. Although these therapies may improve the treatment paradigm, mature results and later phase trials are required. Future studies should focus on enhancing anti-tumour activity with compromising safety, overcoming HLA-restriction and better patient selection.

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PATIENT-REPORTED QUALITY OF LIFE OUTCOMES AFTER CHIMERIC ANTIGEN RECEPTOR T-CELL THERAPY: IMPLICATIONS FOR ICANS RISK STRATIFICATION AND MANAGEMENT

Christina Kazzi[1,2], Lauren Melitsis[1], Daniel Pearce[1,2], Miriam Wronski[1,2], Nabil Seery[1,2], Tracie Tan[1,2], Robb Wesselingh[1,2], Cassandra Abbott[3], Ty Simpson[3], Jian Li[3], Elizabeth Cole[1,2], Michael Westworth[1], Sriyani Parsons[3], Tiffany Rushen[1], Shafqat Inam[3], Helmut Butzkueven[1,2], Anneke Van Der Walt[1,2], Harshal Nandurkar[3,4], Constantine S Tam[3,4], Shaun Fleming[3,4], Salvatore Fiorenza[3,4], Terence O'Brien[1,2], Rubina Alpitsis[1,2,5], Andrew Spencer[3,4], Charles B Malpas[1,6,7], Mastura Monif[1,2]

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AIM: Chimeric antigen receptor T-cell therapy (CAR-T) is changing the treatment of haematological malignancies; however, the associated toxicities, such as immune effector cell-associated neurotoxicity syndrome (ICANS), are potentially life-threatening. To date, research on ICANS has focused primarily on clinical outcomes, which may not accurately reflect patients' lived experiences.

METHODS: Eighty-eight CAR-T recipients (69% male, median age=67.8 years) completed questionnaires from the Quality of Life in Neurological Disorders scales and Patient-Reported Outcomes Measurement Information System at pre-infusion, inpatient review (median=8 days), and chronic review (median=6.5 months).

RESULTS: Thirty-one (35%) patients developed ICANS. In a multivariable logistic regression, poorer pre-infusion self-reported cognitive function was associated with higher odds of developing ICANS (OR=2.50, 95% CI 1.07–5.85, p=.034). Anxiety, depression, fatigue, sleep disturbance, and pain scores were not significant predictors. Rates of clinically elevated symptoms of Anxiety and Depression were low (<21%) across ICANS groups and time points. Rates of clinically elevated Sleep Disturbance were most commonly reported by the ICANS group during admission (41%), and this improved at the chronic review, such that rates were similar to baseline. Fatigue mirrored Sleep Disturbance. Rates of clinically elevated Pain Interference remained similar across ICANS groups and timepoints. Clinically elevated Cognitive Function symptoms remained stable across time in the no-ICANS group (11–15%), and improved in the ICANS group (54% with clinically elevated symptoms at baseline vs 15% at the chronic review).

CONCLUSION: Patients with greater pre-infusion cognitive complaints may be at increased risk of ICANS. This finding can improve risk stratification for toxicity management. Finally, while the ICANS group reported greater symptoms on several questionnaires across most timepoints than the non-ICANS group, symptom severity often fell within normative limits at chronic review. Hence, CAR-T is not associated with long-term deterioration in quality of life. This is a reassuring finding for patients with haematological cancers.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

STUDYING T CELL ECTOSOMES IN T CELL SURVEILLANCE

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T cells recognise antigen-presenting cells by forming immune synapses, which coordinate activation and effector function. We recently discovered that T cells release activated T cell receptors (TCRs) in membrane vesicles called ectosomes at the end of immune synapses. This challenges the prevailing view that TCR downregulation after stimulation occurs primarily through degradation and suggests that T cells may transfer information to neighbouring cells.

AIM: To study the biogenesis, composition, and dynamics of T cell ectosomes in T cell surveillance using advanced imaging techniques.

METHODS: We combined high-throughput live-cell imaging and super-resolution confocal microscopy to track immune synapse formation and ectosome behaviour. Isolated ectosomes were characterised using cryo-electron tomography (Cryo-ET) and nanoparticle tracking analysis. RNA sequencing was performed on cell lines treated with ectosomes containing matching or non-matching TCRs to investigate their effects on target-cell signalling.

RESULTS: The number of ectosomes released by individual T cells increased with stimulation strength. Unexpectedly, ectosomes were produced not only following mature immune synapse formation, but also during antigen scanning of antigen-negative cells and from membrane nanotube tethers. Ectosomes deposited during antigen scanning remained on target-cell surfaces for several hours, whereas those released at mature synapses were predominantly internalised. Isolated ectosomes had a median diameter of approximately 150 nm and varied substantially in size and internal cargo by Cryo-ET. RNA sequencing showed that ectosome treatment induced transcriptional changes associated with antigen presentation and cellular stress in a B cell line, but not in a melanoma cell line. These effects were independent of TCR engagement.

SIGNIFICANCE: Our findings reveal that T cells release ectosomes in multiple contexts, including during antigen scanning before mature immune synapse formation. Ectosomes can persist on target-cell surfaces or be internalised and alter target-cell gene expression independently of TCR recognition, identifying ectosomes as a previously underappreciated mechanism of T cell communication.

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DIETITIAN-LED INTEGRATION OF CT BODY COMPOSITION ASSESSMENT INTO NUTRITION CARE PATHWAYS FOR OESOPHAGOGASTRIC CANCER SURGERY

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BACKGROUND: Malnutrition and poor muscle health are prevalent in patients with oesophagogastric cancer and are associated with poor outcomes. However, body composition assessment is not routinely implemented in clinical practice. This project aimed to assess the feasibility of incorporating computed tomography (CT) body composition analysis into nutrition care pathways for patients undergoing oesophagogastric cancer surgery.

METHODS: A prospective quality improvement project was conducted. All patients who underwent curative-intent treatment for oesophagogastric cancer at a tertiary hospital were included. A literature review was conducted to identify optimal methods to assess body composition in clinical practice. Stakeholder engagement included radiologists, surgeons, oncologists, dietitians, nurses, and consumers. Diagnostic and restaging CT images were utilised to assess skeletal muscle mass (cross-sectional area) and muscle attenuation (Hounsfield Units) for incorporation into nutrition risk assessments. Feasibility outcomes included workforce capability and integration into clinical workflows.

RESULTS: Dietitians were deemed by stakeholders the most suitable health professionals to complete CT body composition assessment, as CT analysis could be integrated into existing dietitian workflows and was supported by adequate resource allocation. Two dietitians were trained in CT body composition analysis using manual and automated segmentation software. Both demonstrated competency in accurate image segmentation, applying standardised protocols, and interpreting skeletal muscle mass and quality from routine CT imaging. Automated segmentation software was deemed more efficient and appropriate for clinical practice to optimise workforce capability. Dietitians independently completed CT body composition assessments within clinical workflows.

CONCLUSION: A dietitian-led nutrition care pathway integrating CT body composition analysis into the surgical management of oesophagogastric cancer is feasible. Key components of the pathway include successful training of dietitians using body composition analysis software. Further evaluation of this project will include validation of automated CT analysis against manual segmentation, required to support broader adoption in clinical care pathways and scalability to other cancer cohorts.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

DEVELOPING PHOSPHORYLATED ERK2 (PERK2) SPECIFIC *DE NOVO* PROTEIN BINDERS

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The RAS-RAF-MEK-ERK1/2 MAPK pathway is dysregulated in approximately 40% of all cancers. Phosphorylated ERK (pERK) is the terminal signalling node and hence acts as a compelling therapeutic target but current ERK inhibitors in development act in a panERK fashion.

AIM: To develop *de novo* protein binders specific to pERK2 using AI-driven protein design tools and to experimentally validate binder expression and preliminary specificity for pERK over ERK.

METHODS: 205 pERK2-specific binder candidates were designed using BindCraft, with PDB: 2ERK and hotspot residues for the activation loop and other conformation-specific residues coded as inputs. 132 candidates achieved RMSD ≤2.0 Å by Boltz-2, and 42 passed confidence metric filters (ipTM ≥0.8, pLDDT ≥0.85, ipAE ≤0.3). Remaining candidates were ranked by a novel Clash Selectivity Score (ERK2 clashes / pERK2 clashes), and the top 20 progressed to experimental validation. A co-immunoprecipitation assay was performed, in which Expi-293F cells were transfected with His-tagged binders, co-incubated with endogenous pERK/ERK (sourced from lysate of EGF-stimulated HEK-293T cells). Eluted binder complexes were visualised by Western Blot (pERK1/2, pan-ERK1/2 and His-tag stains).

RESULTS: Western blotting revealed that 18 of 20 binders expressed in HEK-293T or Expi-293F cells, 14 binders pulled down total ERK, including 6 binders that demonstrated binding to pERK (specificity for phosphorylated over unphosphorylated ERK remains unconfirmed).

CONCLUSION: This study yielded the first known *de novo* protein binders for pERK2. 6 binders successfully bound pERK2, though cross-reactivity to unphosphorylated ERK2 is yet to be determined. Future work will evaluate binding affinity and phospho-state selectivity. If proved to be specific to the active conformation, these binders would be valuable to investigate in functionalisation studies to form the foundation for novel pERK-targeted therapeutics.

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DE NOVO PROTEIN BINDERS DIRECTLY TARGET MYC AND REPROGRAM ONCOGENIC CELLULAR STATES

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MYC pathway deregulation is estimated to be involved in 70% of cancers, making it one of the most frequently deregulated pathways. Despite its broad therapeutic relevance, direct targeting of MYC remains challenging because of its intrinsically disordered structure.

AIM: To develop de novo designed protein binders that directly target MYC and perturb MYC-dependent cancer cell programmes.

METHODS: De novo MYC binders were generated using a computational protein design pipeline incorporating RFdiffusion, ProteinMPNN and AlphaFold2. Binder interaction with MYC was assessed by co-immunoprecipitation and size-exclusion chromatography (SEC). Disruption of MYC function through interference with its binding partner MAX was assessed by native gel electrophoresis and biolayer interferometry (BLI). Functional effects were evaluated using FUCCI-based live-cell imaging and bulk RNA sequencing.

RESULTS: Of 20 candidate binders tested, three showed reproducible binding to MYC. Two disrupted the MYC–MAX interaction and were advanced for functional characterisation. In human and mouse melanoma cells, both lead binders induced marked cell-cycle arrest within 48 hours, with FUCCI live-cell imaging showing impaired progression into proliferative cell-cycle states. Bulk RNA sequencing followed by Hallmark GSEA (adjusted $p<0.1$) showed strong suppression of proliferative programmes, including G2M checkpoint, E2F targets and MYC targets V1/V2, together with positive enrichment of interferon-α/γ responses and apoptosis.

CONCLUSION: De novo protein binders can directly engage MYC, disrupt MYC–MAX interaction and suppress MYC-associated proliferative programmes in melanoma cells. This highlights the potential of de novo protein design to overcome the challenges of directly targeting classically undruggable oncoproteins. The consistent biochemical, cell-cycle and transcriptional effects observed with lead binders support their further development as a new strategy for targeting difficult-to-drug oncogenic transcription factors.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

THETABIND A MODULAR AI FRAMEWORK FOR MULTISTATE THERAPEUTIC BINDER DESIGN

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AIM: To develop a flexible AI framework for therapeutic protein binder design that integrates existing modelling tools and accommodates biological requirements across multiple target states.

METHODS: ThetaBind organises design into six interchangeable layers: task definition, structure prediction, sequence modelling, optimisation, scoring and filtering. Existing structure and sequence models are combined with task-specific objectives, while structural confidence and biophysical criteria guide candidate prioritisation. A multistate formulation incorporates desired and undesired target structures within a shared design objective, allowing workflows to express requirements for broad target recognition or selective binding.

RESULTS: The resulting framework connects target specification, candidate generation, evaluation and selection within a common computational workflow. Models, optimisation strategies and assessment criteria can be replaced or recombined to suit different design tasks. Single-target and multistate workflows illustrate this flexibility, with initial computational structural examples providing candidates for subsequent evaluation. The current contribution is a configurable platform and associated design workflows. Quantitative comparisons with existing pipelines and experimental confirmation of binding are needed to establish their performance and biological relevance.

CONCLUSION: ThetaBind provides a shared computational environment for combining advances in AI with therapeutic design objectives. Its modular architecture supports the development of adaptable binder design workflows and provides a foundation for extending the framework to additional molecular modalities. Further benchmarking and experimental validation will determine how effectively these capabilities translate into functional therapeutic candidates.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

ACTIVATION STATE GOVERNS MRNA-LNP DELIVERY ACROSS PRIMARY HUMAN T-CELL SUBSETS

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In vivo generation of engineered T cells to treat cancers and immune diseases using mRNA-LNPs bypasses ex vivo manufacturing, but resting primary human T cells transfect poorly.

AIM: To define how activation state and T-cell differentiation status influence mRNA-LNP delivery in primary human T cells, and whether IL-7 conditioning can increase the transfectability of resting T cells as an alternative to T-cell receptor activation.

METHODS: Human PBMCs from three donors were cultured under resting, IL-7 conditioned, anti-CD3/anti-CD28 with IL-2, or anti-CD3/anti-CD28 with both L-2 and IL-7, then transfected with SM-102 or ALC-0315 LNPs encapsulating eGFP mRNA. Transfection efficiency (%eGFP) and per-cell expression (MFI) were quantified by flow cytometry 24 hours post-transfection. T-cell subsets were gated by CCR7 and CD45RA (T_N, T_{CM}, T_{EM}, T_{EMRA}). Repeated-measures mixed-effects ANOVA with Dunnett's or Tukey's tests were performed.

RESULTS: Activation with anti-CD3/anti-CD28 with IL-2 increased transfection from approximately 35% to over 90% in CD8+ T cells and increased MFI in both lineages; adding IL-7 conferred no additional benefit. IL-7 alone did not induce an activated CD25+HLA-DR+ phenotype and did not increase eGFP% or MFI. In resting cells, transfection followed a memory-predominant hierarchy (CD4+: $T_{EM} \geq T_{CM} > T_{EMRA} > T_N$; CD8+: $T_{EM} \geq T_{EMRA} > T_{CM} \geq T_N$), consistent across both LNP formulations, while MFI was comparable across subsets, suggesting that differentiation state primarily affects the proportion of cells receiving sufficient mRNA rather than the translational capacity of those cells. CD8+ subsets were more transfectable than matched CD4+ subsets.

CONCLUSION: Activation state is the dominant determinant of mRNA-LNP delivery in primary human T cells. IL-7 conditioning in this system does not amplify protein expression. Differentiation states further gate the transfected fraction through a memory-predominant hierarchy, informing lineage-based design of in vivo T-cell engineering approaches.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

INFECTION RISK IS UNAFFECTED BY IMMUNOSUPPRESSION IN REAL-WORLD CANCER IMMUNOTHERAPY PATIENTS

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Immune checkpoint inhibitors (ICIs) have revolutionised oncology care but are limited by off-target immune-related adverse events (irAEs). While irAEs are well documented in clinical trials, real-world data regarding management and immunosuppression-related complications is limited.

AIM: To characterise irAEs, their management against established guidelines, and subsequent infection risk in a mixed-cancer population.

METHODS: This retrospective cohort study included 438 oncology patients who received at least one dose of an ICI-containing regimen at a single quaternary centre between June 2020 and December 2023.

RESULTS: Of the 438 included patients, the most prevalent irAEs were skin toxicities (n=162, 37.0%), colitis (n=113, 25.8%), and hepatitis (n=92, 21.0%). Among the 394 patients who received a single-line of ICI therapy, combination anti-CTLA-4 and anti-PD-1 therapy had the highest rates of any-grade irAEs (n=62/75, 82.7%) when compared to ICI-monotherapy (n=135/193, 69.9%) and ICI-chemotherapy regimens (n=69/126, 54.8%). Management demonstrated broad guideline concordance with first-line oral steroids being the most utilised therapy across the entire cohort (n=145/438, 33.1%), while 65 patients (14.8%) required second-line therapies. Immunosuppression showed a small, clinically minor association with increased infection incidence (IRR 1.17, 95%CI 0.94-1.45; p=0.151).

CONCLUSION: Real-world irAE rates, severities, and management aligned with clinical trial data and guidelines, without a clinically meaningful increase in infection risk from immunosuppressive therapy.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

CYTOSOLIC EZH2-IMPDH2 COMPLEXES DRIVE MELANOMA PROGRESSION AND METASTASIS VIA GTP SYNTHESIS

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AIM: To determine whether the epigenetic modifier EZH2 promotes melanoma tumorigenicity through a non-canonical, methyltransferase-independent, cytosolic mechanism, and to identify a druggable protein partner mediating this function.

METHODS: EZH2 immunoprecipitates from BRAF- and NRAS-mutant melanoma cell lines and a patient-derived xenograft were analysed by liquid chromatography-mass spectrometry to identify novel interacting proteins. Co-immunoprecipitation, domain mapping and cytosolic/nuclear fractionation defined the EZH2-IMPDH2 interaction. Effects of EZH2/IMPDH2 knockdown, knockout, methyltransferase inhibition, degradation, and pharmacological modulation of IMPDH2 (mycophenolic acid, guanosine) were assessed on GTP levels, IMPDH2 tetramerization, rRNA synthesis, RhoA-actomyosin activity, clonogenicity, invasion, and tumour growth/metastasis in NSG mice. Human melanoma tissue and multiple cancer cell lines were examined for EZH2-IMPDH2 co-localisation, and Sappanone A was tested as an inhibitor of this interaction.

RESULTS: Mass spectrometry identified IMPDH2 as a novel EZH2-interacting protein, binding between the EED-binding domain of cytosolic EZH2 and the CBS domain of IMPDH2, independently of PRC2 and EZH2 methyltransferase activity. This interaction increased IMPDH2 tetramerization and GTP synthesis. EZH2 depletion reduced GTP, ribosome biogenesis, RhoA/actomyosin activity, clonogenicity and invasion, and reduced tumour burden and lung metastasis in vivo; these effects were reversed by guanosine, whereas EZH2 methyltransferase inhibitors had minimal effect. IMPDH2 loss phenocopied and antagonised EZH2's pro-tumorigenic effects. Human melanomas showed increased cytosolic EZH2-IMPDH2 co-localisation and nucleolar enlargement with disease progression, and EZH2-IMPDH2 complexes were also detected in uveal melanoma, breast, ovarian and prostate cancer. Sappanone A disrupted this interaction and was anti-proliferative in cancer cells but not in normal melanocytes or blood progenitor cells.

CONCLUSION: EZH2 has a previously unrecognised, methyltransferase-independent oncogenic function mediated by its cytosolic interaction with IMPDH2, which drives GTP-dependent ribosome biogenesis and actomyosin contractility to promote melanoma progression and metastasis. Pharmacological disruption of the EZH2-IMPDH2 interaction, as demonstrated with Sappanone A, represents a promising therapeutic strategy where EZH2 methyltransferase inhibition alone is insufficient.

Monash Partners Comprehensive Cancer Consortium (MPCCC) Prize for Best Abstract in Cancer Research

DEEP MUTATIONAL SCANNING OF THE T CELL RECEPTOR CONSTANT DOMAIN

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The αβ T cell receptor (TCR) constant (C) domains and juxtamembrane connecting peptides mediate assembly with CD3 and transmit ligand engagement across the membrane. How this occurs remains contested: recent structural studies variously support and argue against a ligand-induced conformational change. The contribution of individual residues has not been systematically mapped.

AIM: To determine, without prior assumption, how single amino acid substitutions across the TCR constant domain affect receptor surface assembly, ligand engagement and signalling.

METHOD: A 912-variant library (48 positions × 19 substitutions) spanning the Cβ FG (20 positions) and CC'

(8) loops, the Cα DE loop (6) and the β (7) and α (7) connecting peptides was synthesised within a gp100-specific, HLA-A*02:01-restricted TCRβ–P2A–TCRα–T2A–mCherry lentiviral cassette and transduced into a TCR-null CD4$^+$ Jurkat line. Cells were stained with HLA-A*02:01/gp100 tetramer and anti-CD3, live cells gated on mCherry to identify transduced cells, with TCR-null and wild-type TCR Jurkats used to set tetramer and CD3 thresholds. Cells were co-cultured with HLA-A*02:01$^+$ 721.221 antigen-presenting cells across a ten-point gp100 peptide titration (10 μM to zero).

RESULTS: The synthesised pool passed vendor NGS quality control, with ~14,000-fold coverage of the design. Transduction restored surface CD3. Within mCherry$^+$ cells, three regions were distinguishable against the control gates: CD3$^-$tet$^-$, CD3$^+$tet$^-$ and CD3$^+$tet$^+$. Across the peptide titration, the distribution of CD3$^+$ cells shifted in a dose-dependent manner between the tetramer-positive and tetramer-negative fractions. The CD3$^+$tet$^-$ population is presently unassigned; wild-type baseline frequencies, the contributions of surface receptor density and tetramer-induced internalisation, and the variants involved have not yet been determined.

CONCLUSION: A 912-variant constant-domain library has been constructed and expressed in a TCR-null reporter line, and yields distinguishable tetramer-binding phenotypes on first analysis. Fractions will be sorted within matched CD3 density bins alongside wild-type TCR Jurkats and deep sequenced to assign these phenotypes to individual residues.

Multidisciplinary Alfred Psychiatry Research Centre

PATTERNS OF PSYCHOTHERAPY UTILISATION AMONG WOMEN WITH TRAUMA HISTORIES REFERRED TO A SPECIALIST WOMEN'S MENTAL HEALTH CLINIC: A RETROSPECTIVE, CROSS-SECTIONAL STUDY

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Women are over-represented in psychiatric populations due to biological, psychological and sociocultural factors. Psychotherapy is an evidence-based treatment alleviating symptoms of trauma, depression, anxiety and other broad psychological difficulties. Uptake and satisfaction with psychotherapy is understudied in real-world settings but may inform public health strategy to improve women's mental health outcomes.

AIM: To describe patterns of psychotherapy utilisation, including modality, duration, and subjective satisfaction, among women with trauma histories attending a specialist women's mental health clinic.

METHODS: Single-centre, retrospective, cross-sectional study of women attending a specialist mental health clinic between January 2016 and June 2025. Demographic, trauma- and psychotherapy-related data was extracted from clinical records. Data was reported as proportions, with associations assessed using Pearson chi-square tests.

RESULTS: Of 308 participants, the mean age was 40.7 years (SD 11.9 years). Major depressive disorder was the most common diagnosis (54.6%). Overall, 74.0% of this cohort had accessed psychotherapy, with non-specific psychotherapy (63.6%) and cognitive behavioural therapy (32.5%) being most common. Half of those with a psychotherapy history had been engaged in psychotherapy for over five years. Most women reported previous trauma (83.8%), and this was significantly associated with psychotherapy use ($p=0.013$), particularly experiences of emotional abuse ($p=0.043$) and peer bullying ($p=0.019$). University-level education was also significantly associated with psychotherapy use ($p<0.001$). Psychotherapy satisfaction was predominantly positive (74.1%), though mixed (15.4%) and negative (10.5%) experiences were also reported.

CONCLUSION: Psychotherapy was commonly accessed by women prior to specialist psychiatric consultation, with the majority reporting positive experiences. Together with the high prevalence of trauma and psychiatric comorbidity in this population, these findings highlight unmet need for long-term psychotherapy services, gaps in trauma-specific treatment access, and support for policy initiatives expanding psychotherapy delivery.

Multidisciplinary Alfred Psychiatry Research Centre

THE IMPACT OF PARTICIPATION IN A RECOVERY COLLEGE: MENTAL HEALTH CLINICAL STAFF EXPERIENCES.

Di Wiseman

This paper presents the findings of a qualitative study examining the experiences of mental health clinicians who co-facilitated courses at the recovery college of a large metropolitan

mental health service in Victoria, Australia. Semi-structured interviews were conducted with eight participants who represent a range of discipline backgrounds and length of experience. Interview data were analysed thematically. Analysis of the data revealed eight themes that illustrate two key ideas regarding the impact of recovery college on a clinical mental health service.

The project found that the impact of recovery college participation could be understood in relation to two key ideas:

- Impact on individual clinician and their practice
- Perceived impact by participants on broader service culture.

The evidence from this study reveals that participation in a co-produced learning environment, such as a recovery college, has a discernible impact on clinical practice. The study proposes that these practice changes could provide a mechanism for long-term, sustainable culture change in mental health services. The study contributes to the global evidence base for the introduction of recovery colleges to clinical mental health services. Clinician participation in recovery college provides a mechanism not only to improve clinical practice but also to influence broader service culture positively. It is recommended that this impact on mental health service culture could be the subject of future research.

Multidisciplinary Alfred Psychiatry Research Centre

AUTISM ASSESSMENT: PROTOCOL FOR A PLAY BASED SOCIAL-EMOTIONAL SESSION

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AIM: Play is an important part of childhood and assists with the development of language, social and cognitive skills. Assessing and understanding play skills is a vital part of a multidisciplinary diagnostic assessment of autism and co-occurring conditions, and to clarify a child's developmental skills.

METHODS: This paper draws on the FRamework for co-DESsign of clinical practice tOols (FRESCO framework) proposed by Woodward and colleagues (2024), to consider a free play session as a clinical practice tool. The purpose and process of the free play session utilised by the Developmental Assessment and Management Program at Alfred infant Child and Youth Area Mental Health and Wellbeing Service (Alfred ICYAMHWS) in Melbourne, Australia, is described in replicable detail.

RESULTS: The free play session informs assessment planning and is useful in formulating the child's play skills and social skills in a neurodevelopmental assessment. It assists treatment planning by seeking to understand the readiness of the child for a play therapy approach and encourages expression of the child's own concerns through play and drawing.

CONCLUSION: To our knowledge, this is one of the first detailed documentations of a free play session as part of a child's neurodevelopmental assessment in the autism literature. We propose a method of gathering clinical observations during play that can be used to inform an Autism assessment. Observational data is of particular benefit when assessing children with complex neurodevelopmental concerns as demonstrated by the 'Live Assessment' model (Davidson *et al.,* 2023) which has similarities to the play session described here, though its focus is on differentiating Autism Spectrum Disorder and attachment disorder.

Multidisciplinary Alfred Psychiatry Research Centre

EVALUATING THE UTILITY OF A STATEWIDE PHARMACIST-LED PSYCHOTROPIC MEDICINES INFORMATION SERVICE: A MIXED-METHODS STUDY

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Psychotropic medicines are associated with complex clinical challenges, including polypharmacy, drug interactions, adverse effects and use outside approved indications. Timely access to specialist medicines information tailored to the individual may support safer decision making, yet pharmacist-led psychotropic medicines information services remain under-evaluated.

AIM: To evaluate the utilisation and perceived impact of the Psychotropic Drug Advisory Service (PDAS), and explore the experiences of clinicians, consumers and carers using this statewide pharmacist-led service providing specialist, evidence-informed psychotropic medicines advice across Victoria.

METHOD: A mixed-methods service evaluation combined a retrospective audit of all enquiries recorded from January to December 2024 with semi-structured interviews involving clinicians, consumers and carers conducted from March to August 2025. Enquiry characteristics were summarised descriptively and associations examined using Fisher's exact test. Interviews with 17 clinicians, consumers and carers were transcribed and thematically analysed.

RESULTS: PDAS responded to 266 enquiries; 55.6% originated from secondary care and 19.6% from consumers or carers. Enquiries commonly concerned administration and dosage (42.5%), choice of therapy or indications/contraindications (42.1%), adverse effects and toxicity (31.6%), and drug interactions (21.1%). Antipsychotics were the most frequently discussed medicine class (42.9%). Almost half of enquiries were classified as moderate complexity (47.0%), while 61.7% received an initial response within one hour. Greater enquiry complexity was associated with longer completion time ($p<0.001$). Semi-structured interviews with 17 participants, comprising clinicians from multiple professional backgrounds, consumers and carers, identified four interrelated themes: building confidence in clinical decision-making; addressing gaps in access to specialist advice; facilitating collaborative problem-solving; and delivering credible, evidence-based, user-friendly guidance.

CONCLUSION: PDAS provides timely, specialist decision support across diverse mental health settings and extends beyond information provision to support confidence, collaboration and access to psychotropic expertise. Statewide pharmacist-led advisory services may strengthen medicines safety and evidence-informed decision-making, particularly where specialist support is limited.

Multidisciplinary Alfred Psychiatry Research Centre

INTEGRATING MENTAL HEALTH PHARMACISTS INTO BEHAVIOURAL RAPID RESPONSES IN ADULT INPATIENT PSYCHIATRY

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Mental state deterioration in inpatient psychiatry may arise from unmet needs, psychiatric illness, substance use, medical causes or environmental factors, escalating to crises requiring multidisciplinary intervention, psychotropic decision-making and acute pharmacological management. Early response systems aim to reduce risks to consumers and staff.

AIM: To evaluate the implementation and contribution of mental health pharmacists integrated within the De-escalation, Intervention and Early Response Team (DIvERT) model.

METHODS: This retrospective service evaluation included DIvERT responses across two adult inpatient psychiatry units (54 beds) during 2025. Pharmacists were available to attend during weekday service hours (0800–1700), providing medication review, psychotropic optimisation, collaborative medication charting and advice on acute pharmacological management. Routinely collected data described pharmacist activities and behavioural emergency outcomes.

RESULTS: Among 533 DIvERT responses involving 205 unique consumers, 319 occurred during pharmacist service hours. Pharmacists attended 230 responses, representing 43.2% overall and 72.1% during service hours. Psychotic and schizophrenia spectrum disorders (74.6%) and substance use histories (67.3%) were common, with methamphetamine most frequently documented. Multiple responses occurred for 33.2% of consumers. Leading DIvERT criteria were high risk admission or high dependency unit transfer (23.8%), behavioural escalation (18.0%) and intramuscular medication administration (17.6%). During pharmacist-attended responses, antipsychotic therapy was reviewed in 63.0%, psychotropic advice provided in 61.7%, acute pharmacological management discussed in 59.6% and adverse reaction risks identified in 24.3%. Acute pharmacological management was recorded in 64.1% of pharmacist-attended responses compared to 58.2% of responses not attended. Observed rates of seclusion (19.1% vs 26.5%), restraint (11.8% vs 21.4%) and repeat DIvERT response within 24 hours (12.7% vs 15.3%) were lower in pharmacist-attended responses.

CONCLUSION: Integrating mental health pharmacists into an established behavioural rapid response model was feasible and enabled timely psychotropic stewardship and medication risk identification. Lower observed rates of restrictive interventions and repeat deterioration are promising findings that warrant prospective evaluation.

Multidisciplinary Alfred Psychiatry Research Centre

SPIRITUALITY-INTEGRATED GROUP THERAPY IN RECOVERY-ORIENTED MENTAL HEALTH CARE: A MIXED-METHODS PILOT EVALUATION

CARR, E AND HOPKINS, L

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Clinicians frequently report uncertainty about how to bring a spiritual lens into mental health care, whether or not a person holds religious or spiritual beliefs. Spiritual struggle is a common but under-recognised feature of mental illness, yet public tertiary mental health services often lack the skills and frameworks to engage with it in practice.

AIM: To trial a spirituality-informed therapeutic group as one response to this gap and evaluate its effectiveness in supporting participants' recovery through consumer feedback.

METHOD: A mixed-methods evaluation was conducted with 36 participants (aged 31–78 years, median 44; 25 male, 9 female, 2 not specified) attending a community-based spirituality and mental health group. Post-session surveys assessed satisfaction, expectation fulfilment, and spiritual/cultural responsiveness via Likert-scale items; free-text responses were analysed thematically using an inductive approach.

RESULTS: Spirituality was rated "very much" or "completely" important to daily life by 86% of participants. All respondents (100%) would recommend the group, and 83% said it met their expectations "very much" or "completely." Ninety-two per cent felt their spiritual, religious, or cultural needs were listened to and respected, and 81% reported their spirituality was directly supported. Thematic analysis showed participants experienced spirituality as historically pathologised in clinical settings, with the group instead providing a sense of safety and improved engagement with treatment. Ninety-four per cent endorsed at least one recovery-related benefit, most commonly hope (58%) and meaning (53%), averaging 2.2 domains each; 94% preferred face-to-face delivery.

CONCLUSION: This pilot spirituality-integrated Mental heath group was highly valued by participants and produced measurable recovery-related benefits across multiple domains. Findings suggest spirituality has been structurally marginalised within mental health service delivery rather than embedded in recovery-oriented care, a gap this intervention addressed. These results support structural integration of spirituality-informed practice into recovery-oriented services, underpinned by dedicated facilitator training to ensure quality, consistency, and cultural responsiveness at scale.

Multidisciplinary Alfred Psychiatry Research Centre

CLINICIAN EXPERIENCE OF PARENTAL SEPARATION IN AUTISM SPECTRUM DISORDER ASSESSMENT AND DIAGNOSIS: A QUALITATIVE STUDY

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Autism Spectrum Disorder (ASD) has greater rates of parental separation, but there has been no research that examines potential differences and challenges with provision of ASD assessment and diagnosis with separated parents.

AIM: To explore and identify the experiences of clinicians working with separated parents in the assessment and diagnosis of ASD in a metropolitan public mental health service. The study aimed to identify if differences existed, and if so, how these differences are experienced by clinicians.

METHODS: Qualitative methodology using semi-structured interviews with 11 mental health clinicians in an outpatient mental health clinic were used to generate data. Mean interview length was 37 minutes 55 seconds. Interviews were transcribed verbatim and then analysed using Braun & Clarke's Reflexive Thematic Analysis to systematically code the qualitative data and generate overarching themes.

RESULTS: Thematic analysis generated five interrelated themes that captured clinicians' experiences of working with separated parents in ASD assessment and diagnosis: (1) Tensions in maintaining interpersonal neutrality, (2) Working in an adversarial system, (3) Diagnostic uncertainty in the context of relational disruptions, (4) Burdened by the 'hidden' workload, and (5) Increased reliance on collective support.

CONCLUSION: The themes highlight forms of invisible labour and emotional strain that are often overlooked in psychiatric service design, offering new insight into the systemic and interpersonal pressures that exist when working with separated parents. These factors are important as they contribute to clinician burnout and diagnostic complexity for families accessing mental health services. These themes highlight challenges that can inform workforce wellbeing initiatives, service-level policy and training programs, and point to areas of further research needed.

Dr Michael J Hall Memorial Prize for Respiratory Medicine

CLOSING THE GENDER GAP: TRENDS IN WOMEN'S PARTICIPATION IN RESPIRATORY MEDICINE CONFERENCES

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Women constitute the majority of the global health workforce yet remain under-represented in senior clinical, academic and leadership roles. A 2017 study of respiratory conferences found women were under-represented as symposia speakers, session chairs and poster senior authors. Respiratory societies have since introduced initiatives to support gender equity.

AIM: To re-evaluate participation by women in leadership roles at respiratory societies and conferences, and to assess change since 2017.

METHODS: We reviewed publicly available 2024 programs for four major respiratory conferences: the ERS Congress, ATS International Conference, BTS Winter Meeting and TSANZ Annual Scientific Meeting. We examined the gender of session chairs, invited keynote speakers, symposia speakers, and oral and poster presenters (first and senior authors). Society board/council membership was obtained from society websites. Gender was assigned from participant names using Namsor software, with manual review where the probability score was <0.7; those who could not be confidently classified were recorded as unknown. Chi-squared tests examined associations between gender and role, with comparison to published 2017 data.

RESULTS: We identified 25,571 conference participants; gender was undetermined for <1%. Women comprised 59.3% of board/council members, with no significant gender difference for any society. Pooled across conferences, there was no significant difference between genders for invited keynote speakers, symposia speakers or oral presenters. Significantly more women than men chaired sessions and were poster first authors (both $p<0.01$), whereas significantly more men were poster senior authors ($p<0.01$). Compared with 2017, representation of women improved for invited speakers and session chairs; at ERS, female chair representation rose significantly from 31% to 52%.

CONCLUSION: Gender participation at respiratory conferences has improved since 2017, coinciding with society initiatives promoting inclusivity. However, women remain significantly under-represented as senior authors on posters, indicating persistent inequality in research leadership that warrants further investigation and targeted support.

Dr Michael J Hall Memorial Prize for Respiratory Medicine

EXPERIENCES AND ATTITUDES OF CLINICIANS DELIVERING NON INVASIVE RESPIRATORY SUPPORTS IN AUSTRALIA

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Non-invasive respiratory supports (NIRS), including conventional oxygen, high-flow nasal oxygen and non-invasive ventilation, are widely used in hospital and home settings to treat acute and chronic respiratory failure. This study explored clinicians' experiences and attitudes when delivering NIRS in Australia.

Methods: Qualitative interviews were conducted with clinicians from Australian hospitals. Interview transcripts were analysed thematically.

Results: Four major themes emerged from interviews with 22 clinicians (10 doctors, 8 nurses, 4 physiotherapists; 68% female; median 17 years' respiratory experience). Themes included roles and care engagement; education; health systems and structures; and reshaping respiratory care. Participants described respiratory nurses as highly specialised and essential to complex care, noting that the complementary, problem-solving approaches of doctors, nurses and physiotherapists strengthen collaborative decisio-making. Participants emphasised the need for improved multi-professional learning and patient and carer education. Inconsistent and fragmented models of care, together with unequal access to resources and specialist clinicians, were highlighted as key barriers to care. Participants desired respiratory care standards, greater access to respiratory care units, equitable home-NIRS funding, and pathways to develop a multi-professional workforce, including nurse practitioners.

Conclusions: Integrated, multi-professional NIRS services across hospital and home settings, together with improved clinician and patient education, are essential for people with respiratory failure. Addressing current gaps requires advocacy and targeted investment to strengthen respiratory services.

Dr Michael J Hall Memorial Prize for Respiratory Medicine

TRENDS IN PRONE POSITIONING IN MECHANICALLY VENTILATED PATIENTS WITH SEVERE ACUTE RESPIRATORY INFECTION IN AUSTRALIAN INTENSIVE CARE UNITS: A RETROSPECTIVE COHORT STUDY FROM THE SPRINT-SARI DATABASE FROM 2020-2025

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Prone positioning reduces mortality in patients with moderate-to-severe acute respiratory distress syndrome and is strongly recommended in international guidelines. Nonetheless-it has historically been under-utilised, and contemporary Australian data are lacking.

AIM: To describe trends in the number and proportion of invasively ventilated patients receiving prone positioning among COVID-19 or non-COVID patients with viral severe acute respiratory infection (SARI) in Australian intensive care units (ICUs) from 2020–2025.

METHOD: Retrospective multicentre observational study of prospectively collected SPRINT-SARI Australia registry data from 61 ICUs. COVID-19 data were available from February 2020 and non-COVID data from June 2022 to December 2025. Participants were aged ≥16 years with laboratory-confirmed viral SARI receiving invasive mechanical ventilation. Outcomes were annual prone-positioning burden (number of invasively ventilated patients receiving prone positioning), utilisation (proportion receiving prone positioning), and temporal trends within and between SARI aetiologies.

RESULTS: Of 20,883 patients, 3,300 were included (1,831 COVID-19 and 1,469 non-COVID SARI), with a median age of 60 (48-70) and 41.4% female. 495 (15.0%) received prone positioning. Annual burden peaked at 152 in 2021 during peak COVID-19 admissions, and then declined. From 2022, non-COVID viral SARI patients were included, and total proning numbers fell to remain 59–67 per year, while numbers of invasively ventilated SARI patients increased. Utilisation declined by 16% per quarter in COVID-19 (IRR 0.84, 95% CI 0.79–0.88; p<0.001), but showed no temporal trend in non-COVID SARI (IRR 0.99, 95% CI 0.94–1.04; p=0.688). Proned patients were younger, more likely to be obese and require dialysis.

CONCLUSION: the annual burden of prone positioning peaked in 2021 during the COVID-19 pandemic and remained low from 2023, despite increasing numbers of invasively ventilated patients. Further work is urgently needed to explore the factors driving these trends.

Dr Michael J Hall Memorial Prize for Respiratory Medicine

PROVOCATION LARYNGOSCOPY FOR INDUCIBLE LARYNGEAL OBSTRUCTION: STATIC VERSUS DYNAMIC LARYNGOSCOPIC CRITERIA.

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AIM: Inducible laryngeal obstruction (ILO) describes transient, inappropriate laryngeal narrowing of the vocal folds during respiration. We sought to evaluate several laryngoscopic diagnostic criteria that have been proposed.

METHODS: We applied three published laryngoscopic criteria to odour provocation laryngoscopy, referenced to diagnosis by multidisciplinary panel discussion: 'Delphi' criteria proposed by international consensus-- ≥50% inspiratory or expiratory vocal fold adduction; 'Alfred' criteria-- any inspiratory adduction or ≥50% expiratory adduction; 'Dynamic' criteria-- new or increased adduction following provocation. Two blinded assessors independently reviewed videos of consecutive patients who underwent laryngoscopy with odour provocation between January 2021 and March 2024 and were subsequently diagnosed with ILO at multidisciplinary panel discussion. Videos of healthy volunteers were similarly assessed. A third blinded assessor adjudicated any disagreement.

RESULTS: 63 patients with ILO and 23 healthy controls were included. Compared with controls, patients with ILO were older, more likely to be female, had higher body mass index and greater airflow obstruction. With baseline videos only, both Delphi and Alfred criteria had the same sensitivity (61.9%) and specificity (69.6%). Adding post-provocation videos for assessment increased the sensitivity of Delphi and Alfred criteria (both 87.3%) but reduced their specificity (60.9% and 52.2% respectively). Dynamic criteria following provocation provided higher specificity (78.3%) but lower sensitivity (58.7%).

CONCLUSION: Laryngoscopy with provocation increased the number of individuals who met the static thresholds of Delphi or Alfred criteria, increasing sensitivity at the expense of specificity. Dynamic criteria seeking new or increased adduction following provocation conferred the greatest specificity but lowered sensitivity.

Professor Daniel Czarny Prize for Allergy, Asthma and Clinical Immunology

CARDIAC INVOLVEMENT IN SEVERE CUTANEOUS ADVERSE REACTIONS: A RETROSPECTIVE COHORT STUDY OF DRESS AND SJS/TEN

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AIM: Cardiac involvement is a potentially serious but poorly characterised complication of severe cutaneous adverse reactions. We aimed to determine the prevalence of cardiac involvement in drug reaction with eosinophilia and systemic symptoms (DRESS) and Stevens-Johnson syndrome/toxic epidermal necrolysis (SJS/TEN), and assess whether cardiac involvement was associated with greater disease severity.

METHODS: A single-centre retrospective cohort study of patients with DRESS or SJS/TEN presenting to Alfred Health between January 2014 and January 2024 was conducted. Cases were identified through the hospital's adverse drug reaction database. Cardiac involvement was defined as cardiac symptoms accompanied by a new abnormality on electrocardiography, cardiac biomarkers and/or cardiac imaging during admission. Clinical characteristics and outcomes were compared between patients with and without cardiac involvement.

RESULTS: Among 158 patients (79 DRESS; 79 SJS/TEN), cardiac involvement occurred in 15% of DRESS and 6% of SJS/TEN cases. New electrocardiographic abnormalities were identified in up to 42% of investigated patients. In patients with DRESS, cardiac involvement was associated with renal involvement (100% vs 64%; P=0.01) and a greater likelihood of intensive care unit admission (67% vs 34%; OR 3.83, 95% CI 1.04–14.1; P=0.04). Cardiac involvement was less frequent in antibiotic-associated DRESS (58% vs 84%; OR 0.28, 95% CI 0.07–1.03; P=0.06). No deaths were directly attributable to cardiac involvement.

CONCLUSION: Cardiac involvement is an under-recognised but clinically important feature of DRESS and SJS/TEN. In DRESS, cardiac involvement was associated with greater multiorgan involvement and increased intensive care unit admission, highlighting its contribution to morbidity and identifying a higher risk clinical phenotype. These findings support routine cardiac assessment in patients with severe cutaneous adverse reactions. Larger prospective studies and national drug reaction registries are needed to better define the burden and guide care.

Professor Daniel Czarny Prize for Allergy, Asthma and Clinical Immunology

DIMINISHED FORMATION OF HUMORAL IMMUNITY FOLLOWING COVID-19 RE-VACCINATION IN RECIPIENTS OF HAEMATOPOIETIC STEM CELL TRANSPLANTS

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BACKGROUND: Because transplant conditioning induces immunodeficiency, revaccination following haematopoietic stem cell transplant (HSCT) is strongly recommended to re-establish immunological memory. HSCT receipts have previously demonstrated reduced antibody responses to ancestral (WH1) COVID-19 vaccines. We here examine this impaired immunity through detailed evaluation of antibody and memory B cell (Bmem) responses specific to SARS-CoV-2 omicron subvariants.

METHODS: Blood samples were collected from 20 HSCT recipients before vaccination and one month post doses one, two and three of BA.5 bivalent, XBB.1.5 monovalent, or JN.1 monovalent vaccines. Previously, healthy controls have been sampled after receipt of ancestral WH1 vaccines. IgG responses were quantified with an ELISA utilising recombinant WH1, BA.5, XBB.1.5 and JN.1 RBD proteins. RBD proteins were tetramerised for immunophenotyping of RBD-specific Bmem using spectral flow cytometry.

RESULTS: Low levels of predominantly WH1-specific IgG were present prior to revaccination. After two doses, IgG responses were significantly lower than controls. However, HSCT recipients demonstrate substantial expansion following dose three, with Omicron responses boosting more significantly than WH1-specific responses. Despite lower RBD-specific responses, HSCT recipients demonstrate higher neutralisation titres post dose two and dose three. Older age (60+ years), more intensive pre-transplant conditioning regimes, and presence of graft versus host disease were significantly associated with reduced antibody responses in multivariate but not univariate analysis. Immunophenotyping of antigen-specific Bmem is ongoing to provide insight into the deficiencies in COVID-19 vaccine induced memory formation following transplant.

CONCLUSION: HSCT recipients display delayed formation of antibody responses to COVID-19 vaccination, dependent on peri-transplant factors, thus reinforcing the importance of additional doses. Regression models to investigate the relationship between clinical factors and antibody or Bmem responses will assist in identifying factors that predict vaccine efficacy in this population. Identifying the capacity to mount immune responses depending on clinical presentations can assist in tailoring revaccination to ensure optimal protection.

Professor Daniel Czarny Prize for Allergy, Asthma and Clinical Immunology

EARLY ALLERGEN-SPECIFIC ANTIBODY AND MEMORY B CELL RESPONSES DURING BEE VENOM IMMUNOTHERAPY

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Venom immunotherapy (VIT) is the only disease-modifying treatment for IgE-mediated Hymenoptera venom allergy. Major allergen component Api m 1 is highly represented in therapeutic formulations and has been shown to form immune memory responses in sensitized patients. In contrast, the major allergen Api m 10, which is underrepresented in VIT products. Failure of VIT has been associated with patients' sensitization to Api m 10, with the presumption that immune memory to this component is not affected by treatment.

AIM: To investigate if Api m 10 specific immune memory is modulated by VIT for honey bee venom allergy to the same extent as Api m 1 specific immune memory.

METHODS: Peripheral blood was collected from 10 non-bee venom allergic controls, and at four time points over the first 63 days of treatment of twenty-four bee venom-allergic individuals undergoing VIT. Serum Api m 1- and Api m 10-specific IgE, IgG2, and IgG4 were quantified with ELISA. In parallel, allergen-specific memory and type 2 memory B cells were quantified and phenotyped by flow cytometry.

RESULTS: Bee venom-allergic individuals demonstrated an increase in both Api m 1 and Api m 10-specific serum IgE, IgG2 and IgG4 across the first 63 days of VIT. Flow cytometric analysis demonstrated an increase of Api m 1 -specific memory B cells to and to a lesser extent to Api m 10 in bee venom-allergic individuals compared with non-allergic controls, type 2 memory B cells did not change in numbers over the first 63 days of VIT.

CONCLUSION: Early venom immunotherapy was associated with an induction of Api m 1 and to a smaller extend of Api m 10 specific memory B cells and serum Immunoglobulins in bee venom-allergic individuals compared to controls, therefore the kinetic show that Api m 10 is present in the VIT product.

Professor Daniel Czarny Prize for Allergy, Asthma and Clinical Immunology

IMPAIRED MEMORY B-CELL FORMATION AFTER MRNA-BASED COVID-19 BOOSTER VACCINATION IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE RECEIVING ANTI-TNF TREATMENT

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Background: Formation of immune memory to recent COVID-19 booster vaccinations is not well defined in inflammatory bowel disease (IBD) patients receiving anti-TNF treatment. Here, we evaluated memory B cell (Bmem) and antibody responses in IBD patients receiving anti-TNF treatment after COVID-19 booster vaccination.

Methodology: Blood was sampled at baseline, and 1, and 6 months after WH1/BA.5 bivalent or XBB.1.5 monovalent booster vaccination from 27 IBD patients receiving intravenous anti-TNF and 44 controls. Neutralizing antibodies were measured using an infectious virus assay. SARS-CoV-2 spike receptor binding domain (RBD)-specific serum IgG was quantified by ELISA, and RBD-specific Bmem were immunophenotyped by spectral flow cytometry using recombinant proteins from ancestral, Omicron BA.1, BA.5, XBB.1.5, and JN.1 variants.

Results: Serum IgG to vaccine RBD antigens and neutralizing antibodies in IBD patients increased from pre to 1 month post booster vaccination, but were lower compared to controls. Similarly, ancestral-, BA.5- and XBB.1.5-specific Bmem numbers increased after vaccination but were significantly lower in IBD patients than controls. Within RBD-specific Bmem, the frequencies of recently activated CD21lo cells were increased after vaccination, and these were higher in IBD patients than controls, suggesting increased atypical Bmem formation in patients. IBD patients had significantly fewer CD27+IgG+ RBD-specific Bmem 6 months after vaccination compared to controls, highlighting impaired germinal centre responses. Fewer antigen-specific Bmem in IBD patients expressed IgG4, and more expressed IgG3 or IgD following vaccination. Following vaccination, more RBD-specific Bmem recognized multiple viral variants. However, IBD patients had lower numbers of Bmem that could bind to newer Omicron subvariants than controls.

Conclusion: The antibody and Bmem response to COVID-19 booster vaccination in anti-TNF-treated IBD patients has reduced capacity, durability and cross-reactivity, suggesting reduced overall immunogenicity of booster vaccines in IBD patients. This supports the recommendation for annual booster vaccination to prevent symptomatic breakthrough infection and disease spread.

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MULTIDISCIPLINARY CARE IN POORLY CONTROLLED AIRWAYS DISEASE: TARGETTED OBESITY AND MENTAL HEALTH MANAGEMENT IMPROVES RESPIRATORY SYMPTOMS.

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Aims: Poorly controlled asthma is associated with significant health burden and healthcare utilisation. Comorbidities hinder therapeutic interventions; obesity can reduce response to asthma biologics, while anxiety increases symptom burden and can lower medication adherence. Our study evaluated a multidisciplinary intervention targeting obesity and mental illness in poorly controlled airways disease.

Methods: From April 2025–September 2026, patients with poorly controlled airways disease (asthma and/or vocal cord dysfunction (VCD)) and at least one comorbidity (obesity, anxiety, depression, sleep-disordered breathing) were enrolled in Alfred Hospital's Complex Airways Clinic. Over 4 months, patients received intensive assessment and multidisciplinary care from respiratory/sleep physician, dietitian, physiotherapist, and psychologist. GLP1-agonist therapy was administered to patients who elected to self-fund. Data at baseline and 4-month were collected, including anthropometry (height, weight) and validated questionnaires assessing airways disease (ACQ6, Nijmegen, Dyspnoea index (DI), VCDQ), comorbidities (anxiety: HADS-A; depression: HADS-D), and quality of life (EQ5D). Data are presented as mean (standard error); statistical significance determined using paired t-tests.

Results: Of the cohort (N=38), 90.5% had poorly controlled asthma (ACQ6>=1.5) and VCD (54.5%). Comorbidities were highly prevalent: obesity 90.5%; anxiety 33.3%, depression 42.9%, sleep apnoea 66.7%. Nine patients underwent GLP1 therapy, achieving substantial weight loss (mean loss 10.5%; p=0.07). There were significant improvements in depression (mean HADS-D score change -1.9 (0.8), p=0.03) and trend toward improved quality of life and anxiety (mean EQ5D VAS score change -9.7 (6.7), p=0.17; (HADS-A: -0.5 (0.5); p=0.3; respectively). Improvements across multiple airway domains were observed; including dyspnoea and hyperventilation (DI -3.3 (1.6), p=0.07; Nijmegen score -7.1 (2.2), p=0.01; respectively). There were trends toward improved asthma and VCD control (ACQ6: -0.4 (0.3); p=0.14, VCDQ: -2.3 (1.7), p=0.3, respectively).

Conclusion: In patients with poorly controlled airways disease, systematic assessment and multidisciplinary care significantly reduced obesity and depression, driving substantial improvements across multiple domains of respiratory symptoms.

Professor Daniel Czarny Prize for Allergy, Asthma and Clinical Immunology

ABSCOUT: ANTIGEN-INDEPENDENT PRIORITISATION OF ANTIBODY RESIDUES FOR MUTAGENESIS

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AIM: Antibody optimisation requires selecting a small number of experimentally testable mutation sites from a large combinatorial sequence space. We developed AbScout, an antigen-independent computational framework that prioritises antibody residue positions from the antibody sequence alone, with the aim of guiding focused mutagenesis and reducing experimental search burden.

METHODS: AbScout accepts complete antibody variable-domain sequences spanning FR1 to FR4. Query-specific residue features are generated using the ESM2-650M protein language model and combined with antibody-space information from the Observed Antibody Space (OAS) database and pretrained residue-ranking models. Separate models are used for heavy- and light-chain variable domains. Each residue is assigned a priority score, FR/CDR region annotation and supporting evidence, and positions are ranked for experimental follow-up. AbScout prioritises positions rather than proposing the replacement amino acid.

RESULTS: The framework produces residue-level ranking reports for both VH and VL sequences, including residue identity, region, model score and an evidence summary. The integrated heavy-chain model supports data spanning KyDab, TfR and a 23-antigen dataset, while a dedicated model is used for light-chain ranking. For a new antibody sequence, AbScout returns a concise Top-N set of candidate positions for experimental testing without requiring antigen sequence or antigen structure at inference. Quantitative prospective validation of the highest-ranked sites is ongoing.

CONCLUSION: AbScout converts an antibody sequence into an interpretable, ranked list of candidate mutagenesis sites. This antigen-independent workflow provides a practical strategy for narrowing the mutation search space and may support more efficient and generalisable antibody optimisation across targets.

Noel and Imelda Foster Prize for Cardiovascular Research & Baker Heart & Diabetes Institute Prize for Cardiovascular Research

CARDIOVASCULAR DISEASE HOSPITALISATIONS ARE NOT FALLING IN YOUNGER AUSTRALIANS

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** joint senior authors*

AIM: There are no Australian reports of cardiovascular cause-specific admission risk from the post coronavirus disease 2019 period, by age and sex. We aimed to calculate risk of cardiovascular hospital admissions to understand healthcare burden and facilitate future modelling of cardiovascular interventions.

METHOD: We performed a cohort study of all Victorian hospital admissions in people aged 18–99 years from 2021–2024, with a primary discharge diagnosis of myocardial infarction (MI), stroke (ischaemic or haemorrhagic), or heart failure. The numerator (hospital admissions) was derived from the Victorian Admitted Episode Dataset, and the denominator (Victorian population) from the Australian Bureau of Statistics. Risk was age/sex-standardised to the 2024 Victorian population.

RESULTS: From 2021–2024, there were 10.7 million hospital admissions for adults aged 18–99 years, of which 4.7% were for cardiovascular disease. In 2024, MI was the leading cause of cardiovascular admissions among people aged 40–69 years and men aged 70–79 years (admission risk ranged from 0.34–6.86 people per 1,000 population per year across 10-year age/sex groupings). Heart failure was the leading cause among women aged 70–79 years and people aged 80–99 years (admission risk ranged from 4.35–46.24 people per 1,000 population per year across 10-year groupings). From 2021–2024, admission risks for MI, ischaemic stroke, and heart failure increased or were stable in people aged 18–69 years, while they declined or were stable in people aged 70–99 years.

CONCLUSION: The risk of cardiovascular disease hospital admission among people aged 18–69 years is not declining in Victoria. The persistent burden of cardiovascular disease in younger adults, who might live longer lives than their predecessors, could foreshadow a significant impact on future healthcare delivery. Among people 80–99 years, the risk of heart failure hospitalisation matched or exceeded the risk for all of the other cardiovascular diseases combined.

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PREVALENCE OF INHERITED CARDIOMYOPATHIES IN PATIENTS WITH SUB-EPICARDIAL SCAR ON CARDIAC MAGNETIC RESONANCE IMAGING.

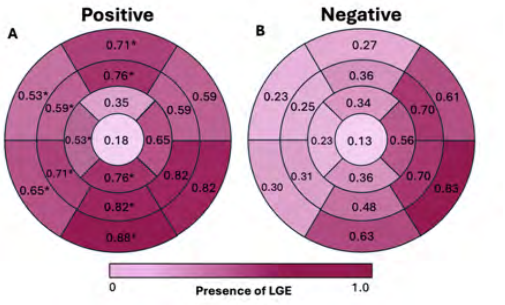
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BACKGROUND: Pathogenic or likely pathogenic (P/LP) genetic variants, particularly in desmoplakin (DSP), are recognised causes of arrhythmogenic cardiomyopathy. Sub-epicardial late gadolinium enhancement (LGE) is a characteristic cardiac magnetic resonance (CMR) finding, but imaging predictors of underlying genetic cardiomyopathy remain poorly defined.

METHODS: Consecutive patients undergoing CMR between 2020 and 2025 at a quaternary centre with two or more segments of sub-epicardial LGE (excluding sarcoidosis, amyloidosis, and hypertrophic cardiomyopathy) were prospectively offered genetic testing. CMR volumetric, tissue characterisation, and LGE distribution were compared between genotype-positive (G+) and genotype-negative (G-) groups.

Figure: Late gadolinium enhancement (LGE) distribution in 17 segment model for gene positive and negative groups. A & B proportion patients with LGE in each segment. *p<0.05.



RESULTS: Of 177 eligible patients, 81 underwent genetic testing. Seventeen (21%) had a P/LP variant (71% DSP, 6% each SCN5A, FLNC, TNNT2, TPM1, TTN) and 9 (11%) a variant of uncertain significance. Female sex and family history were more prevalent in the G+ group (p<0.03). Ventricular volumes and function did not differ between groups. G+ patients more frequently demonstrated global myocardial oedema on STIR imaging (p<0.01) and elevated native T1 (64% vs 26%, p=0.048). LGE burden was substantially greater in the G+ group, with more affected segments (11 [IQR 9-14] vs 7 [4-10], p=0.001), greater extent of hyperenhancement (23% [12-27] vs 10% [6–18], p<0.001), and more right ventricular involvement (76% vs 32%, p=0.001). LGE was more prevalent across most left ventricular segments in G+ patients, with the notable exception of the basal-lateral and apical segments, the distribution typical of immune-mediated myocarditis (Figure). A four-variable additive risk score incorporating female sex, family history, right ventricular LGE, and basal circumferential LGE pattern demonstrated good discriminatory performance for G+ status (AUC 0.86, 95% CI 0.79-0.94).

CONCLUSION: P/LP cardiomyopathy variants are prevalent in patients with sub-epicardial LGE, with DSP predominating. A distinct CMR phenotype, characterised by global LGE distribution, right ventricular involvement, and myocardial oedema, identifies patients at highest probability of inherited cardiomyopathy and may guide prioritisation for genetic testing.

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PLASMALOGEN-ENHANCING DIETARY SUPPLEMENTATION REMODELS THE ARTERIAL LIPIDOME AND PROMOTES PLAQUE STABILITY IN A MURINE MODEL OF UNSTABLE PLAQUE

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Aim: Plasmalogens are inversely associated with unstable coronary artery disease. Alkylglycerol (AKG) dietary supplementation can increase plasmalogen levels and confer benefits in different inflammatory diseases, but its effect upon unstable atherosclerosis is unknown. We investigated whether AKG dietary supplementation is protective in a mouse model of unstable atherosclerosis.

Method: 8-10-week-old male ApoE$^{-/-}$ mice were fed a Western Diet (WD, 21% fat, 0.15% chol) +/- 1.5% AKG supplementation (n=12–13/group) for 13 weeks. Tandem stenosis surgery was performed after 6 weeks to induce unstable plaque formation. Arterial lipidomics (~800 lipids) was conducted using liquid chromatography-mass spectrometry. Hematoxylin and Eosin (H&E) staining was conducted to identify plaque and necrotic core. Analyses included paired/unpaired T-tests with Benjamini-Hochberg correction or Mann-Whitney U tests. P<0.05 considered statistically significant.

Results: Lipidomic analyses comparing unstable plaque vs non-atherosclerotic control vessels revealed higher plasmalogens, their metabolic precursors and pro-inflammatory lysophosphatidylcholines (LPC) (~35.3% ,144.2% and 44.2%, respectively). Interestingly, unstable plaque had lower triglyceride levels (~72.9%) with no difference in cholesterol esters (CE). AKG supplementation was associated with increased plasmalogens (~19.5%), a trend for reduction in LPC (~12.2%, P=0.09) with no difference in TG or CE levels in unstable segments, vs WD fed mice. AKG supplementation was also associated with lower body weight, less circulating pro-inflammatory Ly6C^{hi} monocytes, and smaller necrotic cores (~25.9%) in unstable plaques vs WD controls.

Conclusion: AKG supplementation was associated with reduced body weight, decreased proinflammatory monocytes and enhanced plaque stability, indicating protective potential of increases in plasmalogen in cardiovascular disease.

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MULTI-OMICS IDENTIFY HALLMARK PROTEIN AND LIPID FEATURES OF SMALL EXTRACELLULAR VESICLES CIRCULATING IN HUMAN PLASMA

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AIM: Extracellular vesicles (EVs) are an essential signalling entity in human plasma implicated in health and disease. Still, their core protein and lipid componentry, which lie at the centre of EV form and function, remain poorly defined.

METHODS: Here we performed high-resolution density gradient fractionation of over 140 human plasma samples to isolate circulating EVs, and systematically constructed their quantitative proteome (4,500 proteins) and lipidome (829 lipids) landscapes using mass spectrometry.

RESULTS: We identified a highly conserved panel of 182 proteins (including ADAM10, STEAP23 and STX7) and 52 lipids (including PS, PIPs, Hex2Cer and PAs), providing a deep survey of hallmark molecular features and biological pathways characteristic to circulating EVs. We also mapped the surfaceome diversity, identifying 151 proteins on the EV surface. We further established a set of 42 proteins and 114 lipids features that served as hallmark features of non-EV particles in plasma.

CONCLUSION: We submit ADAM10 and PS(36:1) as conserved EV biological markers that precisely differentiate between EV and non-EV particles. Our findings, which can be explored via an open-source Shiny web tool (evmap.shinyapps.io/evmap/), will serve as a valuable repository to the research community for a clearer understanding of circulating EV biology.

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AN INTEGRATED CARDIAC MICROTISSUE PROTEOME MAP EXTENDS THERAPEUTIC REMODELLING BY NANOVESICLES

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AIM: Human cardiac microtissues are a promising model to study cardiac biology and disease, but their application is constrained by therapeutic remodelling strategies and limited knowledge of their functional protein expression profiles.

METHODS: Here, we define the use of human cardiac microtissue (hCMT) model generated by assembling iPSC-derived endothelial cells, cardiac fibroblasts, and cardiomyocytes to model ischemia-reperfusion injury (IRI) through a model of hypoxia and reoxygenation and nanovesicle-mediated functional remodelling. Engineered nanovesicles (NVs), generated directly from human stem cells, have been shown to influence cardiac tissue and cell repair, and provide a platform for scalable and reproducible cell free-mediated therapy.

RESULTS: We show the functional regulation of the hCMT model and define that administration of NVs (from human induced pluripotent stem cell origin) during reoxygenation significantly increase cardiomyocyte survival and preserve contractility function (contractile duration, relaxation time, relaxation:contraction velocity). We establish NV uptake and transfer with target cells from the hCMT model. Quantitative proteomics was applied to decipher the cell proteome dynamics and molecular mechanisms of IRI in our in vitro model following NV treatment, linked with networks associated with cell survival, energy production, and stress response regulation. Notably, cell type-specific enrichment analysis revealed that NVs drive distinct proteomic remodeling based on their cell origin, where CERA NVs selectively upregulate cytoprotective and structural networks (such as HSP70, MYH6, and XIRP1) within parenchymal cardiomyocytes, whereas CL2 NVs predominantly suppress non-myocyte activation and extracellular matrix remodeling factors within the endothelial and fibroblast compartments.

CONCLUSION: Our findings provide an advanced human stem cell-based platform to understand underlying mechanisms of IRI and assess cell-free therapeutic cardioprotective strategies.

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Noel and Imelda Foster Prize for Cardiovascular Research & Baker Heart & Diabetes Institute Prize for Cardiovascular Research

THE DYNAMIC, SPATIAL MULTI-OMIC LANDSCAPE OF HEART

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Biological functions depend on the spatiotemporal distribution of proteins within cells. Spatial multi-omics can provide a unique understanding in molecular organization of proteins and lipids and heterogeneity of organs including the heart.

AIM: A comprehensive, spatially resolved map integrating diverse multi-omic layers and their underlying organellar structures has remained a challenge. Here, we first defined the draft map for heart subcellular proteome, through development of differential centrifugal-based fractionation with mass spectrometry–based proteomics and bioinformatic analyses for systemic mapping of organelles from heart.

METHODS: Through targeted organelle enrichment and validation, we highlight the cardiac nuclear subproteome – at an anatomical level. Importantly, this workflow demonstrates novel insights into the molecular landscape of different subcellular niches of heart.

RESULTS: We integrated multi-omics landscape of the heart at subcellular scale through the identity, mapping, and integration of lipids and proteins, revealing coordinated distinct molecular networks within defined subcellular niches. This framework enables an integrated spatial map of lipid-protein organization of the heart, and refined understanding in biological molecular patterns of lipids and proteins across distinct organelles under biological conditions. Following acute cardiac injury, we dissect the dynamic spatial remodelling at organelle level of the heart.

CONCLUSIONS: This spatial atlas is a resource for understanding molecular organelle organization and strategies for cardiac intervention therapeutics following heart attack.

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DYNAMIC SUBCELLULAR REMODELLING OF HEART REVEALED BY MULTI-OMICS FROM EARLY MYOCARDIAL ISCHEMIA REPERFUSION INJURY

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AIM: Myocardial ischemia-reperfusion injury (MIRI) occurs when restoration of blood flow after myocardial infarction further exacerbates cardiac damage. Early MIRI is associated with subcellular perturbations, including mitochondrial reactive oxygen species production, DNA damage, endoplasmic reticulum stress and extracellular matrix remodelling; however, tissue-wide multi-omic landscape of native cardiac subcellular dynamics under MIRI remain unknown.

METHODS: Here, we employed a model of early MIRI to male and female hearts and applied a dual protein-lipidomics workflow combining bulk tissue profiling, subcellular fractionation and supervised machine learning to map proteome and lipidome organisation.

RESULTS: Bulk profiling identified shared neutrophil-associated proteomic responses while lipidomics revealed concordant triacylglycerol and lysophosphatidylcholine enrichment after MIRI and identify sex-dependent molecular change from bulk multi-omic profiling analyses. Further, following subcellular profiling we resolved 14 cardiac subcellular niches, defining conserved subcellular proteome and proteome-informed subcellular lipidome. We identify MIRI induced protein and lipid remodelling, including altered subcellular pattern of neutrophil granule-associated protein network, such as Ctsg, Elane, Prtn3, Mmp8 and Mmp9, and redistribution of neutrophil extracellular trap protein Padi4.

CONCLUSIONS: This integrated study provides a spatially informed proteome-lipidome resource for early MIRI and highlights organelle-level remodelling as a feature of acute cardiac injury.

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OBJECTIVELY MEASURED PHYSICAL ACTIVITY PREDICTS ARTERIAL STIFFNESS IN WOMEN INDEPENDENT OF TRADITIONAL AND FEMALE-SPECIFIC RISK FACTORS: EVIDENCE FROM THE UK BIOBANK COHORT

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Arterial stiffness (AS) and carotid intima-media thickness (CIMT) are established markers of vascular health and independent predictors of cardiovascular (CV) mortality. Although physical activity (PA) is central to CV disease prevention, evidence mostly relies on self-reported PA, susceptible to recall bias and measurement error. Moreover, CV risk in women is influenced not only by traditional risk factors, but also reproductive and hormonal factors.

AIM: To investigate whether PA is independently associated with AS and CIMT in women.

METHODS: We included women from the UK Biobank who were free of CVD and had completed PA and vascular assessments. Participants whose PA was assessed after vascular imaging were excluded. PA was assessed using wrist-worn accelerometers (2013–2015; n=8,640/7,582 for CIMT/AS) and self-reported using the International Physical Activity Questionnaire (2006–2010; n=19,088/17,022 for CIMT/AS). Outcomes were AS index (ASI) and CIMT (2014+). Baseline ASI was available and included as a covariate in ASI models. Multivariable linear regression models were performed and adjusted for traditional CV risk factors, with additional adjustment for menopause status, hormone replacement therapy, and adverse pregnancy outcomes in a subgroup with available data (~85%).

RESULTS: Objectively measured PA was inversely associated with ASI after adjustment for traditional risk factors (β=−0.028, p=0.04). Each 1-SD increase in accelerometer-measured PA (~8.6 units) was associated with a 0.24-unit lower ASI (95% CI, −0.47 to −0.01). The association persisted after adjustment for female-specific factors (β=−0.037, p=0.015), corresponding to a 0.32-unit lower ASI per 1-SD increase (95% CI, −0.58 to −0.06). Self-reported PA was not associated with ASI. Neither objective nor self-reported PA was significantly associated with mean or maximum CIMT.

CONCLUSION: In women, objectively measured PA was inversely associated with AS, independent of traditional and female-specific CV risk factors, but was not associated with CIMT. These findings support multimodal CVD prevention in women.

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A SIX-MONTH CARDIO-ONCOLOGY DISEASE MANAGEMENT PROGRAM IMPROVES VASCULAR FUNCTION IN LONG-TERM CANCER SURVIVORS WITH ELEVATED CARDIOVASCULAR DISEASE RISK

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Aim: Cardiotoxic cancer therapies impair vascular function and increase cardiovascular disease (CVD) risk in long-term survivors. Although neurohumoral blockade and exercise training improve heart failure patient outcomes, their effects on vascular function and CVD risk in cancer survivors remain uncertain. Therefore, we investigated if a six-month cardio-oncology disease management program (CO-DMP) improves vascular function in cancer survivors with elevated CVD risk.

Method: Cancer survivors ≥ 40 years old, ≥ 5 years post-cardiotoxic treatment, with ≥ 1 CVD risk factor (*n* = 60) were randomised to a CO-DMP (supervised exercise training and angiotensin converting enzyme inhibitors or receptor blockers, or beta-blockers), or usual care (UC). Vascular function was assessed via carotid-femoral pulse wave velocity (PWV), brachial artery flow-mediated dilation (FMD) and sublingual glyceryl trinitrate dilation (GTN; 0.4mg) at baseline and six-month follow-up. Baseline-adjusted group mean changes [95% CI] were compared via ANCOVA.

Results: Fifty-seven participants (65.8 [62.2, 70.0] years old; 15.5 [13.1, 17.5] years post-diagnosis) completed the six-month follow-up. Participant withdrawal from the trial (*n* = 3) was unrelated to exercise training or neurohumoral blockade. The CO-DMP (*n* = 26) significantly decreased PWV (-0.6 [-1.1, -0.2] vs. -0.2 [-0.4, 0.0] m s^{-1}; *P* = 0.040) and increased FMD (1.02 [0.42, 1.63] vs -0.47 [-1.10, 0.16] %; *P* = 0.002) when compared to UC (*n* = 31). However, GTN dilation was similar between groups (0.83 [-0.13, 1.79] vs. -0.69 [-1.81, 0.43] %; *P* = 0.070).

Conclusion: Six-months of a CO-DMP improves vascular function in long-term cancer survivors with elevated CVD risk. This is the first study to demonstrate meaningful improvements in vascular health of long-term cancer survivors, with a 1% improvement in FMD associated with a 9 - 13% reduction in CVD events. The findings of this study underscore the importance of targeted CVD risk management strategies for cancer survivors.

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CHRONIC INTEGRATED STRESS RESPONSE ACTIVATION MODULATES THE CARDIAC SECRETOME IN PROGRESSIVE HEART FAILURE FOLLOWING MTDNA DAMAGE

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Aim: To investigate how sustained mitochondrial integrated stress response (ISR) activation in the heart alters the cardiac secretome and contributes to progressive heart failure.

Method: The ISR is an evolutionarily conserved signalling pathway that allows cells to respond to various stresses. While acute ISR activation is protective, chronic activation can drive maladaptive remodelling, particularly in energy-demanding tissues such as the heart. Mitochondrial dysfunction is an effective inducer of the mitochondrial arm of the ISR, linking mitochondrial genome instability to transcriptional and metabolic modulation.

To model mitochondrial ISR activation, we generated an inducible post-developmental cardiac-specific mouse model that accumulates mitochondrial DNA damage in cardiomyocytes, leading to chronic ISR activation. To define secretome remodelling driven by persistent ISR signalling, we used TurboID-based proximity labelling to selectively biotinylate and capture cardiac-derived proteins released into the circulation at defined time points following chronic ISR induction, enabling temporal profiling of heart-derived factors.

Results: Chronic mitochondrial ISR activation led to progressive cardiac hypertrophy, reduced cardiac output, and premature mortality. Importantly, ISR activation preceded functional declines in cardiac output, suggesting that sustained ISR signalling may act as a causal driver of cardiac dysfunction, rather than as a secondary response.

Interestingly, cardiac hepatopathy was observed in mice with heart-specific ISR activation, pointing to potential signalling from the heart to the liver driven by chronic ISR activation. Temporal proteomic profiling was applied to explore how the cardiac secretome remodels over time and to pinpoint factors that may link cardiac stress to liver injury.

Conclusion: Combining this unique cardiac-specific ISR model with proximity labelling proteomics provides a powerful platform to define how mitochondrial dysfunction and chronic ISR activation can remodel the cardiac secretome over time. Using this pre-clinical model, we can uncover novel mediators of cardiac-hepatic crosstalk to identify circulating biomarkers and therapeutic targets in heart failure and cardiac hepatopathy.

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PACKAGED CRISPR LIPID NANOPARTICLES AS A RESEARCH TOOL AND TREATMENT MODALITY FOR CARDIOVASCULAR DISEASE

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Coronary artery disease (CAD) is a significant health-burden worldwide and there exists a need to explore new strategies to treat disease onset and progression.

To achieve this, we employed a multi-ancestry genetic meta-analysis of plasma proteins that were associated with risk for developing CAD, from participants in the UKB and All of Us cohorts. From this we identified known causal mediators (APOE, PCSK9) and novel candidate plasma proteins that significantly associated with CAD risk. One such novel candidate was ITIH4, a liver enriched secreted factor which was associated with increased CAD risk. To further our mechanistic understanding of ITIH4, we harnessed CRISPR editing technology delivered with lipid nanoparticles to the liver of mice. Specifically, Cas9 transgenic mice were injected with encapsulated gRNAs targeting GFP (control), the low-density lipoprotein receptor (LDLR) alone, or dual targeting of both LDLR and ITIH4 in combination. Mice were fed a western diet to drive hypercholesterolemia and atherosclerotic phenotypes and followed for 20 weeks.

At the study endpoint liver and plasma were collected for analysis. We confirmed that CRISPR editing resulted in a 60% ($p<0.0001$) decrease in hepatic LDLR protein expression compared to control. Mice receiving dual targeting had a 55% ($p<0.001$) and 85% ($p<0.0001$) decrease in hepatic LDLR and ITIH4 expression respectively. Circulating levels of ITIH4 were also substantially decreased in dual targeted mice. Reduced hepatic LDLR expression led to an increase in plasma cholesterol levels in edited mice (7.7 vs 9.82 vs 8.20 mmol/L, control vs LDLR alone vs combination; $p<0.01$), with ITIH4 depletion demonstrating a significant reduction in various disease-associated plasma lipids, including cholesterol.

Our results suggest that targeted knockdown of ITIH4 using CRISPR technology may protect against hypercholesterolemia that drives CAD in mammals. Secondly, our model offers a highly feasible and cost-effective approach to validate potential disease-causing genes in the liver.

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EVALUATING THE *IN VIVO* PHENOTYPE AND CELLULAR AND METABOLIC MECHANISMS OF A NEW MODEL OF HEART FAILURE WITH PRESERVED EJECTION FRACTION (HFPEF)

Alejandro Torres Riquelme, June Sun, Ryan Kissick, Joshua Hor, Daniel G. Donner, Helen Kiriazis, Shannon Walker, Simon Bond, Monica Kanki, Yow-Keat Tham, Morag J. Young

Aim: Heart failure with preserved ejection fraction (HFpEF) is a heterogeneous syndrome lacking effective targeted therapies, partly due to the absence of preclinical models that replicate its cardiometabolic, inflammatory, and sexspecific features. We aimed to establish and characterise a clinically relevant HFpEF model by combining advanced age, metabolic stress, and partial nitric oxide synthase inhibition.

Methods: C57BL/6J mice (24-40 weeks) fed a highfat diet (HFD) with lowdose (0.3g/L) or highdose (0.5g/L) N(ω)-nitro-L-arginine methyl ester (LNAME) for 15wk. Cardiometabolic profiling, echocardiography, blood pressure, exercise testing, lipidomics, and molecular analyses were performed to assess functional, metabolic, and tissuelevel responses.

Results: LNAME+HFD induced increased adiposity, glucose intolerance, and reduced exercise capacity in both sexes. However, only females exposed to lowdose LNAME+HFD demonstrated preserved ejection fraction with impaired diastolic function (reduced E/A ratio, Ewave velocity, deceleration rate, and EDV/BW). Highdose LNAME in females generated only partial features. In contrast, males given highdose LNAME developed elevated BP reduced ejection fraction, increased global longitudinal strain, and raised left ventricular (LV) pressures suggestive of HFrEF. Serum lipidome analysis identified overall increases in key sphingolipid and phospholipid classes across both sexes, while diacylglycerides and triacylglycerides remaining unchanged on a class level. No fibrosis was detected. Molecular profiling identified distinct transcriptional profiles in male/female hearts.

Conclusions: Older female mice receiving HFD and lowdose LNAME develop a translationally relevant HFpEFlike syndrome featuring diastolic dysfunction, preserved systolic function, and distinctive sexspecific transcriptional and lipidomic signatures. This model provides a platform for mechanistic studies and therapeutic testing that address HFpEF heterogeneity.

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VALIDATION OF VCO_2 MEASUREMENT BY INTENSIVE CARE VENTILATORS FOR USE IN A MODIFIED CO_2 FICK CARDIAC-OUTPUT ESTIMATION: A PROSPECTIVE METHOD COMPARISON WITH INDIRECT CALORIMETRY.

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OBJECTIVE: To determine whether ventilator-derived VCO_2 measured by Dräger V500 and V800 ventilators was accurate for use in a modified CO_2 Fick cardiac-output estimation compared with indirect calorimetry-derived VCO_2 as the reference.

METHODS: In this prospective, single-centre method-comparison study, VCO_2 was measured simultaneously by test ventilators and indirect calorimetry during metabolic steady state in mechanically ventilated adults (n=59; 39% female) undergoing indirect calorimetry as part of clinical care. Accuracy was assessed using Bland–Altman analysis to estimate bias (mean difference, 95% CI) and 95% limits of agreement. Percentage error was compared with a predefined 30% threshold for clinical acceptability for cardiac-output estimation.

RESULTS: Test ventilator VCO_2 modestly underestimated indirect calorimetry (bias -28.0 mL/min [95% CI -36.9 to -19.0], with wide limits of agreement (-95.1 to 39.2 mL/min) indicating large individual variability and poor clinical utility. Percentage error was 35%, exceeding the predefined 30% threshold for clinical acceptability in cardiac-output estimation.

CONCLUSIONS: VCO_2 measured by Dräger V500 and V800 ventilators showed substantial variability compared with indirect calorimetry-derived VCO_2 and exceeded the threshold for clinical acceptability in cardiac-output estimation. Further work is required to improve the accuracy of ventilator-derived VCO_2 measurements.

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ADAPT REVIEW - ASSESSING INTERMEDIATE AND LONG-TERM POST TAVI PACING DEPENDENCE

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Introduction: Permanent pacemaker insertion (PPI) is a recognised complication of TAVI procedures. Studies suggest a significant number of patients are not pacing dependent by 12-months. This study aims to characterise temporal patterns in ventricular pacing dependence after PPM.

Method: Pacing requirement defined as: >1% ventricular pacing on PPM device checks. High burden pacing defined as ≥10% ventricular pacing.

Results: 1535 TAVI patients were included for analysis from 2008 to 2025 (79% self-expanding, 21% balloon-expanding valves). Median age at TAVI 82, 58% male (n=905), median STS score 3.3 (n=1477). 366 patients had PPM (24%). 169 of those had a prior PPM (46%) and 197 patients had a permanent pacemaker insertion (PPI) after TAVI (54%). 170 (86%) and 182 (92%) patients had PPI within 1 and 12 months after TAVI respectively. High post TAVI pacing requirement observed across all PPM checks. Pacing requirement was observed in 97%, 99%, 97% and 100% at D0 (n=180), D30 (n=77), D365 (n=67), 2-years (n=67) and 3-years (n=60). High burden pacing was observed in 52% , 58%, 52%, 45% and 43% at D0, D30, D365, 2-years and 3-years. Conduction recovery, reverting to 'pacing <1%', was observed in 4 patients.

Discussion: Majority of patients undergoing pacemaker implantation after TAVI require pacing at long-term follow-up with approximately half requiring a high burden of pacing at two years post TAVI. Further research into pacing programming in these patients is warranted.

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EZH2 INHIBITION VIA GSK-126 MITIGATES ENDMT AND ATHEROSCLEROSIS IN DIABETES: A TRANSLATIONAL EPIGENETIC APPROACH

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BACKGROUND: Atherosclerosis drives cardiovascular morbidity in diabetes, with endothelial to mesenchymal transition (EndMT) as a key contributor. Whereas epigenetic regulators are increasingly implicated in atherosclerotic progression, the specific role of enhancer of zeste homolog 2 (EZH2), a histone methyltransferase, in EndMT in diabetes associated atherosclerosis remains unclear.

AIM: To identify role of EZH2 in EndMT in diabetes associated atherosclerosis.

METHODS: (i) EZH2-mediated H3K27 (histone H3 at lysine-27) trimethylation was assessed in human carotid plaques (ii) In addition, EZH2 mediated H3K27me3 and EndMT was assessed in atheroprone diabetic mouse model. (iii) For ex-vivo model human aortic endothelial cells were exposed to serum from patients with coronary artery disease. (iv) An in-vitro model of EndMT was generated using high glucose (HG) and TNF-α in human aortic endothelial cells (HAECs). EZH2 methyltransferase activity was inhibited using EZH2 specific inhibitor GSK-126. (v) RNA sequencing was performed in this setting. (vi) To compliment the findings EZH2 genetic knockdown (shRNA) in HAECs was also performed.

RESULTS: We show that EZH2-mediated H3K27 (histone H3 at lysine 27) trimethylation is elevated in carotid plaques from patients with diabetes and in the aortic endothelium of diabetic Apoe−/− mice. Pharmacological EZH2 inhibition with GSK-126 attenuated EndMT and reduced atherosclerotic burden in diabetic mice. In human aortic endothelial cells exposed to high glucose/tumor necrosis factor–α or serum from patients with coronary artery disease, EZH2 blockade via GSK-126 or short hairpin RNA suppressed EndMT and reversed transcriptional programs assessed by RNA sequencing, including COL4A1 and NR2F2.

CONCLUSION: These findings identify EZH2 as a driver of EndMT in diabetes associated atherosclerosis and highlight EZH2 inhibition as a potential therapeutic strategy to limit vascular pathology.

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EZH2-DRIVEN EPIGENETIC MECHANISMS IN FOAM CELL FORMATION: INSIGHTS INTO DIABETIC ATHEROSCLEROSIS.

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BACKGROUND: Myeloid cells, including macrophages, play a critical role in atherosclerosis. The deficiency of a histone methyltransferase, Enhancer of Zest Homolog-2 (EZH2) has recently been shown to reduce foam cell formation, a key feature of atherosclerosis. However, the role of EZH2 in foam cell formation in diabetic atherosclerosis, specifically in macrophages of diabetic patients, is not known.

AIM: To identify role of EZH2 in foam cell formation in diabetes associated atherosclerosis.

METHODS: (i) Diabetes was induced in Atheroprone ApoE knockout mice using streptozotocin. After 5-weeks of diabetes, mice were treated with EZH2 inhibitor, GSK-126 (50mg/kg-BW, daily) for 5-weeks. (ii) A myeloid-specific EZH2 knockout (KO) mouse model was generated (LysM-Cre+ x EZH2fl/fl) and bone marrow-derived macrophages (BMDMs) from EZH2 KO and wildtype mice were cultured either in high glucose (HG) or serum derived from diabetic mice + fluorescently labelled ox-LDL. (iii) Additionally, BMDMs isolated from C57BL/6 mice were stimulated with HG + ox-LDL with and without GSK-126.

RESULTS: En-face Sudan-IV staining analysis of aorta showed 43% reduced plaque area in diabetic mice treated with GSK-126 with reduced expression of CD68 and CD36 a foam cell markers , compared to vehicle-treated mice. BMDMs from myeloid-specific EZH2 KO mice exhibited a marked reduction (48%) in ox-LDL uptake under diabetic conditions including HG and serum from diabetic mice. BMDM from C57BL/6 mice exposed to HG + ox-LDL, resulted in reduced foam cell formation in the presence of GSK-126.

CONCLUSION: Our study demonstrated that EZH2 inhibition with GSK-126 blocked ox-LDL uptake by macrophages, resulting in reduced foam cell formation. This highlighted the translational potential of GSK-126 as a new treatment for diabetes-associated atherosclerosis.

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ARTIFICIAL INTELLIGENCE-ENABLED ELECTROCARDIOGRAPHY FOR DETECTION OF ABNORMAL GLOBAL LONGITUDINAL STRAIN IN CANCER SURVIVORS

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Global longitudinal strain (GLS) can detect subclinical left ventricular dysfunction in cancer survivors, but echocardiographic screening is resource intensive. Artificial intelligence-enabled electrocardiography (AI-ECG) may provide a scalable triage strategy.

Aim: To evaluate AI-ECG for detection of abnormal GLS in asymptomatic cancer survivorship cohort and determine whether combining AI-ECG with established clinical risk scores improves discrimination.

Methods: We analysed 472 cancer survivors, of whom 80 (16.9%) had abnormal GLS, defined as <16%. Participants were stratified into training (n=330) and held-out test (n=142) cohorts. Eight machine-learning approaches were evaluated including TabPFN-3, TabICLv2, XGBoost, LightGBM, random forest, logistic regression, elastic-net and LASSO. AI-ECG predictions were also rank-fused with ARIC-HF and CHERISH. Discrimination was assessed using area under the receiver operating characteristic curve (AUROC) with bootstrap 95% confidence intervals (CI). Triage performance was assessed at an operating point achieving sensitivity ≥80%.

Results: In the test cohort, 24/142 (16.90%) participants had GLS <16%. Of the eight machine-learning approaches evaluated, TabICLv2 demonstrated the highest discrimination with an AUROC of 0.70 (95% CI 0.59–0.80), compared with ARIC-HF 0.71 (0.60–0.82) and CHERISH 0.67 (0.56–0.78). Combining AI-ECG with clinical risk scores improved discrimination: AI-ECG+CHERISH achieved an AUROC of 0.75 (0.65–0.84), while AI-ECG+ARIC-HF achieved 0.75 (0.64–0.85). Average precision was 0.46 (95% CI 0.27–0.67) for AI-ECG+ARIC-HF and 0.37 (0.22–0.55) for AI-ECG+CHERISH, compared with a no-skill baseline of 0.17. At sensitivity ≥80%, AI-ECG+CHERISH achieved sensitivity 83.33% (66.70–96.20%), specificity 61.90% (52.50–70.80%), positive predictive value 30.80% (20.30–42.10%) and negative predictive value 94.80% (89.00–98.80%).

Conclusion: AI-ECG alone demonstrated modest discrimination for abnormal GLS, while integration with clinical risk scores improved discrimination and may support targeted echocardiographic screening in cancer survivors although external validation will be required.

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DEVELOPMENT OF NOVEL LIPID NANOPARTICLES AS A DELIVERY PLATFORM FOR PLASMALOGEN PRECURSORS ENHANCES CELLULAR RESISTANCE TO STRESS-MEDIATED INJURY

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Lipids are fundamental components of cellular membranes and are highly involved in processes including energy metabolism and membrane trafficking. Specific lipid classes have emerged as therapeutic targets, including vinyl-ether-linked glycerophospholipids, or plasmalogens, which contribute to membrane organisation and antioxidant defence. Plasmalogens have been shown to play a key role in macrophage function, and reduced plasmalogen levels are associated with cardiovascular and inflammatory diseases. Studies have demonstrated that their levels can be modulated via supplementation with their metabolic precursor, alkylglycerols (AKGs), to induce therapeutic benefit. However, the relatively slow incorporation of AKGs into plasmalogens has limited their therapeutic utility, particularly in acute stress settings. Lipid nanoparticles (LNPs) have revolutionised nucleic acid delivery, yet their potential for delivering bioactive lipids remains largely unexplored.

AIM: To assess the feasibility of AKG LNP formulation and their protective effects against oxidative stress-induced injury.

METHODS: Characterisation of LNP physicochemical properties and stability was determined via dynamic light scattering. The immunomodulatory effects of AKG-LNPs were evaluated using RAW 264.7 mouse macrophages following a 24-hour pre-treatment and LPS exposure (100 ng/mL, 6-h), followed by qPCR analysis of inflammatory gene expression. Lipidomics was conducted to profile changes in lipid composition following treatment. Statistical significance ($p<0.05$) was determined using one-way and repeated-measures ANOVAs with multiple comparisons.

RESULTS: AKG-LNP exposure to fetal bovine and human serum did not change particle size or polydispersity, indicating colloidal stability under biologically relevant conditions. Macrophages pre-treated with 25 and 50 µM AKG-LNPs, followed by LPS, exhibited a ~28 and 43% increase in plasmalogen levels, respectively, compared with LPS-treated cells ($p<0.05$). Treatments also significantly reduced LPS-induced Tnf-α expression by ~90% and 91%, respectively ($p<0.05$), indicating substantial attenuation of LPS-induced inflammatory activation.

CONCLUSION: LNP delivery of AKG represents a rapid, novel therapeutic strategy that restored plasmalogen levels and provided cellular protection against stress-related injury.

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QUANTITATIVE EXERCISE PERFUSION CMR: DEFINING THE PHYSIOLOGICAL MYOCARDIAL PERFUSION RESPONSE

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Introduction: Exercise myocardial perfusion can now be evaluated non-invasively using quantitative first-pass cardiovascular magnetic resonance (CMR) perfusion imaging. We evaluated a structured, CMR-compatible cycle ergometer-based (MR Ergometer Pedal, Lode, Groningen, Netherlands) stepped exercise stress protocol and compared myocardial perfusion immediately after achieving peak exercise with standard pharmacological vasodilator stress.

Methods: Seventeen participants without a history of cardiovascular disease underwent 3T CMR with recumbent cycle ergometer exercise (25-W increments every 3 minutes to a maximum workload of 100 W), adenosine stress (140 µg/kg/min) and rest first-pass perfusion imaging. Myocardial blood flow (MBF) and myocardial perfusion reserve (MPR) were quantified using free-breathing, motion-corrected automated inline perfusion mapping with the Gadgetron image reconstruction framework. Rate-pressure product (RPP = systolic BP × heart rate) was calculated at each stage.

Results: Exercise significantly increased RPP compared with rest (Table 2, $P<0.0001$). MBF increased stepwise from rest to exercise and adenosine stress (0.528 [95% CI 0.358–0.698], 0.858 [0.688–1.028], and 1.751 [1.581–1.921] mL/min/g, respectively; rest vs exercise $P=0.0052$; exercise vs adenosine $P=0.0001$). RPP was significantly higher during exercise than during adenosine stress ($P=0.0012$), reflecting the greater blood pressure response to exercise, while exercise-stress MBF remained lower than adenosine-stress MBF. MPR was significantly lower during exercise than during adenosine stress (1.71 [95% CI 1.22–2.20] vs 3.62 [3.13–4.11]; $P<0.0001$).

Conclusions: This study demonstrates the feasibility of standardised exercise stress CMR for quantifying myocardial perfusion during physiological stress. Exercise significantly increased MBF above resting levels; however, adenosine produced approximately two-fold higher MBF and MPR results. These findings demonstrate a distinct myocardial perfusion response to exercise and support further evaluation of quantitative exercise perfusion CMR as a physiological complement to conventional pharmacological stress testing. This approach may be particularly useful for evaluating exertional symptoms and demand-related ischemia, in patients unable or unwilling to undergo pharmacological stress.

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HARNESSING SELF-AMPLIFYING MRNA FOR SPATIOTEMPORAL THROMBOPROPHYLAXIS

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AIM: Thrombosis is a major cause of cardiovascular disease (CVD), including myocardial infarction and ischemic stroke. Its prevention is critical to reducing the burden on patients and healthcare systems globally. However, current thromboprophylactic therapies are limited by 1) bleeding risk and 2) short duration of action. We aimed to overcome both drawbacks using platelet-targeted mRNA therapeutics.

METHODS: Conventional mRNA encoding an antibody fragment (scFv) selectively targeting activated platelet GPIIb/IIIa was formulated in lipid nanoparticles for intravenous delivery. Therapeutic expression and function were characterised *in vitro* and *in vivo*. Efficacy and safety were assessed using ferric chloride-induced carotid thrombosis and tail bleeding models, respectively. Self-amplifying mRNA (samRNA) encoding the same therapeutic was subsequently evaluated to extend the protection window.

RESULTS: Conventional mRNA generated circulating, functional scFv that selectively bound activated platelets and inhibited platelet aggregation. A single administration significantly protected against arterial thrombosis at 24 hours ($P<0.05$) without prolonging bleeding. Switching to our samRNA platform extended thromboprophylaxis from approximately 24 hours to over 7 days following a single administration. Significant protection was maintained on days 1, 3 and 7 ($P<0.05$), with reduced efficacy at day 10 and no protection by day 14, defining the therapeutic protection window. Importantly, sustained thromboprophylaxis did not prolong bleeding, whereas the clinically used GPIIb/IIIa inhibitor eptifibatide (half-life ~2.5 hours) significantly increased bleeding ($P<0.05$). Comprehensive safety assessment showed no evidence of systemic toxicity, with no significant alterations in haematological, hepatic or renal parameters or systemic inflammatory cytokines, and no pathological changes on tissue histology.

CONCLUSION: Activated platelet-targeted scFv separates antithrombotic efficacy from bleeding, while our mRNA platforms enable selection of a protection window from 24 hours to over one week. This flexibility offers a single-dose thromboprophylactic strategy tailored to different clinical needs without compromising hemostasis, addressing two major limitations of current therapy.

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EXTENDING THE STORAGE LIFE OF MRNA THERAPIES: EXPLORING FREEZE-DRIED LIPID NANOPARTICLES FOR CARDIOVASCULAR DISEASES

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Cardiovascular diseases (CVDs) remain the leading cause of death and disability in Australia. Messenger RNA lipid nanoparticle (mRNA-LNP)-based therapeutics overcome the limitations of traditional CVDs drugs due to bleeding risk and short efficiency, have therefore emerged as a major area of interest in modern medicine. Existing mRNA-LNPs are extremely sensitive to temperature and environmental conditions and usually require ultra-cold storage, which made transportation extremely expensive and distribution difficulty especially in remote areas and resource-limited settings. To overcome these challenges, we investigated lyophilisation, also known as freeze-drying, as a novel storage method. Four eGFP mRNA-LNP formulations were prepared, freeze-dried with 20% sucrose PBS solution as cryoprotectant, and stored at -20°C, 4°C and room temperature. Four corresponding liquid mRNA-LNP formulations stored at 4°C were used as the control. Our experiments confirmed the freeze-dried mRNA-LNPs preserved their physicochemical properties and retained biological activity after 112 days of storage at room temperature. In CHO cell transfection assays, freeze-dried mRNA-LNPs achieved over 99% transfection efficiency and showed significantly higher mean fluorescence intensity (MFI) compared to the liquid mRNA-LNPs (3024 vs 146, MFI, $P<0.0001$). In an in vivo biodistribution study in mice, freeze-dried luciferase mRNA-LNPs produced total flux values of 8.09×10^9 p/s, and the freshly prepared luciferase mRNA-LNPs produced total flux values of 7.91×10^9 p/s. Overall, freeze-drying combined with appropriate cryoprotectants preserved the physicochemical properties and functional performance of mRNA-LNPs during long-term storage. Importantly, this project addresses a translational bottleneck for cardiovascular mRNA-LNP platforms by demonstrating that a cardiovascular-oriented formulation can retain physicochemical stability and biological activity after lyophilised storage.

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INNOVATIVE Γ-ORYZANOL–KC2 LIPID NANOPARTICLES FOR SAFE AND EFFICIENT IN VIVO MRNA DELIVERY FOR CARDIOVASCULAR DISEASE

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Adapting predominantly vaccine-inspired mRNA delivery systems for cardiovascular disease offers significant therapeutic potential yet faces substantial hindrances. Current lipid nanoparticles (LNPs) formulations suffer from suboptimal biocompatibility, immunogenicity, insufficient delivery efficiency and dependence on stringent cold-chain storage, thereby limiting their broader clinical translation in cardiovascular therapeutics.

AIM: To systematically identify LNP formulations for mRNA delivery with improved physicochemical properties, biological performance, and translational potential, suited to cardiovascular applications

METHODS: A 20-member LNP library was systemically formulated and screened to identify a lead formulation (γ-oryzanol/KC2 or OryKL). The lead formulation was then evaluated for physicochemical properties, mRNA delivery and transfection performance *in vitro*. *In vivo* delivery and cell-specific transfection were assessed in Ai9 reporter mice following intravenous administration of Cre mRNA-loaded OryKL. Safety was evaluated using inflammatory, haematological, biochemical and histological markers. Formulation stability was assessed after lyophilization and storage for up to 60 days.

RESULTS: OryKL formed spherical bleb-type and core–shell nanostructures (~150 nm) with >90% mRNA encapsulation and superior cytocompatibility and transfection compared with compared with vaccine-inspired LNPs. In Ai9 mice, OryKL achieved robust mRNA delivery across multiple organs, with distinct cell-level tropism supporting applications requiring hepatic protein production, including our thromboprophylaxis mRNA therapy.[1] Importantly, strong *in vivo* transfection was achieved without detectable toxicity or inflammatory responses, supporting a favourable safety profile. OryKL also retained high transfection activity after 60 days of storage as a lyophilised powder, highlighting its potential for stable and clinically practical mRNA therapeutics.

CONCLUSION: γ-Oryzanol provides a functional alternative to cholesterol used in clinically established LNP platforms, while enabling efficient, biocompatible and storage-stable mRNA delivery.[2]but their widespread clinical adoption is limited by current lipid nanoparticle (LNP Beyond the studies presented here, OryKL has also been incorporated into a patented self-amplifying mRNA thromboprophylaxis platform[1], supporting its broader translational potential for durable cardiovascular therapies.

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IDENTIFY THE ROLE OF MINERALOCORTICOID RECEPTOR IN MODULATING THE INFLAMMATORY RESPONSE IN MACROPHAGES

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Mineralocorticoid receptor (MR) is an intracellular steroid hormone receptor expressed in epithelial tissues and various cell types in the cardiovascular system. Inappropriate activation of the MR in the heart contributes to inflammation and myocardial remodelling, which is a hallmark of heart failure (HF). Macrophage MR signalling is an important mediator that drives cardiac inflammation and fibrosis.

AIM: Our research aims to characterise novel MR-mediated pathways that regulate macrophage inflammatory response, to mitigate the hyperkalaemia side effect associated with current MR antagonist therapy.

METHOD: To distinguish between MR genomic and non-genomic signalling, we utilised immortalised bone marrow-derived macrophages from wild type, MR knockdown or MR transgenic mice that only lack canonical MR DNA-binding actions. Proteomic, metabolic profile and cytokine secretion were assessed under inflammatory conditions.

RESULTS: Proteomic screening revealed a change of in 19.87% of the detected proteins (516/2597), which were enriched in glycolysis, tricarboxylic acid (TCA) cycle, and oxidative phosphorylation (OXPHOS) pathways in the absence of MR. Metabolomic analysis identified further enhanced itaconate accumulation when MR genomic pathways were disrupted, which negatively regulates NLRP3 inflammasome priming, consistent with previous studies. Strikingly, MR non-genomic pathways were sufficient to maintain IL-1β secretion under inflammation. Kinase-substrate analysis of phosphoproteomic data suggested p38 and ERK1/2 as MR-modulated phosphorylation pathways, confirmed by immunoblotting.

CONCLUSION: We propose that MR-modulated non-genomic action, particularly p38 and ERK1/2 pathways, is crucial for regulating the inflammatory response in macrophages. Modulating p38 and JNK cascades might be an approach to alleviate the progression of HF.

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INVASIVE INTRACARDIAC HAEMODYNAMIC GUIDANCE FACILITATES IMPROVED MECHANICAL CARDIOPULMONARY RESUSCITATION QUALITY IN A TRANSLATIONAL MODEL OF CARDIAC ARREST

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AIM: We investigated whether haemodynamic guidance by invasive intracardiac pressure-volume (P-V) catheterisation of the left ventricle (LV) facilitates improved quality of mechanical compressions delivered during cardiopulmonary resuscitation (CPR) in a porcine model of cardiac arrest (CA).

METHOD: All studies were approved by the local Animal Ethics Committee. Six large white female pigs (55.6±2.1 kg) underwent general anaesthesia, intubation and instrumentation. A 7Fr pigtail P-V conductance catheter positioned inside the LV acquired real-time recordings throughout all studies. ST-elevation myocardial infarction was induced via percutaneous balloon occlusion of the left main coronary artery for 20 min prior to electrical induction of CA for 5 min. Mechanical chest compressions commenced at a consistent rate of 102/min (LUCAS III, Stryker) and adrenaline (1mg/5min) was administered throughout the entire CPR period. Following adrenaline, invasive haemodynamics were recorded during both unguided and P-V-guided chest compressions where guidance was used to achieve maximal stroke volume/P-V loop width.

RESULTS: Real-time invasive intracardiac guidance increased LV end-systolic pressure by ~45mmHg/2-fold (95.0±28.1 vs 49.0±14.9mmHg unguided, $p<0.05$) and cardiac output >2.3-fold (5.2 vs 2.2 L/min unguided, $p<0.05$). Overall, unguided stroke work improved >3.6-fold with intracardiac guidance. During LV relaxation/diastole, maximum rate of pressure decline (-dP/dT) also increased >2-fold ($p<0.05$). These changes in LV haemodynamics were associated with an ~20mmHg/2.6-fold increase in invasive mean arterial pressures (46.2±8.9 vs 17.3±3.4mmHg unguided, $p<0.05$).

CONCLUSION: Real-time invasive intracardiac haemodynamic monitoring facilitated improvements to mechanical chest compression quality in a porcine model of CA, associated with elevations in classical measures of invasive arterial blood pressure.

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ENGINEERING HYBRID EXTRACELLULAR VESICLES FOR ANGIOGENESIS AND CARDIAC REPAIR

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Cardiovascular disease remains the leading cause of death worldwide, with myocardial infarction (MI) contributing to irreversible cardiomyocyte loss and progression to heart failure. Extracellular vesicles (EVs) are promising cell-free mediators of cardiac repair and angiogenesis, but their therapeutic potency is limited by variable cargo, low loading capacity and delivery efficiency. Hybridisation with lipid nanoparticles (LNPs) may enhance EV functionality by combining their biological signalling capacity with the stability and cargo-delivery advantages of synthetic nanocarriers.

AIM: To engineer and characterise hybrid extracellular vesicles (HEVs) by combining EVs with LNPs, optimise their formation, and determine their angiogenic potential in endothelial cells for cardiac repair.

METHODS: EVs were isolated from conditioned media by differential centrifugation at 10,000 × g and 100,000 × g and characterised by nanoparticle tracking analysis (NTA). LNPs were generated by microfluidic mixing and fluorescently labelled with DiD (red) dye, while EVs were labelled with DiO (green) dye. EV-LNP hybridisation was performed using low-pH-induced membrane fusion at defined particle ratios, with EV source, particle concentration, pH and incubation time optimised. Hybrid formation was assessed using NTA, fluorescence microscopy and transmission electron microscopy (TEM). Current experiments are evaluating endothelial uptake and angiogenesis using Matrigel tube formation, followed by quantitative LC-MS/MS proteomic and bioinformatic analyses.

RESULTS: Optimisation generated concentrated nanoscale hybrid preparations across multiple EV sources. NTA demonstrated particle populations consistent with nanoscale vesicles, fluorescence microscopy showed co-localisation of EV- and LNP-associated signals, and TEM supported formation of hybrid vesicular structures. Together, these findings support successful HEV formation. Endothelial uptake, angiogenesis, LC-MS/MS proteomic and bioinformatic analyses are currently in progress.

CONCLUSION: Low-pH-induced membrane fusion provides an optimised platform for generating EV-LNP hybrids. Current functional and proteomic analyses will determine whether hybridisation enhances endothelial uptake, angiogenic responses and pro-angiogenic signalling, informing the potential of HEVs as a regenerative nanomedicine strategy for cardiac repair.

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RESTARTING THE BRAIN AFTER REFRACTORY CARDIAC ARREST: EXTRACORPOREAL CARDIOPULMONARY RESUSCITATION RESTORES PERFUSION AND UNCOVERS NOVEL THERAPEUTIC TARGETS

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Aim: Extracorporeal cardiopulmonary resuscitation (ECPR) effectively restores systemic circulation during cardiac arrest (CA), even when the heart cannot be restarted through classical resuscitation (i.e. chest compressions and defibrillation). Experimentally, ECPR allows for controlled and reproducible global resuscitation (reperfusion) post-arrest, enabling the novel investigations herein exploring the complex neurological injury and recovery mechanisms following CA.

Method: A total of 13 Large White adult pigs (56±2 kg, female) underwent endotracheal intubation, mechanical ventilation (isoflurane), instrumentation, and stabilisation. A sub-cohort of n=10 underwent the CA/ECPR protocol. Briefly, electrical induction of CA resulted in 5min of absent circulation prior to commencing mechanical resuscitative compressions with intracardiac haemodynamic guidance and vasopressor (adrenaline) support for 15mins. Veno-arterial cannulation was performed by intensivists using ultrasound guidance, and ECPR was delivered for 60min. Clinical assessments included high-fidelity vital sign, invasive haemodynamic, and blood/breath gas monitoring, and multi-region brain tissue were collected for both histopathology and integrated proteomic, phosphopeptide, and kinase analyses.

Results: Following CA, compressions and extracorporeal support sufficiently restored >80% physiological mean arterial pressures (48 ± 6 and 44 ±6 vs 53 ±4 mmHg at baseline, respectively). Arterial pO2 was also immediately restored with ECPR (454±36 vs 165±31 mmHg post-CA, $p<0.05$) to baseline values (418±49 mmHg), but not with earlier compressions. Brain cortex and hippocampal proteome/phosphoproteome remodelling was consistent with severe ischemia-reperfusion injury, coagulopathy, and acute inflammatory cascades. Additionally, integrated analyses revealed previously unreported site-specific disruption of pathways associated with low-abundance plasma lipoprotein and phospholipid assembly.

Conclusion: As observed in clinical refractory CA, ECPR effectively restored blood flow, pressure and oxygenation in this experimental setting. Integrated analyses of brain tissue both validated known mechanisms of injury and revealed new opportunities for lipid-based biomarkers and targets for resuscitative and post-resuscitative care.

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DIABETES REMISSION PROGRAMS MAY NOT BE AN EFFECTIVE USE OF FIXED HEALTHCARE RESOURCES

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AIM: To achieve remission of type 2 diabetes, resources to support intensive lifestyle intervention (ILI) are directed toward people with diabetes for whom remission is achievable, that is, people with a short diabetes duration and a lower HbA1c. We aimed to determine if responses to ILI, other than diabetes remission, justify this resource allocation.
METHOD: We analysed participants from the Look AHEAD randomised controlled trial who were 20–65 years old with a BMI of 27–45 kg/m^2. The effect of ILI was assessed after stratification for remission eligibility at baseline (diabetes duration ≤6 years and no insulin therapy). Cox proportional hazards models evaluated the effect of ILI on incident CVD, chronic kidney disease (CKD), and mortality. Linear models with generalised least squares assessed the effect of ILI on weight, HbA1c, systolic blood pressure, LDL, and eGFR.
RESULTS: There were 3105 participants included — 60% women, median age 58 years, and median follow-up time 9 years (IQR 8–10 years). At baseline, 54% were eligible for diabetes remission. Remission eligibility status did not modify the effect of ILI on CVD, CKD, or mortality. ILI led to 2.4 kg greater weight loss (−5.53 kg (95% CI −6.02, −5.03) vs. −3.17 kg (95% CI −3.86, −2.49)), and 0.1% greater HbA1c reduction (−0.28% (95% CI −0.33, −0.23) vs. −0.17% (95% CI −0.23, −0.11)) in eligible compared with ineligible people.
CONCLUSION: The small additional benefit of intervention in people eligible for remission, compared to ineligible people, may not be enough to justify restricting resources to such eligible people. People with a longer duration of diabetes can improve cardiometabolic parameters, just like people with a shorter duration of diabetes.

Baker Heart & Diabetes Institute Prize for Diabetes Research

ROLE OF EZH2 IN EPIGENETIC REPROGRAMMING IN DIABETIC KIDNEY DISEASE

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BACKGROUND: Diabetic kidney disease (DKD) is a major microvascular complication of diabetes and a leading cause of chronic kidney disease worldwide. Epigenetic modifications, including histone trimethylation, have emerged as important regulators of renal injury in diabetes. However, the contribution of EZH2-mediated H3K27me3 to DKD progression and the therapeutic potential of targeting these pathways remain unknown.

AIM: To identify role of EZH2 in diabetic kidney disease.

METHODS: Diabetes was induced in a diabetic mouse model, and renal injury was assessed in the presence or absence of EZH2-mediated H3K27me3 activity inhibitor, GSK-126. Kidney weight, glomerular injury, and histone trimethylation were evaluated. Renal morphology was assessed by histological analysis and glomerulosclerosis index. Gene expression analyses were performed to quantify inflammatory mediators, oxidative stress markers, and collagen-related fibrotic genes.

RESULTS: Diabetes significantly increased renal histone trimethylation and kidney weight/body weight ratio, indicating epigenetic dysregulation and renal hypertrophy in diabetic mice. These changes were accompanied by marked glomerular injury, reflected by an elevated GSI, increased inflammatory gene expression, enhanced oxidative stress, and upregulation of fibrosis-associated collagen genes. GSK-126 treatment effectively attenuated diabetes-induced renal injury by reducing enhanced trimethylation levels and reducing kidney hypertrophy. Importantly, treated animals exhibited significant improvements in GSI and renal histopathology. GSK-126 treatment also suppressed inflammatory and oxidative stress pathways and reduced the expression of collagen and extracellular matrix genes associated with renal fibrosis.

CONCLUSION: Pharmacological intervention with epigenetic inhibitor GSK-126 effectively reduced these pathological changes. These findings suggest that targeting diabetes-induced enhanced EZH2 mediated H3k27me3 may represent a promising therapeutic strategy for the treatment of diabetic kidney disease.

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IS ALL WEIGHT LOSS EQUAL FOLLOWING SLEEVE GASTRECTOMY? DEFINING BODY COMPOSITION AND ANTHROPOMETRIC THRESHOLDS FOR HYPERGLYCAEMIA REMISSION IN WOMEN FROM A PROSPECTIVE COHORT STUDY

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The amount and distribution of body fat influence the risk of prediabetes and type 2 diabetes (T2D); however, optimal anthropometric and body composition targets for hyperglycaemia remission following metabolic bariatric surgery remain undefined.

AIM: To identify weight loss, body composition and central adiposity thresholds associated with hyperglycaemia remission following sleeve gastrectomy in women.

METHODS: In this prospective cohort study, women undergoing sleeve gastrectomy in Melbourne, Australia (2019–2022) underwent anthropometric, biochemical and dual-energy X-ray absorptiometry (DXA)-derived body composition assessment at baseline and 12 months postoperatively. Hyperglycaemia remission was defined as HbA1c <6.0% or fasting glucose <6.0 mmol/L without glucose-lowering medications. Receiver operating characteristic analyses were used to identify weight loss, body composition and central adiposity thresholds associated with remission.

RESULTS: Of 50 women recruited, 39 completed 12-month follow-up, with paired DXA data available for 29. All seven participants with T2D achieved hyperglycaemia remission, with five discontinuing glucose-lowering therapy. Among those with prediabetes/T2D (n=14), 93% achieved hyperglycaemia remission. ROC analyses identified candidate thresholds associated with remission, including ≥21.9% TBWL (AUC 0.85), ≥75.8% fatmass contribution to weight loss (AUC 0.85), postoperative waist circumference ≤107 cm (AUC 0.93), and waisttoheight ratio ≤0.72 (AUC 0.85).

CONCLUSION: Total weight loss, fat-mass contribution to weight loss and central adiposity were associated with hyperglycaemia remission after sleeve gastrectomy in women. Achieving 20–25% TBWL, ≥75% fat-mass contribution to weight loss, postoperative waist circumference ≤107 cm and waist-to-height ratio ≤0.72 may represent candidate treatment targets but require validation in larger independent cohorts.

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SINGLE-TARGET MODULATION OF THE GUT-KIDNEY AXIS IS INSUFFICIENT TO PREVENT RENAL INJURY IN EXPERIMENTAL DIABETES

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BACKGROUND: Growing evidence implicates disruption of the gut-kidney axis, including intestinal barrier dysfunction, dysbiosis, and inflammation, in diabetic kidney disease (DKD), although the underlying mechanisms remain incompletely understood.

AIM: To investigate whether modulating intestinal barrier regulation through zonulin inhibition or complement receptor C5aR2 signalling could attenuate renal injury in experimental diabetes.

METHODS: In Study 1, db/db mice and non-diabetic db/m controls received larazotide acetate or vehicle for 10 weeks. Metabolic, renal, and gastrointestinal phenotypes were assessed. In Study 2, wild-type and C5aR2-knockout (C5aR2 KO) mice were rendered diabetic using repeated low-dose streptozotocin and followed for 10 or 20 weeks, with corresponding metabolic, renal, intestinal, inflammatory, and microbial assessments.

RESULTS:

In db/db mice, larazotide did not improve glycaemia, intestinal permeability ([vehicle:1.597±1.126] vs [larazotide:4.322±1.081] µg/mL plasma FITC-dextran,P<0.05), or gastrointestinal transit ([247.6±60.47] vs [295.7±43.06] min,P<0.05). Instead, larazotide increased albuminuria ([81.81±28.38] vs [125.6±34.93] µg/µmol,P<0.05) and kidney weight ([0.013±0.001] vs [0.014±0.002] g,P<0.05). Larazotide altered caecal microbial community composition (beta diversity, PERMANOVA P = 0.0072) and enriched *Bifidobacterium pseudolongum*, without affecting alpha diversity.

C5aR2 deletion did not alter glycaemia or body weight in STZ-induced diabetes. It also did not attenuate albuminuria at either 10 weeks ([WT: 141.197 ± 21.530] vs [KO: 137.293 ± 16.366],P>0.05) or 20 weeks ([121.494 ± 16.682] vs [176.999 ± 36.891],P>0.05). At 20 weeks, C5aR2 deletion altered *Cldn4* and *Cldn7* expression in non-diabetic mice and increased the Firmicutes-to-Bacteroidetes ratio in diabetic mice ([63.727 ± 17.191] vs [294.234 ± 87.984], P=0.027). Plasma LBP was unaffected by genotype.

CONCLUSION: Neither zonulin inhibition with larazotide nor C5aR2 deletion improved renal disturbances in the experimental models examined. These findings suggest that gut-kidney crosstalk involves complex, bidirectional interactions among intestinal, metabolic, immune, microbial, and intrarenal processes, rather than a linear pathway responsive to single-target modulation.

Baker Heart & Diabetes Institute Prize for Diabetes Research

TRANSLATING DIABETES RISK STRATIFICATION: A 9-YEAR EVALUATION OF THE INDIAN DIABETES RISK SCORE

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Early identification of individuals at risk of type 2 diabetes can enable prevention before disease onset. The Indian Diabetes Risk Score (IDRS) is a low-cost, non-laboratory questionnaire based on age, waist circumference, physical activity and family history, originally developed for large-scale screening in . However, its predictive and longitudinal performance remains unclear.

AIM: To evaluate the ability of baseline IDRS to predict diabetes incidence and reflect longitudinal glycaemic change over 9 years

METHODS: In a secondary analysis of 1508 adults without diabetes from the Kerala Diabetes Prevention Program, logistic regression assessed associations between baseline IDRS and 9-year incident diabetes, with discrimination evaluated using AUC-ROC. Linear regression examined cross-sectional associations between IDRS and fasting plasma glucose (FPG) at years 2 and 9, and associations between change in IDRS (ΔIDRS) and concurrent change in FPG (ΔFPG).

RESULTS: Higher baseline IDRS was associated with increased odds of incident diabetes (continuous IDRS: adjusted OR 1.041, p<0.001) but discrimination was poor (AUC-ROC=0.577). The IDRS≥60 threshold yielded a sensitivity of 71.2% and specificity 34.7%. IDRS was positively associated with FPG at both 2 and 9 years, with a stronger cross-sectional association at 9 years. Baseline risk classification was also associated with subsequent glycaemic trajectory, with a 9.6 mg/dL smaller increase in FPG from year 2 to year 9 in the low-risk group compared with the high-risk control group. However, ΔIDRS was not associated with ΔFPG (β=0.050, p=0.513).

CONCLUSION: Higher IDRS was associated with future diabetes incidence and higher cross-sectional FPG, suggesting the score captures between-person differences in diabetes risk. However, it showed limited discrimination between individuals who did and did not subsequently develop diabetes and did not reflect within-person changes in FPG. IDRS therefore may be useful as a population-level risk stratification tool to identify individuals who may benefit from targeted diabetes prevention interventions particularly where laboratory screening is impractical but is not suitable for individual-level prediction or dynamic glycaemic monitoring.

Allied Health Research

THE IMPACT OF NASOGASTRIC TUBES (NGTS) ON SWALLOW FUNCTION IN ADULTS WITH POST-STROKE DYSPHAGIA: A SYSTEMATIC REVIEW

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Nasogastric Tubes (NGTs) are a first-line treatment for delivering short-term nutrition to stroke survivors with dysphagia. However, the impact of NGTs on swallowing function itself is not yet well understood, despite the clinical importance of understanding this relationship to guide NGT treatment decisions.

AIM: This review examined current evidence on the effects of NGTs on swallowing function in this population, focusing on five outcomes of interest: overall swallowing function, penetration/aspiration, oral and pharyngeal transit times and pharyngeal residue.

METHODS: A systematic search of terms related to stroke, dysphagia and NGTs across four major databases identified 1099 records.

RESULTS: Eight full-text articles met inclusion criteria, of which seven were a pre-post design and one was a randomised control trial. Sample sizes of included studies ranged from 21 to 147 participants and median ages were between 66.0 ± 8.5 to 73.2 ± 12.4 years. Other participant characteristics, such as time with NGT in situ, time since stroke and NGT type, were inconsistently reported. Six studies used an instrumental swallowing evaluation to evaluate change between conditions, however, significant methodological heterogeneity between studies was evident in the inclusion criteria and assessment methods reported. Data synthesis suggested the following trends when an NGT is present: greater overall dysphagia severity, longer pharyngeal transit times, increased severity of penetration/aspiration, higher rates of pneumonia and increased volume of pharyngeal residue. However, most studies had a moderate-high risk of bias (n = 7), limiting the strength of conclusions.

CONCLUSIONS: More methodologically robust research is needed to clarify the impact of NGTs on swallowing physiology and inform clinical management of dysphagia in stroke survivors requiring an NGT.

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WALKING TRAINING DOES NOT IMPROVE SELF EFFICACY AFTER STROKE: A SYSTEMATIC REVIEW AND META ANALYSIS

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People after stroke have difficulty walking, with only 18% of people returning to community walking. They report a lack of confidence as barrier to community walking. Despite this, is it unknown whether improving ability to walk (i.e. walking training) additionally improves confidence.

AIM: This review explores the effect of walking training on self-efficacy for people after stroke.

METHODS: A systematic review of randomised controlled trials with meta-analysis guided by the Prisma statement. We searched MEDLINE, Cochrane, EMBASE, Emcare and PEDro databases. Trials were included if the participants were community dwelling adults after stroke, the intervention involved walking training and the trial reported a measure of self-efficacy related to walking.

RESULTS: Eight trials were identified involving 431 participations. The average PEDro score was 7 out of 10. All participants were in the chronic phase of stroke and all compared walking training to nothing/sham or usual care. Walking training improved walking speed (MD 0.09 m/s, 95% CI 0.05 to 0.12, 5 trials, 323 participants) and walking distance (MD 25 m, 95% CI 9 to 41, 6 trials, 323 participants) compared with no/sham intervention. However, this training did not improve self-efficacy (SMD 0.20, 95% CI of -0.02 to 0.41, 6 trials, 335 participants

CONCLUSION: Walking training alone does not improve self-efficacy in community-dwelling people after stroke. Strategies such as self-management and practice walking in the usual environment (e.g. outdoors), may be required to enhance self-efficacy after stroke.

Allied Health Research

CONTEXTUALISING PSYCHOLOGY PRACTICE STANDARDS TO PUBLIC HEALTH: A CO-CONSTRUCTED COMPETENCY EVALUATION TOOL FOR CLINICAL PSYCHOLOGISTS ACROSS ALL STAGES OF DEVELOPMENT

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AIM: Competency-based assessment is the most effective way to monitor and evaluate the development of specialist knowledge and skills in clinical settings, but fit-for-purpose tools in professional psychology are scarce. This project brought together cross-sector expertise to refine a tool used in postgraduate clinical psychology training to better reflect specialised professional competencies expected of clinical psychologists working within tertiary health services.

METHODS: We undertook a multi-phase, iterative, co-design process between Monash University, Monash Health, Alfred Health, and Austin Health. Across sites, 21 staff were recruited, including psychology registrars, senior clinical psychologists, and psychology clinical educators. Sequential phases incorporated exploratory feedback on the existing *PsyCET-S* (Phase 1), participatory co-design workshops to refine and develop the tool (Phase 2), and pilot evaluation of the refined tool (Phase 3) Behavioural anchors were iteratively revised to reflect the role of clinical psychologists in real-world public health contexts, and how these skills might evolve developmentally across stages of training.

RESULTS: The co-design process resulted in the production of the *Psychology Competency Evaluation Tool – Clinical Psychology* (PsyCET-CP). The tool reflects the developmental trajectory of competency attainment for clinical psychologists across all stages of training. The findings provide preliminary evidence supporting the acceptability, content relevance and perceived utility of the PsyCET-CP as a framework for competency-based supervision and developmental learning conversations.

CONCLUSION: The PsyCET-CP aligns with the newly updated Practice Standards for Psychology and is fit for use for trainees on their first placement through to registrars seeking Area of Practice Endorsement in clinical psychology. Whether used for self-assessment or by a supervisor, the tool supports competency-based supervision and deliberate practice to promote the delivery of safe and effective psychological care. Further validation research is required to establish its psychometric properties and broader applicability across psychology training settings.

Allied Health Research

IMPACT OF ICU-DEDICATED SPEECH PATHOLOGY STAFFING ON ICU LENGTH OF STAY FOR PATIENTS WITH A TRACHEOSTOMY

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Speech Pathologists (SPs) support tracheostomy management in the ICU, focusing on communication and swallowing. The impact of ICU-dedicated SPs on length of stay in this population is unknown.

AIM: Investigate the association between ICU-dedicated SP staffing and time to ICU discharge after cessation of mechanical ventilation (MV) in patients who received a tracheostomy.

METHOD: Registry based study using ANZICS CORE registries. Adults requiring MV on day one of ICU admission and received a tracheostomy were included. Competing risks sub-hazard models assessed the association between ICU-dedicated SP staffing (exposure) and time to ICU discharge after MV cessation (outcome).

RESULTS: Between January 2018 - December 2024, 141 ICUs and 8,937 patients met inclusion criteria. 99 (70.2%) ICUs reported dedicated SP staffing for one or more years (median full time equivalent 0.5 per site per year). These ICUs were more commonly in public tertiary and metropolitan hospitals with higher numbers of multidisciplinary team staffing. 5,814 (65%) patients were in ICUs with dedicated SP. These patients were younger, had fewer comorbidities, lower Glasgow Coma Scores and were more commonly admitted with neurological or trauma diagnoses. Illness severity scores and duration of MV were similar in both groups. Time to discharge from ICU was shorter for SP-exposed versus non-exposed patients [21.5 days (IQR:10.9-33.3) vs. 22.6 days (IQR:11.5-36.7)]. After adjusting for patient factors, hospital and staffing differences, and accounting for deaths in ICU, the presence of an ICU-dedicated SP service was independently associated with a shorter time to discharge after cessation of MV [3.5 days (IQR: 1.3-7.9) vs. 4.6 days (IQR: 2.0-9.7), p<0.001] [sub-hazard ratio 1.09 (95% confidence interval:1.03-1.2) p=0.004].

CONCLUSION: ICU-dedicated SP staffing was associated with shorter time to ICU discharge in patients with a tracheostomy post cessation of MV. Further research is required to determine contributing factors.

Allied Health Research

PSYCHOSOCIAL WELLBEING GROUPS BENEFITING COMMUNITY REHABILITATION CLIENTS?

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The Caulfield Community Rehabilitation Program (CRP) is a rehabilitation program which provides individual and group- based rehabilitation for participants who have experienced illness or injury. Whilst there has been an established role of Social Workers and Psychologists to provide individual psychosocial care, it was identified that a group focusing on wellbeing would be a valuable addition to the suite of groups already offered to CRP participants. The evidenced- based Northern Health 5 Ways to Wellbeing program was identified as a suitable framework and was adapted to the anticipated needs of the group. An initial pilot phase provided an opportunity for improvement and now the group is fully embedded within the program. The group is held over six consecutive weeks, and each session is delivered by a member of the multidisciplinary team who presents a topic, including; Helping Others, Connect, Be Aware, Be Active, Keep Learning, Eating Well. Sessions conclude with a mindfulness meditation and completion of a participant worksheet. A feedback form is completed at the end of the six weeks.

AIM: To describe the development of an innovative wellbeing group for participants in a community rehabilitation setting. Future research considerations will be described with a focus on trying to understand further how the group has impacted participants' wellbeing over time.

METHOD:

Need identification

Sourcing a suitable wellbeing framework

Group session development for each wellbeing topic

Pilot phase

Embedding the group into the program with an ongoing feedback process

RESULTS: Overall positive feedback has been received from participants about the impact of the group on their wellbeing. Useful suggestions have been given by participants to continue to evolve the group to meet participant needs.

CONCLUSION: A need was identified to provide psychosocial care in the form of a wellbeing group for CRP participants. An existing framework was adapted to create group sessions and a pilot phase provided opportunity for improvement. The group is now embedded within CRP. Feedback has demonstrated that participants have felt that the group has a positive impact on their wellbeing. Opportunity exists to do further research to implement participant suggestions to evolve the group to meet their needs, and also to introduce a wellbeing measurement into the feedback process to provide further evidence about the impact on wellbeing.

Allied Health Research

PSYCHOMETRIC PROPERTIES OF THE AUSTRALIAN LIFE IMPACT BURN RECOVERY EVALUATION PROFILE (AUS-LIBRE PROFILE)

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Background: The aim of this study was to examine the psychometric properties of the Australian translated version of LIBRE, the Aus-LIBRE Profile. The Australian version of the Life Impact Burn Recovery Evaluation (Aus-LIBRE) Profile measures six domains of social participation, including: Relationships with Family & Friends, Social Interactions, Social Activities, Work & Employment, Romantic Relationships, and Sexual Relationships.

Methods: A prospective validation study was completed at two state-wide burn centers in Australia. The reliability and validity of the Aus-LIBRE Profile were evaluated by administering it in parallel with two well established generic measures (EQ-5D-5L and Veterans Rand-12 Item Health Survey [VR-12]) in adult burn survivors. Internal consistency reliability was evaluated using Cronbach's alpha statistics for all subscales. Spearman correlation coefficient was calculated for all survey scores to evaluate construct and criterion validity. To assess test-retest reliability, the Aus-LIBRE Profile was administered a second time, seven to 10 days following the initial administration. Sensitivity was evaluated using the repeatability coefficients, standard error of measurement (SEM), and minimal detectable change (MDC).

Results: Data was collected for 303 burn survivors, 58.4% were male with a median age of 44.4 years. The Factor Correlation matrix demonstrated moderate to strong relationships among the domains (r=0.34-0.77). All correlations between the Aus-LIBRE Profile domains and the EQ-5D-5L and VR-12 were significant except the relationship between Aus-LIBRE Romantic Relationships and the VR-12 Physical Component Summary Score. The repeatability coefficients ranged from 8.43 to 12.95 and SEMs ranged from 2.81 to 3.69 for the six domains. Minimal detectable change (MDC_{95}) values ranged from 7.8 points to 10.23 points.

Conclusion: This study confirms the validity and reliability of the Aus-LIBRE Profile as a patient reported outcome measure that measures the social participation of burn survivors in Australia.

Allied Health Research

IMPROVING DIAGNOSIS OF CONCUSSION THROUGH TELEHEALTH FOLLOW-UP. A RANDOMISED CONTROLLED TRIAL

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Concussion (mild traumatic brain injury, mTBI) is common and increasingly recognised for its potential long-term health consequences. Early and accurate diagnosis reduces this burden but is challenging without specialised assessment.

AIM: To assess the effect of Neuropsychology telehealth consultations following emergency department (ED) discharge following suspected concussion.

METHODS: Open-label randomised controlled trial of patients discharged from ED following concussion assessment. The intervention comprised telehealth consultations with a neuropsychologist who assessed participants using American Congress of Rehabilitation Medicine (ACRM) diagnostic criteria and provided psychoeducation regarding symptoms, expected recovery, graded return to work and physical and cognitive activity, and management of relevant comorbidities. The primary outcome was concussion diagnosis at 7 days. Secondary outcomes were concussion symptom severity (Rivermead Post-Concussion Questionnaire, RPQ) and referral to specialist services for persistent symptoms at 14 days.

RESULTS: 143 patients were randomised to standard care (n=71) or standard care plus telehealth follow-up (n=72). Concussion was diagnosed in 68.1% of telehealth participants versus 50.7% in standard care (RR 1.34; 95% CI 1.02–1.77; p=0.035). At Day 14, median RPQ-13 score was 10 (IQR 5–18) in the telehealth arm versus 6 (IQR 2–13) in standard care (p=0.008). Among those diagnosed with concussion (n=85), specialist referral rates were 46.9% (telehealth) versus 63.9% (standard care; RR 0.73; 95% CI 0.50–1.08; p=0.12).

CONCLUSIONS: Telehealth follow-up increased concussion identification by 17% and enhanced symptom recognition without increasing specialist referral rates. The finding of increased symptom recognition without a corresponding increase in specialist referrals suggests telehealth may facilitate early education, reassurance, and symptom monitoring. Identified gaps in rehabilitation referrals highlight a potential role for telehealth as a highly cost-effective approach to optimising ongoing management following ED discharge. Patient acceptability and longer-term outcomes warrant further study. Telehealth represents a promising, scalable approach to bridging gaps in early post-concussion care.

Allied Health Research

EVALUATING AGREEMENT ACROSS PHYISOTEHRAPY OUTCOME MEASURE SETS FOR SUBACUTE SPINAL CORD INJURY REHABILITATION

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Validated and standardised outcome measures are optimal for monitoring recovery after spinal cord injury (SCI), yet no consensus exists on which measures to use in subacute physiotherapy rehabilitation. Multiple frameworks and toolkits propose measures, but their alignment is unclear.

AIM: This study examined agreement across key resources to inform outcome measure selection within a subacute SCI physiotherapy service.

METHODS: A modified Core Outcome Sets approach was used, where stakeholders identified three key sources for outcome measures: Spinal Cord Injury Research Evidence (SCIRE) Outcome Measures Toolkit, Spinal Cord Injury EDGE Task Force (EDGE), and National Institute of Neurological Disorders and Stroke SCI Common Data Elements (NINDS). Overlap between sources was analysed, and measures were mapped to the International Classification of Functioning, Disability and Health (ICF) Core Set for SCI (early post-acute phase) to identify domain coverage and gaps.

RESULTS: Ninety-five physiotherapy-relevant outcome measures were identified. Only 16 were common across all three sources. Additional partial overlaps were identified (SCIRE+EDGE: 4; SCIRE+NINDS: 1; EDGE+NINDS: 7), alongside a considerable number of source-specific measures (SCIRE: 8; EDGE: 25; NINDS: 34). ICF mapping demonstrated strong representation of mobility and functional activity domains, with gaps in the domains of moving objects with lower extremities and catching.

CONCLUSION: Substantial inconsistency exists across commonly used SCI outcome measure resources. Identified gaps within ICF domains highlight areas requiring further development. These findings informed the development of a standardised set of physiotherapy outcome measures for subacute SCI care, supporting more consistent evaluation and benchmarking in clinical practice.

Allied Health Research

A COMPARATIVE TRANSCRIPTOMIC ANALYSIS OF WOUND REPAIR PATHWAYS MEDIATED BY ENGINEERED SKIN IN A PIG MODEL

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Autologous split skin grafting is the standard for deep burn treatment. However, lack of donor site is the major challenge especially when burn is more than 50% of the total body surface area. Testing our autologous 3D skin performance as an alternative to split skin grafting in a pig model marked the next stage of experimentation, ahead of the clinical trial.

AIM: To sequence and compare transcriptomes of grafted 3D platelet-derived hydrogel porcine skin equivalents (PG-PSE), split skin grafts (SSG) and native skin (Native).

METHOD: We have developed a novel 3D bioengineered skin where autologous porcine fibroblasts and keratinocytes were seeded on a platelet-based hydrogel. These were grafted onto temporised wounds and compared with native skin and the gold standard split-thickness skin grafts. Samples, collected before and after grafting, were investigated for gene expression changes, to identify pathways that are activated during wound repair as well those unique to bioengineered grafts affecting inflammation, re-epithelialisation and remodelling.

RESULTS: A preliminary RNA-Seq analysis showed a trend of upregulated wound healing markers in bioengineered grafts. These RNA targets were lower expressed in split skin graft control, and even lower in the native pig skin biopsies at the experimental endpoint. They contribute to wound healing during: i) inflammation (Interleukins: 1α, 10, 11, 17F; CD53), ii) tissue repair & remodelling (matrix metalloprotease-13, pyrimidinergic receptor P2Y6, oncostatin M, CD274, transglutaminase-2, chemokine receptor-3), iii) immune regulation (CD301b, CD163, CD206) and iv) metabolism (arginase-1, hexokinase-3, uridine phosphorylase-1).

CONCLUSION: Our preliminary results revealed several potential pathways, activated by skin grafting, warranting further investigation. Understanding wound repair by grafting in pigs may lead to novel intervention in humans.

Allied Health Research

CHARACTERISTICS OF BREATHING PATTERN DISORDER IN PEOPLE WITH DIFFICULT ASTHMA: AN OBSERVATIONAL CROSS-SECTIONAL STUDY

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Breathing pattern disorder (BrPD) is common in people with difficult asthma, where it exacerbates symptom burden and reduces quality of life. Identification and clinical recognition of BrPD is poorly understood.

AIM: To systematically characterise BrPD and determine the utility of previously proposed classifications for BrPD in this specific population.

METHODS: Adults with difficult asthma and suspected BrPD underwent assessments for asthma control and quality of life, co-morbidities (pain and pelvic floor dysfunction), breathlessness, exercise capacity, and BrPD-specific outcomes. Distribution across symptom classification (hyperventilation [Nijmegen questionnaire ≥23]), breathing pattern categories (hyperventilation, thoracic dominant, periodic deep sighing, forced abdominal expiration, asynchrony) and multidimensional classifications (biochemical, biomechanical, psychophysiological) was evaluated, and principal component analysis was conducted to determine underlying constructs between characteristics.

RESULTS: Sixty participants were evaluated (48 female, mean age 52 [SD 16] years, FEV_1 80 [23] % predicted). Hyperventilation symptoms were common (n=34, 57%). Frequent breathing pattern categories were hyperventilation (n=37, 62%) and thoracic dominant breathing (n=23, 38%). Frequent BrPD dimensions were biomechanical (n=45 [75%]) and biochemical (n=37 [62%]). Few participants met the criteria across all categories (n=0) or dimensions (n= 7 [12%]). Principal component analysis (KMO= 0.74, Bartlett's $p < 0.001$) identified four principal characteristics of BrPD in difficult asthma: anxiety symptoms, respiratory symptoms, hyperventilation symptoms and observable breathing pattern abnormalities.

CONCLUSION: Characteristics of BrPD in individuals with difficult asthma demonstrate four principal components. Existing BrPD classification frameworks do not fully describe the condition in this population. These findings support the need for both symptom and physical evaluation for BrPD in this population to improve clinical recognition and management.

Allied Health Research

DEVELOPING AN EATING DISORDER DIETETIC COMPETENCY FRAMEWORK TO IMPROVE WORKFORCE CAPABILITY, PSYCHOLOGICAL SAFETY AND PATIENT OUTCOMES

Stream/Portfolio: Alfred Mental & Addiction Health (AMAH), Alfred Nutrition Department
Presenter: Maddi Dumaresq

Introduction: Patients admitted with medically unstable eating disorders require specialised, evidence-based nutrition care delivered within a multidisciplinary model. Growing demand for inpatient eating disorder services has highlighted variation in dietitians' experience and confidence, impacting workforce capacity and consistency of care. Prior to this project, Alfred Health lacked a standardised pathway to train, assess and endorse dietitians to independently manage this complex patient group. This quality improvement project aimed to develop a competency framework ensuring dietitians possess the knowledge, skills and clinical authority required to provide care aligned with the Alfred Inpatient Access and Treatment Pathways for Eating Disorders guideline. The competency framework aims to standardises practice, improve clinician confidence and expand workforce capacity.

Methods: The project was undertaken across Alfred Mental & Addiction Health and the Alfred Health Nutrition Service using the Model for Improvement and iterative Plan-Do-Study-Act cycles. Development included stakeholder consultation, pilot testing and refinement. The framework incorporates mandatory education, workplace-based learning, supervised clinical observations, multidisciplinary meeting attendance, competency assessment, governance oversight and formal sign-off before independent practice. Grounded in principles of adult learning, competency-based education and clinical governance, the intervention aims to strengthen clinician capability and reduce variation in care. Evaluation measures include training completion, competency sign-off, workforce capacity, time to competency, supervisor workload and implementation feasibility. Pre- and post-program self-assessments evaluate changes in clinician confidence and knowledge.

Results and Discussion: Implementation is underway, with competency resources, assessment tools and governance processes established. Prospective evaluation will assess uptake, completion rates, clinician confidence and growth in credentialled staff, supported by run-chart monitoring. The framework provides a sustainable, governance-supported model for workforce development, succession planning and progression towards ANZAED-recognised credentialling. Early implementation highlights the importance of executive support, supervision capacity and multidisciplinary collaboration. Future work will evaluate outcomes, refine the framework and explore applicability across other clinical services.

Allied Health Research

ADHERENCE TO MULTIFACTORIAL FALLS PREVENTION RECOMMENDATIONS: A COHORT STUDY OF CLINIC ATTENDEES.

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Falls are a significant problem for many older adults, contributing substantially to health care burden and costs. Multifactorial interventions that are tailored to an individual's specific falls risk factors have been shown to reduce falls risk; however, achieving these benefits depends on adherence to the recommended interventions.

AIM: To describe adherence to the recommendations provided in a Falls Prevention Clinic and identify factors influencing adherence.

METHODS: This single cohort observational study captured information on falls risk, recommendations and adherence to recommendations in a Falls Prevention Clinic. Compliance to recommendations was determined by follow up phone call ten weeks post clinic attendance and associations between compliance and attendee characteristics were explored.

RESULTS: 884 attendees' data was available. On average, attendees were 79 years old and 90% had experienced one or more falls in the 12 months prior to attending. Overall adherence to recommendations was 74%. The area of highest adherence was exercise recommendations (91%). Lowest areas of adherence included personal alarms (56%) and bone health (64%). Factors that were associated with good adherence related both to the individual (e.g. better cognition, better self-assessed health status, less anxiety or depression), and service factors (e.g. referral on to a rehabilitation program). Notably, compliance with some recommendations was higher when there were fewer total recommendations made.

CONCLUSIONS: Due to the breadth of falls prevention recommendations given, overall adherence was difficult to predict. Minimising the total number of recommendations to prioritise the most significant contributors to falls and considering referral to multi-disciplinary rehabilitation as an adjunct to falls prevention clinic may be beneficial strategies to increase adherence to some recommendations.

Allied Health Research

PERIPHERAL PARENTERAL NUTRITION: A STRATEGY TO ADDRESS HOSPITAL-ACQUIRED MALNUTRITION

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AIM: Hospital-acquired malnutrition (HAM) is a recognised complication, with cumulative energy and protein deficits due to prolonged fasting and restrictive diets key contributing factors. In our health service, central parenteral nutrition (CPN) has been the only parenteral nutrition (PN) option, often delaying nutrition support pending central line access. This study evaluated the feasibility and utilisation of peripheral PN (PPN) as an additional nutrition support intervention to reduce nutrition deficits in surgical inpatients and address key process-related factors contributing to HAM.

METHOD: A prospective three-month pilot was conducted on a single surgical ward (March–June 2026) involving five surgical units. A weekday multidisciplinary PPN round, comprising a senior dietitian and nutrition support-trained pharmacist, reviewed patient suitability, prescribing, monitoring and nutrition transition plans. Demographic, nutrition provision and service utilisation data were collected prospectively and analysed descriptively.

RESULTS: Twenty-seven patients received PPN. Ten patients (37%) were female, with median age 60 years (range 29-91). All five surgical units had at least one patient who received PPN, with general surgery and colorectal surgery the highest users (n=9, 37.5% each). The main PPN indication was 'enteral/oral intake insufficient/not possible, or gastrointestinal tract not functioning/inaccessible' (n=20, 74%) followed by 'bridge to CPN' (n=5, 18.5%) and bridge to enteral nutrition (n=2, 7.5%). Most patients were malnourished or at risk of malnutrition (n=26, 96.5%) and had experienced prolonged negligible nutrition intake prior to PPN commencement (mean 6.1 days). PPN provided a mean 70% estimated energy and 61% estimated protein requirements, with 27.5% (n=9) receiving PPN for ≥3 days. The most common reasons for cessation were transition to oral intake (n=12, 44%) and CPN (n=7, 26%).

CONCLUSION: PPN is feasible and effective to bridge nutrition deficits for surgical inpatients. The pilot addressed recognised factors contributing to hospital-acquired malnutrition, supporting expansion of this nutrition support option.

Allied Health Research

FEASIBILITY, ACCEPTABILITY AND EFFICIENCY OF A NOVEL, INTERDISCIPLINARY, ALLIED HEALTH INITIAL ASSESSMENT TOOL FOR ACUTE CARE OF THE ELDERLY GENERAL MEDICINE PATIENTS: A MIXED METHODS STUDY.

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AIMS: Explore the efficiency, feasibility and acceptability of a new, interdisciplinary, allied health initial assessment tool, which can be completed by either an Occupational Therapist, Physiotherapist, or Social Worker, instead of conducting three separate allied health discipline initial assessments. The tool was co-designed by allied health and collected information about nutrition, speech, behavioural, functional, physical and psychosocial needs. The tool was implemented from September to October 2025 in a single ward of an Australian metropolitan tertiary hospital. The Acute Care of the Elderly General Medicine implementation ward included complex patients with cognitive impairment and cultural and linguistic diversity.

The tool was evaluated for its:

Efficiency (reduced duration and duplication of initial patient assessments);

Feasibility (accurate identification of discharge disposition and identification of unintended/unexpected consequences arising from its use); and

Acceptability (to allied health and the multidisciplinary team).

METHODS: A mixed methods study. To explore efficiency, time taken to complete the initial assessments were extracted over a 5-week period from electronic medical records pre- and post-implementation of the tool and comparisons were performed using quantile regression. To explore feasibility and acceptability, a single focus group and 4 multidisciplinary team interviews were conducted post-implementation. Qualitative data were analysed using thematic analysis.

RESULTS: Data from 55 patients were collected pre-implementation and 34 post-implementation. Post-implementation, overall assessment time increased. Interview (n=4) and focus group (n=6 participants) feedback showed that the tool was useful for complex patients and improved efficiency by reducing duplication of information collected, documentation requirements, and unnecessary referrals, and by allowing staff to focus their time on providing patient intervention. Participants noted that as they became more familiar with the tool, efficiency improved.

CONCLUSION: Although increased efficiency was not shown post-implementation of the tool, benefits were identified when assessing complex patients and in areas of progression of care and reduction of duplication.

Allied Health Research

THE IMPACT OF HOSPITAL DISCHARGE ON PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR FOLLOWING ORTHOPAEDIC TRAUMA: AN INTERRUPTED TIME SERIES ANALYSIS

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Objectives: To determine the impact of discharge home on physical activity and sedentary behaviour following orthopaedic trauma.

Design: Observational study.

Setting: Acute hospital.

Participants: Between October 2022 and January 2024, 31 adult orthopaedic trauma patients were recruited during hospital admission. Participants had either an isolated hip fracture or multi-trauma (i.e., a lower limb fracture, with an upper limb and/or spinal fracture).

Interventions: Participants wore two activity monitors (activPAL3 and ActiGraphGT3x) during the final days of an acute hospital admission and the first five days at home. An interrupted time series analysis evaluated changes physical activity variables during the hospital to home transition. Participants were analysed individually using mixed-effects linear regression allowing the intercept to vary by participant.

Main outcome measures: Primary outcome was daily steps; secondary outcomes included sedentary time and other activity measures.

Results: Daily steps (mean ± SD) were higher at home (4552.4 ± 2639.5) compared to hospital (2597.8 ± 1450.8). Modelled results indicated a 27% increase in daily steps following hospital discharge (exp(β): 1.27, 95% CI: 1.01,1.59, p=0.039) and a sustained improvement at home. No significant differences were observed between hip fracture and multi-trauma participants.

Conclusion: Participants recovering from orthopaedic trauma showed a significant increase in daily step count upon discharge home from hospital, highlighting the positive impact of the home environment on activity levels. Further research is warranted to assess the effectiveness of interventions to improve activity levels in hospital (e.g., early intensive therapy) and at home (e.g., immediate home-based physiotherapy) in individuals following orthopaedic trauma.

Allied Health Research

EXPLORING A CHEST TRAUMA RISK ASSESSMENT SCORE IN A MAJOR TRAUMA POPULATION

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AIM: Chest injury occurs in 30-50% of patients hospitalised following trauma. Risk assessment tools such as STUMBL (STUdy of the Management of BLunt chest wall trauma) are useful in supporting early clinical decision making. Validation of STUMBL in an Australian isolated chest trauma population was undertaken with a score of >17 predicting risk of complications and ICU admission. Our aim was to review the STUMBL in a major trauma cohort.

METHODS: Patients admitted between July 2023-June 2024 with chest trauma to our trauma ward and registered with the Victorian State Trauma Outcomes Registry (VSTR) had demographic, and hospital data collected. The association between STUMBL and ICU admission, length of stay (LOS) and complications were determined via regression analyses.

RESULTS: Among 718 chest trauma patients, 490 were male (68%), with median age 65 years (IQR 49–78), ISS 13 (IQR 9–19), and STUMBL score 21 (IQR 14–29). Median LOS was 6.96 days (IQR 3.84–12.63), and 328 patients (46%) required ICU admission. Each additional STUMBL point increased the odds of ICU admission by 10%, while STUMBL >17 was associated with nearly five-fold higher odds of ICU admission (OR 4.9, 95% CI 3.34–7.12; $p<0.001$). After adjusting for gender, mechanism and ISS, STUMBL remained associated with increased LOS and more complications (both $p<0.001$).

CONCLUSION: Higher STUMBL scores were associated with higher ICU admission, hospital LOS and hospital acquired complications in this major trauma population. Further work to validate the STUMBL in this cohort will be undertaken.

Allied Health Research

BARRIERS AND FACILITATORS TO IMPLEMENTING INSPIRATORY MUSCLE TRAINING IN SPINAL CORD INJURY REHABILITATION: A CFIR-GUIDED EVALUATION

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Clinical practice guidelines recommend inspiratory muscle training (IMT) for spinal cord injury (SCI) patients with respiratory muscle weakness, yet implementation in rehabilitation settings remains inconsistent.

AIM: This study evaluated barriers and facilitators to implementing IMT at a SCI rehabilitation unit using the Consolidated Framework for Implementation Research (CFIR).

METHODS: A CFIR-guided mixed-methods evaluation was conducted at a specialist SCI rehabilitation unit, comprising benchmarking with comparable Australian SCI units, multidisciplinary stakeholder consultation, a retrospective audit of 44 consecutive SCI admissions (September 2023–July 2025), and a literature review of pneumonia incidence in high-level SCI.

RESULTS: The audit identified a substantial cohort: 55% had injuries at T6 or above, 39% with cervical injuries, and 41% of cervical injuries classified as ASIA A or B. Critical measurement gaps emerged: only one of 44 patients was coded for pneumonia despite an expected incidence of 14–31%, only 30% of the cohort identified as high-suspicion for respiratory weakness had lung function studies, and no standardised EMR pathway existed for respiratory measures including forced vital capacity (FVC) or maximal inspiratory pressure (MIP). Barriers aligned with CFIR inner setting and individual domains: equipment costs, competency concerns from low volumes and high turnover, and assessment logistics. Benchmarking confirmed these barriers across comparable Australian units.

CONCLUSION: Despite guideline recommendations and a high-risk patient population, IMT implementation is impeded by systemic barriers in measurement infrastructure, workforce capacity, and data systems. Standardised assessment pathways, EMR integration, and prospective respiratory outcome tracking are required before IMT effectiveness can be meaningfully evaluated in SCI rehabilitation.

Allied Health Research

DEMOGRAPHICS AND PHYSIOTHERAPY CARE NEEDS OF PATIENTS ADMITTED TO AC2: A THREE-MONTH AUDIT

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The AC2 ward underwent structural and organisational change in 2024. Understanding the demographics and physiotherapy needs of patients admitted to AC2 is essential to inform future models of care and service planning.

AIM: To describe the demographics and physiotherapy care needs of patients admitted to AC2 over a three-month period to inform physiotherapy service redesign.

METHOD: A three-month audit was conducted during August-October 2025. Data were collected for all AC2 patients on admission, fortnightly and at discharge. Variables included demographics, diagnosis, length of stay (LOS), pre-admission residence, discharge destination, mobility status, physiotherapy care needs and participation barriers. Physiotherapy care needs were defined as the intensity and type of therapy required to maximise patient recovery. Descriptive analyses were conducted.

RESULTS: Over the three-month period, sixty-nine patients were admitted to AC2. Stroke was the most common diagnosis (n=32, 46%), followed by neurological/neurosurgical conditions (n=11, 16%), orthopaedic conditions (n=9, 13%), burns (n=6, 9%), and other conditions (n=11, 16%). Mean age was 66±14 years (25-87). Home was the most common pre-admission residence (88%) and discharge destination (54%). Stroke patients had the longest subacute LOS (54 days). Prior to admission, 99% of patients were ambulant and 97% independently mobile. During subacute rehabilitation, 77% remained ambulant and 57% required physical assistance. To maximise recovery, patients required an average of 4.1 physiotherapy and 3.5 allied health assistant sessions weekly. Patients were deemed appropriate for: independent/semi-supervised practice (91%), upper limb therapy (65%), group exercise (50%), and hydrotherapy (35%). The main participation barriers were fatigue (20%), impaired cognition (11%), and pain (9%).

CONCLUSION: AC2 comprises a complex rehabilitation population with variable needs. Stroke was the largest subgroup with the longest subacute LOS. Opportunities to optimise physiotherapy service delivery include independent exercise programs, group exercise and hydrotherapy. These findings will inform redesign of the AC2 physiotherapy model of care.

Allied Health Research

DEVELOPMENT OF A NEW SMARTPHONEBASED ECOLOGICAL MOMENTARY ASSESSMENT SURVEY FOR STROKE REHABILITATION

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AIM: Existing patientreported outcome measures that rely on memory and summative judgements are insensitive to capturing day-to-day experiences. Ecological momentary assessment (EMA) offers an alternative for capturing patient-reported outcomes in real-time. This study systematically developed a smartphonebased EMA survey to measure daily activities and wellbeing in stroke survivors and carers during rehabilitation.

METHOD: EMA survey items assessing momentary wellbeing (e.g. boredom, loneliness) and context (e.g. location, activity, people present) were developed from the literature and existing EMA tools. Stroke rehabilitation experts from Australia and New Zealand rated each item against 13 ESM-Q quality criteria, assessing clarity, appropriateness and suitability for six-times-daily sampling. Refined items were evaluated during cognitive interviews with stroke survivors and carers using think-aloud and concurrent verbal probing techniques to identify comprehension, judgement or response issues.

RESULTS: Thirteen multidisciplinary stroke rehabilitation experts reviewed 23 survey items. Eight items demonstrated substantial concerns (<80% agreement on ≥3 quality criteria), most commonly related to ambiguity, ease of understanding and response option coverage. Minor wording changes were made to 22 items, and one wellbeing construct (sense of progress) was removed due to unsuitability for high-frequency sampling. Ten stroke survivors (6 inpatients; median age 63 years [IQR 53-68]) and two carers completed cognitive interviews. Interviews identified other salient constructs, issues with concept interpretation, non-adherence to the intended momentary perspective and difficulty mapping to response options. The final EMA survey incorporated a new tiredness item and refinements to item order, wording (11 items), response categories (12 items) and sampling schedule.

CONCLUSION: Expert review and cognitive interviewing improved the clarity, comprehensibility and content validity of a new smartphone-based EMA survey for stroke survivors and carers. Cognitive interviewing identified and resolved issues related to interpretation and application of momentary assessment concepts. Future research will evaluate the feasibility of completing EMA surveys during stroke rehabilitation.

Allied Health Research

FORM MEETS FUNCTION: IMPROVING RADIATION THERAPY COMFORT AND ACCURACY WITH PERSONALISED NECK SUPPORTS.

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INTRODUCTION: The emergence of surface-guided radiation therapy (SGRT) has introduced the potential for maskless treatment approaches for patients with head and neck cancer. This development is particularly significant for individuals who are unable to tolerate conventional thermoplastic immobilisation masks due to mask-associated anxiety and claustrophobia. When used in conjunction with SGRT, personalised neck supports (Moldcare – ALCARE Co., Ltd. Japan) may offer enhanced stabilisation and greater comfort to patients when compared with standardised neck supports solutions.

AIM: 8 non-clinical participants were randomised to either Moldcare E or Moldcare S personalised neck supports and attended four separate 15-minute sessions on a radiation therapy treatment couch. At each session, participants were stabilised with either their personalised cushion or a standard neck shape. Intrafraction motion was monitored and recorded with SGRT and analysed using the R statistical software package. Participants completed questionnaires with questions regarding comfort, stability, and odour.

RESULTS: Analysis of SGRT data found that the use of Moldcare E personalised neck supports reduced variation in all 6 planes of motion when compared with standard neck shapes, whereas Moldcare S neck supports achieved comparable results to standard neck shapes. Moldcare E neck supports achieved a 95th percentile that comfortably met departmental tolerance thresholds in all planes of motion.

Analysis of participant questionnaires indicated a trend toward increased comfort with personalised neck supports compared with traditional neck supports. However, no demonstrable differences were observed in perceived stabilisation or odour between the two support modalities.

CONCLUSIONS: When used in conjunction with SGRT, Moldcare E personalised neck supports demonstrated greater stabilisation and increased reportable comfort than standardised neck supports. These findings support the feasibility of maskless treatment for patients receiving treatment to the head and neck without compromising patient care when conventual masks are not tolerated.

Allied Health Research

EXPLORING RELATIONSHIPS BETWEEN NUTRITION IMPACT SYMPTOMS, MUSCLE MASS AND MALNUTRITION FOLLOWING OESOPHAGOGASTRIC CANCER SURGERY.

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Aim: To determine the association between nutrition impact symptoms (NIS) and malnutrition, loss of weight (LOW), and muscle loss throughout surgical treatment of oesophagogastric (OG) cancer.

Methods: This prospective observational study included patients who had OG cancer surgery. Data were collected preoperatively and at multiple time points up to 12 months postoperatively. Validated oncology quality-of-life questionnaires measured NIS. Muscle loss was determined using computed tomography to quantify the percentage change in skeletal muscle index (SMI, cm^2/m^2) from diagnosis. Malnutrition was diagnosed using the Global Leadership Initiative on Malnutrition definition. Spearman's correlations assessed relationships between NIS, weight, and muscle loss. T-tests (Wilcoxon) compared NIS between malnourished and well-nourished groups.

Results: Fifty patients (62% male, mean age 64 ± 10.3 years) were included preoperatively, with 32 patients at 12 months. Preoperatively, pain (r_s 0.376, p = 0.016), appetite loss (r = 0.478, p = 0.002), dysphagia (r = 0.554, p <0.001), eating restriction (r = 0.460, p = 0.002), odynophagia (r = 0.360, p = 0.021) and taste changes (r = 0.405, p = 0.009) showed moderate to strong positive correlations with percentage LOW. At 12 months, dysphagia (r = -0.381, p = 0.034), eating restriction (r = -0.411, p = 0.022), and odynophagia (r = -0.417, p = 0.020) showed a moderate negative correlation with percentage muscle loss, and no correlations were found between NIS and LOW. Malnourished patients had worse dysphagia (18.4 vs 4.6, p = 0.034) and eating restriction scores (32.9 vs 15.6, p = 0.043) compared to well-nourished patients preoperatively. There were no differences in NIS between groups at 12 months.

Conclusions Nutrition impact symptoms were associated with greater weight loss and malnutrition preoperatively, and with increased muscle loss following OG cancer surgery. NIS may be key nutrition risk indicators, supporting ongoing symptom surveillance and nutrition intervention.

Allied Health Research

HOW ARE PEOPLE WITH DISABILITY IDENTIFIED IN HOSPITAL SETTINGS? A SCOPING REVIEW

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AIM: To map approaches used to identify people with disability in hospital settings, including how disability status and reasonable adjustment needs are recognised, recorded, communicated and operationalised.

METHODS: A scoping review was conducted in accordance with JBI methodology and reported using PRISMA-ScR. MEDLINE, Scopus and CINAHL were searched for English-language records published from 2001, supplemented by Google Scholar and reference-list searching. Eligible evidence included empirical studies, implementation reports, and policy documents addressing prospective disability or adjustment identification. Records underwent duplicate screening, and extracted data were checked for accuracy. Findings were charted inductively and synthesised using the Patterns, Advances, Gaps, Evidence for Practice and Research recommendations (PAGER) framework.

RESULTS: Database searches identified 7,860 records; 27 studies met the inclusion criteria. Most studies were conducted in the United Kingdom (52%) or Australia (26%), and 89% were published from 2016. Identification was multimodal, occurring through a combination of person-mediated and health system-mediated routes. Identification approaches included self or proxy disclosure, referrals, patient-held passports, structured questions, screening, pre-admission assessments, electronic fields, alerts, and patient portals. Recent studies described a shift towards systematic approaches to identification with a focus on individual support needs. However, responsibilities for recording and updating disability-related information were often unclear, no standardised approach to identification and documentation was evident, and identification did not ensure clinician awareness. Evaluations of disability identification approaches predominantly examined implementation and acceptability rather than patient outcomes.

CONCLUSIONS: Gaps in literature highlight opportunities for hospitals to co-design accessible disability identification systems with people with disability. These should use multimodal pathways that combine person- and proxy-provided information, standardised questions and system prompts to identify disability and support needs and enable clinicians to operationalise reasonable adjustments. Consistent identification is important at the point of care, to support patient outcomes, and at the health-system level, to monitor equity in outcomes.

Allied Health Research

EARLY NEUROCOGNITIVE OUTCOMES FOLLOWING SEEG WITH RADIOFREQUENCY THERMOCOAGULATION

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AIM: Characterisation of early neuropsychological outcomes following SEEG with radiofrequency thermocoagulation (RFTHC) is essential to guide patient expectations around return to work, study, and caregiving. The current study aimed to describe the early neurocognitive sequelae.

METHOD: Consecutive patients undergoing SEEG were prospectively recruited from The Alfred and St Vincent's Hospitals. Patients were administered the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) via telehealth before and 3-weeks after SEEG (*M*=19.69 days, *SD*=4.41). Given the telehealth platform, the coding subtest was substituted for Symbol Digit Modalities Test and a modified score of global cognitive function calculated. To evaluate group changes, paired sample t-tests were performed. Reliable change indices were computed to explore individual-level changes. Pearson's correlation coefficients evaluated relationships between change in global cognitive function and SEEG admission variables. A semi-structured interview canvased subjective recovery following SEEG.

RESULTS: Twenty-eight patients completed the neuropsychological examination (*M*=37.89 years, *SD*=9.72, range=17-56 years, 54%female). All patients underwent RFTHC with a mean of 11.43(*SD*=6.87, range=2-28) coagulation sites. At a whole group level, 3-weeks post SEEG there was no evidence for global nor domain-specific cognitive change. Reliable change indices with 90% confidence revealed only 4%(1/28) declined on at least two measures and 10%(3/28) showed psychometric improvement. Pearson's correlational coefficients showed no evidence for association between change in global cognitive function with SEEG factors including admission length, number of spontaneous or stimulated seizures, number of electrodes, or number of RFTHC sites. Subjective reports of language change tended to be accompanied by a decline on the RBANS language index that did not meet reliable change criteria. Most patients reported returning to work around 4 weeks post SEEG.

CONCLUSION: By three weeks, gross cognitive functioning tends to be in keeping with pre-SEEG performances for most patients. These findings have direct clinical implications for SEEG neuropsychological counselling.

Allied Health Research

ARE PATIENTS BECOMING MORE COMPLEX? A QUALITATIVE INVESTIGATION OF THE PERCEPTIONS OF ALLIED HEALTH PROFESSIONALS

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Allied health professionals working in public healthcare describe their work as being complex, however, little is known about how they understand and experience this complexity.

METHODS: Focus groups were used to explore perceptions of complexity among allied health professionals working at two large metropolitan public health services in Victoria, Australia. Purposive sampling was used to recruit participants from multiple allied health professions, clinical programs, and years of work experience. Focus groups were conducted via videoconference, audio-recorded, and transcribed verbatim. Data were analysed using inductive thematic analysis. Rigour was enhanced through double coding, member checking, and maintenance of an audit trail.

RESULTS: Twelve focus groups were conducted with 78 participants from dietetics (n=10), occupational therapy (n=13), physiotherapy (n=16), podiatry (n=11), prosthetics/orthotics (n=3), psychology (n=4), social work (n=13), and speech pathology (n=8). Of these, 71 participants (91%) had at least 5 years work experience. Participants perceived that their work had become increasingly complex over time. Four interrelated sub-themes were identified: 1) patients have complex needs; 2) throughput pressure is relentless; 3) administrative expectations add layers of process-related work; and 4) healthcare systems are complex to navigate. Complexity occurred within a context of: increased patient acuity, with older patients presenting later in their disease progression and with more co-morbidities; heightened expectations from patients/family, influenced by increased access to online information and the organisation to discharge patients earlier; limited staffing resources; and workforce challenges, with clinicians feeling emotionally burdened, cognitively overloaded, undervalued, and burnt out.

CONCLUSIONS: Allied health professionals perceived that their work was highly complex and attributed this to caring for patients with multiple physical, emotional, and social needs, managing throughput pressures, meeting compliance and documentation demands, and navigating an increasingly complex healthcare system. Findings highlight opportunities to address complexity through workforce planning and service design.

Allied Health Research

EXCLUSIVE ENTERAL NUTRITION INDUCES SONOGRAPHIC RESPONSE, TRANSMURAL HEALING AND IMPROVES BODY COMPOSITION IN ADULTS WITH ACTIVE CROHN'S DISEASE

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Limited information exists on the impact of exclusive enteral nutrition (EEN) on transmural healing and body composition in adults with Crohn's disease (CD).

AIM: To assess the impact of EEN on transmural healing, body composition and quality of life (QOL) in adult patients with active CD.

METHODS: A prospective cohort study in adult patients with active CD treated with 6-weeks EEN therapy as the sole induction agent was conducted. Exclusion criteria comprise recent change to CD-related medication, treatment with corticosteroids and pregnancy/lactation. Adjustments to EEN dosage for weight management were made. Assessments included before-after sonographic assessment of disease activity, body composition (anthropometry, bioimpedance), QOL and symptoms.

RESULTS: 24 patients commenced EEN, 22 (92%) completed 6-weeks of EEN treatment (50% female, median 36 [31-53] yrs, disease duration 14 [3-20] yrs, 46% ileal disease only). In per-protocol analysis, bowel wall thickness (BWT) reduced by 1.4 [0.75-2.5] (p=<0.0001). IBUS-SAS reduced from 43 [31-70.5] to 22 [10.5-30.8]. 60% of patients achieved sonographic response (defined as reduction in BWT of >20%). Three patients achieved transmural healing. Harvey-Bradshaw Index (HBI) reduced from median 5 [IQR: 3-7.75] to 1 [1-5.5] (p=0.02). Total IBDQ score increased from 147 [125-172] to 175 [155-195] (p=0.008).

In 10 overweight/obese patients with the goal of intentional weight loss, weight, fat mass (30.7 [24.8-40.5] kg to 29.4 [23.6-35.5], fat mass percentage 37.6 [33.5-41.7] to 37.1 [33.1-40.0] % and waist circumference significantly reduced (100 [91-107] to 98 [81-101] cm) (all p≤0.05) with percentage of total body skeletal muscle mass being maintained (28.0 [27.7-30.5]% vs 28.4 [27.8-30.7]% (p=0.055). In patients in the underweight or healthy weight category, no difference in body composition was observed.

CONCLUSIONS: EEN as an induction monotherapy achieves high rates of clinical and sonographic response over 6-weeks, and EEN exhibited dual actions by promoting reduced transmural inflammation and favourably influencing body composition.

Allied Health Research

MALNUTRITION STATUS BEFORE AND AFTER DIETETIC INTERVENTION IN CLIENTS AGED ≥ 65 YEARS ATTENDING A COMMUNITY REHABILITATION PROGRAM

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Malnutrition and risk of malnutrition are common among older adults and are associated with poorer functional outcomes, making early identification and intervention important in community rehabilitation.

AIM: To determine whether dietetic intervention within a Community Rehabilitation Program (CRP) improves nutritional status in adults aged 65 years and older and to identify cohorts at greater risk of malnutrition.

METHOD: A retrospective pre-post evaluation was conducted using the Mini Nutritional Assessment Short Form (MNA-SF). Clients referred to CRP dietitians between a six-month period were included if both baseline and discharge MNA-SF assessments were completed if intervention was for three weeks or longer. Data collected included MNA-SF category, Malnutrition Screening Tool (MST), primary diagnosis and type of dietetic intervention received (education, high energy high protein (HEHP) and/or oral nutritional supplements (ONS)).

RESULTS: 68 clients were eligible. At baseline, 25% of clients were malnourished and 55% were at risk of malnutrition. Following dietetic intervention, 59% of malnourished clients improved to the at-risk category and 6% improved to well nourished. Of 55% clients at risk of malnutrition, 53% improved to the well-nourished status. Nutritional improvement was observed among clients who received high-energy, high-protein (HEHP) education. Clients with gastrointestinal conditions and functional decline demonstrated the lowest baseline MNA-SF scores. Mean nutritional status improved across all diagnostic groups.

CONCLUSION: Dietetic intervention within CRP was associated with improved nutritional status in older adults, particularly among clients who were malnourished or at risk of malnutrition at baseline. These findings support early identification and targeted HEHP nutrition intervention for older adults participating in community rehabilitation services.

Allied Health Research

CASE SERIES: EFFECTIVENESS OF SEMIRIGID SLIPPER CASTS AS AN OFFLOADING DEVICE FOR INDIVIDUALS WITH DIABETIC FOOT ULCERS

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Diabetic foot ulcers (DFUs) are a leading cause of lower limb morbidity, with a lifetime risk of 19-34% among people with diabetes. Total contact casting (TCC) is the gold standard for offloading plantar DFUs; however, numerous clinical contraindications limit its use, and evidence for alternative offloading devices such as semirigid slipper casts remains limited.

AIM: To evaluate the effectiveness of custom semirigid slipper casts as an offloading device for DFUs in individuals not suitable for total contact casting.

METHOD: A prospective case series was conducted at a tertiary public health service with a dedicated High-Risk Foot Service in metropolitan Melbourne. Six participants with Type 1 or Type 2 diabetes and plantar DFUs were fitted with a custom semirigid slipper cast. Peak plantar pressure (PPP) and wound size were recorded at baseline, six weeks, and twelve weeks. Outcome thresholds were a minimum 30% reduction in PPP and 50% reduction in wound size.

RESULTS: All six participants achieved clinically significant reductions in PPP, exceeding the 30% threshold at baseline (range 78-100%). Complete wound healing was achieved in three participants within twelve weeks, and near-complete wound closure (≥90% reduction in wound area) was observed in the remaining participants by their final review.

CONCLUSION: Semirigid slipper casts demonstrate clinically meaningful reductions in PPP and support wound healing in individuals with plantar DFUs who are not suitable for TCC. These findings support slipper casting as an effective bridging offloading modality between TCC and less reliable offloading options.

Allied Health Research

IMPROVING MULTIDISCIPLINARY GOAL SETTING IN SUBACUTE REHABILITATION

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Effective goal setting is an important component of stroke rehabilitation and should be collaborative, person-centred and meaningful to the stroke survivor. Clinical Guidelines for Stroke Management strongly recommend identified goals be clearly communicated, documented and regularly reviewed by the multidisciplinary team throughout a stroke survivor's recovery.

AIM: To optimise goal setting processes on the neurological rehabilitation ward at Caulfield Hospital, through the implementation of a structured model of care and tailored resources.

METHOD: The Plan-Do-Study-Act (PDSA) framework was employed to guide the implementation process. Pre and post outcome measures included an online survey of clinicians routinely involved in patient goal setting, with the use of audit checklists to evaluate the content discussed during multidisciplinary case conferences and related documentation.

RESULTS: Pre-implementation survey of allied health and nursing clinicians (n=14) indicated that only 9% were consistently aware of patient's multidisciplinary goals; Audit processes captured patient goals being discussed 60% of the time (n=20), with the documentation audit (n=20) demonstrating only 48% of discharge plans aligned with timeframes set for patient goal achievement.

In response, a model of care with embedded goal setting processes and tailored resources was piloted over a 4-month period this year. Resources included a discussion structure for case conference, documentation templates, targeted staff education and quick reference guides. Repeated outcome measures demonstrated improvements in clinician awareness of goals (76%); explicit goal-focused discussions at case conference (100%) and alignment between documented discharge plans and goal timeframes (92%).

CONCLUSION: It is feasible to improve multidisciplinary goal setting in the subacute setting, when clinicians are provided with targeted resources and templates as part of a structured implementation process. There is opportunity to apply the learnings from this study to other clinical areas across the organisation to improve patient-centred goal setting and multidisciplinary collaboration.

Allied Health Research

IMPLEMENTING A GRADE 1 AHA ROLE: WORKFORCE INNOVATION TO ENHANCE WORKFLOW EFFICIENCY, ENABLE TOP-OF-SCOPE PRACTICE AND DEVELOP LEADERSHIP CAPABILITY

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Grade 1 Allied Health Assistant (AHA) roles are uncommon, with limited evidence to guide workforce integration. Early evaluation of a newly introduced Grade 1 AHA role identified challenges relating to role clarity, communication, workflow coordination and utilisation.

AIM: To evaluate the introduction of a Grade 1 AHA role and assess the impact of implementing structured role development and task allocation processes.

METHODS: A service improvement project was undertaken within the MDT AHA department. Grade 2 and 3 AHAs completed a survey exploring Grade 1 role clarity, scope of practice, delegation, communication, supervision and workflow efficiency. Feedback from the Grade 1 AHA informed development of a role framework and standardised task allocation system. A follow-up survey was conducted three months after implementation.

RESULTS: Baseline findings identified variability in role understanding, confidence in delegation and perceptions of workflow effectiveness. Following implementation, AHAs reported improved role clarity, task allocation, communication and visibility of task progress. Daily utilisation of Grade 1 AHAs increased from 40% to 90.9%, indicating greater integration into routine stream activities. Positive perceptions of workflow efficiency increased from 40% to 81.8%, with 45.5% reporting significant improvements compared with none at baseline. Leadership behaviours also emerged across multiple workforce levels. Grade 2 and 3 AHAs demonstrated leadership through supervision and delegation, while the Grade 1 AHA progressed from novice learner to contributor, supporting referral training for other AHAs and knowledge sharing within the team.

CONCLUSION: Introducing a structured Grade 1 AHA role improved workforce integration, increased utilisation of Grade 1 AHAs and enhanced workflow efficiency. The project also highlighted leadership development and knowledge sharing across all levels of the AHA workforce. These findings demonstrate how structured implementation, informed by evaluation and stakeholder feedback, can support top-of-scope practice and provide a transferable model for allied health workforce innovation.

Allied Health Research

EFFECTIVENESS OF ADHERENCE-ENHANCING STRATEGIES COMPARED WITH STANDARD CARE IN ADULTS WITH EPILEPSY: A SYSTEMATIC REVIEW

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AIM: Adherence is essential to the effectiveness of epilepsy treatments. This systematic literature review (SLR) aims to evaluate adherence-enhancing interventions to anti-seizure medication (ASM) or ketogenic diet therapy (KDT) in adults with epilepsy.

METHOD: The SLR was conducted across five databases (EMBASE, MEDLINE, EMCARE, CENTRAL and CINAHL) from inception until 26th February 2026. Studies were included if participants were ≥18 years with epilepsy and evaluated an intervention to improve adherence to ASM or KDT compared to standard care. Excluded studies were those published in languages other than English, case studies, unpublished manuscripts or conference abstracts. Two independent reviewers conducted the screening, data extraction and risk-of-bias assessment using the National Institutes of Health Quality Assessment Tool.

RESULTS: 8443 records were identified; 22 articles met the inclusion criteria with 3986 combined participants. Heterogeneity in the primary outcomes prevented meta-analysis. Six categories of adherence interventions were identified for each study's primary intervention: self-management (n=7), digital/technology-assisted interventions (n=6), educational interventions (n=5), counselling/psychosocial support (n=2), therapeutic drug monitoring (n=1) and dietary supplements (n=1). Seventeen studies used more than one intervention component. Eight statistically significant improvements in adherence were reported across self-management, educational, digital and counselling interventions. No interventions worsened treatment adherence.

CONCLUSION: There was a predominance of multicomponent interventions to improve adherence. More personalised and multifaceted approaches may improve treatment adherence in adults with epilepsy. Only 1 study addressed KDT adherence specifically. Poor adherence is frequently reported as a barrier to KDT highlighting a clear need for further research into interventions to improve adherence.

Allied Health Research

COMMUNITY AND SOCIAL PARTICIPATION DURING REHABILITATION FOLLOWING SEVERE BRAIN INJURY: EXPERIENCES OF KEY STAKEHOLDERS

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Severe acquired brain injury (ABI) can significantly impact a person's community and social participation. Limited evidence informs how rehabilitation supports the return to meaningful participation in the community.

AIM: Develop an understanding from key stakeholders' experiences of how rehabilitation helps or hinders the return to community and social participation following severe ABI.

METHOD: This qualitative study used constructivist grounded theory to inform recruitment and data analysis methods. Using purposive sampling, participants with ABI and families were recruited from a single rehabilitation site, health professionals were recruited with rehabilitation experience nationally. Data were collected via in-depth interviews, concurrent to analysis, involving an iterative process of coding, resulting in the development of categories.

RESULTS: A sample of 13 people with severe ABI, 8 family members and 20 health professionals participated. The findings demonstrate convergence of experiences where the value in supporting community and social participation during rehabilitation is recognised. Across participants, they shared how experiences in the community during rehabilitation created opportunities for learning, preparing and connecting. However, results show little opportunity or focus is given to supporting community and social participation during rehabilitation. Rather they experienced a focus on discharge, with impairment and function heavily prioritised. The complexity and challenges that can arise when commencing community participation were echoed across participant groups. Health professionals shared how they draw on their specialist experiences when faced with the complexity, where people with ABI described wanting to be accepted and families shared the need for people to understand the journey, including the overwhelming responsibility being carried.

CONCLUSION: The findings suggest missed opportunities to support positive community and social participation outcomes for people with severe ABI. Highlighted is the importance of considering community and social participation through the continuum of rehabilitation. Future research aims to codesign an intervention program which draws on contextual community experiences.

Allied Health Research

EXAMINING GRIEF AS A DISTINCT EMOTIONAL RESPONSE AFTER STROKE: A CROSS-SECTIONAL STUDY

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BACKGROUND: Stroke can result in significant loss of functional capacity and independence, in turn impacting identity, valued roles, and expectations for the future. These losses and changes in functioning may contribute to experiences of grief; however, grief following stroke has received limited research attention.

AIM: This study examined the presence of grief among stroke survivors and whether it represents a construct distinct from depressive symptoms.

METHODS: We conducted a cross-sectional observational study of stroke survivors recruited from two Australian rehabilitation centres. Participants completed the Spinal Cord Injury – Quality of Life (SCI-QOL) Grief and Loss measure, adapted for stroke, and the Hospital Anxiety and Depression Scale – Depression subscale (HADS-D) between 4 weeks and 12 months post-stroke. Descriptive statistics characterised grief and depressive symptoms, and associations were examined using Spearman's correlation, Mann–Whitney U, and Fisher's exact tests.

RESULTS: Thirty-two stroke survivors were included (18 [56%] male; median age 56 years, IQR 45.5–62.5), most of whom had ischaemic stroke (n=26, 81%). Ten participants (31%) met the threshold for possible depression (HADS-D ≥8), while 14 (44%) had elevated grief (SCI-QOL T-scores ≥ the SCI population mean). Grief and depressive symptom scores were positively correlated (Spearman ρ=0.58, P<0.001). Participants with possible depression had higher grief scores than those without (median 55.9, IQR 51.1–61.8 vs. 46.2, IQR 37.4–49.4; P=0.002). Although elevated grief was more common among participants with possible depression (8 of the 10 participants), it was still present in 5 of 22 participants without possible depression (P=0.005).

CONCULSION: Elevated grief appears to be present in a substantial proportion of stroke survivors and may represent a distinct aspect of psychological adjustment after stroke. Although associated with depressive symptoms, elevated grief was also present in survivors without possible depression, highlighting the need to consider grief alongside depression in post-stroke psychological care.

Allied Health Research

PREVIOUS PR DOES NOT IMPACT FRAILTY AT COPD HOSPITALISATION

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INTRODUCTION: Frailty is common in people with COPD, particularly those with repeated exacerbations. Pulmonary rehabilitation (PR) can mitigate the impact of frailty.

AIM: To determine whether previous PR influences frailty status at time of hospitalisation for COPD exacerbation (ECOPD).

METHOD: Cohort study using participant baseline data from a RCT (5 sites: 3 NSW, 2 VIC; 2 regional). Individuals hospitalised with ECOPD, aged ≥40 years were eligible. Frailty status at hospitalisation, demographics and self-reported any prior PR were required for analysis. Frailty was assessed using the 9-point Clinical Frailty Scale (CFS) with scores ≥5 indicating frailty.

RESULTS: 133 participants (n=68 (51%) female) with mean(SD) age 72(9) years, BMI 27(7) kg/m² and FEV_1 48(23) %predicted were included. The majority of participants were ex-smokers (n=103, 77%) and over half had no previous PR (n=71, 53%).

Median [IQR] CFS score was 4 [4, 5] (range 1-6). Fifty-four (41%) were frail (CFS≥5). Of these, thirty-seven (28%) were mildly frail (CFS=5) and seventeen (13%) were moderately frail (CFS=6). Frail participants were older (median age 74 versus 70, p=0.03) but spent less time in hospital (median 6 versus 7 days, p=0.04).

The proportion of people who were frail was not different between those who did and did not report previous PR (both n=27 (17%), p=0.5). Similarly, there was no difference in previous PR participation in those mildly frail (PR n=16 (10%), no-PR n=21 (13%); p=0.4) and those moderately frail (PR n=11 (17%), no-PR n=6 (4%); p=0.2).

Linear regression analysis showed older age was a significant predictor of frailty (Exp b=0.18, p=0.04) and remained so when controlling for BMI, disease severity and previous PR participation (Exp b=0.21, p=0.04).

CONCLUSION: Previous PR participation did not impact frailty status at time of hospitalisation for ECOPD. Future studies could explore the impact of time since PR participation on frailty status.

GRANT SUPPORT: The data used in this analysis was collected as part of the NHMRC funded Early HomeBase trial (GNT1157313)

Allied Health Research

IMPLEMENTING THE PHYSIOTHERAPY COMPONENT OF BLUNT CHEST WALL TRAUMA GUIDELINES IN ICU

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Clinical guidelines are implemented to improve patient care. The multidisciplinary blunt chest wall trauma guideline was introduced in The Alfred Hospital intensive care unit (ICU), to standardise and improve patient management.

AIM: To evaluate the adherence of the physiotherapy component of the multidisciplinary blunt chest wall trauma guideline, including time to first review, completion of risk assessments and twice-daily review of high-risk patients on ICU day one.

METHODS: This quality improvement project included patients admitted to ICU with chest trauma based on the international classification of disease codes, who did not receive invasive mechanical ventilation (IMV). Data were collected from routine electronic medical records between January to December 2024.

RESULTS: During 2024, 464 patients were admitted to The Alfred ICU with chest trauma. Of these 154 received IMV, leaving 310 patients included in this review. The patients had a mean ± SD age of 66 ± 19 years, 94 (30.3%) were female and had a median (IQR) ICU length of stay of 2.1 (1.3-3.8) days.

Median (IQR) time from hospital admission to first physiotherapy review was 16.8 (11.3-22.3) hours. Admission risk assessment scores (STUMBL) were completed by physiotherapists in 249 (80%) of patients.

Daily risk assessment scores (SCARF) were completed in 260 (84%) patients. Only 34% (17/50) of high-risk patients received two reviews on day one. The reasons patients did not receive a second review included clinically not indicated (n=23), patient factors (n=6), time in theatre (n=2) and caseload constraints (n=2)

CONCULSION: Overall adherence to the guidelines was good, particularly for early physiotherapy review and completion of risk assessment scores. However, compliance with twice daily review for high-risk patients on day one was low, with physiotherapists frequently relying on clinical judgement rather than risk assessment scores.

Allied Health Research

VISUAL-PERCEPTION AND SPATIAL NEGLECT AFTER STROKE: SURVEYING CURRENT AUSTRALIAN OCCUPATIONAL THERAPY PRACTICE.

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Visual-perceptual impairment and spatial neglect are common post-stroke conditions that significantly impact occupational performance. However, there have been no studies in Australia to understand current occupational therapy practice.

AIM: To examine the current assessment, intervention, and referral practices of Australian occupational therapists treating post-stroke visual-perceptual impairment.

METHOD: A bespoke cross-sectional online questionnaire was conducted with Australian occupational therapists who had treated a stroke survivor within the previous six months. Data were analysed using descriptive statistics and inferential tests, including Chi-square and Mann-Whitney U tests.

RESULTS: 218 Occupational Therapists were surveyed, most participants identify visual perceptual impairments and spatial neglect amongst stroke survivors through activity of daily living (ADL) assessment (88%), compared to standardised assessments (48.4%). Intervention frequency varied across different visual-perceptual impairments, however, all respondents favoured low-resource-intensive options in line with current guideline recommendations, such as insight-building (89.2%-95.0%) and ADL retraining (87.6%-90.8%). While interventions that required any form of equipment, like prism glasses, were rarely used (0%-3.0%). Regional and rural clinicians had significantly less access to hospital-based specialist eye care ($p < .001$) and were less likely to use standardised assessment tools than metropolitan clinicians ($p=.025$).

CONCLUSION: This is the first Australian survey of occupational therapists' assessment and intervention of visual-perceptual impairment and spatial neglect following stroke. Assessment and intervention practices vary across Australia. Occupational therapists favour accessible, occupation-focused approaches that align with existing service models, highlighting important factors impacting the implementation of evidence-based practice.

Allied Health Research

IMPLEMENTING ROUTINE EDUCATION ON MANUAL HANDLING SKILLS AND ESCALATION PATHWAYS FOR NURSING STAFF ON THE INPATIENT ACQUIRED BRAIN INJURY REHABILITATION WARD

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Manual handling on Acquired Brain Injury (ABI) Wards is complex. Although nursing staff complete yearly manual handling training, wheelchair use and mobilising beyond the bedspace are not covered. These manual handling complexities are associated with nursing injuries, reduced job satisfaction and increased escalation for physiotherapy support, highlighting an unmet education need.

AIM: To implement and evaluate the effectiveness of a physiotherapy-led manual handling and wheelchair skills education program for nursing staff on an inpatient ABI rehabilitation ward.

METHOD: A pre-intervention survey was distributed to nursing staff to assess self-reported confidence. In collaboration with ABI nursing educator, multiple data sources informed program content; manual handling injury Riskman data; logs of escalated mobility concerns. Key identified challenges were wheelchair skills and supporting patients to mobilise beyond the bedspace. A bi-weekly physiotherapy-led education program targeting these needs was designed and delivered over three weeks. A post-intervention survey was circulated exploring participant reflections, implementation of learnt strategies and barriers to their utilisation.

RESULTS: 21 nursing staff attended the education sessions run by 2 physiotherapists across the 3-week program. Pre-intervention survey data was incongruent with Riskman data, escalated mobility concerns and nursing educator observations. Post-intervention data showed 63-90% uptake of different manual handling skills and 55-90% uptake of a range of wheelchair-based skills. Qualitative participant feedback reported increased use of strategies and improved problem solving during complex manual handling tasks in clinical practice.

CONCLUSION: This physiotherapy-led education program targeting ABI specific manual handling and wheelchair skills has been an iterative process. The data collected suggests that an ABI specific manual handling and wheelchair training program is beneficial in improving nursing staff utilisation of rehabilitation manual handling skills and principles. Data collection for longer term impact pertaining to injuries and escalation of mobility concerns is ongoing. Future work will explore feasibility for implementation across services.

Allied Health Research

THE WORKFORCE-RELATED BENEFITS OF INTERVENTIONS DESIGNED TO CONTRIBUTE TO A POSITIVE RESEARCH CULTURE IN HEALTHCARE ORGANISATIONS: A SYSTEMATIC REVIEW

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AIM: Undertaking research in healthcare settings can contribute to evidence-based practice and optimise healthcare quality and patient-related outcomes. However, the benefits for staff wellbeing, engagement and retention are unclear. This systematic review aimed to identify the association between interventions designed to contribute to a positive research culture within healthcare organisations and workforce-related outcomes.

METHODS: The Cumulative Index to Nursing and Allied Health Literature, MEDLINE, Embase and Emcare databases were searched systematically. Titles and abstracts, and later full text, of identified records were screened by two reviewers based on pre-determined inclusion criteria. Quality was assessed by two reviewers using the Medical Education Research Study Quality Instrument. Data were extracted against pre-defined criteria and results were synthesised descriptively due to the heterogeneity of included studies.

RESULTS: The 15 included studies were diverse in design, setting, participants and workforce-related outcomes. Interventions designed to contribute to a positive research culture included participants undertaking research (n=11), research-related mentorship (n=3) and financial support to cover research-related costs (n=1). Intervention components that supported participants in undertaking research included research-related mentorship (n=8), education (n=7), collaboration (n=4), resources (n=3), money (n=2) and protected time (n=1). Of the 11 studies where participants undertook research, eight reported workforce-related benefits with respect to staff turnover, retention, burnout, satisfaction, autonomy, perceived organisational support and career progression. Of the remaining four studies, benefits in work engagement, retention and career progression were observed in two of the three studies involving research-related mentorship, and increased productivity was reported in the single study evaluating financial support.

CONCLUSION: Workforce-related benefits were associated with interventions designed to contribute to a positive research culture in healthcare organisations, particularly interventions that support healthcare professionals to undertake research. However, further large, randomised controlled trials are needed to confirm the associations and determine the relative contributions of intervention components.

Allied Health Research

BEYOND SYMPTOM REPORTING: FEASIBILITY OF ROUTINE BPPV SCREENING IN SEVERE TO EXTREMELY SEVERE TRAUMATIC BRAIN INJURIES ON AN INPATIENT ABI REHABILITATION WARD

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Benign Paroxysmal Positional Vertigo (BPPV) is common following traumatic brain injury (TBI). Assessment is often symptom-driven, however challenges with symptom reporting are common in this population, particularly for those with severe injury.

AIM: To conduct a quality improvement project determining the prevalence of BPPV in patients with TBI admitted to Caulfield Hospital Inpatient ABI Rehabilitation Unit, regardless of symptom reporting, and evaluate the feasibility of routine vestibular screening.

METHODS: Eligible patients had a diagnosis of TBI. Subjective dizziness was assessed using the Modified Dizziness Handicap Inventory (mDHI), while experienced clinicians completed objective vestibular assessments using bilateral Dix-Hallpike and Supine Roll Tests. Demographics, injury severity, assessment timing, and feasibility data was collected, including barriers to assessment.

RESULTS: Over a two-month period, twenty-three patients met inclusion criteria, with 18 successfully screened and assessed. Five patients were not assessed due to physical, cognitive, behavioural, or discharge-related barriers. Of those assessed, 39% tested positive for BPPV. With increasing mobility impairment, likelihood of BPPV diagnosis increased. Positive BPPV findings occurred in 30% of independent patients, 50% of patients requiring supervision, and 67% of those requiring assistance from two people for transfers. Nearly one-third of patients with objectively confirmed BPPV reported no dizziness symptoms on the mDHI, indicating potential vestibular agnosia. The average time from admission to subjective assessment was 12 days, with objective assessment completed a further 17 days later.

CONCLUSION: BPPV was identified in a substantial proportion of patients undergoing ABI rehabilitation, including patients without self-reported dizziness. A higher degree of physical impairment correlates with an increased likelihood of BPPV. Routine objective vestibular assessment may improve detection of otherwise unrecognised BPPV; however, implementation requires consideration of assessment barriers and clinical resources. Further research with larger samples is warranted.

Allied Health Research

PORTABLE ULTRASOUND OUTPERFORMS BIOIMPEDANCE FOR BODY COMPOSITION ASSESSMENT AFTER SLEEVE GASTRECTOMY

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Accurate assessment of fat and lean mass is increasingly recognised as important in obesity care; however, accessible methods that can both quantify body composition and detect postoperative change are needed.

AIM: To compare portable ultrasound and bioimpedance spectroscopy (BIS) with dual-energy X-ray absorptiometry (DXA) for assessing body composition and detecting change following sleeve gastrectomy.

METHODS: In this prospective cohort study, women with obesity undergoing primary sleeve gastrectomy at three Melbourne hospitals underwent body composition assessment before surgery and 12 months postoperatively using DXA (reference method), BIS and a five-site ultrasound protocol. Agreement between methods was assessed using Lin's concordance correlation coefficients (CCC), Bland–Altman analyses, correlations and mixed-effects models.

RESULTS: Fifty women were enrolled and 29 completed paired DXA assessments at 12 months, with paired BIS (n=28) and ultrasound (n=27) data available following quality-control exclusions. Ultrasound demonstrated the strongest agreement with DXA for cross-sectional assessment of fat mass (CCC=0.97–0.98) and lean mass (CCC=0.83–0.91). For longitudinal change, ultrasound showed a strong correlation with DXA for fat mass change ($r=0.97$, $p<0.001$) and a moderate correlation for lean mass change ($r=0.53$, $p=0.006$), with minimal bias and 95% limits of agreement of approximately ±7 kg. BIS demonstrated lower agreement and greater variability, particularly for lean mass change ($r=0.13$, $p=0.526$). Mixed-effects analyses identified significant effects of time and method for both fat and lean mass (all $p<0.001$).

CONCLUSION: Portable ultrasound demonstrated closer agreement with DXA than BIS for both cross-sectional body composition assessment and detection of 12-month change following sleeve gastrectomy. These preliminary findings suggest portable ultrasound may have potential as an accessible alternative for body composition monitoring when DXA is unavailable, although confirmation in larger independent cohorts is required.

Allied Health Research

COMPLEX DISCHARGE PLANNING AND FAMILY MEETINGS: GRADUATE PHYSIOTHERAPIST EXPERIENCES

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New graduate physiotherapists working in Australia's hospital system are experiencing significant challenges. They oversee a primarily clinical caseload, which involves complex discharge planning and family meetings.

AIM: To explore graduate physiotherapist experiences in complex discharge planning and family meetings, including confidence, competency and management strategies, to facilitate the appropriate supports.

METHODS: New graduate physiotherapists were recruited from a major tertiary care hospital in metropolitan Melbourne, Australia. Semi-structured interviews were completed to explore their experiences in complex discharge planning and family meetings. Audio recordings were transcribed verbatim and analysed thematically by two researchers. Themes were discussed amongst the research team to ensure validity of findings.

RESULTS: 12 graduate physiotherapists were interviewed and eight themes emerged from the data. Three of these themes related to participants perceived readiness to confidently take an active role in complex discharge planning and family meetings. Clinicians experience challenges navigating expectations as they transition from a student to new graduate, while simultaneously managing complex caseloads, the ambiguity of family meeting outcomes and the associated emotional burden. Furthermore, three themes highlighted factors influencing new graduate confidence, competence and development of caseload management skills. These included: senior clinician support, availability of relevant resources and exposure to complex caseloads. The final two themes refer to suggestions on how new graduates can be better equipped to effectively manage increasingly complex caseloads. Strategies such as increasing student and new graduate exposure to complex cases, increased senior support and greater resource accessibility.

CONCLUSION: New graduate physiotherapist experiences in managing complex discharge planning and family meetings were varied. Participants' confidence and competency was influenced by their clinical exposure and access to support and resources as a student and new graduate. Therefore, implementing identified strategies may result in greater confidence and competency of discharge planning and family meetings for new graduate physiotherapists.

A+ Nursing Research

IMPLEMENTING A STATEWIDE RURAL URGENT CARE NURSING PROGRAM: A MIXED-METHODS EVALUATION

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AIM: To evaluate rural health service leaders' perspectives on the implementation, perceived contributions and future development of the Rural Urgent Care Nursing (RUCN) Program, a Victorian Department of Health-funded statewide education initiative administered through the Alfred Emergency Academic Centre (AEAC).

METHOD: A convergent mixed-methods evaluation was conducted across Victoria's 69 public rural UCCs, with data collected from March to May 2026. Senior nursing, operational and education leaders completed an online survey examining program awareness, relevance, quality, perceived effects on nurses and organisational capacity to support participation. Semi-structured interviews explored implementation experiences, barriers and enablers, workforce and service effects, and priorities for future development. Quantitative and qualitative findings were integrated to examine convergence, complementarity and divergence.

RESULTS: Thirty-seven UCCs participated (54%); 55 leaders completed the survey and 49 participated in interviews. Leaders strongly endorsed RUCN's relevance (96%), educational quality (98%) and added value (96%), and perceived improvements in nurses' clinical knowledge (91%), skills (89%), decision-making (87%) and confidence (89%). Integrated findings showed convergence regarding program value and perceived benefits. Interviews complemented survey findings by identifying rural-specific content, practical learning and educator relationships as implementation enablers and describing integration into local workforce-development pathways. Survey respondents also reported high organisational capacity to support online learning (96%), onsite education (96%), workshops (98%) and clinical placements (91%); however, interviews revealed divergence, with workforce shortages, limited roster flexibility and difficulty securing skilled replacement staff constraining nurses' actual participation. Interviews also identified demand for progression from foundational to advanced clinical, educator and leadership development.

CONCLUSION: RUCN was highly valued, but sustainable implementation depended on more than funded access. Rural-specific education, practical learning, responsive educator support, local integration and workforce capacity were important to participation and future statewide workforce development.

A+ Nursing Research

NURSE-LED MPOX VACCINATION POP-UP CLINIC AT AN URBAN SEXUAL HEALTH CLINIC IN MELBOURNE: IMPLEMENTATION AND SERVICE OUTCOMES

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Mpox vaccines are available to eligible individuals for free through state and territory government health departments in Australia and have been available in Victoria since August 2022.

In 2025 the Victorian Health Department funded the implementation of a weekend nurse-led mpox vaccine pop-up clinic at Melbourne Sexual Health Centre (MSHC).

AIM: The aim of this pop-up clinic was to increase the accessibility of mpox vaccination and to reach individuals at risk of mpox who may not typically engage in sexual health or weekday services. Anyone identifying themselves as at risk of mpox was able to access the vaccine.

METHODS: A 12-week Saturday nurse-led mpox vaccine pop-up clinic was implemented from April to June 2025 at MSHC. Data was collected on client demographics, previous mpox vaccination, preferences and reasons for receiving the vaccine, any barriers experienced, along with how they found out about the weekend clinic. The pop-up clinic was advertised via SMSs to existing clients at MSHC, along with posters and social media advertisements. Eligible individuals could book an appointment online, call or walk in on the day.

RESULTS: A total of 159 mpox vaccines were administered to 137 individuals. Over a third of individuals were new to MSHC, 90% booked an appointment online, 10% walked in. Nearly 50% of the individuals reported that they wouldn't have had a mpox vaccine if the weekend clinic was not available. Barriers to accessing the mpox vaccine before attending the clinic were due to work constraints, not being able to attend on a weekday and availability of the vaccine.

CONCLUSION: This nurse-led mpox vaccine pop-up clinic successfully increased the access and uptake of the mpox vaccine for harder to reach populations in Victoria. It also demonstrated the capability of MSHC to respond to a public health campaign and ability to meet the needs of at-risk population groups.

A+ Nursing Research

REPRESENTATION OF OLDER ADULTS IN ACUTE STROKE RESEARCH: A SEVEN-YEAR RETROSPECTIVE ANALYSIS OF SCREENING AND RECRUITMENT AT COMPREHENSIVE STROKE CENTRE

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Background: Stroke is a disease of ageing. We set out to investigate the effect of age on access into acute stroke trials in our comprehensive stroke centre, in terms of study eligibility and consent.

Methods: We conducted a retrospective analysis of stroke research screening logs (2019–2025) at The Alfred Hospital. Participants were divided into six age groups (18-50, 51-60, 61-70, 71-80, 81-90 and 91 and over) to compare conversion rates and determine rates of recruitment into stroke research by age groups.

Results: Among 3,367 screened patients with various neurological conditions, including those with a confirmed stroke, only 512 were eligible for stroke trials and 368 (71%) were recruited. Between 10 and 14 acute stroke trials were open at Alfred during this period. The groups between 61 and 80years old represented the largest number of eligible participants (n=246). By age group, recruitment was most successful in the 61–70 age group (85/115, 75%), 71–80 age group (92/132, 70%) and 51 – 60 age group (62/93, 67%), respectively. The eldest age groups 81-90 (66/105, 63%) and 91 and over (17/28, 61%) had the lowest conversion rate.

Conclusion: Overall recruitment in eligible stroke patients was high at just over 70% with the clinical trial portfolio but lowest in stroke patients aged 80 and over at 62% (83/133). With current demographic trends in Australia, this age group is set to increase, and more study is required to ensure they are represented in future acute stroke research.

A+ Nursing Research

AI-DRIVEN EARLY FALL RISK PREDICTION TO SUPPORT PROACTIVE IN-PATIENT FALL PREVENTION

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AIM: To develop and evaluate a machine learning (ML) model that identifies hospitalised patients at high-risk of falling earlier than routine fall risk assessments (FRASS).

METHODS: Retrospective inpatient episodes (2025) from Alfred Hospital were divided into hourly intervals to capture changing falls risk over time and assess how early accurate predictions could be made before nurses completed FRASS. FRASS was used to define falls risk. The ML model was trained and validated using the dataset and then tested on unseen inpatient data from 2026 (first six months). Explainability methods identified factors contributing to each prediction and generated plain-language summaries to help clinicians understand the results. A web application was designed to provide real-time risk predictions and confidence scores, and enabled nurse-led clinical review.

RESULTS: The training dataset included 4,540 inpatient episodes. HistGradientBoosting was the best-performing model, with important predictors including age, falls history, mobility, cognitive and functional status, and features identified in clinical nursing notes. In unseen data, the model showed good discrimination between high and low-risk patients compared with FRASS (AUC 0.89). The model flagged 558 of 636 falls (87.7%), compared with 526 (82.7%) identified by FRASS. Importantly, the model flagged 58 additional falls as high risk in patients whom FRASS assessed as low risk. The model provided an earlier warning than FRASS by an average of 138-minutes, with 74.2% of predictions being accurate more than 240 minutes before FRASS completion.

CONCLUSION: Our ML falls prediction model demonstrated earlier and more accurate identification of patients at risk of falling compared with routine nurse-led assessments. By enabling proactive rather than reactive interventions, the model has the potential to support clinical decision-making, reduce preventable falls, and improve patient safety at scale. This technology harnesses data-driven intelligence to complement clinical expertise and deliver safer, more responsive hospital care.

A+ Nursing Research

INTENSIVE CARE UNIT WORKFORCE STAFFING IN AUSTRALIA AND NEW ZEALAND: A POINT PREVALENCE SURVEY

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Post the COVID-19 pandemic health worker shortages continue to strain intensive care unit (ICU) workforce sustainability and continuous 24/7 service delivery.

AIM: To describe the ICU workforce, support roles, and service coverage across Australia and New Zealand.

METHODS: Prospective, binational point-prevalence survey conducted on 21 October 2025 (08:00–12:00 hours.). Adult public and private ICUs contributing to the ANZICS Adult Patient Database completed an online survey. Data were analysed descriptively using IBM SPSS v31.

RESULTS: Data from 101 ICUs (86 Australia, 15 New Zealand) were analysed, including metropolitan (*n*=23), private (*n*=28), rural/regional (*n*=27), and tertiary (*n*=23) units. Interprofessional direct-care staffing included 1,000 nurses (43.8% critical care qualified), 182 medical consultants (present in 94.9% of units), and 458 qualified allied health professionals. Physiotherapy maintained the highest allied health coverage (95.9%), followed by pharmacy (71.4%), dietetics (63.3%) and social work (51.0%). Staffing levels were heavily stratified by unit level and size, with significant resource depletion occurring out of hours. Dedicated Indigenous liaison officers were active in only 14.3% of ICUs, and acute staff shortages required four nurse managers into direct bedside care roles. Rapid response systems operated in 93.9% of units under heterogeneous models, relying predominantly on non-dedicated ICU nursing (51.0%) and medical (55.1%) staff pulled from active bedside duties.

CONCLUSION: The contemporary ICU workforce in Australia and New Zealand exhibits significant heterogeneity across interprofessional disciplines, hospital types, and sizes. Reductions in service availability during overnight and weekend shifts expose systemic vulnerabilities in the delivery of continuous 24-hour care. Furthermore, reliance on non-dedicated bedside staff to cover rapid response systems without dedicated funding places additional strain on core direct-care allocations. These findings underscore an urgent imperative for targeted interprofessional critical care workforce planning, standardised staffing frameworks, and strategic policy reforms to safeguard service sustainability and improve outcomes.

A+ Nursing Research

CO-DESIGNING SECONDARY PREVENTION RISK FACTOR MANAGEMENT WITH CULTURALLY AND LINGUISTICALLY DIVERSE CONSUMERS AND FAMILIES

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AIM: To co-design content for an educational website with two culturally and linguistically diverse (CALD) populations (Mandarin and Russian) for two key modifiable and interrelated risk factors of heart disease; diet and mental health.

METHOD: Experience-based co-design, guided by the health literacy intervention model, was used in interactive workshops. We partnered with not-for-profit organisation experienced in multicultural community engagement, Enliven (a service of Each), to recruit community participants with a lived experience of heart disease and their family or carer(s). Each workshop included an Enliven multicultural community engagement officer, an interpreter and was facilitated by the lead researcher (SC). Workshops were audio recorded, transcribed, and content analysis undertaken.

RESULTS: Four workshops were held (2 Mandarin and 2 Russian; one each online and in-person). 15 Mandarin (6 consumers, 9 family/carers) and 16 Russian (13 consumers and 3 family/carers) speaking participants attended. Overall, both CALD groups wanted trusted evidence-based information.

For diet, both groups wanted clear and actionable guidance with strong preference for visual formats. The Mandarin group requested culturally adapted advice around making their diet more heart healthy.

For mental health, both groups wanted information (i.e Cardiac Blues) in their own language. They also wanted information on normalising the emotional changes post a cardiac event. The Russian group had a strong interest in foods that improved mental health.

CONCLUSION: While there were similarities between groups for content preferences, there were clear individual needs for each CALD group. This demonstrates the importance of co-designing resources for different cultural groups to ensure content and information are culturally relevant and responsive.

A+ Emerging Nursing Research

BUILDING CONFIDENCE IN RURAL URGENT CARE NURSING: OUTCOMES OF A STATEWIDE EDUCATION PROGRAM

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AIM: To evaluate within-learner changes in self-reported confidence following four core online modules in the Rural Urgent Care Nursing (RUCN) Program, a statewide education initiative for nurses in Victorian rural and regional Urgent Care Centres (UCCs), administered through the Alfred Emergency Academic Centre (AEAC). We hypothesised that post-module confidence would exceed pre-module confidence across all modules.

METHOD: In 2026, a retrospective observational study was conducted using routinely collected paired pre- and post-module survey data from nurses completing RUCN core modules between 2022 and 2025. This study evaluated one component of the broader blended RUCN Program: four self-paced core online modules totalling approximately 32 hours, covering empowered clinical practice, initial assessment and management, deterioration, and stabilisation and transfer. Confidence was rated on a 1-10 scale and paired changes analysed using Wilcoxon signed-rank tests. Secondary outcomes included regional change, content relevance, preparedness to apply learning, overall confidence improvement and free-text comments.

RESULTS: A total of 1,369 matched, research-consented module records were analysed (CM1 n=427; CM2 n=379; CM3 n=224; CM4 n=339). Confidence increased significantly in every module (all $p<0.001$). Median confidence increased from 6 to 9 in CM1 and from 7 to 9 in CM2-CM4. Median within-learner change was +2.5 points in CM1 and +2 points in CM2-CM4. Confidence improved in 86.4%-91.8% of learners, with broadly consistent gains across all five Victorian rural health networks. Content relevance was rated 9-10/10; 99.4% felt prepared to apply learning and 98.9% reported increased overall confidence. Comments highlighted learning consolidation, rural relevance and practical application.

CONCLUSION: The evaluated online component was associated with substantial and consistent improvements in self-reported confidence across a geographically dispersed rural nursing workforce. Findings support continued delivery of accessible, rurally contextualised education as part of the broader blended RUCN Program, while further research should examine translation to clinical practice and patient outcomes.

A+ Emerging Nursing Research

FACTORS INFLUENCING HOSPITAL-BASED NURSES' EXPEREINCES PRECEPTING STUDENT NURSES: AN INTEGRATIVE LITERATURE REVIEW.

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The nursing workforce in Australia has seen a shift in skill mix with a greater percentage of newly qualified nurses. Despite a surge in recruitment, a nursing workforce deficit persists. It is important that our existing nursing workforce is retained, and students have a positive experience that supports their entry into the profession.

AIMS: This integrative literature review aimed to identify factors that influence nursing preceptors' experiences when supporting students on clinical placement.

METHODS: The integrative review followed the Whittemore and Knafl (2005) framework. Four databases were searched, with a focus on studies published between 2020 and 2024. Articles with a population undertaking an entry-to-practice qualification in nursing at either a Bachelor's or Master's level were included.

RESULTS: The major themes of (1) clinical practice environment, (2) student-preceptor specific factors, and (3) preceptor-dependent factors emerged. Theme 1 comprised the subthemes of (a) challenges and demands, and (b) expectations and responsibilities. Theme 2 contained the subthemes of (a) relationship building and communication, and (b) mutual engagement and commitment. Theme 3 spanned the subthemes of (a) balancing professional roles and (b) self-discovery and growth.

CONCLUSION: Preceptorship is valuable in the supervision and education of student nurses undertaking clinical placement. Good collaboration between placement and education providers is needed to ensure appropriate preparation of preceptors. Positive interpersonal interactions with students influence preceptors' satisfaction with the preceptor role. The preceptor role is crucial for the professional development of RNs, despite the reported challenge of adding to the workload.

A+ Emerging Nursing Research

'*JUST GOOGLE IT*': AN AUSTRALIAN GOOGLE TREND ANALYSIS OF ONLINE SEARCHES FOR STROKE

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Background: Australia has embraced the digital-revolution. Search engines, including Google, form a critical infrastructure for accessing health-related educational information. Examining how the Australian public online-searches for stroke health-related information can provide valuable insights into trends, behaviours-and-priorities.

Aim: To investigate the patterns and trends of public online-interest in stroke-related content in Australia during 2020–2025.

Methods: A Google Trends analysis using the search term 'Stroke' between 4thJune 2020 and 4thJune 2025, restricted to Australia and categorised under 'Health' was conducted. Results are presented as relative normalised search volume or query index, that are expressed from 0(minimum) to 100(maximum).

Results: Annual median search interest over the five-year study period was compared with weekly query-index scores. The median search interest for stroke in Australia held a query-index of 80.5, with fluctuations ranging from a low of 49(last week of December 2021) to 100 query-index(first week of May 2023). Search interest by geographical location, revealed South Australia had the highest query index of 100, while the Australian Capital Territory reported lowest query-index of 78. Australian's top 10 'related topics' and 'related queries' with associated growth volumes highlighted searches on stroke causes, initial treatments, symptom presentation and emergency response escalation. The results also identified Australians search for information about public figures with a reported stroke diagnosis.

Conclusion: These results identify Australians engage heavily with online Google searches when seeking stroke-related health information. The analysis indicate a strong public interest in aspects of stroke, such as causes, diagnosis and secondary prevention, reflecting information needs potentially typical of the early stages of a personal stroke journey. The results also demonstrate substantial online searching related to recognising stroke symptoms and understanding appropriate emergency response. These findings have contemporary relevance for nurses, who hold a central role in supporting the health literacy and education of stroke-survivors and their families.

A+ Emerging Nursing Research

IDENTIFICATION AND MANAGEMENT OF CATHETER-ASSOCIATED MEATAL PRESSURE INJURIES IN RESIDENTIAL AGED CARE: LESSONS FROM A 12-MONTH QUALITY INITIATIVE.

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Catheter associated meatal pressure injuries (CAMPI) are a complication of indwelling urethral catheters which are utilised by 8.4% of Australian aged care residents. Residential aged care staff, who are supported by our metropolitan residential in-reach program in Victoria, report limited knowledge regarding their identification, prevention and management.

AIM: To improve the recognition and management of catheter associated meatal pressure injuries in residential aged care.

METHODS: We implemented a nurse led, interdisciplinary intervention in collaboration with our medical and urology team and 30 aged care homes from January to December 2025. Residents were identified, injuries graded, 2-3 weekly face to face nursing assessments undertaken, Geriatrician telehealth consultations completed, routine surveillance of injuries implemented and bedside education delivered.

RESULTS: In 2025, 48 injuries were identified among 66 residents who were referred to and/or on the program. This is higher than in 2024 when we saw seven injuries among 58 residents and 2023 when we saw one injury among 46 residents. Overall (n=56), nearly one third (n=18) had a grade two or three injury, the majority (n=47) had a telehealth consultation, and all residents and staff participated in bedside education. Successful trial of void was achieved for seven residents. Of those who received urological review (n=13), a suprapubic catheter was (n=6) and was not (n=7) inserted.

CONCLUSION: Catheter associated meatal pressure injuries are becoming increasingly prevalent in our in-reach service. Our nurse led, interdisciplinary intervention appears to be valuable to aged care providers and residents. Appropriate recognition of these injuries, education to support evidence-based practice and effective interventions have potential to improve resident care and outcomes.

A+ Emerging Nursing Research

CLINICAL OUTCOMES OF PATIENTS UNDERGOING PLANNED VS. SEMI-URGENT SURGERIES: A RETROSPECTIVE COHORT STUDY

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BACKGROUND

Surgical scheduling is inherently complex due to variability in patient acuity, procedure duration, and competing elective, semi-urgent, and emergency surgery demands. Yet, little is known about how surgical urgency and patient complexity influence hospital and postanaesthetic care unit (PACU) length of stay (LOS).

AIMS

To compare PACU LOS between patients undergoing planned and semi-urgent surgeries, To identify demographic and clinical predictors of PACU stay and hospital LOS

METHODS

A retrospective cohort study was conducted using de-identified electronic medical record data from adults (≥18 years) who underwent planned (elective) or semi-urgent surgery (scheduled within 24 hours) between 01/01/2023 and 31/12/2023. Variables included demographics, comorbidities, ASA classification, procedure group, preoperative wait time, PACU stay, and hospital LOS Between-group comparisons were performed using chi-square and Mann-Whitney U tests. Logistic and multinomial logistic regression models examined predictors of prolonged PACU and hospital LOS.

RESULTS

A total of 13,431 patients were included (11,043 planned; 2,388 semi-urgent). Compared to patients undergoing elective procedures, semi-urgent patients demonstrated higher comorbidity burden and ASA scores (ASA IV: 23.3% vs 4.3%; $p<0.001$). They also experienced substantially longer PACU stays (76.8 vs 31.4 minutes; $p<0.001$) and hospital LOS (16.1 vs 2.1 days; $p<0.001$).

Among semi-urgent patients, prolonged hospital LOS was independently associated with higher comorbidity burden (OR 1.59), higher ASA class (OR 2.55), longer wait from booking to surgery (OR 1.13), and procedure type. Procedure category was the strongest predictor of prolonged PACU stay. In elective patients, procedure type, comorbidity burden, and ASA class were the primary predictors of prolonged PACU and hospital stay.

CONCLUSION

Patients scheduled for semi-urgent surgery had substantially longer PACU and hospital stays than elective patients. Procedure type, comorbidity burden, ASA class, and surgical delay were key predictors of LOS. These findings have important implications for perioperative scheduling, bed capacity planning, and workforce allocation.

A+ Emerging Nursing Research

MANAGEMENT OF PATIENTS WITH CRITICAL BLEEDING IN RURAL AND REGIONAL VICTORIA

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The Australian National Blood Authority published "Patient Blood Management guideline for adults with critical bleeding" in 2023, which includes a major haemorrhage protocol (MHP) template designed for adapting by individual health services based on local constraints. The extent to which regional and rural healthcare services adapt the national guidelines remains unknown.

AIM: To establish the current status of MHPs at regional and rural healthcare services in Victoria, determining strategies to align local MHPs with available resources and the best available evidence where variations to national guidelines exist.

METHOD: Data on the existence and content of MHPs from all rural and regional healthcare services in Victoria that manage critical bleeding were collated. Consistency of the alignment of MHPs with national guidelines was assessed using a mixed method survey of experts.

RESULTS: All 58 regional and rural health services in Victoria were contacted; 33 (56.8%) had blood components available on site for the management of critical bleeding. Of these, 26 (78.8%) had an MHP. Seventeen (65.4%) MHPs had at least one domain that was not consistent with national guidelines. The availability of blood components other than red cells alone was associated with greater consistency with guidelines.

CONCLUSIONS: Despite strong recommendations that health services develop an MHP for the management of critical bleeding, some gaps remain. The contents of MHPs were variable, particularly for centres without blood components other than red cells, suggesting potential for benefit of individualised review of MHPs and targeted education.

A+ Emerging Nursing Research

GENERAL MEDICINE HOSPITAL IN THE HOME: IMPLEMENTATION AND EVALUATION

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Aims
Prior to the establishment of a dedicated General Medicine Hospital in the Home (GM-HITH) care stream, patients from General Medicine accounted for less than 1% of total HITH activity within our organisation. This study describes the development and implementation of a GM-HITH as an inpatient bed-substitution model to deliver quality home-based care in selective patients acutely admitted to hospital.

Methods
A comprehensive pre-implementation phase included extensive stakeholder engagement. This involved focus groups with healthcare professionals and prospective patients, alongside a clinician survey within the General Medicine Program. Clinical record audits were conducted to identify patient profiles and anticipated care requirements. The project employed the Institute for Healthcare Improvement (IHI) methodology, utilising iterative Plan–Do–Study–Act (PDSA) cycles. Key evaluation metrics included patient health outcomes, clinical and operational risk indicators, and measures of staff and patient experience.

Results
Over three years of operation, the GM-HITH service has contributed12.5% (mean) of all General Medicine acute inpatient activity and 21% of total HITH activity, demonstrating sustained integration and improvement from pre-implementation levels. Home-based care was delivered for heart failure (20.0%), cellulitis (15.5%) and respiratory conditions (9.2%) as the top three conditions. The mean 30-day unplanned hospital readmission rate at 14% is comparable to admitted hospital inpatient rates. Patient-reported care quality is high (100%), with identified opportunities to improve communication (77.5%) and partnership (65.9%). Staff experience, measured through a 24-item survey, yielded an overall satisfaction score of 80%. The service is now a core and embedded component of the General Medicine care continuum.

Conclusions
Expansion of home-based acute care models is critical in addressing the demands of evolving population demographics and increasing healthcare needs. This study highlights the effectiveness of structured stakeholder engagement and a clear implementation framework in establishing integrated, high-quality home-based acute care, offering a scalable model for similar services.

A+ Emerging Nursing Research

EXPANDING HAH NURSING SCOPE OF PRACTICE THROUGH POINT OF CARE ULTRASOUND EDUCATION AND TRAINING

Borghmans, F.

Background: Heart failure (HF) predominates diagnoses in our Internal Medicine HAH (I-HAH) service and rehospitalisation rates within the Internal Medicine Program. Extending I-HAH nurses' scope of practice (SoP) to incorporate Lung Point-of-Care Ultrasound (L-PoCUS) has potential to improve the early recognition of HF decompensation, strengthen clinical decision-making in the HAH setting, and minimise rates of potentially preventable rehospitalisation.

Aim: To advance the SoP for HAH nurses through structured L-PoCUS education and training.

Method: In collaboration with PoCUS-credentialled Medical Staff, structured L-PoCUS education was developed involving principles of ultrasound, lung anatomy, interpretation of common pathological findings, and hands-on supervision of lung ultrasound techniques. Clinical supervision was provided by Internal Medicine Medical and ICU staff. Governance of Nurse-led L-PoCUS was overseen by the organisation's Nurses' Scope of Practice Committee. Completion of both formative and summative L-PoCUS assessment, 25 successful scans, and submission of a reflective journal were required to achieve course completion.

Results: Training was completed by four nurses within a 6-month period. A structured, organisationally approved curriculum and substantial investment in hands-on, supervised practice have ensured appropriate clinical governance and enhanced the nurses' confidence and capability. Reflective journalling identified areas of focus for curriculum amendment. Training completion outcomes were achieved within the constraints of organisational demands and supervisory staff availability.

Conclusion/Recommendation: Structured credentialling for Nurse-led L-PoCUS ensures adherence to best practice, and expedites responsive care to minimise readmission risk for I-HAH patients with HF. A planned Nurse-led train the trainer model will strengthen the initiative's sustainability and focussed expansion.

A+ Emerging Nursing Research

HOSPITAL-ACQUIRED COMPLICATIONS: A COMPARISON OF SURVEILLANCE AND CODING DATA FOR HOSPITAL-ACQUIRED PNEUMONIA AND URINARY TRACT INFECTIONS

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AIM: Hospital-acquired complications (HACs) have recently been introduced in Australia as a quality-of-care metric. These use International Classification of Diseases (ICD) codes to identify potentially avoidable complications, including healthcare-associated infections. We sought to determine the positive predictive value (PPV) of the HAC algorithms in detecting hospital-acquired pneumonia (HAP) and healthcare-associated urinary tract infections (HA-UTI) using traditional surveillance as the standardised comparator.

METHODS: We conducted a retrospective analysis at Alfred Health. For both HAP and UTI, we selected 50 admitted episodes with ICD codes that satisfied the HAC definition. We applied standardised surveillance definitions to these episodes, based on European Centre for Disease Prevention and Control (ECDC) guidance. This involved a manual review of documentation and results by an Infection Prevention and Control Nurse Consultant. PPVs were calculated by comparing ICD-code diagnoses with surveillance-confirmed infections.

RESULTS: The PPV for the HAP algorithm was 20% (95% CI: 11.0-33.2%). Among non-confirmed cases, 23% (9/40) had no radiological evidence of pneumonia, and 23% (9/40) had symptoms or consolidation on admission. Of the ten true HAP cases, 50% (5/10) were ventilator-associated. The PPV for the HA-UTI algorithm was 58% (95% CI: 44.2–70.6%), with 71% (15/21) of false positives due to asymptomatic bacteriuria.

CONCLUSIONS: We found that current HAC algorithms based on ICD coding data did not reliably predict HAP and HA-UTI as defined by standardised surveillance. Given their use in healthcare funding, further validation and improvement of current algorithms should be explored.

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GLIAL FIBRILLARY ACIDIC PROTEIN AND UBIQUITIN CARBOXYL-TERMINAL HYDROLAST-L1: BIOMARKERS FOR EXCLUSION OF ACUTE TRAUMATIC INTRACRADIAL LESIONS A PROSPECTIVE COHORT STUDY.

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The increasing use of computed tomography of the brain (CTB) has been associated with increasing healthcare costs and length of stay in emergency departments.

AIM: The aim of this study was to determine the accuracy of the combination of glial fibrillary acidic protein (GFAP) and ubiquitin carboxyl-terminal hydrolase L1 (UCH-L1) for predicting acute traumatic intracranial lesions CTB after suspected mild traumatic brain injury.

METHODS: We prospectively enrolled adult patients who presented to the emergency department with Glasgow Coma Scale of 13-15 after acute trauma and had CTB requested. The study protocol required blood sampling within 12 hours of injury. The pre-specified cut-off values for GFAP and UCH-L1 were 35pg/ml and 400pg/ml respectively, with values lower than the cut-offs of both assays categorized as a negative test.

RESULTS: We enrolled 820 patients and 792 were retained for analysis. Of these, 95 (12.0%) had acute traumatic intracranial lesions. There were 172 (21.7%) patients who had a negative test. The combination of GFAP and UCH-L1 had a sensitivity of 95.8% (95%CI: 89.6-98.8), and negative predictive value (NPV) of 97.7% (95%CI: 94.2-99.4). After detailed review of medical records, there were protocol deviations with time to blood sampling being >12 hours since injury for 196 (24.7%) patients. In the subgroup of patients who had confirmed head-strike within 12 hours of blood sampling, the test had a sensitivity of 98.3% (95%CI: 91.1-100) and NPV of 99.2% (95%CI: 95.4-100%) for acute traumatic intracranial lesion.

CONCLUSION: GFAP and UCH-L1 have high sensitivity and NPV to rule out acute traumatic intracranial lesions, but a small number of injuries could be missed. An accurate determination of time of injury appears to be an important variable for optimal performance. Acceptability of this test for clinicians and patients to avoid CTBs after TBI, together with cost-effectiveness, requires further exploration.

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BRINGING PALLIATIVE CARE CLOSER TO HOME: INTEGRATING SPECIALIST SUPPORT INTO GENERAL MEDICINE HOSPITAL IN THE HOME

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AIM: General Medicine Hospital in the Home (GHITH) and Palliative Assessment and Treatment Service (PATS) developed an interprofessional model enabling acute medical treatment and specialist palliative care to be provided concurrently at home, aligning with patients' values and preferences while reducing avoidable hospital presentations.

METHODS: The model combines education, shared care and practice development. All GHITH nurses completed the Program of Experience in the Palliative Approach (PEPA) online modules, with two undertaking palliative care placements. Multidisciplinary education sessions and joint home visits enabled shared assessment and care alongside experiential learning in symptom management, communication and goals-of-care discussions. A co-designed discharge checklist strengthened interdepartmental communication and mobilisation of community services. An end-of-life resource folder and care pack supported palliative care at home.

RESULTS: Since late 2024, the model has enabled over 50 patients to receive acute and specialist palliative care concurrently at home. GHITH nurses reported improved confidence and competence (mean score 7/10). The model avoided over 400 bed-days, while more than 70% of patients avoided hospital readmission during the end-of-life phase.

CONCLUSION: The model integrated specialist palliative care into acute care, strengthened nursing capability and enabled person-centred acute and palliative care in parallel at home. This partnership improved continuity reduced avoidable hospital readmission and integrated palliative care in the GHITH practice.

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PATIENT PERSPECTIVES ON PAIN: A CROSS-SECTIONAL STUDY OF PATIENT VIEWS ON PAIN MANAGEMENT AFTER UTERINE ARTERY EMBOLISATION

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BACKGROUND: After uterine artery embolisation (UAE), many patients experience post-embolisation syndrome, with pain being a hallmark inflammatory-mediate side effect of this treatment.

AIM: This study aimed to understand which component(s) of pain-related management were most important to patients.

METHODS: A 15-question survey was developed to query the importance of different interventions relating to pain management. The survey was validated with a previous patient. Eligible patients received a survey link via email, which remained open for six weeks.

Interventions were assessed for the number of scores that were positive, defined as scoring ≥4 on a 5-point Likert scale. All elective UAE between January 2020 and October 2025 were identified. Patients were excluded if enrolled in another study.

RESULTS: Out of 234 treated patients, 188 were eligible and 98 (52%) completed the survey. Mean age was 46.4 years (SD 6.7) and most patients were treated for fibroids (80%). Treatment was performed for heavy menstrual bleeding in 81% and bulk symptoms in 60%. Pain-related interventions with the highest number of positive ratings were: care and support during the procedure (98.0%), consulting an IR before the procedure (95.9%), overnight hospital admission (95.9%), and plan for follow-up (94.9%). Interventions with the lowest number of positive ratings were: communicating with family during pain (65.3%), access to comfort items during admission (67.3%), and hearing patient experiences in advance (69.4%).

CONCLUSION: All pain-related interventions for treating UAE were viewed positively. However, some had a relatively higher importance including care during the procedure, peri-procedural IR care, and overnight hospital admission. Focusing on these areas as quality assurance initiatives may improve patient experience and overall quality of care.

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HOSPITAL READMISSIONS AS A BARRIER TO RETURN TO WORK FOLLOWING ALLOGENEIC STEM CELL TRANSPLANTATION: INFORMING A NOVEL SUPPORTIVE CARE MODEL FOR RECOVERY AND WORKFORCE REINTEGRATION

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BACKGROUND: Allogeneic stem cell transplantation (SCT) is a complex and highly involved medical procedure. Survivors are at high risk for inability to return to work (RTW) with prolonged inpatient hospital stays and recurrent hospitalisations due to complications. For many patients, the RTW is an important outcome of transplantation, reflecting personal identity and societal reintegration and productivity.

AIM: The aims of this study were to:

1. Examine the frequency and reasons for hospital readmissions and return to work rates (RTW) post SCT.

2 Develop a supportive care model to reduce hospital readmissions and increase RTW rates for SCT recipients.

METHOD: Data on employment-status and readmission rates and reasons were collected prospectively via verbal survey from individuals at least 6 months post-transplantation attending a Nurse-Led Haematology Supportive Care Clinic Program (NLHSCPP). Descriptive statistics were used to determine proportion and characteristics of patients RTW post-SCT in relation to readmission rates and reasons.

RESULTS: Between February 2024 and April 2026, 57 patients were recruited. Thirty-six (63%) participants were readmitted at least once, with 82 total readmissions recorded within 27 months post-SCT. Reasons for readmission included infection (33%), fever of unclear cause (9%), graft-versus-host disease (GvHD) diagnoses (10%) and other reasons (48%). Of the 63% of participants that were working full-time pre diagnosis, only 11% (n = 36) were able to resume full-time work at 6 months following SCT. The RTW rates were 30% (n=17) for people with no readmissions and 14% (n=8) for people with at least one readmission within 12 months. In response to these results, we are co-designing and implementing a supportive care model focused on infection prevention and SCT-specific employment support to facilitate RTW.

CONCLUSION: This dataset identifies a possible relationship between RTW and re-admission post-SCT. By addressing clinical and social barriers, we expect to see improvements in RTW for SCT recipients as this project continues.

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"THE PRICE IS RIGHT?": THE COST OF UNPLANNED READMISSIONS IN GENERAL MEDICINE

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AIM: To evaluate the financial impact of 7- and 28-day unplanned readmissions in General Medicine and identify adjacent diagnosis-related groups (ADRG) that represent potential targets for cost-effective strategies addressing readmission burden.

METHODS: All-cause unplanned 7- and 28-day readmissions following an index admission under General Medicine at Alfred Care Group between 1st July 2023 and 30th November 2024 were identified from hospital administrative data. The ADRG code for each readmission episode was extracted. Readmission costs were calculated based on the Australian National Hospital Cost Data Collection indexation, and presented as costs (in Australian dollars) by ADRG per 10,000 index admissions per year.

RESULTS: In total, 11,553 index admissions were identified. The 28-day readmission rate was 13.5%, of which 43.2% occurred within 7 days. The total 28-day readmission cost was approximately $8,762,609, with 7-day readmissions accounting for $3,975,429. The ten most common ADRGs for 7- and 28-day readmissions cost an estimated $1,052,711 and $2,473,292, respectively. 'Heart failure and shock' (ADRG F62) was the most prevalent and costly, accounting for 6.3% of 7-day and 7.9% of 28-day readmission expenditures. Meanwhile, a single outlier readmission episode involving ventilation of >336 hours (ADRG A13) incurred the highest cost ($266,804) per separation. ADRGs encoding 'respiratory infections and inflammations' (E62), 'chronic obstructive pulmonary disease' (E65), 'cellulitis' (J64), 'non-surgical spinal disorders' (I68), and particularly, non-specific presentations without definitive diagnoses (Z61) were also among the most costly.

CONCLUSIONS: Unplanned readmissions in General Medicine are associated with significant healthcare costs. Seven-day readmission costs have not previously been evaluated in Australian settings and represent the greatest opportunity for targeted interventions. 'Heart failure and shock' (F62) was the most common and expensive ADRG, representing the target condition for reducing 7- and 28-day readmission burden. Further studies examining readmission preventability within high-cost ADRGs are needed to guide resource allocation and quality improvement efforts.

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BEYONG ACCESS: HEALTHCARE PROFESSIONALS' ROLE IN PATIENT PORTAL USE AND ENGAGEMENT

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Patient portals are expanding across healthcare, offering transparent access to health information and supporting patient empowerment. However, portal implementation remains complex, shaped by workflow pressures, organisational readiness, and clinician buy-in. Central to embedding portals in practice, HCPs perspectives are critical to understanding how digital systems can support patient engagement and care.

AIM: To explore HCPs' perspectives about their experiences with the patient portal and its role in patient care, with the secondary aim to understand how HCPs contribute to implementation and patient engagement.

METHODS: A qualitative descriptive design was used. Purposive and snowball sampling approaches were used. Interviews were conducted online, audio-recorded and transcribed verbatim. Data were analysed inductively using reflexive thematic analysis.

RESULTS: A total of 15 HCPs were interviewed. Four themes were generated: 1) Evolving digital health and system readiness; 2) Impact on HCP workload; 3) Perceptions about patient care; and 4) Future directions for an effective system. Participants described the patient portal as valuable in supporting patient care, but its implementation was hindered by insufficient training and minimal involvement in its development. Portal implementation had variable impact on clinicians' workload, leading to both improved efficiency through reduced administrative tasks and increased workload due to unclear or incomplete portal information. The accuracy and completeness of portal information depended on standardised electronic medical record (EMR) documentation and clinician workflow. Clinicians were supportive of patient empowerment but were concerned about access to results without clinical support and implications for documentation practices.

CONCLUSION: HCPs recognised the patient portal as a valuable tool in supporting complex patient care. However, successful implementation was constrained by gaps in organisational readiness, including limited training, clinician involvement, and workflow integration. Strengthening organisational supports, standardising documentation practices, and embedding consumercentred design are essential to advance patient portal capability and improve patient outcomes and experiences.

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BARRIERS TO PARTICIPATION IN STROKE CLINICAL TRIALS AT AN AUSTRALIAN TERTIARY NEUROSCIENCE CENTRE: A RETROSPECTIVE ANALYSIS

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Background: Women are consistently underrepresented in clinical stroke trials, despite experiencing a higher lifetime stroke risk and poorer post-stroke outcomes. Disparities in participation may be influenced by trial type, and stroke phase. Understanding sex specific barriers is essential to improving inclusivity and ensuring representative trial populations.

Aim: To explore gender-specific rationales for non-participation in stroke across trial types and onset phases.

Methods: Retrospective observational study of adult stroke patients aged≥18 years, admitted to the Alfred Hospital between February 2019-March 2025.

Results: Of 494 eligible stroke patients (female: 235 [47.6%]; male: 259 [52.4%]), 340 (68.8%) consented—134/235 females (57.0%) and 206/259 males (79.5%) ($p < 0.001$). A total of 109 declined—63/235 females (26.8%) and 46/259 males (17.8%); 45 were not approached—38/235 females (16.2%) and 7/259 males (2.7%).

By trial type, most declines occurred in interventional trials-female: 41/146 (28.1%); male: 34/185 (18.4%). Lack of Interest (female: 19/41 [46.3%]; male: 15/34 [44.1%]), Competing Life Demands (female: 10/41 [24.4%]; male: 4/34 [11.8%]), Time Commitment (female: 4/41 [9.8%]; male: 4/34 [11.8%]), Logistical Barriers (female: 6/41 [14.6%]; male: 4/34 [11.8%]). Mental Health: 2/41 females (4.9%); No Explanation: 4/34 males (11.8%).

By onset phase, declines were highest in acute trials—female: 31/122 (25.4%); male: 30/141 (21.3%). Common reasons: Lack of Interest (acute: female 14/31 [45.2%]; male 13/30 [43.3%], Competing Demands (acute: female 8/31 [25.8%]; male 2/30 [6.7). Mental Health was reported only by females (acute: 2/31 [6.5%]). Social Influence was high among hyperacute females (5/6 [83.3%]). rare in females (1/128 [0.8%]).

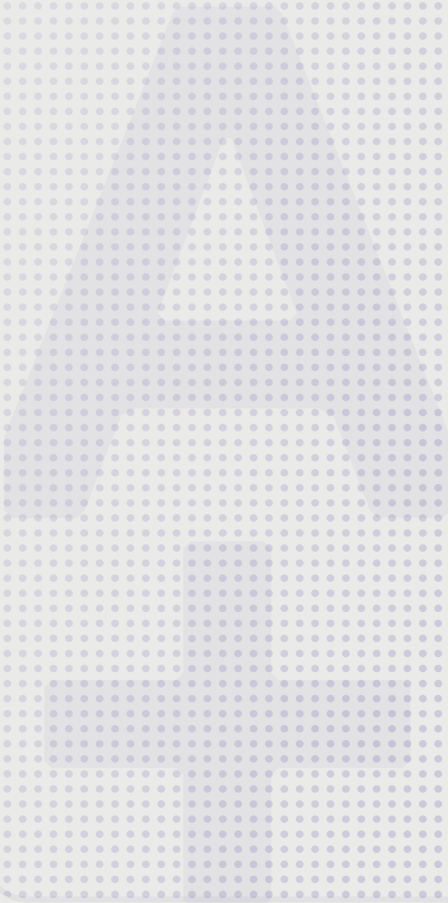
Conclusion:
gender differences were observed across trial types and onset phases. These findings suggest probable gender-based differences in reasons for non-participation, indicating the need for gender-sensitive and phase-specific recruitment strategies that address both structural and psychosocial barriers in stroke research.

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