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ALLERGY AND IMMUNITY

1. MULTIDIMENSIONAL NATURE OF DYSPNOEA IN DIFFICULT ASTHMA

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BACKGROUND: Dyspnoea is a common feature of difficult asthma, with both sensory and affective responses increasingly recognised as important.

AIM: To determine the nature of dyspnoea in people with difficult asthma using the Multidimensional Dyspnoea Profile (MDP).

METHODS: Adults were recruited prospectively from the difficult asthma clinic. The MDP was administered whilst focusing on two time periods: the worst breathing experienced in the past two weeks, and after completing an exercise test (Modified Incremental Step Test). The sensory and affective dimensions of dyspnoea were compared between the two periods, and correlations between MDP scores, asthma quality of life questionnaire (AQLQ) and Hospital Anxiety and Depression scale (HADS) were analysed.

RESULTS: Participants were predominantly female (n=21/27, 78%), with mean age 53 (SD 16) years, FEV\textsubscript{1} 69 (23) % predicted, and BMI 33 (9) kg/m\textsuperscript{2}. Mean breathing discomfort scores were significantly lower after an exercise test compared to worst breathing experiences (MD -1.7, [95% CI 0.6- 2.7]) with similar results for all affective measures (‘depressed’ -3.2 [1.8-4.7], ‘anxious’ -3.5 [2.9-4.9], ‘frustrated’ -5.1 [3.6-6.6], ‘angry’ -3.5 [2.1-4.9], ‘afraid’ -2.6 [1.1-4.1]). The most frequent sensory qualities were ‘chest tightness’ for breathing experiences (n=12, 44%) and ‘muscle work’ for exercise (n=12, 52%). The mean sensory scores for ‘air hunger’ (1.8 [0.6- 3.3]), ‘chest tightness’ (1.7 [0.9-2.9]) and ‘breathing a lot’ (1.2 [0.2- 2.3]) were significantly higher in the worst breathing experiences. Worse quality of life on AQLQ was associated with greater discomfort scores (r= -0.479, p=0.012) and higher HADS scores were associated with higher anxiety (r=0.554, p=0.003) and depression (r=0.426, p=0.027) scores on the MDP.

CONCLUSION: Dyspnoea experiences in people with difficult asthma are related to worse QOL and emotional functioning. Supervised exercise provokes less intense breathing responses than those experienced in daily life for both sensory and affective dimensions.

2. NOVEL ANALYSIS OF FRACTIONAL EXHALED NITRIC OXIDE (FENO) FOR DETECTING AIRWAY HYPERRESPONSIVENESS IN UNTREATED ATOPIC ASTHMA

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BACKGROUND: Airway hyperresponsiveness (AHR) in asthma is typically confirmed by a bronchial provocation test (BPT), however BPTs are aerosol generating and time-consuming. Eosinophilic airway inflammation, a key feature of atopic asthma, can be non-invasively measured using Fractional Exhaled Nitric Oxide (FeNO) without all the inconveniences of BPTs. A FeNO Profile is generated by measuring FeNO at multiple expiratory flows and correct quantification may have utility in detecting AHR.

AIM: To quantify FeNO Profiles using an appropriate regression model and assess the utility of the model constants for detecting AHR in atopic asthma.

METHODS: On 3 occasions (~7days apart), participants with atopic asthma (steroid naive) (n=9) and healthy, non-atopic participants (n=9) performed a direct (methacholine), indirect (mannitol) and placebo BPT in random order. All asthma participants demonstrated AHR to both direct and indirect BPT, while healthy participants did not. Prior to each BPT, baseline FeNO Profiles were generated and a power regression of the form $y = a.x^b$ was found to be the best model to quantify the profile, where $a = $ Power Coefficient and $b = $ Power Exponent. FeNO\textsuperscript{50} (standard clinical measure) was also analysed.
RESULTS: The power regression had a high goodness-of-fit with the FeNO Profiles; $R^2$ (mean±SD) = 0.9942 ± 0.0030 and 0.9953 ± 0.0046 for the healthy and asthma groups, respectively. While Repeated Measures ANOVA demonstrated significant differences between the asthma and healthy groups for FeNO$_50$ ($p=0.004$) and the Power Coefficient ($p=0.002$), only the Power Coefficient was able to clearly distinguish between the groups (threshold = 2000). The Power Exponent showed no significant difference.

CONCLUSION: The power regression $y = a.x^b$ best fits the FeNO Profile with the Power Coefficient clearly differentiating between these atopic asthma and non-atopic healthy groups. These novel, preliminary findings suggest that a Power Coefficient $>2000$ may have clinical utility in confirming AHR.

3. COMBINED IMMUNODEFICIENCY AND IMPAIRED PI3K SIGNALING IN A PATIENT WITH BIALLELIC LCP2 VARIANTS

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BACKGROUND: Despite of major advances in genomics over the past 2 decades, in many patients with inborn errors of immunity (IEI) no rare causal variant is identified. A major bottleneck is the lack of functional evidence for variants of unknown significance. Consequently, patients experience lengthy delays in diagnosis and the start of effective treatment, posing a high risk of irreversible organ damage and early death. To overcome the limitations, we developed screening assays for functional evaluation of 4 critical immune signalling pathways affected by $>70\%$ of genes. We here applied this to a patient with rare, novel variants affecting B-cell (BCR) and T-cell receptor (TCR) signalling.

METHODS: Genetic analysis by whole-exome-sequencing was performed in a 26-year-old man who presented since early childhood with antibody deficiency, autoimmunity, and irritable bowel disease. Patient immune cells were examined for SH2 domain-containing leukocyte protein 76kD (SLP76) expression levels. Tonic and ligand-induced phospho-inositol-3-kinase (PI3K) signalling was examined by flowcytometric detection of phosphorylated-S6 in B- and T-cells.

RESULTS: Biallelic missense variants were identified in LCP2, affecting the proline rich repeat domain of SLP76 (p.P190R and p.R204W) responsible for interactions with phospholipase C gamma 1 (PLCγ1). Both variants are conserved in vertebrates and are at low frequencies in the gnomAD database. Intracellular SLP76 protein levels were reduced in patient CD4$^+$ T-, CD8$^+$ T-, B-, and NK cells. Tonic and ligand-induced levels of phosphorylated-S6 and PLCγ1 were decreased in patient CD4$^+$ T-, CD8$^+$ T- and B-cells.

CONCLUSION: Biallelic mutations in LCP2 impair TCR and BCR signalling and can cause antibody deficiency and early onset immune dysregulation. Furthermore, we show the utility of phosphorylated-S6 for functional validation of gene variants affecting the BCR/TCR signalling pathways. We are currently extending this study to functionally evaluate rare variants in other genes in these pathways including BTK, SYK, PIK3R1 and PLCG2.
4. THE CAPACITY OF B-CELL MEMORY TO RECOGNISEOMICRON BA.2 AND BA.4/5 FOLLOWING COVID-19 ADENOVIRAL VECTOR VACCINATION

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BACKGROUND: sars-CoV-2 variants of concern (VoC) escape the vaccine-elicited humoral immune response to varying degrees. The antibody responses following SARS-CoV-2 vaccination contract rapidly within 1-3 months. Therefore, circulating memory B cells (Bmem) recognising the Spike receptor-binding domain (RBD) may represent a better marker of long-term protection against severe disease. The Bmem response elicited by the adenoviral vector vaccine ChAdOx1 (AstraZeneca) is poorly characterised, as is its capacity to recognise the current Omicron VoC.

AIMS: 1) Characterise the RBD-specific IgG and Bmem responses to the first and second doses of ChAdOx1 and compare these to the mRNA vaccine BNT162b2 (Pfizer-BioNTech), and 2) determine the capacity of vaccine-elicited IgG and Bmem to recognise Omicron sublineages, BA.2 and BA.4/5.

METHODS: Blood was sampled from 36 healthy ChAdOx1 recipients (26 females) pre-vaccination, four weeks post-dose one, and four weeks post-dose two. Recombinant RBDs of the Wuhan-1, BA.2, and BA.4/5 variants were produced for ELISA-based quantification of plasma IgG, and incorporated separately into fluorescent tetramers for identification of RBD-specific Bmem by flow cytometry.

RESULTS: Each dose of ChAdOx1 increased IgG levels against Wuhan RBD, but concentrations were lower than after BNT162b2 vaccination (p<0.0001). IgG recognition of BA.2 and BA.4/5 was lower (p<0.0001) at 16.1% and 23.1% of the levels against Wuhan, respectively. 24 donors analysed by flow cytometry all generated RBD-specific Bmem after the first dose, which were boosted in number after the second dose (p<0.0001). Resting RBD-specific Bmem were predominantly IgD+IgM+ or IgG1+, and similar in number to those generated by BNT162b2. 37.5% and 38.9% of Wuhan-specific Bmem elicited by ChAdOx1 also recognised BA.2 and BA.4/5, respectively.

CONCLUSION: The antibody response following ChAdOx1 vaccination is inferior compared to BNT162b2; however, the RBD-specific Bmem response is equivalent, and has a greater capacity to recognise VoC than serum IgG. This uncovers mechanisms by which ChAdOx1 confers effective protection against severe COVID-19.

5. ACCURATE DETECTION OF HOUSE DUST MITE SENSITIZATION IN ASTHMA AND ALLERGIC RHINITIS WITH A SINGLE CYTOMETRIC BASOPHIL ASSAY (CYTOBAS)

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BACKGROUND: House dust mite (HDM) is the most prevalent cause of perennial atopic asthma and allergic rhinitis globally. Disease management critically relies on accurate detection of allergen sensitization and often requires multiple clinic appointments by patients. To improve diagnosis quality and patient care, we designed fluorescent protein tetramers for direct staining of IgE on basophils in a single flow cytometric assay to detect HDM sensitization.
METHODS: Recombinant proteins of Der p 1 and Der p 2, the major HDM allergen components, were produced as streptavidin-fluorochrome conjugated tetramers. Blood samples from 55 HDM-allergic patients and 25 non-HDM-sensitized controls were incubated with allergen tetramers to evaluate basophil binding and activation with flow cytometry. Patients had allergic rhinitis and/or asthma and serum HDM-specific IgE ≥ 3.5 kUA/L (ImmunoCAP).

RESULTS: Recombinant allergen tetramers effectively bound (median fluorescent intensity) and activated (CD63 expression) basophils from allergic patients but not non-HDM-sensitized controls. The tetramers bound all basophils in HDM-allergic individuals, even the fraction that did not show activation (CD63-), to the same degree as the CD63+ fraction. Fluorescent staining using CytoBas was more sensitive with Der p 1 (91%) than with the basophil activation test (BAT; 87%); and more specific with Der p 2 (96%) than BAT (88%) in the detection of allergen sensitization. Importantly, for HDM allergy sensitization detection, CytoBas positivity for Der p 1 and Der p 2 was 100% sensitive and 96% specific, whereas it was only 96% sensitive and 88% specific with BAT.

CONCLUSION: Component-resolved diagnosis of asthma and allergic rhinitis with the CytoBas approach can provide advantages over serology IgE tests by rapidly detecting functional allergen-specific IgE bound to basophil effector cells. A single, multiplex CytoBas assay encompassing the prevalent aeroallergens (grass pollen, HDM, animal dander) can provide a rapid, sensitive and specific diagnostic test, enabling the early start of optimal treatment.

6. TRAIT PROFILES IN DIFFICULT-TO-TREAT ASTHMA: CLINICAL IMPACT AND RESPONSE TO SYSTEMATIC ASSESSMENT

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INTRODUCTION: Multidisciplinary systematic assessment improves outcomes in difficult-to-treat asthma, but without clear response predictors. Using a treatable-traits framework, we stratified patients by trait profile, examining clinical impact and treatment responsiveness to systematic assessment.

METHODS: We performed latent class analysis using 12 traits on difficult-to-treat asthma patients undergoing systematic assessment at our institution. We examined Asthma Control Questionnaire (ACQ-6) and Asthma Quality of Life Questionnaire (AQLQ) scores, FEV1, exacerbation frequency, and maintenance oral corticosteroid (mOCS) dose, at baseline and following systematic assessment.

RESULTS: Five clusters were identified in 241 patients who completed the 6-month program [66% female, age 52±14 (mean±SD), FEV1 % predicted 67.0±22.8 (mean±SD)]. Two airway-centric clusters were characterised by early-onset with allergic rhinitis (n=46, 19%) and adult-onset with eosinophilia/chronic rhino-sinusitis (n=60, 25%) respectively, with minimal comorbid and psychosocial traits. Three non-airway centric clusters exhibited either comorbid (obesity, vocal cord dysfunction, dysfunctional breathing) dominance (n=51, 21%), psychosocial (depression, smoking history, unemployment) dominance (n=72, 30%), or multi-domain (early-onset allergic plus prominent comorbid and psychosocial traits) impairment (n=12, 5%).

Compared to airway-centric profiles, non-airway centric profiles had worse baseline ACQ-6 (2.7 vs 2.2, p<0.001) and AQLQ (3.8 vs 4.5, p<0.001) scores. Following systematic assessment, the cohort showed overall improvements across all outcomes. However, airway-centric profiles had more FEV1 improvement (5.6% vs 2.2% predicted, p<0.05) while non-airway centric profiles trended to greater exacerbation reduction (1.7±3.2 vs 1.0±2.2, p=0.07); mOCS dose reduction was similar (3.1mg vs 3.5mg, p=0.782).

CONCLUSION: Distinct trait profiles in difficult-to-treat asthma are associated with different clinical outcomes and treatment responsiveness to systematic assessment. These findings yield clinical and mechanistic insights into difficult-to-treat asthma, offer a conceptual framework to address disease heterogeneity, and highlight areas responsive to targeted intervention.
7. PHENOTYPIC DISTINCTIONS BETWEEN OMEGA-5-GLIADIN ALLERGY AND PEANUT ALLERGY: CLINICAL PROFILE, REACTION RATES AND TRIGGERS, AND QUALITY OF LIFE

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INTRODUCTION: It is proposed that the food allergy may represent a spectrum of disease phenotypes, each with distinct patient impacts. We therefore compared Omega-5-Gliadin (O5G) allergy to peanut allergy, focusing on clinical features, reaction rates and triggers, and quality of life (QOL).

METHOD: We surveyed patients with O5G allergy and peanut allergy regarding diagnosis, co-morbidities, allergic reactions, and QOL measured by the validated tool FAQLQ-AF.

RESULTS: We received responses from 43/80 (54%) individuals with O5G allergy and 43/130 (33%) with peanut allergy. Compared to peanut allergic individuals, the O5G allergic group had fewer atopic conditions (0.88 vs. 2.93, p<0.001), fewer additional food allergies (0.15 vs. 1.86, p<0.001), were older at age of onset (37.2 vs. 2.5 years, p<0.001) and had lived with the diagnosis for less time (7.7 vs. 29.5 years, p<0.001). Following diagnosis, those with O5G allergy continued with more frequent allergic reactions than those with peanut allergy (4.2 vs. 0.6 per annum, p<0.001). Reactions to peanut were more often triggered by accidental exposure (84% vs 26%, p<0.001) and while away from home (65% vs 28%, p<0.001), while reactions to O5G were more often due to deliberate ingestion (30% vs 9%, p<0.05) or unexpected exercise (35% vs 2%, p<0.001). Despite these differences, overall QOL score did not differ significantly between the groups; 4.2 in O5G allergy and 4.7 in peanut allergy, p=0.12 (higher scores denoting greater QOL impact).

CONCLUSION: Phenotypic differences between O5G and peanut allergy suggest different patient groups may benefit from distinct management approaches. Pathogenesis may also differ, offering different intervention targets for prevention. With disease modifying treatments on the horizon, effects on QOL will form an essential part of food allergy assessment.

BURNS


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INTRODUCTION: Tap water scalds can have devastating consequences and lifelong impact on survivors. The aims of this study were to (i) describe the frequency, demographic profile, injury characteristics, and in-hospital outcomes for people with tap water scalds admitted to Australian and New Zealand (A&NZ) burn centres; and (ii) determine whether there was variation between jurisdictions.

METHODS: Data were extracted from the Burns Registry of Australia and New Zealand for people with tap water scalds admitted to A&NZ burn centres between January 2010 and December 2018. Demographic, injury severity and event characteristics, surgical intervention, and in-hospital outcomes were investigated.

RESULTS: There were 650 people with tap water scalds admitted to A&NZ burn centres during the study period. Australians with tap water scalds (median [IQR] 29 [1-69] years) were older than New Zealanders (2 [1-36] years). Most tap water scalds occurred in the home, and 92% of these occurred in the bathroom. More than 55% of injuries occurred due to the accidental alteration of water
temperature at the tap fixture. Two thirds of patients underwent a surgical wound procedure. Overall mortality rate was 3.7%, and the median hospital length of stay was 8.8 days.

CONCLUSION: Tap water scalds remain a public health problem in A&NZ, especially in vulnerable groups. Our research has led to regulatory changes in the 2022 Plumbing Code of Australia, specifically the inclusion of new recommendations regarding the design and installation of shower and bath tapware in Australian homes that will prevent accidental alteration of water temperature whilst bathing. Furthermore, the New Zealand plumbing regulators are currently considering reducing the maximum hot water temperature that can be delivered at sanitary fixtures in New Zealand homes from 55C to 50C. These regulatory changes, based on our research findings, will contribute to reducing the future burden of tap water scalds bi-nationally.

CANCER RESEARCH

9. PALIFERMIN, FOR 3 DOES ONLY, TO MANAGE MUCOSITIS IN PATIENTS UNDERGOING HSCT AFTER CHEMORADIOThERAPY CONDITIONING.

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BACKGROUND: Palifermin, a recombinant human keratinocyte growth factor, protects against chemotherapy and radiation-induced mucositis. The regulatory approved dosage is palifermin 60 microgram/kg/day, intravenously, for three consecutive days before and three consecutive days after chemoradiotherapy for six doses. The prohibitive acquisition cost of palifermin limits use by Australian hospitals. Based on pre-clinical and early phase data, an attenuated dosing protocol was implemented at the study institution, with palifermin administered for three doses only.

AIM: This study evaluated the effectiveness and safety of this novel palifermin dosing regimen in patients undergoing haemopoietic stem cell transplantation (HSCT).

METHODS: The study was a retrospective analysis of consecutive patients, over a 10 year period, receiving total body irradiation and chemotherapy conditioning for HSCT.

Palifermin 60 microgram/kg/day for three doses only, was administered before pre-HSCT conditioning. Incidence of grade 3/4 mucositis as per World Health Organisation (WHO) criteria, need for parenteral nutrition (PN) and parenteral opioid analgesic (POA) requirement were described.

RESULTS: A total of 168 patients were included. Grade 3/4 mucositis was documented in 56% of patients, with median duration of 6.0 days. PN was required by 70% of patients and POA by 63% of patients. The median (range) duration of days on PN was 10 (1-58) days. The median (range) duration of POA was 5 (1-52) days.

DISCUSSION: The literature reported incidence of severe mucositis is up to 99% in patients receiving chemoradiotherapy pre-HSCT. This is the largest single cohort described receiving a three day schedule of palifermin. Outcomes are comparable to those in studies describing six doses of palifermin and demonstrate the three dose regimen is effective in reducing oral mucositis assessed by WHO grade, duration of PN and duration of POA. The regimen described could be adopted into clinical practice thus potentially enabling wider access to this effective but costly supportive therapy.
10. HIGH-DIMENSIONAL PANEL DESIGN FOR SPECTRAL FLOW CYTOMETRIC EVALUATION OF T-CELL REINVIGORATION BY IMMUNE CHECKPOINT BLOCKADE IN MELANOMA.

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RATIONALE: Despite the success of immune checkpoint blockade therapy, the majority of metastatic melanoma patients fail to respond or experience severe toxicity. Biomarkers before or early into treatment will improve this therapeutic ratio, and longitudinal immunophenotyping will be useful to understand favorable responses. Using peripheral blood, we present a high-dimensional approach for T-cell immune profiling with spectral flow cytometry.

METHODS: Three flow cytometry panels were developed: (1) a conventional TruCount panel for absolute cell counts at time of sampling, (2) a 27-color spectral panel assessing ex vivo T cell markers, and (3) a 20-color spectral panel evaluating cytokine expression after CD3/CD28 stimulation. Pre-treatment blood mononuclear cells from patients and healthy controls were cryopreserved before staining across 11 batches. Batch effects were tracked with a single-donor control and the suitability of normalization assessed. Data were analyzed using manual and high-dimensional strategies.

RESULTS: Batch-to-batch variation was minimal and did not affect analysis, as demonstrated by dimensionality reduction of batch-control samples, and normalization did not improve manual or high-dimensional analysis. At baseline, patients had significantly fewer lymphocytes than controls (1390 vs 1742 cells/μL), which was due to lower naive CD4 (244 vs 387 cells/μL) and CD8 (34 vs 88 cells/μL) T cells, and follicular helper T cells (31 vs 64 cells/μL). Patients had increased Ki67 and IL-2 expression within multiple CD4 and CD8 memory subsets, and increased expression of CD57 (p=0.023), EOMES (p=0.019), TIGIT (p=0.039), CD56 (p=0.047) and Granzyme B (p=0.032) on TCRγδ+ T cells.

DISCUSSION: Our high-parameter spectral flow cytometry panels provide in-depth profiles of blood T cells, capable of detecting abnormalities in untreated melanoma patients. The robustness of our approach as demonstrated by minimal batch effects makes this highly suited for longitudinal evaluation of treatment effects. Pre-treatment, patients showed evidence of immune activation in addition to reduced naive T cell counts.

11. PATTERNS OF CARE FOR SMALL CELL LUNG CANCER IN VICTORIA, AUSTRALIA: AN OBSERVATIONAL COHORT STUDY

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BACKGROUND: Small cell lung cancer (SCLC) is an aggressive cancer, often metastatic at presentation with poor prognosis. The patterns of care for SCLC remain incompletely defined in the Australian population.

OBJECTIVE: We aimed to analyse and report on the patterns of care for people newly diagnosed with SCLC in Victoria and to identify clinical quality indicators that can be used for benchmarking quality of cancer care.

METHODS: All patients diagnosed with SCLC between April 2011 and 18th December 2019 registered in the Victorian Lung Cancer Registry (VLCR) were included. Data collected included patient characteristics, treatment and overall survival.

RESULTS: The study included 1006 people (43% female) with median age 69 years with 83% diagnosed within 28 days of referral. Documentation of performance status was recorded for 66% (74% ECOG 0-1), and staging in 89% cases, 30% limited (stage I-III), and 70% extensive (stage IV), MDM discussion for 55% and supportive care screening for 38%. Active treatment was delivered to 89%, including chemotherapy 84%, radiotherapy 46%, surgery 2% and palliative care referrals for 39%. Treatment commenced within 14 days of diagnosis in 72%. Median overall survival was 8.9 months, 16.3 months for stage I-III and 7.2 months for stage IV. Better performance status (ECOG <2), MDM discussion and receipt of multimodality treatment were associated with improved survival.

CONCLUSION: Active treatment for SCLC is high in Victoria with survival outcomes comparable to international series. Improving treatment timeliness and confirmation of clinical quality indicators for SCLC may be beneficial for improving patient care.

12. CYTOSOLIC EZH2-IMPDH2 COMPLEX REGULATES MELANOMA PROGRESSION AND METASTASIS VIA GTP REGULATION

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BACKGROUND: EZH2 oncoprotein is a histone methyltransferase that functions canonically as a catalytic subunit of the PRC2 to tri-methylate H3K27. Although targeting EZH2 methyltransferase is a promising therapeutic strategy against cancer, methyltransferase-independent oncogenic functions of EZH2 are described. Moreover, pharmacological EZH2 methyltransferase inhibition was only variably effective in pre-clinical and clinical studies, suggesting that targeting EZH2 methyltransferase alone may be insufficient.

AIM: To study methyltransferase independent functions of EZH2 in melanoma.

METHODS: To identify interacting proteins of EZH2 in melanoma, melanoma cell lines and patient-derived xenografts were used by LC-MS method. Clonogenicity and Boyden chamber invasion assays were used to score melanoma cell proliferation and invasion in vitro and NSG mice were used for tumorigenesis and metastasis evaluation.

RESULTS: Here, we demonstrate a non-canonical mechanism of EZH2’s oncogenic activity characterized by interactions IMPDH2 and downstream promotion of GTP production. EZH2-IMPDH2 interactions identified by LC-MS of EZH2 immunoprecipitates from melanoma cells were verified to occur between the N-terminal EED-binding-domain of cytosolic EZH2 and the CBS-domain of IMPDH2 in a methyltransferase-independent manner. EZH2 silencing reduced cellular GTP, ribosome biogenesis, RhoA-mediated actomyosin contractility and melanoma cell proliferation and invasion by impeding the activity of IMPDH2. Guanosine, which replenishes GTP, reversed these effects and thereby promoted invasive and clonogenic cell states even in EZH2 silenced cells. IMPDH2 silencing antagonized the proliferative and invasive effects of EZH2, also in a guanosine-reversible manner. In human melanomas, high cytosolic EZH2 and IMPDH2 expression were associated with nucleolar enlargement, a marker of ribosome biogenesis. EZH2-IMPDH2 complexes were also observed in several cancers in which Sappanone A, which inhibits EZH2-IMPDH2 interactions, was antitumorigenic, although notably non-toxic in normal cells.

CONCLUSION: These findings illuminate a previously unrecognized, non-canonical, methyltransferase-independent, and GTP-dependent mechanism by which EZH2 regulates tumorigenicity in melanoma and other solid cancers, opening new avenues for development of anti-EZH2 therapeutics.
13. LARGE VARIATION IN CONSERVATIVE MANAGEMENT FOR LOW-RISK PROSTATE CANCER IN AUSTRALIA AND NEW ZEALAND

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AIM: To evaluate the pattern of conservative management in men with low-risk prostate cancer (LRPC) in Australia and New Zealand, and identify factors associated with it.

METHODS: This is a population-based cohort of men with LRPC (Gleason Grade Group 1, PSA<10ng/mL, and cT2a) diagnosed between 2015 and 2018 as captured in the binational Prostate Cancer Outcomes Registry Australia and New Zealand (PCOR-ANZ). The primary outcome is the proportion of men managed conservatively, defined as no active treatment within 12 months of LRPC diagnosis. The Cochran-Armitage test for trend was used to evaluate changing trends in practice. Multivariate logistic regressions were used to evaluate factors associated with conservative management.

RESULTS: 3,799 men with LRPC were included in this study. Overall, 2,816 (74%) men were managed conservatively, of which 2,571 (68%) were documented to be on active surveillance. The proportion of men on conservative management increased from 70% in 2015 to 76% in 2018 (P-trend<0.001). There was marked variation in conservative management across jurisdictions – 80% in New South Wales, 77% in Victoria, 72% in Queensland, and 67% in New Zealand (P<0.001). There was higher proportion of conservative management in public metropolitan centres (77%) and public regional centres (78%) compared to private regional centres (66%) (P<0.001). In multivariate analyses, age at diagnosis, PSA at diagnosis, clinical stage, jurisdiction, institutional type, location, and year of diagnosis were all independently associated with conservative management.

CONCLUSION: This is the first and largest population-based study in men with LRPC in Australia and New Zealand. We observed increasing use of conservative management in men with LRPC over time. However, large variations in practice still exist with opportunities for quality improvement to reduce the variations in management of men with LRPC.

14. MONITORING QUALITY OF CARE IN HEPATOCELULAR CARCINOMA: A MODIFIED DELPHI CONSENSUS

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BACKGROUND AND AIMS: Although there are several established international guidelines on the management of hepatocellular carcinoma (HCC), there is a paucity of information detailing specific indicators of good quality care. The aim of this study was to develop a core set of quality indicators (QIs) to underpin the management of HCC.

METHOD: We undertook a modified, two round Delphi consensus study involving a working group and experts involved in the management of HCC, as well as consumer representatives. Quality indicators were derived from an extensive review of the literature. The role of the participants was to identify the most important and measurable QIs for inclusion in an HCC clinical quality registry.

RESULTS: From an initial 94 QIs, forty were proposed to the participants. Twenty-three QIs ultimately met the inclusion criteria and were included in the final set. This included: a) nine related to the initial diagnosis and staging including timing to diagnosis, required baseline clinical and laboratory assessments, prior surveillance for HCC, diagnostic imaging and pathology, tumour staging and multidisciplinary care; b) thirteen related to treatment and management including role of anti-viral therapy, timing to treatment, localised ablation and locoregional therapy, surgery, transplantation, systemic therapy, method of response assessment, and supportive care; and c) one outcome assessment related to surgical mortality.

CONCLUSION: We have identified a core set of nationally agreed measurable QIs for the diagnosis, staging and management of HCC. The adherence to these best practice QIs may lead to system-level improvement in quality of care and, ultimately, improvement in patient outcomes including survival.

15. DISCORDANCE BETWEEN CLINICAL AND PATHOLOGICAL STAGING OF PATIENTS WITH OPERABLE NON-SMALL CELL LUNG CANCER: A RETROSPECTIVE OBSERVATIONAL COHORT STUDY

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BACKGROUND: Surgical resection is the primary treatment for early-stage (T1-3, N 0-1) Non-Small Cell Lung Cancer (NSCLC).

AIM: To determine the degree of stage concordance between clinical (preoperative cTN) and pathological (postoperative pTN) stages following lung cancer resection, examine factors predictive of discordance, and explore the impacts of stage discordance on survival.

METHODS: Patients with early-stage NSCLC who underwent surgical resection between 2011 and 2020 were retrospectively identified. Data on patient demographics and clinical and pathologic staging were obtained. Clinical staging was carried out using CT, PET, and mediastinal nodal evaluation. Logistic regression analysis and cox proportional hazards test were performed to evaluate the impact of those characteristics on the concordance rate and survival respectively.

RESULTS: 221 patients were included in the analysis. The majority were male 51.7% and 85.5% were smokers. 70.8% had adenocarcinoma histology and 60% had right-sided cancers. The overall stage concordance was 58.0% and discordance was 42.0% with 57% up-staged and 43.0% down-staged at pathological diagnosis. The concordance between clinical and pathologic staging for T stage was 61.9% and for N stage 76.6%. In logistic regression analysis, age (p=0.056) and smoking status (p=0.003) appear to influence rates of T stage concordance. Nodal stage discordance had a significant negative impact on survival (p=0.03, HR 0.43; 95% CI 0.24 - 0.77). The median survival for nodal concordance was 5.8 years compared to 2.4 years for nodal upstaging and 2.5
years for downstaging. Nodal stage discordance had an independent negative association with survival, adjusting for confounders like age, smoking status, and histology.

CONCLUSION: Our findings suggest that clinical staging modalities have significant discrepancies in predicting pathologic stages for NSCLC. Further optimisation of clinical staging is essential for patients to receive guideline-concordant treatment. Pathological upstaging provides a significant safety risk and may result in futile surgery and adverse survival outcomes.

16. PERSISTING GAPS IN OPTIMAL CARE OF STAGE III NON-SMALL CELL LUNG CANCER: AN AUSTRALIAN PATTERNS OF CARE ANALYSIS

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BACKGROUND: Wide variation exists globally in the treatment and outcomes of stage III non-small cell lung cancer (NSCLC) patients. We conducted an up-to-date patterns of care analysis in the state of Victoria, Australia, with a particular focus on the proportion of patients receiving treatment with radical intent, treatment trends over time and survival.

METHODS: Stage III NSCLC patients were identified in the Victorian Lung Cancer Registry and categorised by treatment received and treatment intent. Logistic regression was used to explore factors predictive of receipt of radical treatment and the treatment trends over time. Cox regression was used to explore variables associated with overall survival (OS). Covariates evaluated included age, sex, ECOG performance status, smoking status, year of diagnosis, Australian born, Aboriginal or Torres Strait Islander status, socioeconomic status, rurality, public/private status of notifying institution and multidisciplinary meeting discussion.

RESULTS: A total of 1,396 patients were diagnosed between 2012-2019 and received treatment with radical intent 67%, palliative intent 23%, unknown intent 5% and no treatment 5%. Radical intent treatment was less likely if patients were >75 years, ECOG ≥1, had T3-4 or N3 disease or resided rurally. Surgery use decreased over time, while concurrent chemoradiotherapy and immunotherapy use increased. Median OS was 38.0 months, 11.1 months and 4.4 months following radical treatment, palliative treatment or no treatment respectively.

CONCLUSION: Almost a third of stage III NSCLC patients still do not receive radical treatment. Strategies to facilitate radical treatment and better support decision making between increasing multimodality options are required.

17. EXPLORING THE UTILISATION AND EFFECTIVENESS OF KNOWLEDGE TRANSLATION AND IMPLEMENTATION SCIENCE STRATEGIES BY CANCER REGISTRIES FOR HEALTHCARE IMPROVEMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS.

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BACKGROUND: The evidence to practice gap in cancer care remains substantial. Cancer registries are essential elements of cancer control programmes and may provide critical knowledge on measures of performance in care delivery. Knowledge transfer (KT) strategies attempt to bridge the gap between research evidence and the effective clinical implementation of evidence. We describe a systematic review and meta analysis of the utilisation and effectiveness of KT strategies using cancer registries.
METHODS: A PICO framework defined the research protocol, registered in Prospero and literature searches performed for studies incorporating KT, dissemination and implementation strategies engaging cancer registries in quality improvement. We searched MEDLINE, EMBASE, CENTRAL, and grey literature sources for controlled trials and cohort studies published in English reporting Search results were screened by 2 reviewers. Inclusion consensus was achieved by discussion between the reviewers and a third reviewer in event of conflicts. Gap analysis was performed using the “Knowledge to Action framework”.

FINDINGS: Some 1496 studies were identified in screening, 37 were identified by title and abstract review, and 9 included after full text review. Studies emanated from the UK, USA, Netherlands and Australia and described lung cancer(4), breast cancer(2), colorectal cancer(2), multiple cancers(3). Seven studies used national registries, 4 state based registries, and 4 local databases. Knowledge gap analysis identified routine use of monitoring and evaluation of data outcomes consistent with the registry primary function but minimal exploration of application and translation of these data. Reports lacked substantive engagement in sustaining knowledge use, approaches to assessment of barriers, adapting knowledge to the local context, and selecting, tailoring or implementing interventions for improvement.

INTERPRETATION: Available studies provide limited literature evidence of utilisation and effectiveness of KT strategies in the context of cancer registry reporting for healthcare improvement. A great opportunity exists for the study of engagement of KT and dissemination and implementation sciences in the use of cancer registries in data driven healthcare improvement in cancer.

18. NSCLC IN VICTORIA: ASSOCIATION BETWEEN STAGE-SPECIFIC RECEIPT OF GUIDELINE-CONCORDANT TREATMENT AND SURVIVAL
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In Victoria, lung cancer contributes to 9% of all newly diagnosed cancers and has the lowest survival rate of 17.4% amongst all cancers. Clinical practice guidelines for the treatment of non-small cell lung cancer (NSCLC) have been developed to improve evidence-based management and treatment. Adherence to guideline-concordant treatment (GCT) is likely to lead to an improvement in survival for patients.

AIM: To explore the extent of provision of stage-specific GCT to patients with NSCLC in Victoria, the impact on 1- and 2-year survival and to assess factors related to provision of GCT for patients in the Victorian Lung Cancer Registry (VLCR).

METHODS: This is a prospective cohort study conducted in Melbourne, Victoria, using data collected by the VLCR for all patients with NSCLC between July 2011 and November 2021. A multivariable logistic regression model was developed to estimate likelihood for receipt of GCT. Survival analyses were performed using Kaplan-Meier estimates of survival and multivariable COX regression.

RESULTS: The number of patients receiving stage-specific GCT increased over time. GCT was received by 37.1% of patients diagnosed in 2012 and 61.9% of patients diagnosed in 2019. Patients were more likely to receive GCT if they were younger, never smoked, had no comorbidities, had an ECOG performance score of <2 or had early stage cancer. Overall, NSCLC patients that received stage-specific GCT had better survival rates compared to those that received non-GCT. Patients that received stage-specific GCT had a 24% lower risk of mortality compared to patients that received non-GCT.

CONCLUSION: The provision of GCT reflects evidence-based practice and in this study provides significant survival advantage. The proportion of patients receiving stage-specific GCT has increased during the period of activity of the VLCR. The receipt of GCT may be a useful measure of appropriateness and quality of care delivered to patients with NSCLC.
19. THE EXPERIENCE OF PATIENTS RECEIVING HOME-BASED CANCER TREATMENT

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Cancer is a leading cause of death in Australia and worldwide (Sung et al., 2021). Home-based cancer treatments have been developed to address the increasing demand for access to health services.

AIM: To explore the experiences of patients who received home-based cancer treatment through Alfred Health’s Hospital in the Home (HITH).

METHODS: The study employed a descriptive qualitative design. Semi-structured individual interviews were conducted with Alfred hospital patients who were receiving home-based cancer treatment. Reflective thematic analysis was used to analyse the data.

RESULTS: Fourteen patients were interviewed. The majority of patients reported that home treatment improved their mental health by reducing treatment related stress and anxiety. Home-based treatment helped to build better nurse and patient relationships. Most patients were not concerned about decreased social interactions when receiving treatment at home compared to within the hospital. Some frustrations raised during the home treatment were related to missed or delayed diagnoses, unstable wireless internet for nurses during medication checking procedures, and an inflexible scheduling system for receiving treatments. Most patients reported care at home being equal to the care received in hospital and were satisfied with their treatment regardless of location. Home-based treatment was seen as being more efficient, streamlined, and an uninterrupted one-to-one nursing care model.

CONCLUSION: The HITH home-based cancer treatment program was the preferred treatment location, which had a positive impact on patients' mental health and wellbeing. Patients regarded the quality of care as being equal to hospital treatment. Patients concerns with home-based cancer treatment were mitigated through targeted patient selection, a supportive medical team and effective communication.

CARDIOVASCULAR DISEASE

20. HABITUAL COFFEE CONSUMPTION AND ASSOCIATIONS WITH INCIDENT CARDIOVASCULAR DISEASE, ARRHYTHMIA, AND MORTALITY: LONG TERM OUTCOMES FROM THE UK BIOBANK

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BACKGROUND: Meta analyses report beneficial effects of coffee intake on incident cardiovascular outcomes, however earlier studies are limited by smaller sample sizes.

OBJECTIVE: To evaluate associations between coffee intake and incident arrhythmia, cardiovascular disease (CVD), and mortality, utilising the UK Biobank.

METHODS: The UK Biobank is a large prospective cohort with outcomes measured >10 years. Coffee intake, obtained from participant questionnaires, was divided into 0, <1, 1, 2-3, 4-5, >5 cups/day. Cox regression with hazard ratios (HR) was used to assess associations with incident arrhythmia, CVD, and mortality. CVD was defined as a composite of coronary heart disease (CHD), cardiac failure (CCF), and stroke. Outcomes were assessed through ICD-10 codes and death records.

RESULTS: The cohort consisted of 449,563 individuals (age 58±13yrs, 55.3%female) with median follow up of 12.5 years (IQR 11.7-13.2). Coffee intake of 2-3 cups/day showed the lowest risk for CVD (HR0.90, CI 0.87-0.92), CHD (HR0.89, CI 0.86-0.91), CCF (HR0.83, CI 0.79-0.87), stroke (HR0.84, CI 0.78-0.90) and all cause mortality (HR0.86, CI 0.83-0.90). U shaped relationship exist between higher coffee intake and incident arrhythmia, with the lowest risk for any arrhythmia at 2-3 cups/day (HR0.91, CI 0.88-0.94),
and AF at 4-5 cups/day (HR0.88, CI0.83-0.94). Cardiovascular mortality risk was lowest at 1 cup/day (HR0.82, CI 0.74-0.90) (all p<0.0001).

CONCLUSION: Regular coffee intake, particularly at 2-3 cups/day, was associated with significant reductions in incident arrhythmia, CVD and cardiovascular/all cause mortality. Daily coffee intake should not be discouraged but rather considered part of a healthy diet.

**Coffee intake and incident CVD/ arrhythmia**

![Graph showing the relationship between coffee intake and incident CVD/ arrhythmia.](image)

21. PREVALENCE, CHARACTERISTICS AND OUTCOMES OF ATRIAL FIBRILLATION PATIENTS ATTENDED BY EMERGENCY MEDICAL SERVICES

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**BACKGROUND:** Atrial fibrillation (AF) remains the most common cardiac arrhythmia and is a growing burden on healthcare resources. AF is the most common cause of cardiovascular hospitalisation and patients often contact Emergency Medical Services (EMS) for acute episodes. However, the burden of AF presentations on EMS is currently unknown.

**AIM:** To determine prevalence, characteristics, and outcomes of adult patients presenting to EMS with AF using a large, linked, population-based sample.

**METHODS:** Consecutive EMS attendances for AF in Victoria, Australia from January 2015 to June 2019 were included if patients had a diagnosis of ‘AF’, ‘atrial fibrillation’, or ‘arrhythmia’ with AF on electrocardiogram. Data from patient records were individually linked to emergency, hospital admission, and mortality records.

**RESULTS:** AF was the reason for emergency ambulance attendance in 23,925 of 2,237,145 cases (1.1%). Median (IQR) age was 76 (66,84) years and 57% were female. Eighty-four percent of patients had a high thromboembolic risk (CHA2DS2-VASc score ≥2), 73% had a heart rate >100bpm, and >50% were normotensive (mean SBP 133 ± 28mmHg). Forty-four percent of patients received no medical intervention by paramedics and over 99% were transported to hospital. From the Emergency Department, 19% of patients were discharged home, 36% went to a short-stay unit, 34% were admitted to a general medical ward, and 7% were admitted to a coronary care unit. Median (IQR) length of stay for those admitted was 1 (1,4) day. Of 5,000 cases reattended for AF during the 4.5-year study period, 22% occurred within 30 days and 34% within 6 months of the index event. Overall, 22% died during the study period, 37% of those within 6 months of the index event.

**CONCLUSION:** EMS utilisation for acute episodes of AF is common and associated with frequent reattendance. Novel care pathways are required to reduce AF burden on health services.
22. PLASMALOGEN SUPPLEMENTATION IN A MOUSE MODEL OF DILATED CARDIOMYOPATHY ATTENUATES PATHOLOGICAL CARDIAC MORPHOLOGY AND REMODELS THE CIRCULATING LIPIDOME

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INTRODUCTION: Plasmalogens are a class of phospholipids that are enriched in the heart. Previous studies have demonstrated the protective effects of plasmalogens in some disease settings (e.g. diabetes) but the therapeutic potential in the heart is unknown. Plasmalogens are decreased in the heart and circulation of different mouse models that develop cardiac pathology. Restoring plasmalogens via a dietary supplement called alkylglycerols (AG) may provide cardiac protection.

AIM: To assess whether AG supplementation can restore plasmalogen levels in a mouse model of dilated cardiomyopathy (DCM) and attenuate cardiac pathology.

METHODS: Male non-transgenic (Ntg) and transgenic mice that develop DCM (due to cardiac-specific overexpression of mammalian sterile 20-like kinase 1) began dietary supplementation at ~10 weeks old with chow or AG supplementation (1.5% batyl alcohol, chimyl alcohol and selachyl alcohol per 100g of chow) for 16 weeks (n=14-16/group). Lipids were extracted using the chloroform: methanol method and run using liquid chromatography electrospray ionisation tandem mass spectrometry. Data were analysed in the Agilent MassHunter Quantitative Analysis Software. Two-way ANOVA with Tukey’s post-hoc was used, where p<0.05 was considered significant.

RESULTS: AG supplementation significantly increased total circulating plasmalogen levels in Ntg and DCM AG diet mice (39.2% and 107.4% respectively vs chow). Heart and lung weight/tibia length (HW/TL, LW/TL) ratios of DCM chow vs. Ntg chow mice were increased (26.1% and 33.9% increase respectively). AG supplementation in DCM mice was associated with lower HW/TL and LW/TL (16.5% and 18.4% respectively) vs. DCM chow mice. In-depth lipidomic analysis revealed that AG supplementation significantly decreased other circulating lipids including phosphatidylethanolamine, phosphatidylcholine, phosphatidylinositol and lysophosphatidylcholines (Ntg and DCM supplemented mice vs. chow controls).

CONCLUSION: Morphological markers of cardiac pathology were attenuated by restoration of circulating plasmalogen levels. Assessment of lipids within the heart, and impact of the AG diet on cardiac function and fibrosis are underway.

23. ATRIAL FIBRILLATION ABLATION FOR HEART FAILURE WITH PRESERVED EJECTION FRACTION: A RANDOMIZED CONTROLLED TRIAL

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BACKGROUND: Heart failure with preserved ejection fraction (HFpEF) frequently accompanies atrial fibrillation(AF). There are no randomized data examining the effects of rhythm control with catheter-based AF ablation on HFpEF outcomes.

AIM: To compare the effects of AF ablation versus usual medical therapy on markers of HFpEF severity, including exercise haemodynamics, natriuretic peptide levels and patient symptoms.
METHODS: Patients with symptomatic HFpEF and AF underwent exercise right heart catheterization (ExRHC) and cardiopulmonary exercise testing (CPET). HFpEF was confirmed on ExRHC based on pulmonary capillary wedge pressure (PCWP) of 15 mmHg at rest or ≥25 mmHg on peak exercise. Patients were randomised to AF ablation versus medical therapy, with investigations repeated at 6 months. The primary outcome was change in peak exercise PCWP on follow-up.

RESULTS: 31 patients aged 66.1±7.5 years were randomized to AF ablation (16) versus medical therapy (15), with 51.6% female and 80.6% persistent AF. At 6 months, ablation reduced the primary outcome of peak exercise PCWP (30.4±2.5 to 25.9±4.3 mmHg, p<0.01). Improvements were also seen in peak VO2 (1937.3±739.3 to 2216.3±861.9 mL/min, p<0.01), NT-pro BNP levels (771±703 to 167±66 ng/L, p=0.03), and Minnesota Living with Heart Failure (MLHF) score (51±21.9 to 16.6±17.5, p<0.01). No differences were observed in the medical arm. Following ablation, 50% no longer met exercise RHC-based criteria for HFpEF versus 7% in medical arm (p=0.02).

CONCLUSION: AF ablation improves invasive exercise haemodynamic parameters, increases exercise capacity, and enhances quality of life in patients with concomitant HFpEF and AF. Successful AF ablation may reverse the clinical syndrome of HFpEF in a proportion of cases.

24. INCIDENCE AND PREDICTORS OF EOSINOPHILIC MYOCARDIAL HYPERSENSITIVITY IN PATIENTS RECEIVING HOME DOBUTAMINE

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BACKGROUND: Home inotropes are increasingly utilised in patients with end-stage heart failure as a bridge to cardiac transplantation, however, the use of intravenous dobutamine has been linked to case reports of eosinophilic myocardial hypersensitivity (EMH). We sought to examine incidence and predictors of EMH in a cohort of patients in the home inotrope program of a quaternary cardiac transplant centre.

METHODS: Patients on home inotropes with progression to heart transplantation or ventricular assist device between January 2000 to May 2020 were included. EMH was diagnosed by the presence of an interstitial predominate eosinophilic infiltrate within the myocardium by experienced cardiac pathologists.
RESULTS: From a cohort of 74 patients, 58% (43) were on dobutamine and 42% (31) were on milrinone. Dobutamine was associated with EMH incidence of 14% (6/43), with zero cases in the milrinone cohort. Mean age was 52±12 years, 22% female. Majority (62%) were non-ischaemic dilated cardiomyopathies, the remainder were ischaemic cardiomyopathy. Dobutamine dose (250 [200-282] vs. 225 [200-291] mcg/min) and duration of therapy (41 [23-79] vs. 53 [24-91] days) was similar between those with and without EMH. Median change in eosinophil count was 0.31×10⁹/L in the EMH group compared to only 0.03×10⁹/L in the non-EMH cohort, p=0.02. Increase in peripheral eosinophil count of >0.20×10⁹/L demonstrated good discrimination between those with and without EMH, c-statistic 0.83 (95% CI 0.66-1.0). Heart failure hospitalisation occurred in 83% of the EMH group versus 59% in the non-EMH group, p=0.26. Requirement for VAD was significantly higher in the EMH group (83% vs. 41%, p=0.05).

CONCLUSION: EMH occurred in 14% of patients receiving home dobutamine. Rising eosinophil count should prompt physicians to consider EMH and switch to milrinone to avoid possible escalation to VAD.

25. PREDICTORS OF RADIAL TO FEMORAL ARTERY ACCESS CROSSOVER DURING PRIMARY PERCUTANEOUS CORONARY INTERVENTION FOR STEL-ELEVATION MYOCARDIAL INFARCTION
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BACKGROUND: Radial access for primary percutaneous coronary intervention (PPCI) in ST elevation myocardial infarction (STEMI) is associated with reduced mortality and bleeding, when compared to femoral access. However, radial access failure may be associated with an increased door-to-device (DTD) time.

AIMS: To identify predictors of radial access failure requiring crossover to femoral access during PPCI.

METHODS: From 2013-2020, 2,256 consecutive patients treated for PPCI at a single tertiary hospital were prospectively recruited into the Victorian Cardiac Outcomes Registry and followed for 30-days. Multivariable logistic regression was used to identify independent predictors of radial to femoral access crossover.

RESULTS: From 2,256 STEMI patients, primary transradial access was used in 1,778 (78.8%), with 171 (9.6%) experiencing radial-to-femoral crossover. Patients with failed versus successful radial access experienced longer DTD times [67 minutes, interquartile range (IQR) 46-99 versus 54 minutes (IQR 39-78), p<0.001]. Independent predictors of radial-to-femoral access crossover included female sex (Adjusted Odds Ratio (AOR) 2.1; 95% Confidence Interval (CI), 1.4-3.0; p<0.001) and baseline hypertension (AOR 1.5; 95% CI, 1.1-2.1; p=0.018).

CONCLUSION: In a real-world STEMI registry, almost 1 in 10 patients experienced access crossover from the radial to femoral artery which resulted in longer DTD times. Independent predictors of radial access failure included female sex and baseline hypertension. Knowing which patient characteristics are associated with increased risk of radial artery failure enables catheter laboratory staff to ensure equipment is readily available to maximise successful primary PCI are available.

26. LIDOCAINE VERSUS OPIOIDS IN MYOCARDIAL INFARCTION: THE AVOID-2 RANDOMISED CONTROLLED TRIAL
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A drug interaction has been identified between opioid painkillers used to treat chest pain in patients with myocardial infarction and the crucial antiplatelet agent ticagrelor which reduces the risk of death after myocardial infarction. This has prompted the search for alternative analgesic agents that could be used in this setting.

AIM: The AVOID-2 trial aimed to investigate the efficacy and safety of intravenous lidocaine, a non-opioid analgesic in ST elevation myocardial infarction (STEMI).

METHODS: Patients with suspected STEMI with moderate to severe pain (numerical rating scale (NRS) at least 5/10) were enrolled by paramedics and administered either intravenous lidocaine (maximum dose 300mg) or intravenous fentanyl (up to 50µg every 5 min). The co-primary endpoints were prehospital pain reduction and adverse events requiring intervention. Secondary endpoints included peak cardiac troponin I, cardiac MRI (cMRI) assessed myocardial infarct size and clinical outcomes to 30 days.

RESULTS: A total of 308 patients were enrolled. Baseline characteristics were similar between the two arms. The median reduction in pain score (NRS) was 4 versus. 3 in the fentanyl and lidocaine arms respectively, findings that did not meet criteria for non-inferiority of lidocaine for the primary efficacy endpoint (estimated median difference -1 (95% confidence interval -1.58, -0.42, p=0.5 for non-inferiority). Adverse events requiring intervention occurred in 49% vs. 36% in the fentanyl and lidocaine arms which met non-inferiority and superiority favouring lidocaine (p=0.016 for superiority). No significant differences in myocardial infarct size and clinical outcomes at 30 days were seen.

CONCLUSION: Lidocaine did not meet criteria for non-inferiority compared to fentanyl for the relief of chest pain but was safe and better tolerated than fentanyl when used as prehospital analgesia in STEMI. IV lidocaine represents a feasible, alternative analgesic option in the management of STEMI where avoidance of the opioid-P2Y12 inhibitor interaction is desired.

27. PIVET-ED: A PROSPECTIVE, RANDOMISED, BLINDED, SHAM CONTROLLED, WITH CROSS-OVER STUDY OF PELVIC VEIN EMBOLISATION FOR THE TREATMENT OF ERECTILE DYSFUNCTION

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Erectile Dysfunction (ED) affects 50% of men aged over 40 years. Venogenic-ED is the cause in a subgroup of patients. The project was initiated in a backdrop of limited scientific literature and increasing referrals for cavernosogram investigation for venogenic-ED often in younger men and with impacts on their mental health. Current treatments, medications and/or surgical venous ligation, offer limited results. Pelvic vein embolisation offers a minimally invasive option for treatment of venogenic-ED.

AIM: To conduct a randomised controlled trial to determine if Pelvic Vein Embolisation (PVE) for treatment of venogenic-ED is safe effective and durable.

METHODS: After informed consent, and confirmation of vED by Doppler ultrasound (dUS) and cavernosography, 80 men referred for cavernosography and PVE, will be randomised to treatment or sham groups. Efficacy will be assessed at 6 months post PVE, defined by end diastolic velocity in the cavernosal artery of <5cm/s with dUS and a >4-point improvement in the International Index of Erectile Function score. Safety will be assessed by the number of adverse events using CTCAnV6. Durability will be assessed annually to 5 years with dUS. Quality-of-life will be assessed at 3 and 6 months and annually to five years.

RESULTS: The study protocol has been published in CardioVascular Interventional Radiology (CVIR) and enrolment has commenced.

CONCLUSION: The RCT will improve our understanding of the safety, efficacy and durability of venous embolisation for management of venogenic-ED. It may help establish the role of cavernosography and venous embolisation in the treatment algorithm for ED and help improve the Quality of Life of the significant number of patients suffering from venogenic-ED by allowing management to be appropriate and evidence-based.
28. ELUCIDATING A ROLE FOR CRYZL1 IN THE SETTING OF CORONARY ARTERY DISEASE

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Coronary artery disease (CAD), a common cause of myocardial infarction, has a complex aetiology driven by contributions from lifestyle factors and multiple risk alleles. Traditionally, genome wide association studies have been utilised to assess genetic variance. More recently, researchers have developed polygenic risk scores (PRS), which aggregate the many genetic variants that exist across the genome and enable the quantification of individual risk for a given phenotype or disease. PRS also provide a unique opportunity to explore novel disease pathways. Indeed, overlaying PRS with plasma proteomics in healthy individuals (n=3,175) identified 11 PRS-protein associations for CAD.

Here, we explored the role of one such target, crystallin Zeta Like 1 (CRYZL1), whose plasma protein abundance was positively associated with CAD-PRS. Further, we probed CRYZL1 associations in 100+ strains of genetically diverse mice (Hybrid Mouse Diversity Panel; HMDP). We demonstrated that expression of CRYZL1 in liver and adipose tissue of mice from the HMDP was significantly associated with glucose levels and body weight. Furthermore, while CRYZL1 mRNA expression was no different between mice fed a chow or high fat diet, a high fat/high cholesterol (western) diet resulted in a significant elevation of CRYZL1 mRNA in the liver and a converse decrease in skeletal muscle, suggesting a responsiveness to cholesterol. Moreover, gain of function studies in human hepatoma cells demonstrated that CRYZL1 was associated with an increase in the expression of ACACA, HMGCR and GPX1. Pathway analysis of gene co-regulation networks in the aorta revealed enrichment of pathways linked to lipid metabolism. Finally, CRYZL1 was also associated with lesion area across the atherosclerosis HMDP.

Taken together, these data suggest a role of CRYZL1 in the regulation of lipid metabolism and CAD and demonstrate the use of integrating human and mouse datasets for discovery of novel biology and validation of targets linked to CAD.

29. CATHETER ABLATION FOR PERSISTENT ATRIAL FIBRILLATION: AN INTERNATIONAL MULTI-CENTRE RANDOMIZED TRIAL OF PULMONARY VEIN ISOLATION (PVI) VERSUS PVI PLUS POSTERIOR LEFT ATRIAL WALL ISOLATION (PWI)

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BACKGROUND/ AIM: Pulmonary vein isolation (PVI) alone is less effective in patients with persistent atrial fibrillation (PsAF). The left atrial posterior wall may contribute to the maintenance of PsAF. Adding posterior wall isolation (PWI) is a common adjunctive ablation strategy to PVI. However PWI has not been subjected to randomised comparison.

METHODS: In this largest-to-date, multi-centre, prospective, international randomized clinical trial, 338 symptomatic PsAF patients were randomized 1:1 to either PVI alone or PVI with PWI. Follow up was for a minimum of 12 months. The primary endpoint was freedom from any documented atrial arrhythmia recurrence of >30 seconds off anti-arrhythmic therapy (AAD) at 12 months, after a single ablation procedure.
RESULTS: Median age was 65.6 (IQR 13.1) years, with 76.9% of patients assigned to PVI alone were free from recurrent atrial arrhythmia off AAD from a single procedure, compared with 52.4% assigned to PVI plus PWI (HR 1.01, CI 0.74-1.38, p=0.96). There were no significant differences in the secondary end points, including freedom from atrial fibrillation off AAD after a single procedure (PVI 53.3% vs PWI with PWI 54.1%, p=0.78), and freedom from atrial arrhythmia on/off AAD after multiple procedures (PVI 62.3% vs PWI with PWI 58.2%, p=0.51). Median atrial arrhythmia burden was 0% in both groups post blanking period to 12 months follow up (p=0.47). Procedural times (121±57 minutes vs 142±69 minutes, p<0.01) and radiofrequency (RF) ablation times (28±12 minutes vs 34±21 minutes, p<0.01) were significantly shorter for PVI alone. Overall complication rate was 2.9%.

CONCLUSION: In patients undergoing catheter ablation for persistent atrial fibrillation, the empirical addition of posterior wall isolation to pulmonary vein isolation alone did not improve freedom from AF.

30. VARIATION IN HEALTH-CARE PROCESSES, QUALITY OUTCOMES ACCORDING TO DAY AND TIME OF CHEST PAIN PRESENTATION


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Chest pain is incredibly common, accounting for 1 in 10 emergency medical services (EMS) calls.

AIM: To determine whether more complex temporal variation patterns might exist in chest pain presentations, health-care processes, quality and outcomes beyond the established weekend and after-hours effects

METHODS: This was a population-based study of consecutive adult patients attended by EMS for non-traumatic chest pain without ST elevation in Victoria, Australia. Multivariable models were used to assess whether time of day and week stratified into 168 hourly time periods was associated with care processes and quality measures or clinical outcomes.

RESULTS: There were 196,365 EMS chest pain attendances; mean age 62.4 years (SD 18.3) and 99,497 (51%) females. Presentations demonstrated a diurnal pattern (midday peak), a Monday-Sunday gradient (Monday peak) and a reverse weekend effect (lower rates on weekends). Five temporal patterns were observed for care quality and process measures, including a diurnal pattern (longer emergency department (ED) length of stay), an after-hours pattern (lower angiography or transfer for myocardial infarction, pre-hospital aspirin administration), a weekend effect (shorter ED clinician review, shorter EMS off-load time), an afternoon/evening
peak period pattern (longer ED clinician review, longer EMS off-load time) and a Monday-Sunday gradient (ED clinician review, EMS off-load time). Risk of 30-day mortality was associated with weekend presentation (Odds ratio [OR] 1.15, 95% CI 1.06 – 1.24) and morning presentation (OR 1.17, 95% CI 1.09 – 1.25) while risk of 30-day EMS reattendance was associated with peak period (OR 1.16, 95% CI 1.13 – 1.19) and weekend presentation (OR 1.07, 95% CI 1.04 – 1.10).

CONCLUSION: Chest pain care demonstrates complex temporal variation beyond the already established weekend and after-hours effect. Such relationships should be considered during resource allocation and quality improvement programs to improve care across all days and times of the week.

31. CARDIAC RESYNCHRONISATION THERAPY: TIME FOR MEDICARE TO GET WITH THE GUIDELINES
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Medical professionals strive to practice evidence-based care. Cardiac resynchronisation therapy (CRT) involves delivering pacing to both ventricles and has been shown uncontroversially to reduce the risk of mortality and heart failure hospitalisation in patients with heart failure and reduced ejection fraction. Additionally, CRT provides greater clinical benefit than single ventricle pacing in patients with reduced ejection fraction requiring a high proportion of RV pacing. Defined international guidelines identify the patients most likely to derive clinical benefit and improved outcomes from CRT; however, the Medicare indications for CRT are not consistent with these guidelines.

AIM: We sought to estimate the proportion of patients at our centre who would be eligible for CRT if patients were selected using Medicare requirements alone.

METHODS: One hundred adults with heart failure (72 male, mean age 69±12.7) who were referred for CRT at our centre during 2021 were retrospectively screened against both the ESC recommendations and the Medicare indications for CRT. The Medicare indications for the insertion of a left ventricular lead for the purpose of CRT include EF\(\leq 35\%\) and a QRS duration ≥130ms with NYHA class III-IV symptoms or QRS duration ≥150ms and NYHA class II symptoms.

RESULTS: All patients met the 2021 ESC guidelines for CRT (IA 24; IB 2; IIaB 52; IIaC 21; IIbB 1). Despite this, the maximum estimated proportion of our cohort that would have fulfilled the Medicare criteria was 56%. Patients who required a high degree of RV pacing due to atrio-ventricular block were disproportionately over-represented in the cohort who failed to meet Medicare requirements compared to those who satisfied the criteria (45% and 11% respectively).

CONCLUSION: All CRT implants performed at the Alfred satisfied an ESC recommendation. To employ Medicare indications alone would be to deny nearly half of our cohort the opportunity for significantly improved health outcomes.

32. POSTERIOR WALL ISOLATION IN PERSISTENT ATRIAL FIBRILLATION AND HEART FAILURE WITH REDUCED EJECTION FRACTION (HFrEF)
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BACKGROUND: Catheter ablation(CA) in AF and heart failure with reduced ejection fraction(HFrEF) is associated with improved left ventricular ejection fraction(LVEF) and survival compared with medical therapy. Previous non-randomised studies have shown high success rates with posterior wall isolation(PWI).

AIM: To examine differences in outcomes between pulmonary vein isolation (PVI) alone and PVI with PWI.
METHODS: CAPLA was a multi-centre, prospective, randomized trial involving PsAF patients assigned to PVI alone or PVI with PWI. This substudy included patients with HFrEF (LVEF<50%). The primary endpoint was freedom from any documented atrial arrhythmia of >30 seconds, after a single ablation procedure, off anti-arrhythmic therapy (AAD) at 12 months.

RESULTS: 98 patients with PsAF and HFrEF (mean age 62.1±9.8 years, 79.5% males, median LVEF 35±16%); 46.9% underwent PVI with PWI. After 12 months, 61.5% of patients with PVI alone were free from recurrent atrial arrhythmia off AAD vs 58.7% with PVI and PWI (HR1.02, CI0.54-1.91, p=0.96). There were no significant differences in freedom from atrial arrhythmia on/off AAD after multiple procedures (PVI 65.4% vs PVI with PWI 60.9%, p=0.73) or AF burden (median 0%, p=0.78). Median LVEF improved in PVI alone (ΔLVEF 18.2±14%, p<0.01), and PVI with PWI (19.3±12.9%, p<0.01), with no difference between groups (p=0.71). Normalisation of LV function (≥50%) occurred in 59.1% with PVI alone, and 71.4% in PVI with PWI (p=0.26).

CONCLUSION: CA is associated with significant LVEF improvements in PsAF and HFrEF. However adding PWI to PVI did not improve freedom from arrhythmia recurrence nor recovery of LVEF.

33. PALLIATIVE CARE OUTCOMES AND UTILISATION IN HEART FAILURE PATIENTS
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Palliative care (PC) is under-utilised and often delivered late in heart failure patients, despite guideline recommendations and evidence for improvements in symptoms, quality of life and medical service utilisation.

AIM: To describe the referral patterns of heart failure patients to inpatient palliative care (PC); to identify factors affecting PC referrals; and to assess the effect of PC on health service utilisation and quality of death.

METHODS: A retrospective review was performed of electronic medical records of adults admitted across Alfred Health with a primary diagnosis of heart failure from 1 July 2019 – 30 June 2020 (identified through Diagnostic Related Group code for heart failure.) The main outcome measures were: referral to inpatient PC services, patient disease and admission characteristics, documentation of care preferences, death, readmission (within 4 weeks and 12 months), intensive care admission, invasive procedures, preferred place of death.

RESULTS: 288 heart failure admissions were analysed with a median age of 82 years (IQR 73-87.5). Males constituted 49.3% of patients. During the median follow up of 26 months (IQR 25, 32) 34.4% died with 4.9% dying during the index admission. Only 8% of patients were referred to PC and 9% had a documented Advance Care Plan. Age (85.3±6.4 vs 77.9±13.4, p < 0.01), dependence
(100% low Australian-modified Karnofsky Performance Status vs. 83%, p=0.03), baseline New York Heart Association Class III-IV (83.3% vs. 43%, p<0.01) and admission unit (p<0.01) were significant predictors of referral to PC. PC referral was associated with death (adjusted OR 5.8, 95% CI 2.0-16.4), longer length of stay (9.3±10.6 days vs 4.2±4.5 days, p<0.01) and readmission within 12 months (OR 2.5, 95% 1.0-6.2) but not 4 weeks (OR 1.3, 95% 0.3-4.8).

CONCLUSION: A small proportion of heart failure patients are referred to inpatient PC, have documented care planning or care preferences, despite guideline recommendations.

34. LEVOSIMENDAN AND CONTINUOUS OUTPATIENT SUPPORT WITH INOTROPES IN PATIENTS WITH ADVANCED HEART FAILURE: A SINGLE-CENTRE DESCRIPTIVE STUDY

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The unique pharmacodynamics and pharmacokinetics of levosimendan as a calcium sensitizing agent and potent vasodilator have made it an appealing prospect for use in patients with advanced heart failure (AHF). However, in practice, its specific role and indications remain unclear.

AIM: To describe the use of levosimendan at The Alfred Hospital in Melbourne, Australia, and compare its efficacy and safety to continuous outpatient support with inotropes (COSI) among patients with AHF who require bridge to decision (BTD) or bridge to transplant (BTT) therapy.

METHODS: This study was a retrospective, single-centre, descriptive study of patients with AHF who received either a single levosimendan infusion or COSI between 2018 and 2021.

RESULTS: A total of 23 patients received a levosimendan infusion, and 14 were commenced on COSI. Three indications for levosimendan were identified – (1) to facilitate weaning of continuous inotropes, (2) to augment diuresis in cardiorenal syndrome, and (3) as first-line therapy for cardiogenic shock in selected patients. Eighty-three percent (19/23) of patients who received levosimendan survived to discharge, and there were few clinically significant adverse events. Overall survival at 12 months among patients who received levosimendan was 74%. No statistically significant difference in survival was observed at 12 months (p = 0.68) or beyond (p = 0.63) among patients that were discharged with a plan for BTD or BTT and had received either levosimendan or COSI.

CONCLUSIONS: Levosimendan is a safe and effective short-term therapy in AHF and offers comparable long-term survival to COSI in patients that require BTD or BTT therapy.

35. LONG-TERM OUTCOMES OF PATIENTS WITH SINGLE VENTRICLE WHO DO NOT UNDERGO FONTAN PALLIATION

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BACKGROUND: Patients with single ventricle (SV) without Fontan palliation are uncommon. Clinical features and long-term outcomes remain unclear.
AIM: We aimed to delineate characteristics of adult survivors with SV without Fontan and to evaluate long-term outcomes of these patients.

METHODS: Data were collected for 35 patients with SV without Fontan from two Adult Congenital Heart Disease centres. Clinical characteristics were evaluated for association with mortality.

RESULTS: Median age at first follow-up was 31 [IQR: 20–40] years. Most common defect was double inlet left ventricle (34%); 69% (n=24) had left ventricular morphology. Patients were either unoperated (46%), had systemic-to-pulmonary artery shunt (31%), or bidirectional cavopulmonary shunt (23%) as final palliation. Baseline mean haemoglobin was 195±29g/L, mean O₂ saturation 83±7%, and 4 patients in NYHA class III–IV. After mean follow-up of 10±8 years, there were 9 deaths; end-stage heart failure (HF) was the leading cause (n=6). Age-adjusted survival of these adult SV survivors was 73% (95% CI: 38–91) and 53% (24–76) at 40 and 50 years of age, respectively. Deceased patients were more likely to have eGFR <60mL/min/1.73m² (50% vs. 0%), QRS duration >120ms (80% vs. 21%), and lower body mass index (BMI) (19 vs. 24kg/m²) at first follow-up (all p<0.05). During follow-up, 40% (n=14) had new arrhythmia (atrial: n=13, ventricular: n=3), 34% (n=12) ≥1 HF hospitalisation, 17% (n=6) stroke, 9% (n=3) endocarditis, and 43% (n=15) underwent total 20 interventions: 5 surgical, 8 transcatheter, 5 device implantations, and 2 heart-lung transplants. Freedom from any new arrhythmia was 57% (95% CI: 35–74) at 10 years. Greater proportion of patients who had any arrhythmia died (42% vs. 6%, p=0.02).

CONCLUSION: Patients with SV without Fontan have high mortality and substantial burden of cardiovascular complications, particularly arrhythmia. Having any arrhythmia, QRS prolongation, renal impairment, and lower BMI were associated with mortality. Lifelong follow-up is essential.

DIABETES AND DIABETIC COMPLICATIONS

36. NOX5 IN HUMAN PERIPHERAL BLOOD MONONUCLEAR CELLS IS A POTENTIAL BIOMARKER FOR UNSTABLE DIABETIC VASCULAR DISEASE

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BACKGROUND: Human NADPH oxidase 5 (NOX5) is expressed and functionally active in peripheral blood mononuclear cells (PBMCs). In those with diabetes, there is increased NOX5 expression in atherosclerotic plaques with associated coronary artery disease (CAD) and within the glomeruli and mesangial cells in kidney biopsies. We hypothesise that NOX5 expression in circulating PBMCs is increased in patients with diabetes, particularly in those with comorbid unstable CAD and chronic kidney disease (CKD).

METHODS: 64 males aged 33-85 years underwent elective or emergency coronary angiography/angioplasty at the Alfred Hospital Catheter Laboratory. PBMCs were isolated from whole blood and processed for flow-cytometry to measure NOX5 protein. In parallel, NOX5 gene expression was measured in PBMCs by qPCR.

RESULTS: NOX5 protein expression in PBMCs was primarily driven by expression in monocytes (CD 45+/CD14+ cells) (p<0.0001). NOX5 expression was increased in diabetic and non-diabetic patients with CKD versus without CKD (28.3±3.9 vs 16.9±1.7 AU; p=0.0027) and particularly in diabetic patients with CKD without CKD (29.0±3.5 vs 12.8±2.3 AU; p=0.0007). CAD with acute presentation was associated with increased NOX5 expression versus elective presentation (24.7±2.7 vs 16.3±2.0 AU; p=0.013), especially in diabetic patients presenting acutely versus electively (28.2±3.5 vs 15.3±2.9 AU; p=0.0070). NOX5 expression was also markedly increased in diabetic patients with both CKD and acute presentation versus non-diabetic patients without CKD presenting electively (36.1±4.3 vs 11.9±3.4 AU; p=0.0003). A 3-fold upregulation of NOX5 gene was observed in diabetic patients with CAD and CKD versus diabetic patients with CAD but without CKD (p=0.044).

CONCLUSION: CKD and unstable CAD appear to be key factors for increased NOX5 expression in circulating PBMCs in diabetic patients. Measurement of NOX5 in PBMCs may serve as a valuable prognostic biomarker and attractive therapeutic target in patients with clustering diabetic complications, especially in those at high cardiovascular and/or renal risk.
37. CHARACTERISING TTC39C AS A NOVEL REGULATOR OF LIPID AND GLUCOSE METABOLISM

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Type-2 diabetes (T2D) affects 1 in 20 Australians and is inherently linked with dysregulated lipid and glucose homeostasis. Despite extensive efforts, findings from human genome-wide association studies (GWAS) explain only a small proportion of the estimated 40-70% heritability of T2D. An alternate approach to human GWAS is to exploit the inherent genetic diversity of a panel of inbred mice. We previously integrated genetic data with liver proteomic and liver and plasma lipidomic data from 107 genetically diverse strains of male mice from the Hybrid Mouse Diversity Panel (HMDP). Utilising a range of bioinformatic approaches, we identified numerous known and novel regulators of hepatic lipid metabolism. The abundance of one target, tetratricopeptide repeat domain 39C (TTC39C), was negatively associated with the abundance of hepatic total cholesteryl esters (CE) and triglyceride (TG) species across HMDP strains. We subsequently generated and characterised male and female liver-specific Ttc39c knockout mice (Ttc39cLKO), fed a chow diet or high fat, high cholesterol (western) diet for 16 weeks (n=12/group). In male mice fed a chow, but not western diet, Ttc39cLKO was associated with a marked increase in hepatic TG (38%; p<0.05) and CE (22%; P<0.01) abundance. Consistent with these findings, we observed an elevation in the hepatic mRNA expression of markers of de novo lipogenesis, including stearoyl-CoA desaturase-1 (5.7-fold; P<0.001) and acetyl-CoA carboxylase-1 (2.7-fold; P<0.01), as well as the protein abundance of the low-density lipoprotein receptor (2.4-fold; p<0.0001). Conversely, despite observing no overt influence of genotype on the hepatic or plasma lipidome in female mice fed either diet, female Ttc39cLKO mice exhibited a 42% increase in iAUC in response to an oral glucose tolerance test when fed a chow diet (p<0.05). Collectively, these findings implicate Ttc39c as a novel regulator of lipid and glucose metabolism, in a sex- and diet-dependent manner, warranting further investigation.

38. IMPLEMENTATION AND EVALUATION OF A SYSTEM TO DETECT UNRECOGNISED DIABETES MELLITUS AT ALFRED HOSPITAL

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BACKGROUND: In 2015, Alfred Health introduced random blood glucose level (BGL) testing on all initial biochemistry tests, with the aim of improving diabetes mellitus diagnosis. However, acting on hyperglycaemia (BGL >11 mmol/L) was poor, with only 16.1% of hyperglycaemic patients undergoing HbA1c testing and 6.5% commencing diabetes treatment (Seneviratne Epa, 2020, IMJ) (phase one). In response, to improve follow-up the Diabetes Hospital Medical Officer (HMO) was notified of all hyperglycaemic results to prompt necessary action (phase two). Cessation of Diabetes HMO involvement (diverted resources during the COVID-19 pandemic) permitted evaluation of outcomes without this additional intervention (phase three).

AIM: 1) Determine if Diabetes HMO involvement improved the follow-up of an elevated random BGL. 2) Assess whether ongoing involvement of the Diabetes HMO was required to maintain the action rates yielded with their input.

METHODS: Serial retrospective audits were conducted over July to December 2015 (phase one), December 2019 to December 2020 (phase two), and November 2021 to May 2022 (phase three). Data collected included HbA1c testing, and rates of diabetes diagnosis and initiation of diabetes treatment. Chi-square tests with pairwise comparisons using Bonferroni correction were used for comparisons.

RESULTS: In phase two, 42% of hyperglycaemic patients had follow-up HbA1c testing, which was higher (p<0.05) than the 16.1% in phase one and 23.4% in phase three; phases one and three did not differ from each other. As a proportion of total hyperglycaemic presentations (6.5%, 14.0%, 10.9% respectively) and of those with an elevated HbA1c (66.7%, 67.1%, 79.4% respectively), the percentage of patients commencing treatment were comparable (p>0.05) between all phases.
CONCLUSION: Active involvement of the Diabetes HMO significantly improved HbA1c testing rates in hyperglycaemic patients, and therefore the total number of patients confirmed to have diabetes, and commenced on treatment. There was no legacy effect after involvement of the Diabetes HMO.

39. DIETARY RESISTANT STARCH ALTERS GUT MICROBIOTA, MICROBIALLY PRODUCED METABOLITES AND ALBUMINURIA IN DIABETIC MICE

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OBJECTIVE: Dietary resistant starch (RS) may be nephro-protective in diabetes, however whether this occurs via affecting glycaemic control or via modulation of the gut microbiota and the production of microbial metabolites has not been explored.

METHODS: Six-week-old non-diabetic mice (db/m), diabetic mice (db/db) and db/db mice on a diet supplemented with 15% RS (db/db+RS) were maintained for ten weeks. 24-hour urine was collected for albumin measurement by ELISA. At 15 weeks of age, mice were fasted and an oral glucose tolerance test (OGTT) was performed. Glycated haemoglobin was assessed using a Roche cobas b101 analyser. Cecal digesta were collected for microbiota analysis by 16S rRNA gene sequencing. Portal vein blood was collected for targeted metabolomics by mass spectrometry.

RESULTS: Diabetes was associated with an increase in albuminuria, which was reduced in diabetic mice receiving RS supplementation. Principal component analysis demonstrated that the metabolite profile of db/db+RS mice clustered with that of db/m mice, distinct from db/db mice receiving the regular chow diet. The short chain fatty acids acetate, propionate and butyrate were all reduced in the db/db mice compared with db/m mice, and this was restored in the db/db+RS mice. Conversely, the uremic retention solutes p-cresol sulphate and p-cresol glucuronide, and their precursor p-cresol, were increased in diabetes and reduced with RS supplementation. Between db/db mice, RS favourably altered the microbiome, specifically an expansion of the genus Akkermansia, and a contraction in Proteobacteria, driven by the sulphate reducing bacterial family Desulfovibrionaceae. RS supplementation did not significantly alter fasting blood glucose, fasting insulin, glucose response to OGTT or HbA1c levels.

CONCLUSION: These studies support the notion that dietary RS may be protective against diabetic nephropathy independently of alterations in glucose tolerance and that this protection may occur via alteration of the gut microbiota and the subsequently produced microbial metabolites.

GASTROENTEROLOGY

40. INDUCTION THERAPEUTIC DRUG MONITORING OF ANTI-TUMOUR NECROSIS FACTOR AGENTS IN INFLAMMATORY BOWEL DISEASE (INITIATE)

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Reactive therapeutic drug monitoring (TDM) of biologics during maintenance therapy is standard care in inflammatory bowel disease (IBD), however the role of TDM during induction is not established.

AIM: To evaluate proactive TDM of anti-tumour necrosis factor agents (anti-TNFs) during induction therapy.

METHODS: A single-centre, prospective open label pilot study was conducted. IBD patients newly commencing infliximab (IFX) or adalimumab (ADA) were recruited between May 2021 and February 2022. The IBD pharmacist performed point of care (POC) TDM and dose adjustments according to an evidence based but untested algorithms until the end of induction (week 14). Deep remission
was defined as a Harvey-Bradshaw Index (HBI) score <4/Partial Mayo score <2 plus faecal calprotectin (FCP) levels <150µg/g. Sonographic response was defined as a decrease in bowel wall thickness (BWT) >0.5mm or an improvement in vascularity.

RESULTS: Thirteen patients were recruited (10 IFX, 3 ADA, 77% male), median age 35 years (IQR 27.5-46.5), 92% Crohn's Disease. At the end of induction (Wk14), median IFX and ADA levels were 4.7 (IQR 2.0 - 6.0) and 11.6 (IQR 10.0 - 13.2) µg/ml respectively; 15% of patients achieved therapeutic levels (IFX >7µg/ml, ADA >12µg/ml), 85% were subtherapeutic and none were supratherapeutic. 92% of patients achieved clinical remission while 31% achieved pre-defined deep remission (40% IFX, 0% ADA), 85% (80% IFX, 100% ADA) achieved sonographic response, and 69% normalised CRP. Patient satisfaction was 9.7/10 ± 0.63 SD.

CONCLUSION: Pharmacist-led TDM of anti-TNFs is feasible, has high patient acceptance, rates of clinical and biochemical remission and sonographic response. Low rates of deep remission and attainment of therapeutic drug levels at week 14 may reflect the pre-specified stringent criteria for remission and previously untested dose adjustments in response to TDM targets. Future studies should use standardised endpoints, a revised dosing algorithm and larger sample size.

41. THE ROLE OF CT ANGIOGRAPHY AND ANTICOAGULATION STATUS IN SUSPECTED GASTROINTESTINAL BLEEDING PATIENTS

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INTRODUCTION: Acute gastrointestinal bleeding (GIB) is associated with morbidity and mortality. There can be a low threshold for practitioners to assess for active GIB and computed tomography angiography (CTA) examinations are performed frequently, even for stable patients and those who are therapeutically anticoagulated. We aimed to assess the predictive value of CTA for acute GIB and the influence of CTA on treatment.

METHODS: Retrospective single-centre study over a 2-year period of all patients receiving CTA in an emergency department setting after acute GIB.

RESULTS: A total of 227 patients with mean age 67.7 years (SD 17.86), 58.6% male. 84.4% were for lower GIB. 49 patients were on therapeutic anticoagulation (21.6%). 45 CTAs were positive (19.8%). 22 patients received embolisation, and 15 received acute endoscopic treatment. CTA sensitivity was 68.6% and specificity 89.1%. The PPV was 53.3% and NPV 93.9%. The odds ratio of a positive CTA requiring treatment for patients on therapeutic anticoagulation was 1.1 (P = 0.932) compared with the odds of patients not taking therapeutic anticoagulation 21.5 (P < 0.001). The risk ratio for requiring treatment if not taking anticoagulation was 6.2. A total of 19 patients (9.1%) met the definition of CI-AKI as a result of the CTA. A pre-existing eGFR of less than 20 was associated with significantly increased odds of developing CI-AKI (OR 3.95, P = 0.031, 95%CI 1.135–13.782).

CONCLUSION: The presence of anticoagulation has a significant impact on the decision not to perform interventional treatments on patients with acute GIB when CTA is positive. Anticoagulant reversal and volume resuscitation are important front-line measures, and CTA may have a role for those anticoagulated who are haemodynamically unstable after resuscitation.
HAEMATOLOGY AND MALIGNANT HAEMATOLOGY

42. IMPACT OF NOVEL THERAPIES ON MUSCULOSKELETAL OUTCOMES FOR ADULTS WITH MODERATE TO SEVERE HAEMOPHILIA

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Haemophilia is an inherited bleeding disorder caused by a deficiency of factor VIII or IX. Haemophilic arthropathy resulting from repeated haemarthroses is the major cause of morbidity for these patients.

AIM: To describe how the treatment of adults with moderate to severe haemophilia A and B evolved from 2015 to 2021, and the subsequent impact on utilisation of invasive interventions for haemophilic arthropathy.

METHODS: All patients with moderate to severe haemophilia A and B (n=128), defined by a baseline factor level below 5% of normal or the presence of inhibitors, treated at the Victorian state-wide haemophilia service for adults in 2015, were identified from the Australian Bleeding Disorders Registry (ABDR). Data was extracted from the Alfred Health electronic medical record for 2015 and 2021, including disease characteristics, treatment strategy (on-demand, prophylaxis or gene therapy), treatment agent (standard half-life (SHL) factor, extended half-life (EHL) factor, emicizumab or other novel therapies.), and utilisation of invasive musculoskeletal interventions including intra-articular cortisone injections, yttrium radiosynovectomy and surgery.

RESULTS: 60% of patients underwent a change in treatment between 2015 and 2021. This included escalation from on-demand therapy to routine prophylaxis (15%) or routine prophylaxis to gene therapy (5%), as well as alterations in prophylaxis regimen including transition to emicizumab (26%) and transition from SHL to EHL factor (8%). Review of procedures conducted over the same period demonstrates a concurrent decline in the use of invasive musculoskeletal interventions. Intra-articular cortisone injections decreased from 84 joints across 30 patients in 2015, to 21 joints across 11 patients in 2021. Likewise, the use of yttrium radiosynovectomy declined by 57% from 35 joints in the 5 years prior to 2015, to 15 joints in the 5 years following.

CONCLUSION: This study illustrates the changing landscape of haemophilia treatment and quantifies the impact of developments in prophylaxis on musculoskeletal outcomes.

43. A RETROSPECTIVE STUDY ASSESSING THE INCIDENCE OF INFERIOR VENA CAVA (IVC) OCCLUSION FOLLOWING PROPHYLACTIC IVC FILTER INSERTION: IS ANTICOAGULATION NECESSARY DURING FILTER DWELL?

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BACKGROUND: Inferior vena cava (IVC) filters play a role in preventing venous thromboembolism after major trauma where deep venous thrombosis (DVT) risk is up to 80%. It has been suggested that IVC filters are thrombogenic and many patients are therefore placed on therapeutic anticoagulation during IVC filter dwell citing concern of in situ IVC thrombosis, even in the absence of existing DVT.

METHODS: Between 1 June 2018 and 31 December 2021, this retrospective study assessed the incidence of IVC thrombosis following prophylactic IVC filter insertion. Groups were defined according to the presence or absence of therapeutic anticoagulation during filter dwell. The primary outcome was the presence or absence of IVC thrombus at retrieval.

RESULTS: A total of 124 patients were included. Anticoagulation was prescribed in 29 and anticoagulation was not prescribed in 63. A further 32 patients developed a new thrombosis episode after the prophylactic IVC filter was placed, and 29 were prescribed anticoagulation part-way during filter dwell as a result of this diagnosis. No cases of IVC occlusion were observed in any patient group.
CONCLUSION: Caval thrombosis was not observed after prophylactic filter placement, with or without the prescription of anticoagulation. While prospective trials are needed to increase the level of evidence, based on these results the use of therapeutic anticoagulation during IVC filter dwell should not be dictated by the presence of an IVC filter alone but rather by the presence of a related thrombosis event.

HEALTH SERVICES PATIENT SAFETY

44. EVALUATION OF SMART PUMP INTEROPERABILITY WITH AN ELECTRONIC MEDICAL RECORD SYSTEM TO IMPROVE INFUSION SAFETY

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BACKGROUND: Medications administered via intravenous (IV) infusions have a high potential for patient harm due to their complexity and use in high-acuity settings. Delivery of IV infusions using smart pumps with Electronic Medical Record (EMR) interoperability creates closed-looped medication management to improve safety and compliance.

AIM: To evaluate the rate of variances between the medication order on the EMR, IV infusion running and infusion details in the smart pump, before and after implementation of smart pump and EMR interoperability.

METHOD: A pre/post intervention observational study was conducted in the Intensive Care Unit of a large tertiary-referral Australian hospital. IV infusion data was collected by direct observation of the infusion running, smart pump, and EMR order. Smart pump and EMR interoperability was implemented in April 2022. Baseline and post-intervention data were collected February-March 2022 and May-June 2022, respectively. Variances were categorised “intended/clinically appropriate” or “unintended/error”. Data were analysed descriptively, with the proportion of infusions with a variance, pre/post intervention, compared with the Chi Square test.

RESULTS: Observations were completed for 1727 infusions pre-intervention and 2190 post-intervention, with 387 (22%) and 321 (15%) having at least one variance, respectively (p=0.0001). Unintended variances reduced from 360 (of 556, 65%) to 141 (of 513, 28%, p<0.00001). Of the infusions observed post-intervention, 1505 (69%) were programmed via smart pump and EMR interoperability, and of these, 162 (11%) had at least one variance. Utilising interoperability would have prevented 2 of 3 and 2 of 2 clinically important errors in the pre/post periods respectively. An increase in compliance with smart pump drug library usage was observed post-intervention, with compliance increasing from 91.4% (n=1578) to 94.1% (n=2060, p=0.002).

CONCLUSION: Introduction of smart pumps with EMR interoperability resulted in a statistically significant reduction in overall frequency of variances and increased compliance with using the smart pump library.

45. TIME CRITICAL DOSE OMISSIONS AFTER ELECTRONIC MEDICATION MANAGEMENT (EMM) IMPLEMENTATION

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BACKGROUND: Medication dose omissions may result in poor patient outcomes, including seizures, sepsis and thromboembolism. There are few publications about the influence of EMM systems on timely medication administration. This 800-bed Australian metropolitan tertiary referral health service implemented EMM in October 2018 and Automated Dispensing Cabinets (ADCs) in 2021.

OBJECTIVE: To evaluate the influence of EMM, including ADCs, on preventable time critical dose omission rates.

METHODS: Data of dose omissions of regular inpatient medication orders was obtained retrospectively from electronic medication records over one week in March 2019 and four weeks in March 2021. An omission was a regular medication dose not administered
before the next due dose. Reasons for omission were collated from nursing documentation. Dose omissions were either preventable or clinically justified. The health service’s time critical medications list was used.

RESULTS: In 2019 and 2021, 620 and 2,524 patients with 44,756 and 146,940 scheduled medication doses were reviewed. Of these, 4,385 (9.8%) and 19,610 (13.3%) doses were omitted. Time critical dose omission occurred in 593 (1.3%) and 1811 (1.2%, p=0.124) administrations. Antimicrobials were the most common class of time critical dose omissions. Preventable time critical dose omission decreased from 0.5% (n=227) doses in 2019 to 0.4% (n=632, p=0.03) in 2021. Wards with ADCs had a significantly lower rate of time critical dose omissions compared to those without (1.1% vs 1.3%, p=0.014).

CONCLUSION: EMM systems present opportunities for review of large amounts of medication specific data. ADCs appear to have an impact on decreasing time critical dose omissions. Planned improvement strategies include: simplification of ‘drop-down’ menus to encourage accurate documentation; integrating time-critical medication examples into nursing, pharmacy and medical education; roll-out of ADCs across campus. An audit dashboard will enable regular assessment of time critical omitted dose rates to target areas for improvement.

46. REVIEW OF HOSPITAL-WIDE STAFF DISTRESS DURING THE COVID-19 PANDEMIC AS WITNESSED BY THE ALFRED HEALTH PALLIATIVE CARE SERVICE

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Healthcare workers experience emotionally demanding and confronting situations, and this may result in psychological distress which can be detrimental to staff wellbeing and patient safety. We are seeing a depleted and burnt out workforce, with the COVID-19 pandemic adding new reasons for staff distress, such as layers of uncertainty and shifting hospital policies.

AIM: To explore hospital-wide staff distress during the COVID-19 pandemic, as identified by the Alfred Health Palliative Care Service (PCS).

METHODS: During a weekly team meeting, the Alfred Health PCS captures instances of exceptional staff distress in a quality assurance REDCap database. A cross-sectional mixed-methods design was employed, with retrospective review of instances of staff distress between March 2020 and March 2022. Both quantitative and qualitative data were extracted from the REDCap database, with supplementary data obtained from patient electronic medical records. Ethics approval was obtained (198/22).

RESULTS: Eighty-four instances of exceptional staff distress, relating to 66 patient cases were captured. Triggers for staff distress (more than one possible) included COVID-19 related issues (48.5%), patient and family dynamics (45.5%), communication between staff (33.3%), patient age (22.7%), uncontrolled patient symptoms (22.7%), and vulnerable patient population (15.2%). COVID-19 related causes of distress frequently related to visitor restrictions, including rapidly evolving policies and inconsistent policy application. Prognosis and goals of care related conversations with families were challenged by loved ones not being able to visit and witness their loved one’s deteriorating clinical state. Repeatedly having to tell families that they could not visit their loved one was highly distressing for staff.

CONCLUSION: This study highlights additional stressors that the pandemic has imposed upon staff in healthcare. Despite its limitations as a small-scale observational study, it joins the growing literature on the impacts of COVID-19 on health systems and the need for mental health and well-being of staff to be prioritised.
47. NON-RADIOLOGIST PERCEPTION OF THE USE OF ARTIFICIAL INTELLIGENCE (AI) IN DIAGNOSTIC MEDICAL IMAGING REPORTS

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INTRODUCTION: Incorporating artificial intelligence (AI) in diagnostic medical imaging reports has the potential to improve efficiency. Although perception of radiologists, radiographers, medical students and patients on AI use in image reporting has been explored, there is limited literature on non-radiologist clinicians' opinion on this topic.

METHODS: Single-centre online survey targeting non-radiologist medical staff conducted from May to August 2021 at a tertiary referral hospital in Melbourne, Australia. Survey questions revolved around clinicians' level of comfort acting on AI-generated reports with varying levels of radiologist involvement and scan complexity, opinion on medicolegal responsibility for erroneous AI-issued reports and perception of data privacy and security.

RESULTS: Eighty-eight responses were collected, including 47.9% of consultants. Non-radiologist clinicians across all seniorities and specialties felt significantly less comfortable acting on AI-issued reports compared with radiologist-issued reports (mean comfort radiologist 6.44/7, mean comfort AI 3.35/7, P < 0.001) but felt equally comfortable with an AI-hybrid model of care (mean comfort hybrid 6.38/7, P = 0.676). Non-radiologist clinicians believed that medicolegal responsibility with errors in AI-issued reports mostly lay with hospitals or health service providers (65.9%) and radiologists (54.5%). Regarding data privacy and security, non-radiologist clinicians felt significantly less comfortable with AI issuing image reports instead of radiologists (P < 0.001).

CONCLUSION: A hybrid AI-generated radiologist-confirmed method of image reporting may be the ideal way of integrating AI into clinical practice based on the perception of our referring non-radiologist medical colleagues. Formal guidelines on medicolegal responsibility and data privacy should be established prior to utilising AI in the clinical setting.

48. THE IMPACT OF PHARMACIST CHARTING OF INTRAVENOUS MEDICATION INFUSIONS IN THE MEDICAL DAY UNIT

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BACKGROUND: A comprehensive Electronic Medical Record (EMR) was implemented at this metropolitan healthcare network in Oct-2018. In the Medical Day Unit (MDU) it was identified that, following EMR implementation, workflow changes were necessary to address the large number of EMR issues that were delaying or complicating administration of patient infusions. Workflow changes were introduced in Sep-2019: pharmacists screened orders 2-weeks prior to patient attendance, live electronic tracking of IV infusion orders implemented. Following extensive consultation, in Sep-2020 governance changes allowed pharmacist charting of intravenous medications following medical prescribing.

AIM: To evaluate the impact of pharmacist charting of IV infusions on the time from patient admission-to-medication administration and length of stay (LOS) in MDU.

METHOD: This was a retrospective stepped-wedge observational study of patients admitted to MDU during three time-periods: Baseline (Jun-Aug 2019), Period-2: increased screening by pharmacists (Jun-Aug 2020) and Period-3: pharmacist charting (Nov-2020 to Feb-2021). Outcomes were admission-to-medication administration time, LOS, and number of pharmacist interventions.

RESULTS: There were 751 (11.9 patients/day), 833 (13.4 patients/day) and 1054 patient episodes (15.7 patients/day) in the three study periods, respectively. The median admission-to-medication administration time was 73 [IQR 51-99] minutes at baseline, 56 [38-78] minutes in Period-2 (p=0.0001, compared to baseline) and 69 [47-94] minutes in Period-3 (p=0.002, compared to baseline). Median LOS was 195 [155-303] minutes, 132 [100-220] minutes (p=0.0001, compared to baseline) and 158 [118-261] minutes (p=0.0001, compared to baseline); there were 0.24, 0.34 and 0.29 interventions per episode, respectively, across the three timepoints.
CONCLUSION: Dedicated pharmacy services, including increased screening time and pharmacist charting contributed to improved efficiency of the MDU and a sustained reduction in LOS by greater than 30 minutes. There were also reductions in admission-to-medication administration times. Increasing workload, changing therapeutic mix and other nursing practices may influence the outcomes measured.

49. CREATING OPPORTUNITIES FOR PATIENT PARTICIPATION IN MANAGING MEDICATIONS ACROSS TRANSITIONS OF CARE THROUGH FORMAL AND INFORMAL MODES OF COMMUNICATION

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BACKGROUND: While communicating about medications across transitions of care is important in older patients, little is known about older patients’ involvement in communication regarding managing medications.

OBJECTIVE: The aim of this paper was to explore how older patients participated in managing their medications across transitions of care through formal and informal modes of communication.

METHODS: The study was conducted across two metropolitan hospitals: an acute hospital and a geriatric rehabilitation hospital in metropolitan Melbourne, Australia. A focused ethnographic design was used involving semi-structured interviews (n = 50), observations (203 h) and individual interviews or focus groups (n = 25). Following thematic analysis, data were analysed using Fairclough’s Critical Discourse Analysis.

RESULTS: Data analysis revealed two major discursive practices, which comprised of an interplay between formal and informal communication and environmental influences on formal and informal communication. Self-created patient notes were used by older patients to initiate informal discussions with health professionals about medication decisions, which challenged traditional unequal power relations between health professionals and patients. Formal prompts on electronic medication administration records facilitated the continuous information discourse about patients’ medications across transitions of care and encouraged health professionals to seek out older patients’ preferences through informal bedside interactions.

Environmental influences on communication comprised health professionals’ physical movements across private and public spaces in the ward, their distance from older patients at the bedside and utilization of the computer systems during patient encounters.

CONCLUSION: Older patients’ self-created medication notes enabled them to take on a more active role in formal and informal medication communication across transitions of care. Older patients and family members did not have continuous access to information about medication changes during their hospital stay and systems often failed to address older patients’ key concerns about their medications, which hindered their active involvement in formal and informal communication.
50. MONKEYPOX KNOWLEDGE, VACCINATION AND RELATED SEXUAL PRACTICES AMONG MEN WHO HAVE SEX WITH MEN AND TRANSGENDER PEOPLE IN MELBOURNE, AUSTRALIA: FINDINGS FROM AN ONLINE SURVEY

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BACKGROUND: The first monkeypox (MPX) case was reported in May 2022 in Australia. Most cases have been diagnosed in men who have sex with men (MSM).

AIM: To examine community understanding of MPX, attitudes towards vaccination, and potential changes in sexual practices due to the MPX outbreak among MSM and transgender people in Victoria, Australia.

METHODS: We commenced an online survey on 24 August 2022. Participants were recruited from the Melbourne Sexual Health Centre and community via social media. Participants were asked about their understanding and knowledge of MPX, vaccination uptake and intention to change sexual practices. We presented preliminary results of 323/500 (65%) participants.

RESULTS: The median age was 33 (IQR=28-41) years. There were 49% (158/322) participants taking HIV pre-exposure prophylaxis (PrEP), 43% (139/322) not taking PrEP and 8% (25/322) living with HIV. Most (98%, 316/323) had heard about MPX and 11% (35/316) knew someone who had had MPX. Most (65%, 206/316) believed MPX was a newly discovered virus. More than a quarter (28%, 89/316) had been vaccinated against MPX. Of the 227 unvaccinated participants, 70% (159/227) intended to get vaccinated against MPX. More than half (58%, 183/316) correctly identified modes of transmission of MPX. Most said they would reduce having casual sex (54%, 171/315). Half said they would stop attending sex on premises venues (50%, 156/310), having group sex (47%, 145/311) and chemsex (52%, 159/308). A quarter (25%, 76/310) said they would increase condom use for anal sex but half (51%, 157/310) would not change.

CONCLUSION: Public health education and messaging on MPX through social media have been extraordinarily successful in Australia within a short period of time. A substantial proportion of people intended to get vaccinated and reduce or stop certain practices are likely to prevent and control MPX.

51. INCIDENCE AND SEVERITY OF CYTOMEGALOVIRUS INFECTION IN SEROPOSITIVE HEART TRANSPLANT RECIPIENTS

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Cytomegalovirus (CMV) infection contributes to morbidity and mortality in heart transplant recipients (HTR). Donor positive, recipient seronegative (D+R-) patients are high risk and generally receive antiviral prophylaxis. However, the burden of CMV infection in recipient seropositive (R+) HTR is less clear, with preventative recommendations mostly extrapolated from other solid organ transplant groups. The aim of this retrospective cohort study was to define the incidence, severity of and risk factors for CMV infection in R+ HTR.
AIM: To evaluate the incidence and severity of CMV infection in R+ HTR, to identify risk factors and review outcomes.

METHODS: We performed a retrospective cohort study of Alfred R+ HTR from 2010-2019. Antiviral prophylaxis was not routinely used, with clinically guided monitoring the local standard of care. The primary outcome was CMV infection within one-year post-transplant, secondary outcomes included other herpesvirus infections and mortality.

RESULTS: CMV infection occurred in 27/155 (17%) R+ HTR. Patients with CMV had a longer hospitalization (27 vs. 20 days, HR 1.02, 95% CI 1.00-1.02, p=0.01), higher rate of intensive care readmission (26% vs. 9%, HR 3.46, 95% CI 1.46-8.20, p=0.005), and increased mortality (33% vs. 8%, HR 10.60, 95% CI 4.52-24.88, p<0.001). The association between CMV and death persisted after adjusting for multiple potential confounders (HR 24.19, 95% CI 7.47-78.30, p<0.001). Valganciclovir prophylaxis was used in 35/155 (23%) and was protective against CMV (infection rate 4% vs. 27%, HR 0.09, 0.01-0.75, p=0.025), even though those receiving it were higher risk.

CONCLUSIONS: CMV infection is common in R+ HTR and associated with a high burden of disease, worse post-transplant outcomes and increased mortality. Patients who received valganciclovir prophylaxis were less likely to develop CMV infection. These findings support the routine use of CMV preventative strategies such as antiviral prophylaxis following heart transplantation in all CMV R+ patients.

52. ACCURACY OF ANTIBACTERIAL INDICATION DOCUMENTATION IN AN ELECTRONIC MEDICAL RECORD

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BACKGROUND: Electronic medical records (EMRs) are relatively new in the Australian healthcare system; 30% of public hospitals use an electronic medication management solution. This tertiary referral hospital network implemented an EMR in late 2018, with mandatory documentation of antimicrobial indication at time of prescribing. Free-text (unrestricted) and pre-defined dropdown (restricted) indications are utilised according to level of antimicrobial restriction.

AIM: To determine accuracy of antibacterial indication documentation on the Medication Administration Record (MAR) when prescribing and to evaluate factors influencing accuracy of documentation.

METHODS: A retrospective review of inpatient admissions ≥24 hours with antibacterial prescriptions between March 2019 and September 2019 was undertaken. Prescriptions were extracted from the EMR; a random sample of 400 patients with first antibacterial prescription per encounter were included. Extracted data included demographic and prescription order details. Indication accuracy was assessed by comparing MAR documentation to the medical notes (gold standard). Statistical analysis compared factors associated with accuracy of indication using Chi-square and Fisher’s exact tests.

RESULTS: During the study period, 9708 admissions had an antibacterial prescribed. Of the 400 patients included (60% male, median age 60 years, IQR 40-73); 225 antibacterial prescriptions were unrestricted, 175 were restricted. Patients were managed by emergency (118), surgical (178) and medical (104) teams. Overall accuracy of antibacterial indication documentation on the MAR was 86%. A higher accuracy rate was found for the unrestricted proportion compared to restricted (94.2% v 75.2%, p<0.0001). Surgical teams had higher accuracy compared to medical and emergency teams (94.4% v 78.8% v 79.7%, p<0.0001).

DISCUSSION: Antibacterial indication documentation on the MAR when prescribing demonstrated a high rate of accuracy. Multiple factors influenced this, including the antibacterial restriction criteria, type of documentation and treating team. Further study is required to determine the impact of these factors on accuracy, with a view to improve future EMR builds.
53. INTRAMUSCULAR TIXAGEVIMAB-CILGAVIMAB FOR PREVENTION OF COVID-19 IN THE IMMUNOCOMPROMISED POPULATION

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Positive results from the landmark PROVENT trial led to the provisional approval of tixagevimab-cilgavimab by Therapeutic Goods Administration for COVID-19 prevention. This trial included only unvaccinated patients without history of COVID-19; the majority were immunocompetent. It is unknown whether the PROVENT trial results can be extrapolated to the immunocompromised population who are prioritised to receive tixagevimab-cilgavimab in Australia.

AIM: To evaluate the efficacy and safety of tixagevimab-cilgavimab in the prevention of breakthrough COVID-19 and COVID-19 related hospitalisation in immunocompromised adults.

METHODS: A single centre, retrospective observational study was conducted. Patients who received 300mg tixagevimab-cilgavimab between 27th April 2022 and 2nd August 2022 were included. For the purpose of this analysis, patients were followed up until COVID-19 positive or until 16th August 2022. The primary endpoint was a positive COVID-19 result occurring after administration of tixagevimab-cilgavimab, or on or before end of follow-up.

RESULTS: 758 immunocompromised patients (46.2% female; 74.4% transplant patients, 15.3% on B and T-cell depleting therapies, 10.3% others), regardless of previous history of COVID-19 were included, median age 61 years, 92.2% received at least three primary doses of COVID-19 vaccine. Median follow-up was 35 days (IQR 26-54 days). None of the patients reported adverse events following tixagevimab-cilgavimab. Positive COVID-19 results occurred in 57 patients (7.5%), at a median of 23 days (IQR 13-44 days) following tixagevimab-cilgavimab; 56 patients (7.4%) were symptomatic. 18 patients (2.4%) were hospitalised due to COVID-19.

DISCUSSION: This is the first real-world study in Australia of tixagevimab-cilgavimab in the immunocompromised population. Higher rates of symptomatic COVID-19 post tixagevimab-cilgavimab were identified, compared to the PROVENT trial where only 0.2% of participants experienced symptomatic COVID-19. Further research is warranted to understand the contribution of the Omicron BA.2 and BA.5 dominant strains on the likely reduced efficacy of tixagevimab-cilgavimab and to better inform the optimal use in the immunocompromised population.

INTENSIVE CARE

54. HOW DO INTENSIVE CARE NURSES PERCEIVE TECHNOLOGY PRACTICE CHANGES IN THE WORKPLACE?

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BACKGROUND: Rapid technology advancements and changing workplace demands have exposed intensive care nurses to new technologies and equipment. Implementation of new technology represents a large financial investment for organisations. Intensive care (ICU) nurses need to adapt to technological advances to provide safe and effective care to their patients (Eden et al., 2019; Despins & Wakefield, 2018).

AIM: to explore nurses’ work satisfaction, the impacts of technology change, and barriers and enablers to support technology changes in practice.

METHODS: 8 ICU nurses (M=7.75 years ICU experience) were interviewed using a descriptive explorative qualitative approach. Data were analysed using a systematic, team approach with rigorous coding, using a reflexive thematic analysis framework (Braun & Clarke, 2021). Themes and patterns of meaning were identified using an inductive method to minimise assumptions and preconceived notions by the researchers.
RESULTS: Four themes were identified from the interview analysis.

ICU nurses’ motivations influence how they embrace technology change, with two subthemes, change that supports patient care and outcomes is perceived to be positive, whilst change that is not seen to support patient care is questioned.

Technology useability directly impacts end-user experience and perception, with subcategories of perceptions formed from experiences at the time, and perceptions developing over time with ongoing changes.

ICU nurses self-reflect on their learning style in the context of technology changes,

Years of experience of ICU nurses is linked to how change is perceived.

CONCLUSION: The perceptions of ICU nurses may affect the successful and safe implementation of new technology. Elements of process and organisational oversight may benefit from increased opportunities for ICU nurses to provide feedback and increased variety and accessibility of educational activities available.

55. PSYCHOMETRIC PROPERTIES OF HEALTH-RELATED QUALITY OF LIFE INSTRUMENTS USED IN SURVIVORS OF CRITICAL ILLNESS: A SYSTEMATIC REVIEW
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BACKGROUND: Health-related quality of life (HRQoL) is a patient-reported outcome measure (PROM) used in clinical trials and cohort studies of adult survivors following critical illness. As a widely-used measure, it is crucial to evaluate the psychometric properties of HRQoL instruments to ensure reliable and valid results are generated, as well as facilitating comparisons between different questionnaires administered post-critical care. Therefore, we conducted a systematic review of measurement properties of HRQoL instruments used in adult survivors following critical illness.

METHODS: We performed a systematic search of literature from three electronic databases from 1990 to June 2022. We screened articles for eligibility, selecting studies which comprised either the development of a new tool or evaluation of its measurement properties, and whose target populations represented adult survivors following critical illness. Methodological quality was assessed using the COnsensus-Based Standards for the selection of health Measurement INstruments (COSMIN) checklist. The results of each measurement property were then assessed against criteria of good measurement properties, and the results were qualitatively summarised as per the COSMIN initiative. Finally, we graded the quality of the evidence using a modified GRADE approach.

RESULTS: We retrieved 15 eligible studies from 2,983 records reporting psychometric properties for 11 HRQoL instruments used post-ICU discharge. The Short Form-36 (SF-36), modified Short Form-36, and the Sickness Impact Profile had high quality evidence for internal consistency only. Other PROMs did not have high quality evidence for internal consistency, reliability, hypothesis testing for construct validity, and responsiveness. This was predominantly due to the presence of either serious, very serious or extremely serious risk of bias. Evidence for reliability of the SF-36 was not graded due to inconsistency. Criterion validity, structural validity, cross-cultural validity, and measurement error were not addressed in any of the included studies.

CONCLUSION: In accordance with COSMIN framework, there was limited evidence demonstrated for the psychometric properties of all included PROMs. Further research is warranted to evaluate all psychometric properties, strengthening the evidence for administering HRQoL instruments on survivors following critical illness.

REGISTRATION: PROSPERO (CRD42022340132)
56. THE IMPACT OF NURSING SKILL-MIX ON ADVERSE EVENTS IN INTENSIVE CARE: A SINGLE CENTRE COHORT STUDY
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BACKGROUND: The highly complex and technological environment of intensive care manages the sickest patients in the hospital system, as such there is a need for a highly trained nursing workforce. Intensive care is considered a high-risk area for errors and adverse events (AE) due to the severity of illness and number of procedures performed.

AIM: To investigate if the percentage of Critical Care Registered Nurses (CCRN) within an Intensive Care Unit (ICU) is associated with an increased risk of patients experiencing AEs.

METHODS: We conducted a retrospective cohort study of patients admitted between January 2016 and December 2020 to a tertiary ICU in Australia. Descriptive statistics and multivariable logistic regression were used to investigate the relationship between the proportion of CCRNs each month and the occurrence of an AE defined as any one of a medication error, fall, pressure injury or unplanned removal of a central venous catheter or endotracheal tube per patient.

RESULTS: A total of 13,560 patients were included in the study, with 854 (6.3%) experiencing one or more AE. Patients with an AE were associated with higher illness severity and frailty scores. They were more commonly admitted after emergency response calls and were less commonly elective ICU admissions. On average, those with an AE had longer ICU and in-hospital length of stay, and higher ICU and in-hospital mortality. After adjusting for confounders, being admitted during a month of higher critical care nursing skill-mix was associated with a statistically significant lower odds of having a subsequent AE (OR 0.965 [95%CI: 0.943-0.97] p=0.002).

CONCLUSION: An increasing percentage of CCRNs is independently associated with a lower risk-adjusted likelihood of an AE. Increasing the skill-mix of the ICU nursing staff may reduce the occurrence of AEs and lead to improved patient outcomes.

MENTAL HEALTH

57. THE IMPACT FROM THE PERSPECTIVE OF YOUNG PEOPLE WITH BORDERLINE PERSONALITY DISORDER (BPD) OF A MENTALIZATION-BASED INTERVENTION FOR THEIR PARENTS AND CARERS (MBT-FACTS) AND IMPLICATIONS FOR SERVICE DELIVERY
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Borderline Personality Disorder (BPD) is a distressing and serious mental illness that is overrepresented in adolescents and youth. Families and carers of those with BPD experience high levels of distress and burden and can struggle to support those with BPD. The Mentalization-Based Treatment (MBT) Families and Carers Training and Support program (MBT-FACTS) is an innovative five-session skills and education program for family members and carers of someone with BPD, informed by MBT principles, and designed in collaboration with carers. The program was co-delivered by a carer and a clinician to families and carers of young people with BPD/emerging BPD aged 14 to 25 years.

AIM: Consistent with the Royal Commission recommendations that best practice in service delivery includes the voice of young people, the present study investigated what impact a carer-focused intervention has on young people with BPD themselves. This is the first study that directly asked young people with BPD about their experience of such an intervention.

METHODS: Interviews were conducted with eight young people whose family members participated in the program.

RESULTS: Overall, young people felt there had been positive changes during and after their family members’ participation in the program. They felt the communication with their family members improved, they felt more understood, had more space and freedom
at home, and felt that the tension in the household decreased. Additionally, several young people felt they would have liked to be more involved in the process and to take part in the program alongside their family members.

CONCLUSION: The findings indicate that interventions focusing on building understanding and self-awareness in carers of those with BPD can be important in ameliorating the challenging impact of BPD on young people and their families. These findings will improve service delivery by supporting implementation of the MBT-FACTS Program at Alfred Health.

58. EFFECTIVE AND NOVEL TREATMENT OF ONLINE GAMBLERS DURING THE COVID-19 PANDEMIC

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AIM: The evidence base for internet therapies is building but little is known yet about the effectiveness of providing telehealth online in a group format for the treatment of gambling disorders. Therefore, this study aimed to evaluate the feasibility and effectiveness of providing evidence-based treatment in a group format using an online platform. This innovative approach to the treatment of online Gambling Disorder was developed during the COVID pandemic so that gamblers could access evidence-based treatment from their homes.

METHOD: A closed group program was developed using telehealth, enabling gamblers to come together weekly to engage in a treatment program based on behavioural therapy using cue exposure. Four online gamblers who met the criteria for Gambling Disorder were recruited from a gambling help service. A case report methodology was used to gain an in-depth understanding of the effectiveness of this approach to treatment. Treatment was conducted weekly over 12 months.

RESULTS: After completing treatment participants no longer met the criteria for a Gambling Disorder and achieved improved life functioning.

CONCLUSION: This program provides preliminary evidence that providing treatment online in a group setting can be an effective model in the delivery of treatment for clients unable to attend face-to-face clinics or preferring telemedicine as an option for treatment delivery.

59. EVOLUTION OF AN EATING DISORDER MODEL OF CARE: OPTIMISING DIETETIC ORGANISATION TO MEET PANDEMIC DEMAND

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BACKGROUND: There has been widespread global reporting of increased prevalence of eating disorders throughout the Covid-19 pandemic [Taquet at al 2021]. Drivers include increased anxiety, isolation and social disconnection, more focus on diet and increased exposure to internet-related triggers [Termorshulzen et al 2020, Vitagliano et al 2021].

OBJECTIVE: The objective of this audit was to explore the organisation of Dietetic care for eating disorder (ED) patients, by tracking admission rates, length of stay and Dietetic service time throughout the pandemic at a large tertiary hospital in Melbourne. A high-level ED guideline was published in October 2019, and provided an initial framework for the development of a multi-disciplinary model of care (MOC).

METHODS: Statistical extracts were analysed for patients admitted with a diagnosed ED and who were seen by a Dietitian between January 1 2019 – 30 June 2022. Length of Stay (LOS), Age, Gender and Body Mass Index (BMI) on admission were collated from the electronic medical record (EMR).
RESULTS:

Based on this dataset, ED admissions had an initial increase in July to December 2020, however the largest increase is January to June 2022. Initially Dietetic time increased per ED bed day. Whilst more analysis is required, this suggests that adapting the guideline to form the MOC was initially time-consuming for each patient.

The multidisciplinary team has continued to evolve the MOC, and by the first-half of 2022, Dietetic time per bed day has reduced to below pre-pandemic levels.

CONCLUSIONS: ED admissions require co-ordinated multidisciplinary care. Analysis of admission, LOS and Dietetic intervention data has allowed an understanding of how a streamlined MOC may eventually better meet service demands.

NEUROSCIENCE

60. THE LIVED EXPERIENCE OF WORK AND WORKING AFTER STROKE: A QUALITATIVE INTERVIEW STUDY

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With an estimated 142,000 Australians aged 18 to 65 living with the impact of stroke, understanding how to support the occupation of paid employment is a key focus for occupational therapists working in stroke rehabilitation.

AIM: To understand the impact of vocational rehabilitation interventions on the experiences of people living with stroke.

METHODS: Qualitative, in-depth semi-structured interviews were conducted with stroke survivors <65 years of age who were working at the time of their stroke. Interviews were completed by occupational therapists following completion of all vocational rehabilitation interventions. Interviews were transcribed verbatim and data were analysed using the framework method to develop themes.

RESULTS: Sixteen stroke survivors were interviewed, most were female (n=9, 56%). Participants identified three major themes, “educating and liaising with employers”, “accommodating changes post-stroke”, and “psychological impact of stroke”. Together findings highlight a lack of awareness about stroke among employers and work colleagues, and that support from occupational therapists with workplace liaison was highly valued. Returning to work was impacted by stroke-related challenges which had not been as noted within other occupational tasks, including fatigue and memory impairment.

CONCLUSION: Themes identified in this study provide insight participants’ experience of vocational rehabilitation and identify aspects that were most helpful as well as areas of unmet needs from the participants’ perspectives. Findings provide direction for the development of future stroke-specific vocational rehabilitation programs.
61. DATA-DRIVEN APPROACHES TO PHARMACOKINETIC MODELLING OF TAU QUANTIFICATION IN THE NEURODEGENERATIVE DISEASE PROGRESSIVE SUPRANUCLEAR PALSY

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PI2620 is a novel positron emission tomography (PET) tracer which can bind to the protein tau with high specificity. Progressive supranuclear palsy (PSP) is a rapidly neurodegenerative disease, characterized by the accumulation of tau in the basal ganglia. The noninvasive pharmacokinetic modelling of PET data requires a reference region to determine binding potential (BP). Traditionally, this reference region has been defined anatomically, with the cerebellum being used in tau tracers. Recently, a data-driven method of determining a reference region, known as the Parametric Estimation of Reference Signal intensity (PERSI) has been developed to generate reference regions for the modelling of PET pharmacokinetics demonstrating improved performance over anatomically defined reference regions.

AIM: The aim of this study was to investigate PERSI as an alternative reference region to the cerebellum for the pharmacokinetic modelling of PI2620.

METHODS: Eight patients with PSP (n = 4 male, 47-73 years) underwent dynamic 60-minute tau PET scan with tracer PI2620. Pharmacokinetic modelling was performed using 2 techniques of reference region derivation, the anatomical cerebellum and data-driven PERSI reference region. Multiple pharmacokinetic models were investigated for both reference region methods to determine the best model for future use.

RESULT: BP values in the left caudate were in the range of 0.02-0.1 for all models. PERSI was seen to have significantly lower $\chi^2$ values and hence better goodness of fit compared to the cerebellum reference region in MRTM1 (0.173469 vs 0.564557, $p = 0.0049$) and MRTM2 (0.272943 vs 5.2382, $p = 0.0039$), whilst having less variability in goodness of fit in all models.

CONCLUSION: PERSI provides a more robust methodology for quantifying tau PET in patients with PSP. PERSI has potential use for data-driven reference region determination for a wide range of tracers in future studies of disease.

62. MICE WITH POLYGENIC MITOCHONDRIAL COMPLEX 1 INSUFFICIENCY DISPLAY MOTOR DEFICITS AND INCREASED WEIGHT GAIN COMPARED TO PARENTAL CONTROLS

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Mitochondrial diseases encompass a number of disorders with over 150 distinct genetic syndromes found. Mitochondria are present in almost all cells of the body and as such patients with mitochondrial disease often present with multisystem disorders. Due to the complexity and multi-systemic nature of mitochondrial disease, one of the biggest limitations in the field is the lack of suitable research models that recapitulate human disease. The hybrid mouse diversity panel (HMDP) is a panel of >100 genetically diverse, inbred mouse strains originating from the interbreeding of 16 base strains with genetic, proteomic and lipidomic data available. Through analysis of this data set, our group has identified up to four strains studied in the HMDP, which demonstrate robust reductions in mitochondrial complex I abundance. We have aged male mice (n=10-16) from two of these strains (BXD44 and BXD71) as well as their parental controls (C57 and DBA) to 10 months of age and performed body composition analysis and motor function testing. Both strains of complex I insufficient mice have shown a significant increase in weight gain attributed to a higher fat mass that is evident at baseline and increases with age (BXD44 42.31%, BXD71 32.42% body fat percentage compared to C57 27.53% and DBA 24.18% at 9 months of age, p<0.0001, p = 0.0013 for BXD71 vs C57). They also display a motor deficit associated with reduced balance and coordination demonstrated by a lower latency to fall time by rotarod compared to C57 controls (BXD44 20.8s+/−6.99, BXD71 5.9s+/−7.66, C57 51.7s+/−6.42, mean +/- SEM p<0.0001), as well as insufficient mice adopting a sliding technique for crossing the beam in the balance beam task, rather than the faster free walking method used by both C57 and DBA controls. These motor deficits suggest a significant neurological phenotype associated with polygenic complex I insufficiency.
OBESITY

63. DEVELOPMENT OF A CELLULAR MODEL OF NON-ALCOHOLIC FATTY LIVER DISEASE

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Individuals with obesity develop numerous metabolic complications. Presently, 75% of individuals with obesity will develop a form of non-alcoholic fatty liver disease (NAFLD), ranging from simple steatosis to non-alcoholic steatohepatitis (NASH). However, a lack of targeted pharmacological therapeutics continues to drive an increase in disease prevalence. Clinical translation of NAFLD therapeutics can be facilitated by cellular models that replicate key features of the disease. Thus, my research aims to develop a cellular model utilising the human hepatoma Hep3B cell line, to aid clinical translation. Two models were tested, initially focusing on steatotic development using exogenous fatty acids (FAs) and secondly using low amounts of lipid and glucose to enhance the rate of de novo lipogenesis (DNL) that is observed in NAFLD.

Hep3B cells treated with oleic acid (OA; 0.5mM) for 24hrs were associated with a seven-fold increase in protein expression of perilipin 2 (PLIN2), a marker of lipid droplet development. Furthermore, staining with Oil Red O revealed that OA induces lipid droplet formation and subsequently steatosis. However, cells treated with palmitic acid (PA;0.5mM) elicited a mild inflammatory effect, evidenced by a three-fold increase in interleukin 8 (IL-8; p<0.01) and C/EBP homologous protein (CHOP; p <0.05) gene expression. Oil Red O staining showed lipid droplet development induced by PA is smaller and more diffuse compared to OA, which indicates a level of mitochondrial dysfunction. Alternatively, we tested the use of 5mmol glucose with 2% BSA for 24hrs, which elicited a two-fold increase in mRNA expression of DNL markers, including the rate limiting enzyme, acetyl-CoA carboxylase (ACACA; p<0.01). As expected, lipid deprivation significantly enhances DNL.

These initial findings support using exogenous FAs and low amounts of lipid and glucose to trigger steatosis and upregulate DNL respectively. Importantly, this warrants further investigation into a cellular model that replicates other metabolic features of NAFLD.

64. ETHER LIPID METABOLISM IN OBESITY: INSIGHTS FROM PLASMA LIPIDOMICS OF LARGE POPULATION COHORT STUDIES

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Lipidomic profiling of population cohorts has revealed that decreased plasma ether lipids, a unique class of glycerol- and glycerophospho-lipids with reported health benefits, are implicated in numerous cardiometabolic diseases.

AIM: Utilise lipid ratios to define pathways of ether lipid metabolism in obesity.

METHOD: We analysed plasma lipidomic data (706 individual lipid species across 36 classes) from The Australian Diabetes, Obesity and Lifestyle Study (n=10,339). We generated 58 ratios of specific lipid species reflective of ether lipid composition, enzymatic activity and key pathways involved in ether lipid and fatty acid synthesis. We performed linear regression analysis to assess the association between each lipid ratio and various markers of obesity including body-mass-index (BMI), waist circumference and waist-to-hip ratio.

RESULTS: BMI was inversely associated with total plasmalogen levels relative to total phospholipids (-0.02 SD-change per unit BMI, p-value 1.47E-24). Ratios that capture key steps in plasmalogen synthesis (phosphatidylethanolamine-N-methyltransferase) and catabolism (calcium-independent phospholipase A2) showed positive and negative associations with increasing BMI (0.029 and -0.043 SD-change per unit BMI, p-value 2.44E-49 and 9.06E-114, respectively). Changes in omega-3 and omega-6 fatty acid acyl-chains showed a clear divergence of enzymatic activity throughout different regions of these pathways. Specifically, we observed a flux through the earlier stages of the pathways and a subsequent decrease through the later stages, suggesting peroxisomal dysfunction.
Additionally, we evaluated sex interactions between these associations and BMI. Of note, ratios reflecting changes in the omega-3 pathway demonstrated opposing associations based on sex (positive association in women and negative association in men). Finally, the lipid ratios were independently validated using lipidomics data from the Busselton Health Study (n=4,793).

CONCLUSION: This analyses illustrate the effects of elevated BMI and obesity on ether lipid metabolism. It demonstrates the potential for population lipidomics to define sex-dependent relationships between obesity and lipid metabolism.

OTHER

65. NUTRITION CARE IN PATIENTS WHO ARE TRANSFERRED TO INPATIENT REHABILITATION FOLLOWING CRITICAL ILLNESS: A RETROSPECTIVE OBSERVATIONAL STUDY

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Nutrition research to date in critical illness has focused on short-term interventions, with a lack of favourable outcomes observed thus far. Nutrition research extending beyond Intensive Care Unit (ICU) admission is of interest to inform future interventions.

AIM: This study aimed to describe nutrition process and delivery practices from ICU admission to discharge from inpatient rehabilitation.

METHODS: This single-centre retrospective study conducted at Alfred Health included adult patients (≥18 years), with an ICU admission for >48 hours who were discharged to inpatient rehabilitation within 28 days. Nutrition care process and delivery data, including the number of patients seen by a dietitian, time to assessment and factors affecting nutrition delivery, known as nutrition impacting symptoms, were collected during whole hospitalisation until day 28. Data were described as mean ± standard deviation, median [interquartile range], or counts (n) and percentages (%).

RESULTS: Fifty consecutive patients were included; 65±19 years, 28 (56%) males, APACHE II score 15.5±5.2. Length of stay was 3[3-6], 10[7-14] and 17[8-37] days in ICU, acute ward and rehabilitation, respectively. The number of patients seen by a dietitian and time to assessment in ICU, acute ward and rehabilitation was 43(86%) and 0.5[0.4- 0.8] days; 42(84%) and 1.0[1.0- 3.0] days and; 32(64%) and 2.0[1.0-4.0] days respectively. Oral nutrition was the most common mode of nutrition; 40(80%) in ICU and 48(96%) on acute ward and rehabilitation. Forty-four patients (88%) experienced a minimum of one symptom that impacted nutrition intake during hospitalisation including; loss of appetite (21(42%)), altered conscious state (23(46%)), and nausea/vomiting (13 (26%)).

CONCLUSION: Rehabilitation length of stay was the longest of all three hospital settings, yet patients in rehabilitation were assessed the least by a dietitian and time to assessment was longest. Symptoms that impact nutrition intake are commonly reported throughout whole hospitalisation following critical illness and requires further investigation.
66. IMPLEMENTING PHARMACIST-LED ANALGESIC STEWARDSHIP PROGRAMS IN VICTORIA

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Despite recognition of the potential risks of analgesic prescribing in hospitals, few Australian hospitals have formal programs to promote safe and optimal use.

AIM: To introduce key elements of an analgesic stewardship (AGS) program to optimise opioid analgesic use in adult surgical patients.

METHODS: Six Victorian health services were allocated a pharmacist to implement an AGS program over an 18-week period. The program design was drawn from Alfred Health’s well-established AGS program. A toolkit was adapted from this program to introduce key elements including a committee, monitoring and reporting to governance, clinician education, policies to support transfer of care of patients discharged on opioid analgesics and patient communication resources. Learning and coaching sessions with the clinical lead from Alfred Health and subject matter experts were also utilised. Outcome measures were developed to align with indicators in the national clinical care standard and collected fortnightly for 20 patients per site.

RESULTS: All sites formed a multidisciplinary committee, introduced monitoring and reporting to governance, clinician education and patient communication resources. Four sites approved policies to support transfer of care, whilst development has started in the remaining two sites. Two sites demonstrated a reduction of 20% or greater in the proportion of opioid-naïve patients discharged on opioid analgesics. Four sites demonstrated an increase in the proportion of patients provided with an analgesic medication management plan, up to 52% at one site. Sites indicated the structured learning sessions were useful in supporting pharmacists to implement AGS by facilitating peer-learning, individual coaching and continual feedback. Sites agreed the toolkit’s resources such as sample guideline assisted in progressing implementation.

CONCLUSION: The introduction of pharmacist-led AGS programs through a collaborative approach has led to improvements in adopting best practice in opioid analgesic use. Future direction includes assessment of sustainability in 12 months and call for wider adoption.

67. EVALUATION OF THE NEWLY DEVELOPED ALFRED STEP TEST (A-STEP) AS A MAXIMAL EXERCISE CAPACITY TEST FOR ADULTS WITH CYSTIC FIBROSIS AT ALFRED HEALTH, MELBOURNE AND GLASGOW, SCOTLAND

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We recently developed a maximal exercise capacity test for Cystic Fibrosis (CF).

AIM: To evaluate the A-STEP at two large adult centers.

METHODS: The experiences of the Adult CF Unit in Glasgow, Scotland (GSG) whose subjects were treated with elexacaftor/tezacaftor/ivacaftor (ETIG) and Melbourne, Alfred (MAG), who were ETIG naïve (MNG), were compared.

achieved ≥90% of HR for age: 9/35 (26.0%) vs 24/42 (57%) and ≥85% HR: 14/35 (40%) vs 37/42 (88%). Number of patients who achieved a maximal effort test using the list of 4 criteria: 14/35 (40%) vs 37/42 (88%). Factors identified for not achieving a maximal effort test: unable to regularly change leading leg causing leg fatigue; unable to keep up with the beat; and stopping the test early. ETIG likely enabled some to complete all 16 levels.

CONCLUSION: Subjects need prior training in all elements of the A-STEP; active coaching in regular leg changes to prevent unilateral fatigue; stepping co-ordination to keep up with the beat, and encouragement to achieve a maximal effort test for shortness of breath and/or leg fatigue. Further development of the A-STEP as a maximal test is required.

68. LOW RATES OF GRIEF AND BEREAVEMENT SUPPORT PRE- AND POST-DEATH FOR THOSE WHO DIED WITHIN 72 HOURS OF ADMISSION TO ALFRED HEALTH

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Grief and bereavement support are crucial to good end-of-life care. Loved ones of patients who die within a short time from admission are potentially at risk of missing out on formal bereavement assessment and support. In addition, while patient and family needs in bereavement vary, acute or unexpected death is an established risk factor for complicated grief.

AIM: To identify for patients who died within 72 hours of admission to Alfred Health, what grief supports were offered while the patient was alive, and after death.

METHODS: Retrospective electronic medical record review of 159 patients who died within 72 hours of admission, between October and December 2019 (pre COVID-19 pandemic) and June and August 2020 (during COVID-19 pandemic). We collected demographic and illness data, and information about documented grief support. Ethics approval (143/22).

RESULTS: Death was unexpected for 133 (83.6%) patients, most due to a medical cause such as sepsis or myocardial infarction, and the remainder due to traumatic injury or suicide. Most of these deaths occurred in the intensive care unit or emergency department. Coronal reporting was indicated for forty (25.2%) patients, and ten (6.3%) patients became organ donors. Social work saw 64 (40.3%), pastoral care saw 19 (11.9%), and palliative care saw 36 (22.6%) patients. A grief counsellor from the palliative care team was involved for 17 (10.7%) families. No grief support was documented pre- or post-death for 76 (47.8%) patients.

CONCLUSION: Our findings demonstrate a high proportion of unexpected deaths and low rates of bereavement support for this patient group. This is consistent with literature that bereavement support is lacking in the acute hospital setting. As these deaths can be associated with prolonged and difficult grief, further research and resources are needed to improve provision of grief and bereavement supports for patients who die soon after admission.

69. STAKEHOLDER PERSPECTIVES ON THE CLINICAL PLACEMENT APPRAISAL PROCESS IN UNDERGRADUATE NURSING EDUCATION: A QUALITATIVE STUDY

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Clinical placements are integral components of nursing education. Assessment of student performance routinely involves formative and summative appraisals. Understanding how appraisals are used to promote student learning in undergraduate nursing education and into professional nursing registration is important.

AIM: To describe the experience of clinical appraisal on student learning during clinical placements through the lens of the undergraduate nursing student, the clinical assessor, and university academic staff.

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METHODS: Descriptive-exploratory-qualitative study using semi-structured interviews with eight undergraduate nursing students, three health service clinical nurses and six university staff were performed. Data were analysed using NVivo. Qualitative content analysis was performed.

RESULTS: Two categories emerged: continuum of learning; and assessment versus learning. Participants reported the formative and summative appraisals promoted student learning and development within the clinical placement and on their journey becoming a nurse. The experience of the appraisal process was influenced by the tension between assessment and learning. Factors influencing the experience of the appraisal process for student learning included: the assessment tool, the clinical support model, and expectations of student and assessor role.

CONCLUSION: Clinical placements are integral to a student’s continuum of learning into professional registration. To facilitate positive learning experiences, orientation programs prior to the commencement of clinical placements for assessors and undergraduate students, could be included. Formal training in assessment and feedback may also be beneficial for clinical assessors. Clear expectations for models of clinical support and the process for appraisal assessment, may facilitate a more positive learning experience to promote better student outcomes.

70. AN EVALUATION OF EXISTING TEXT DE-IDENTIFICATION TOOLS FOR USE WITH PATIENT PROGRESS NOTES FROM AUSTRALIAN GENERAL PRACTICE
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BACKGROUND: Digitised patient progress notes from general practice represent a significant resource for clinical and public health research but cannot feasibly and ethically be used for these purposes without automated de-identification. Internationally, several open-source automated de-identification tools have been developed for use on medical text, however, given wide variations in clinical documentation practices, these may not be utilised without appropriate review.

AIM: To evaluate the performance of available automated de-identification tools on Australian general practice progress notes to inform the development of an automated system for local use at the clinical interface.

METHODS: We created a reference dataset of 300 manually annotated patient progress notes from three general practice clinics using seven categories of personal identifier (PI). After running three de-identification tools over the same sample, we conducted a pairwise comparison of the matches, measuring exact and relaxed matches for each PI category. Performance was assessed using recall (sensitivity), precision (positive predictive value) and f1-score (accuracy). An error analysis of false-positive and negative results was conducted.

RESULTS: Tool_1 achieved the highest aggregate f1-score (65%) across 6 categories. Tool_1 performed similarly to Tool_2 on NAME (f1-score 78% and 77%), and Tool_2 performed better on DATE (f1-score 71% and 84%). F1-score was lowest for Tool_3 (47%); driven by its low precision on NAME and LOCATION. While Tool_1 and Tool_2 had better precision and similar recall, Tool_3 was much simpler to adapt. By adjusting its configuration to ignore pattern matching rules related to hospital names and titles such as “Dr”, “Miss”, “Mr” and revising its name and place dictionaries, Tool_3 f1-score increased to 82%.

CONCLUSION: Existing off-the-shelf solutions for automated de-identification of clinical text are not immediately suitable for Australian general practice progress notes without customization. Tool_3 showed potential as a solution however requires extensive revising of pattern matching rules and dictionaries.
71. A RETROSPECTIVE REVIEW OF CURRENT PRACTICE FOR THE PERIOPERATIVE MANAGEMENT OF SODIUM-GLUCOSE CO-TRANSPORTER-2 INHIBITORS

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BACKGROUND: Sodium-glucose co-transporter-2 inhibitors (SGLT2i) are associated with diabetic ketoacidosis (DKA) in the perioperative period. Guidelines recommend withholding SGLT2i two days preoperatively, on the day of surgery and recommencing three days postoperatively for major surgery.

AIM: To investigate how perioperative SGLT2i management affects glycaemic control and the incidence of DKA in the perioperative period.

METHODS: This single-centre retrospective cohort study included all patients with type 2 diabetes mellitus taking SGLT2i and matched patients not taking SGLT2i, who attended the pre-admission clinic between May 2019 and April 2020. The primary outcomes were the proportion of SGLT2i patients demonstrating guideline compliance, and the incidence of adverse glycaemic control from day of surgery through to day 3 postoperatively. Secondary outcomes included the incidence of DKA, cancellation of surgery and complications due to adverse glycaemic control.

RESULTS: Fifty-eight patients in each group were included. Thirty-seven (63.8%) of SGLT2i patients were compliant with recommended preoperative plans. Hyperglycaemia threshold 1 (blood glucose level [BGLs] 10.1 to 14.9mmol/L), immediately prior to surgery, occurred in 17 (29.3%) SGLT2i patients and 9 (15.5%) non-SGLT2i patients (p=0.07). For SGLT2i patients, preoperative hyperglycaemia (BGLs > 10mmol/L) occurred in 11 adherent patients and in 8 patients who were non-adherent to the guideline (p=0.51). There were no significant differences between groups in incidence of postoperative hyperglycaemia or hypoglycaemia. The incidence of DKA in the SGLT2i group was 1 (1.7%, non-adherent) patient and 2 (3.4%) patients in the non-SGLT2i group (p=0.56). Euglycaemic DKA was not documented.

DISCUSSION: Two-thirds of SGLT2i patients adhered to preoperative guidelines, highlighting the need for initiatives that improve patient compliance with preoperative medication instructions. There was a trend towards greater preoperative hyperglycaemia in SGLT2i patients compared to non-SGLT2i patients. Further research, with a larger sample size, is warranted to determine the optimal duration of preoperative SGLT2i cessation.

72. TELEHEALTH CONSULTATION BEFORE INTER-HOSPITAL TRANSFER AFTER FALLS IN A SUBACUTE HOSPITAL (THE PREVENT-2 STUDY)

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BACKGROUND: Inter-hospital transfers are increasingly common due to regionalisation of health care, but are associated with patient discomfort, high costs and adverse events. The aim of this study was to evaluate the effectiveness of a trauma outreach service for preventing inter-hospital transfers to a major trauma centre.

METHODS: This was an observational pre- and post-intervention study over a 12-month period from 1 October 2020 to 30 September 2021. Eligible patients sustained a fall at Caulfield Hospital, a subacute care hospital specialising in community services, rehabilitation, geriatric medicine and aged mental health. The intervention was delivery of site-specific education at Caulfield Hospital and a trauma outreach service by specialist trauma clinicians at The Alfred Hospital who provided remote assessment, assisted with clinical management decisions and advised on appropriateness of transfer.
RESULTS: This study included 160 patients in the pre-intervention phase and 203 after the intervention. The primary outcome of transfer occurred in 19 (11.9%) patients in the pre-intervention phase and 4 (2%) in the post-intervention phase (p<0.001). In the subgroup of patients without pelvis or long bone fractures, pre-intervention transfer occurred for 17 (10.9%) patients and post-intervention transfer occurred for 4 (2.0%) patients (p<0.001). CT imaging was performed for 54 (33.8%) patients in the pre-intervention and 45 (22.2%) patients in the post-intervention group (p=0.014).

CONCLUSIONS: Telehealth consultation with a trauma specialist was associated with significant reduction of inter-hospital transfers, and significant reduction of CT imaging. This supports continuation of the service with scope for expansion and evaluation of patient centred outcomes.

73. METFORMIN AS A POTENTIAL DISEASE-MODIFYING DRUG IN OSTEOARTHRITIS: A SYSTEMATIC REVIEW OF PRE-CLINICAL AND HUMAN STUDIES

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BACKGROUND: Osteoarthritis causes significant pain and disability with no approved disease-modifying drugs. There is evidence emerging from pre-clinical and human studies suggesting metformin may have disease-modifying properties in osteoarthritis. Given its pleiotropic effects and safety profile, metformin has the potential to be a novel therapy for osteoarthritis.

OBJECTIVE: We systematically reviewed the evidence from both pre-clinical and human studies for the potential disease-modifying effect of metformin in osteoarthritis.

METHODS: Ovid Medline, Embase and CINAHL were searched between inception and June 2021 using MeSH terms and key words to identify studies examining the association between metformin use and outcome measures related to osteoarthritis. Two reviewers performed the risk of bias assessment and 3 reviewers extracted data independently. Qualitative evidence synthesis was performed. This systematic review is registered on PROSPERO (CRD42021261052 and CRD42021261060).

RESULTS: Fifteen (10 pre-clinical and 5 human) studies were included. Most studies (10 pre-clinical and 3 human) assessed the effect of metformin using knee osteoarthritis models. In pre-clinical studies, metformin was assessed for the effect on structural outcomes (n=10); immunomodulation (n=5); pain (n=4); and molecular pathways of its effect in osteoarthritis (n=7). For human studies, metformin was evaluated for the effect on structural progression (n=3); pain (n=1); and immunomodulation (n=1). Overall, pre-clinical studies consistently showed metformin having a chondroprotective, immunomodulatory and analgesic effect in osteoarthritis, predominantly mediated by adenosine monophosphate-activated protein kinase activation. Evidence from human studies, although limited, was consistent with findings in pre-clinical studies.

CONCLUSION: We found consistent evidence across pre-clinical and human studies to support a favourable effect of metformin on chondroprotection, immunomodulation and pain reduction in knee osteoarthritis. Further high-quality clinical trials are needed to confirm these findings as metformin could be a novel therapeutic drug for the treatment of osteoarthritis.
74. THE ASSOCIATION OF PADDED HEADGEAR WITH CONCUSSION AND INJURY RISK IN JUNIOR AUSTRALIAN FOOTBALL: A PROSPECTIVE COHORT STUDY.

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AIM: To assess whether padded headgear was associated with incidence of suspected sports-related concussion, non-concussion head injury, and injuries to other body regions in junior Australian football.

METHODS: Prospective cohort injury surveillance with 400 junior players (42.5% female) monitored across two seasons. Injury data was collected by team managers, trainers and coaches who were trained to record data on standardized reporting forms. Suspected sports-related concussion was defined in accordance with international concussion guidelines and detection was based on observable signs on the field and medical assessment or missed match. Non-concussion head injury and injuries to other body regions were defined as those that received medical assessment or resulted in a missed match.

RESULTS: 20 teams were monitored over 258 matches. 204 players wore mandated headgear throughout the season and 196 did not. The incidence rate of suspected sports-related concussion was 3.17 (95% confidence interval: 3.04–3.30) per 1000 player-hours and no differences were observed between males and females (risk ratio 1.11; 95% confidence interval: 0.40–3.06). Headgear use was not associated with suspected sports-related concussion (risk ratio 1.09; 95% confidence interval: 0.41–2.97), non-concussion head injury (risk ratio 0.27; 95% confidence interval: 0.06–1.31), or injuries to other body regions (risk ratio 1.41; 95% confidence interval: 0.79–2.53).

CONCLUSIONS: Headgear use was not associated with reduced risk of suspected sports-related concussion, non-concussion head injury or injuries to other body regions. There was no difference in the rate of suspected sports-related concussion in female compared to male players, however, rates of non-concussion head injury and injuries to other body regions were higher among male players. This was the first study of its kind to include approximately equal numbers of male and female players and provides a vital step regarding the effectiveness of current commercially available headgear as concussion prevention.

75. POSTOPERATIVE ANAEMIA AND PATIENT-CENTRED OUTCOMES AFTER MAJOR ABDOMINAL SURGERY

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AIM: To investigate the prevalence, extent, and outcomes of patients with anaemia after major surgery, including accounting for the amount of i.v. fluids administered in the immediate perioperative period.

METHODS: This retrospective cohort study analysed prospective data obtained from 2,983 adult patients across 47 centres around the world enrolled in a clinical trial evaluating restrictive and liberal intravenous fluids. The primary endpoint was persistent disability or death up to 90 days after surgery. Secondary endpoints included major septic complications, hospital stay, and patient quality of
recovery using a 15-item score (QoR-15), hospital re-admissions, and disability-free survival up to 12 months after surgery. The binary primary outcome, persistent disability or death to 90 days, was compared between anaemia groups using log-binomial regression to estimate risk ratios and 95% confidence intervals (CIs) directly, adjusting for RELIEF randomized group, age, sex, ASA physical status, Charlson score, preoperative aspirin, Hb (baseline), type of surgery, planned HDU/ICU (either) admission, and duration of surgery.

RESULTS: A total of 2,983 patients met inclusion criteria for this study, of which 78.5% (95% CI, 76.7-80.1%) had postoperative anaemia. Patients with postoperative anaemia had a higher adjusted risk of death or disability up to 90 days after surgery when compared to those without anaemia, 18.2% vs. 9.2%, RR 1.51 (95% CI, 1.10-2.07), P=0.011; lower QoR-15 scores on Day 3 and Day 30, 105 (95% CI, 87-119) vs. 114 (95% CI, 99-128), P<0.001, and 130 (95% CI, 112-140) vs. 139 (95% CI, 121-144), P<0.011, respectively; higher adjusted risk of a composite of mortality/septic complications, 2.01 (95% CI, 1.55-42.67), P<0.001; unplanned admission to ICU, RR 2.65 (95% CI, 1.65-4.23), P<0.001; and longer median (IQR) hospital stays 6.6 (4.4-12.4) vs. 3.7 (2.5-6.5) days; P<0.001.

CONCLUSION: Postoperative anaemia is common and has serious implications for recovery after surgery. Optimal prevention and treatment strategies need to be investigated.

76. CAN IMPLEMENTATION OF AN ORAL CARE EDUCATION AND TRAINING PACKAGE IMPROVE ORAL HEALTH ON AN ACQUIRED BRAIN INJURY WARD?: A PILOT INTERVENTION

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BACKGROUND: Oral hygiene is an essential component of health, well-being and greatly influences quality of life. Altered motor, sensory and cognitive functions in patients with Acquired Brain Injury (ABI) present challenges to oral care routines, resulting in onset and progression of oral and related health conditions. Oral care providers report barriers to providing oral care including lack of time, training and education.

AIM: To investigate the impact of an oral health education & training package on the knowledge of oral care providers and oral health of patients on an ABI ward.

METHOD: Education & training package was delivered to oral care providers (nursing and allied health). Pre and post surveys were provided to measure knowledge, awareness, and confidence in relation to oral care and satisfaction with intervention. Audits using the Oral Health Assessment Tool (OHAT) were completed, one week prior and six weeks post intervention, to measure translation of this new knowledge to outcomes.

RESULTS: Twenty-seven participants (17 nursing, 10 allied health) completed the education & training pre and post surveys. Twenty-six participants reported they agreed (9) or strongly agreed (17) that the education & training package met their needs. Participants overwhelmingly reported improved understanding of oral hygiene, were more aware of different products and more able to use and apply oral hygiene techniques. Twenty-one patients participated in oral health audits. Results demonstrated a mean reduction of OHAT scores from 3.81(1.8) to 3.43 (1.69), with improvements in the health of lips (8), gums & tissues (3) and saliva flow (3).

CONCLUSION: Education & training were well received. Improved knowledge and application of new skills in oral care resulting from this intervention translated to improved oral health. Further studies are required to evaluate the benefit of education and training of oral care providers on patient outcomes for people with ABI.
77. MISLEADING MEDICAL LITERATURE: AN OBSERVATIONAL STUDY

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OBJECTIVE: Language that implies a conclusion not supported by the evidence is common in the medical literature. The hypothesis of the present study was that medical journal publications are more likely to use misleading language for the interpretation of a demonstrated null (i.e. chance or not statistically significant) effect than a demonstrated real (i.e. statistically significant) effect.

METHOD: This was an observational study of the medical literature with a systematic sampling method. Articles published in The Journal of the American Medical Association, The Lancet and The New England Journal of Medicine over the last two decades were eligible. The language used around the P-value was assessed for misleadingness (i.e. either suggesting an effect existed when a real effect did not exist or vice versa).

RESULTS: There were 228 unique manuscripts examined, containing 400 statements interpreting a P-value proximate to 0.05. The P-value was between 0.036 and 0.050 for 303 (75.8%) statements and between 0.050 and 0.064 for 97 (24.3%) statements. Forty-four (11%) of the statements were misleading. There were 40 (41.2%) false-positive sentences, implying statistical significance when the P-value was >0.05, and four (1.3%) false-negative sentences, implying no statistical significance when the P-value <0.05 (relative risk 31.2; 95% confidence interval 11.5–85.1; P< 0.0001). The proportion of included manuscripts containing at least one misleading sentence was 16.2% (95% confidence interval 12.0–21.6).

CONCLUSION: Among a random selection of sentences in prestigious journals describing P-values close to 0.05, 1 in 10 are misleading (n=44, 11%) and this is more prevalent when the P-values are above 0.05 compared to below 0.05. Caution is advised for researchers, clinicians and editors to align with the context and purpose of P-values.

78. STUDY PROPOSAL - POST-PRANDIAL EXERCISE AND PLASMA GLUCOSE LEVELS IN INDIVIDUALS WITH POLYCYSTIC OVARIAN SYNDROME (PCOS)

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BACKGROUND: Insulin resistance and hyperglycemia affect approximately 65-70% of individuals with PCOS and have been implicated as possible contributors to the syndrome’s pathophysiology1. While lifestyle modifications remain a mainstay of PCOS management, additional diet/exercise interventions targeting insulin and plasma glucose control may further reduce symptomology, increase quality-of-life, and decrease complications2. Exercise has been suggested as an effective mechanism to reduce short-term plasma glucose levels in Type 2 Diabetes3 and limit disease progression4. There is some preliminary evidence suggesting that post-prandial exercise is superior to fasted exercise in this glucose reduction5. Despite the correlation between insulin resistance, particularly at the skeletal muscle level, and PCOS, the effectiveness of post-prandial exercise on glucose control in PCOS remains minimally reported on.

AIM: This study would aim to preliminarily investigate the possible relationship between post-prandial exercise and plasma glucose levels in individuals with PCOS.

METHODOLOGY: Following recruitment via primary-care clinic and university advertisements, individuals with diagnosed PCOS will be randomly allocated to either the control (thirty minutes of resistance exercise, once daily) or intervention group (three ten-minute blocks of resistance exercise daily, following main meals). Participants will be instructed to follow their allocated exercise regime for 12-weeks, recording compliance in an exercise diary and making no other lifestyle modifications. Glucose levels will be measured via fasting glucose, HbA1c, and 2-hour glucose tolerance tests at participants’ primary-care clinics. This would occur alongside insulin
resistance estimation using c-peptide levels and quality-of-life assessment via the PCOSQ. All measurements would be taken at study commencement and at 28-day intervals over the 12-week study period. Continuous glucose monitoring should be considered as an additional data collection method. Individual participant changes in measurements between assessments would be analysed, and trends compared between groups. Data collected may encourage the development of additional studies that seek to explore this relationship further.

79. BENEFITS AND IMPACTS OF THE PNSA ROLE: SURGEON AND NURSE PERSPECTIVES

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AIM: To develop an understanding of the knowledge, skills and qualities the Perioperative Nurse Surgeon's Assistant (PNSA) role contributes to surgical service delivery in Australia.

BACKGROUND: The benefits and attributes of the PNSA have been explored globally. Previous research demonstrates the PNSA as providers of safe and effective delivery of surgical assisting care. The PNSA as an advanced practice nurse (APN) has been identified as improving both the quality and accessibility of surgical care, although this is yet to be fully acknowledged in the Australian context. Greater exploration of the benefits and contributions of the PNSA to surgical service delivery in Australia is required.

METHODS: A mixed method design study was undertaken across 4 healthcare facilities in South Australia; including a quantitative, cross-sectional survey of perioperative nurses, as well as semi-structured, qualitative interviews with surgeons who work with a PNSA.

RESULTS: From a survey of 55 perioperative nurses and 5 surgeons who work with PNSAs, the 7 attributes or qualities deemed to be important of the PNSA included knowledge of anatomy, instrumentation and surgical procedure, consistency, theatre efficiency, collaboration, educational resource, patient advocacy and leadership.

CONCLUSION: The PNSA can positively affect the operating theatre environment and offer multiple individual benefits to the patient’s surgical journey. The consistency the PNSA conveys offers a more streamlined process for the operative team, reassurance for the surgeon and the potential for improved theatre efficiency. This consistency is seen to enhance communication across the surgical team increasing patient safety, increasing efficiencies in both the individual patients’ surgical journey and across the surgical service. Where consistency of a qualified medical assistant is not routinely available the consistency and dependability of the PNSA is sought after by the surgeons interviewed. Barriers to perioperative nurses undertaking a PNSA role relates to limited access to Medicare Benefit Schedule (MBS) and the cost of tertiary education.

80. COVID-19 IMPACTS ON LUNG CANCER DIAGNOSIS, MANAGEMENT AND TIMELINESS IN VICTORIA, AUSTRALIA: A POPULATION BASED OBSERVATIONAL STUDY

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OBJECTIVES: To describe impact of COVID-19 on lung cancer incidence, stage at diagnosis, treatment utilisation and timeliness of care in Victoria, Australia.

DESIGN: Retrospective study using population wide Victorian Cancer Registry data and clinical data from the Victorian Lung Cancer Registry, comparing data pre-COVID (2019 and Q1 of 2020) with the COVID era (April 2020- 31/12/2020).

SETTING AND PARTICIPANTS: Population wide data on lung cancer diagnoses diagnosed in 2019 and 2020 in Victoria, and 4,485 cases with additional clinical data.
RESULTS: Compared in the COVID-era, 177 fewer males (-12%) and 4 fewer females (-0.3%) were diagnosed with lung cancer. Stage at diagnoses for NSCLC was higher on average in Q2 2020 and was similar to the pre-COVID distribution in Q2 and Q4. No changes were detected in the stage distribution for SCLC. The proportion of patients whose time from referral to diagnosis was ≤28d decreased with increasing volume of referrals but was higher in the COVID era (74.6%) compared with the pre-COVID era (67.5%), not caused by a decrease in volume. The proportion of patients receiving any anti-cancer treatment reduced slightly from 84% in the pre-COVID era to 81% in the COVID era (p=0.022). Time from diagnosis to treatment (≤14d; 37.3% of patients on average) was not associated with volume of new diagnoses, nor did change in the COVID-era (p=0.13). The proportion of NSCLC patients who received guideline concordance treatment did not differ between pre-COVID (83.1%) and the COVID era (81.7%; p=0.31).

CONCLUSION: Less males were diagnosed with lung cancer in the COVID-era. Although the health care system in Victoria had many disruptions following COVID restrictions, no negative impact on treatment utilisation nor timeliness was observed. In fact, timeliness from referral to diagnoses improved in the COVID era.

POPULATION HEALTH AND EPIDEMIOLOGY

81. TRENDS IN NEUROSYPHILIS HOSPITAL ADMISSION IN AUSTRALIA, 2007-2020

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With rise in syphilis notification rates in Australia, similar rises may occur in complications of syphilis infection, such as neurosyphilis. However, the epidemiology of neurosyphilis is relatively unknown. The treatment of neurosyphilis usually requires hospitalisation with intravenous penicillin. Hence, hospitalisation rates can be a proxy to examine the trend of neurosyphilis in Australia.

AIM: To determine the trends of neurosyphilis admission in Australia and estimate the duration of hospital admission and associated costs.

METHOD: A retrospective analysis of routinely collected hospital admission data in the National Hospital Morbidity database from the Australian Institute of Health and Welfare was conducted between 1 July 2007 and 30 June 2020. Admissions of individuals aged 15 years or older to hospital with neurosyphilis as the principal diagnosis using the International Classification of Diseases, Tenth Revision, Australian Modification (ICD-10-AM) were included. The main outcome measures were (1) annual admission rates per 100,000 population stratified by sex, year, and age group between 2007 and 2020, and (2) duration of hospital stay and estimated associated costs.

RESULTS: Neurosyphilis admission rates increased by 4% per annum for men (Incidence rate ratio (IRR): 1.04, Pr=0.001) between 2007 and 2020. Increase in annual admission rates were observed for men and women from 2014 to 2020 (IRR: 1.16, Pr=0.004) and for reproductive age group (15-50 years) for men (IRR 1.08, Pr=0.001) and women (IRR: 1.10, Pr=0.009). Mean hospital length of stay was 11.1 days for men and women. The estimated costs of neurosyphilis admission were between AUD 14,108 and 24,675 per person.

CONCLUSION: Increases in neurosyphilis admission rates are observed for men and women especially from year 2014 onwards. These increases are likely to reflect current epidemic of syphilis in Australia. Raising awareness of neurosyphilis among healthcare providers is important for prompt evaluation, diagnosis, and timely treatment of neurosyphilis.
**82. WHAT IS THE EFFECT OF A BRIEF INTERVENTION TO PROMOTE PHYSICAL ACTIVITY WHEN DELIVERED IN A HEALTHCARE SETTING? A SYSTEMATIC REVIEW AND META-ANALYSES.**

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**OBJECTIVE:** To investigate the effect of a brief intervention to promote physical activity (PA), when delivered in a healthcare setting other than primary care.

**METHOD:** MEDLINE, EMBASE, CINAHL, PsycINFO were used to identify randomised controlled trials which evaluated the effect of brief interventions to increase PA, delivered in a healthcare setting. Review outcomes included subjectively or objectively measured PA, adherence to prescribed interventions, adverse events, health-related quality of life, self-efficacy and stage-of-change in relation to PA. Where possible, clinically homogenous studies were combined in a meta-analysis.

**RESULTS:** 25 eligible papers were included. Brief counseling interventions were associated with increased PA compared to control, for both self-reported PA (mean difference 34 minutes/week, 95% CI 9 to 60 minutes), and pedometer (MD 1541 steps/day, 95% CI 433 to 2649) at medium term follow-up.

**CONCLUSION:** Our findings suggest that some brief interventions to increase PA, delivered in the healthcare setting, are effective at increasing PA in the medium-term.

**83. COVIC-HA STUDY**

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The pivotal role healthcare and aged care workers (collectively HCWs) play in managing the COVID-19 pandemic (COVID-19) comes with significant physical and psychological demands, particularly given the longevity of the required response.

**AIM:** To examine the mental health and wellbeing of Victorian HCWs during the COVID-19 pandemic.

**METHODS:** Longitudinal study of an open cohort of Australian HCWs from hospital, ambulance, primary care and aged care settings in Victoria. Data was collected via three online surveys: May-July 2021 (mid-2021), October-December 2021 (late-2021) and May-June 2022 (mid-2022). Primary outcome measures included self-reports of depression (PHQ-9), anxiety (GAD-7), post-traumatic stress (PTS; IES-6), wellbeing (PWI-A), burnout (aMBI), resilience (CD-RISC-2) and optimism (10-point visual analogue scale) during the preceding fortnight. Longitudinal mixed effect models included fixed effects for time (three-level categorical variable corresponding to the three surveys); occupation (five-levels); and an interaction between time and occupation. Outcome models were adjusted for age, gender and socio-economic status (SES).

**RESULTS:** Between 989 and 1,153 HCWs contributed data at each survey timepoint. The age, gender and SES-adjusted proportion of participants experiencing moderate-severe symptoms of depression (18.5%, 24.8%, 21.0%, p=0.011), anxiety (10.3%, 17.8%, 13.0%, p=0.001) and PTS (15.2%, 35.8%, 16.6%, p=0.001) increased between mid- and late-2021 before decreasing in mid-2022, whereas moderate-severe burnout prevalence increased from mid-to-late 2021, with minimal change from late-2021 to mid-2022: emotional exhaustion (67.8%, 75.4%, 71.1%, p=0.006); depersonalisation (28.5%, 43.5%, 39.1%, p<0.001); personal accomplishment (33.9%, 45.2%, 38.3%, p=0.001).
Wellbeing, resilience and optimism scores decreased over time. Similar outcome patterns were observed across different occupations.

CONCLUSION: We found worsening burnout wellbeing, resilience and optimism scores among HCWs between mid-2021 to mid-2022. In contrast, depression, anxiety and PTS outcomes peaked in late-2021 before returning toward mid-2021 levels. Evidence-based mental health and wellbeing programs for workers in healthcare organisations supported by effective government policies are urgently needed.

84. HOSPITAL COSTS AND FACTORS ASSOCIATED WITH DAYS ALIVE AND AT HOME AFTER SURGERY (DAH30)

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AIM: To assess the relationships of patient and surgical factors and hospital costs with the number of days alive and at home during the 30 days following surgery (DAH30).

METHODS: Design: Retrospective cohort study; analysis of Medibank Private health insurance hospital claims data, Australia, 1 January 2016 – 31 December 2017. Setting, participants: Admissions of adults (18 years or older) to hospitals for elective or emergency inpatient surgery with anaesthesia covered by private health insurance, Australia, 1 January 2016 – 31 December 2017. Main outcome measures: Associations between DAH30 and total hospital costs, and between DAH30 and surgery risk factors.

RESULTS: Complete data were available for 126 788 of 181 281 eligible patients (69.9%); their median age was 62 years (IQR, 47–73 years), 72 872 were women (57%), and 115 117 had undergone elective surgery (91%). The median DAH30 was 27.1 days (IQR, 24.2–28.8 days), the median hospital cost per patient was $10 358 (IQR, $6624–20 174). The association between DAH30 and total hospital costs was moderate (Spearman ρ = –0.60; P < 0.001). Median DAH declined with age, comorbidity score, ASA physical status score, and surgical severity and duration, and was also lower for women.

CONCLUSION: DAH30 is a validated, patient-centred outcome measure of post-surgical outcomes; higher values reflect shorter hospital stays and fewer serious complications, re-admissions, and deaths. DAH30 can be used to benchmark quality of surgical care and to monitor quality improvement programs for reducing the costs of surgical and other peri-operative care.

85. NPEP PRESCRIPTIONS PRE- AND POST- INTRODUCTION OF PREP, AND THE CHANGING CHARACTERISTICS OF THOSE ACCESSING IT; FINDINGS FROM A SEXUAL HEALTH CLINIC IN MELBOURNE, AUSTRALIA, 2011-2021

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BACKGROUND: Non-occupational post-exposure prophylaxis (nPEP) has been recommended since 2005 as a primary prevention approach for HIV prevention. Since the commencement of the Victorian ‘PrEPX’ study on 26th July 2016, more recent attention has been placed on pre-exposure prophylaxis (PrEP). This study aimed to compare patients’ characteristics of nPEP use before and after PrEP became available.
METHODS: Data was gathered on all patients attending Melbourne Sexual Health Centre (MSHC) for nPEP between 2011 and 2021, including frequency of nPEP use, country of birth, year of arrival to Australia, and this was categorised into 'pre-PrEP' (01-Jan-2011 to 25-Jul-2016) and 'PrEP' (26-Jul-2016 to 31-Dec-2021) periods.

RESULTS: Between 2011 and 2021, there were 8,890 nPEP prescriptions (3,282 in the pre-PrEP and 5,608 in the PrEP period). The annual number of nPEP prescriptions increased from 250 in 2011 to 1,181 in 2016; the number remained stable at 1,200 in 2017-2019 but dropped to 700-800 in 2020-2021. Men who have sex with men (MSM) accounted for the majority (93.4%, n=8,292) of nPEP consultations. Most patients (73.3%) had one nPEP episode. There was a reduction in nPEP prescriptions among Oceania-born patients (from 59.1% [1,914/3,282] to 41.5% [2,327/5,608]; p<0.001) but an increase among Asian-born patients (from 20.2% [663/3,282] to 36.3% [2,035/5,608]; p<0.001) in the pre-PrEP versus PrEP period. Furthermore, there was an increase in the proportion of nPEP prescriptions among overseas-born individuals who arrived Australia within four years, from 43.0% (518/1,205) in the pre-PrEP to 57.6% (1,723/2,990) in the PrEP period (p<0.001).

CONCLUSION: There was no reduction in nPEP prescriptions in 2017-2019 despite PrEP being available in Victoria. The reduction in nPEP in 2020-2021 can be attributed to the COVID-19 pandemic. Future research is required to understand the rise in nPEP use amongst newly arrived overseas-born individuals, and this may be due to the limited access to PrEP among Medicare-ineligible individuals.

DISCLOSURE OF INTEREST STATEMENT: CSK is supported by an Australian National Health and Medical Research Council (NHMRC) Leadership Investigator Grant (GNT1173361 and GNT1172900, respectively). JJO and EPFC are each supported by an NHMRC Emerging Leadership Investigator Grant (GNT1193955 and GNT1172873, respectively).

86. KISSING, FELLATIO AND ANALINGUS AS RISK FACTORS FOR OROPHARYNGEAL GONORRHOEA IN MEN WHO HAVE SEX WITH MEN

Tran J1,2, Ong JJ1,2, Bradshaw CS1,2, Chen MY1,2, Kong YSF1, Hocking JS3, Aung ET1,2, Maddaford K1, Fairley CK1,2, Chow EPF1,2,3

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BACKGROUND: Our aim was to determine whether exposure to the anatomical sites (oropharynx, penis, or anus) of male partners of men who have sex with men (MSM) were independent risk factors for oropharyngeal gonorrhoea after adjusting for exposures to these sites.

METHODS: Between November 2018 and December 2020, we invited MSM who attended the Melbourne Sexual Health Centre (MSHC) in Victoria, Australia, to complete a survey of their sexual practices in the past three months. We collected data on the number of male partners with whom men engaged in sexual activities that exposed their oropharynx to their partners' oropharynx (kissing), penis (fellatio), and anus (analingus or rimming). We conducted univariable and multivariable logistic regression analyses to investigate associations between oropharyngeal gonorrhoea and the three exposures to the oropharynx.

RESULTS: The mean age of the 2,322 men who completed the survey was 34.9 years (SD=12.1), and 5-2% (n=120) were diagnosed with oropharyngeal gonorrhoea. Our univariate analysis showed that oropharyngeal gonorrhoea was significantly associated with increasing number of kissing (p_trend<0.001), rimming (p_trend<0.001) and fellatio (p_trend<0.001) partners. After adjusting for all three exposures to the oropharynx, oropharyngeal gonorrhoea was associated with increasing number of kissing (p_trend=0.014) and rimming partners (p_trend=0.037) but not fellatio (p_trend=0.605).

CONCLUSION: These data do not support the currently accepted transmission route where gonorrhoea is transmitted to the oropharynx of men primarily through performing fellatio. Our data suggest kissing and rimming are important practices in gonorrhoea transmission. Novel interventions that target the oropharynx are required for gonorrhoea prevention.
BACKGROUND AND AIM: Acute health effects of short-term (from hours to days) exposure to fine particulate matter (PM$_{2.5}$) have been well-documented. However, the mortality burden attributable to short-term PM$_{2.5}$ exposure on a global scale is still needed. Therefore, we aimed to investigate the global and regional mortality burden associated with daily exposure to PM$_{2.5}$ and its spatiotemporal variations from 2000 to 2019.

METHODS: We investigated the global daily PM$_{2.5}$ attributable mortality burden from 2000 to 2019 at a spatial resolution of 0.1° × 0.1° by combining estimated global daily PM$_{2.5}$ concentrations, annual population counts, country-level crude mortality rates, and exposure-response functions. We also estimated the preventable attributable mortality due to global PM$_{2.5}$ exceeding the WHO recommended daily PM$_{2.5}$ level (15 µg/m$^3$). The robustness of mortality estimates was tested with different theoretical minimum concentrations, lag effects, and exposure-response functions.

RESULTS: 1,018,688 (95% confidence interval [CI], 690,130 to 1,347,247) premature deaths per year from 2000 to 2019 were attributed to daily PM$_{2.5}$ exposure, representing 2.08% (95% CI, 1.41% to 2.75%) of total global deaths or 17 (95% CI, 11 to 22) premature deaths per 100,000 population annually. If daily PM$_{2.5}$ concentrations met the WHO air quality guidelines, it would avert 55% of short-term PM$_{2.5}$ attributable deaths. Asia and Africa would be the largest beneficiaries. The sensitivity analyses showed stable estimations of daily PM$_{2.5}$ attributable mortality worldwide.

CONCLUSION: Short-term exposure to PM$_{2.5}$ contributes to a substantial global mortality burden, particularly in Asia and Africa. Our results highlight the potential benefits of immediate reduction of the daily PM$_{2.5}$ to the WHO daily guidelines level and the importance of taking mitigation approaches to reduce air pollution and its adverse effects on human health.
Pulmonary rehabilitation (PR) is an effective treatment for people with stable chronic respiratory disease. A new telerehabilitation model demonstrated clinically meaningful benefits in a recent randomised controlled trial, but cost-effectiveness is unknown.

AIM: To compare costs and benefits for telerehabilitation and centre-based groups over the 12-month period following PR.

METHODS: Participants were randomly allocated to 8 weeks of telerehabilitation or centre-based PR, with program completion defined as ≥70% attendance. The SF-36v2 was completed at the end of PR and 12 months later for calculation of quality-adjusted life years (QALYs). Costs were collected from participants and administrative sources for program provision and healthcare in the 12 months following PR. Between-group differences were calculated using generalised linear models (Tweedie distribution, log link function) and linear regression determined factors influencing healthcare costs.

RESULTS: We included 68 centre-based PR participants (female n=33, age mean 67 [SD 9] years, FEV1 63 [27] %predicted, 81% completed) and 70 telerehabilitation participants (female n=41, age 68 [9] years, FEV1 59 [24] %predicted, 84% completion). The direct per participant cost of program provision was mean $549 (SD $113) for the centre-based group and $1601 ($243) for the telerehabilitation group.

Total healthcare costs did not differ between groups (centre-based mean $19,723 [SE 3595], telerehabilitation $18,590 [3229], p=0.815). There was no between-group difference in QALYs (MD 0.015, 95%CI -0.050 to 0.080) as was female sex (-$12,877, -$22,086 to -$3668); group allocation and other clinical factors did not contribute to this model.

CONCLUSION: In the 12 months following PR, healthcare costs and QALYs were similar for both groups. Completion of PR, regardless of model, was associated with a reduction in healthcare costs. These results support the clinical implementation of telerehabilitation for patients with chronic respiratory disease.

89. TRANSCRIPTOMIC DIFFERENCES IN LUNG APICES AND BASES IN IDIOPATHIC PULMONARY FIBROSIS (IPF)

Wong M1, McMillan L1, Gamell C1, Alhamdoosh M1, Wilson N1, Staempfli M1, Wee YK1, Westall G2 and Jaffar J2

1CSL Limited, 2Department of Allergy Immunology and Respiratory Medicine, The Alfred and Department of Immunology and Pathology, Monash University

BACKGROUND: IPF is a progressive lung disease characterized by basally predominant fibrosis. Due to the nature of disease progression, lung tissue at the apices has a lower extent of fibrosis compared to the bases and may represent earlier stage of disease. To our knowledge, this is the largest study to compare the transcriptome from location-matched patient samples in IPF and non-fibrotic control donors.

AIM: To compare the transcriptomic profile of lung tissue obtained from lung apices and bases from patients with and without IPF.
METHODS: Lung tissue was collected from the apex and base of 20 patients with IPF and 14 non-diseased control (NDC) donors. Bulk RNA sequencing was performed on a total of 101 samples using the Illumina platform. Differentially expressed genes (DEGs, false discovery rate < 0.05, |fold change| >2) were investigated by performing pathway analysis with Ingenuity Pathway Analysis.

RESULTS: 1055 DEGs (302 downregulated, 753 upregulated) were identified between apices of IPF and NDC. The top 3 pathways enriched in IPF apices were organismal development, cell movement and cardiovascular development. 30 common genes amongst the top 3 pathways were involved in macrophage biology. 751 DEGs (98 downregulated, 653 upregulated) were identified between IPF bases and apices. The top 3 pathways enriched in IPF apices were related to inflammation. 1313 DEGs (410 downregulated, 903 upregulated) were identified between bases of IPF and NDC.

CONCLUSION: Genes regulating macrophages and inflammation were elevated in apices of IPF lung tissue where areas of normal histology also persist. Important genes/pathways identified at the apex and base of the end-stage IPF lung may provide a better understanding of disease progression since the apices has less fibrosis when compared to the base. Strategic targeting of pathways involved in IPF lung apices may be more efficacious since the tissue has yet to reach terminal fibrosis.

90. PUBLIC HEALTH MEASURES FOR PREVENTING EXACERBATIONS OF CHRONIC LUNG DISEASE

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BACKGROUND: Fewer exacerbations of chronic lung disease during the COVID-19 pandemic may be due to the introduction of measures to prevent SARS-CoV-2 transmission and the associated lower prevalence of other respiratory viruses.

AIM: Our aim was to determine the acceptability of continuing with (COVID-19) public health measures to lower future exacerbation risk.

METHODS: Australian adults with chronic lung disease were asked (via an online survey) about their intentions for use of public health measures and acceptability of continuing with policies encouraging such measures during the flu season or at all times once most of the population have received the COVID-19 vaccine. Pre-specified thresholds: general support for measure: ≥66% of respondents; absence of significant support: ≤33%.

RESULTS: 193 people (asthma = 33, bronchiectasis = 41, COPD = 84, ILD = 35) from all Australian states and territories participated between August and December 2021. Mean(SD) MRC breathlessness score for participants was 2.5(1.0), 65% were aged older than 60 years, and 77% were female. 90% and 88% reported COVID-19 (at least 2 doses) and flu vaccination respectively. The table summarises all survey responses.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Continue to do yourself</th>
<th>Everyone during the 'flu season?</th>
<th>Everyone at all times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face covering - indoor public places</td>
<td>52%</td>
<td>51%</td>
<td>42%</td>
</tr>
<tr>
<td>Face covering - outdoor public places</td>
<td>16%</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>Face covering - public transport</td>
<td>53%</td>
<td>66%</td>
<td>52%</td>
</tr>
<tr>
<td>Washing hands more often</td>
<td>77%</td>
<td>74%</td>
<td>72%</td>
</tr>
<tr>
<td>Keeping distance indoors</td>
<td>83%</td>
<td>79%</td>
<td>70%</td>
</tr>
<tr>
<td>Keeping distance outdoors</td>
<td>54%</td>
<td>46%</td>
<td>36%</td>
</tr>
</tbody>
</table>

CONCLUSION: Adults with chronic lung diseases in Australia are supportive of physically distancing indoors and hand hygiene as measures to reduce exacerbations. There was lack of support for widespread continuation of face coverings but policies for use on public transport during the flu season were acceptable.
91. SINGING FOR PEOPLE WITH ADVANCE CHRONIC RESPIRATORY DISEASES: QUALITATIVE META-SYNTHESIS

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INTRODUCTION / AIM: Although there remains insufficient evidence regarding singing programs as effective strategies for achieving clinically significant health outcomes, this non-pharmacological intervention appears to be subjectively low-risk and well-tolerated by people with advanced chronic respiratory diseases (CRD).

METHODS: A meta-synthesis was undertaken to examine the current qualitative evidence regarding the experiences of singing for lung health programs in adults with advanced CRD and their carers. Electronic databases (Medline, CINAHL, PsycINFO, and EMBASE) were searched for qualitative studies published in English. Qualitative data was extracted and analysed, which generated descriptive and analytical themes.

RESULTS: Themes identified from seven included studies consisted of anticipation and reluctance to participate; physical and psychological benefits; new sense of purpose and enjoyment; social connection and achievement; and broad views regarding program structure and content. The themes were categorised into three time points to explore participants’ perspectives before, during and after engaging in the singing program. Over time participants transitioned from anxiety to mastery of their chronic condition as the singing program progressed. Participants, however, raised concerns regarding several singing technicalities, the lack of ongoing support after the singing programs’ conclusion and the social impacts of transitioning the sessions online during the COVID-19 pandemic.

CONCLUSION: The increasing body of qualitative literature suggests that participants enjoyed the singing program and derived psychological, social and health benefits, not necessarily captured in quantitative studies. Future work should explore participants’ experiences through qualitative, longitudinal methods to gain further insight into the acceptability and feasibility of singing programs and inform broader implementation of the intervention.

92. “MY FITBIT TELLS ME I DON’T SLEEP”

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There has been a rapid growth in wearables marketed to measure sleep. Trackers such as Fitbit collect data through an internal accelerometer and use heart rate variability to estimate the sleep-wake state. There is a paucity of “real-world” clinical data in patients who are being evaluated for sleep disorders, despite these patients often relying on such devices as a measure of adequate sleep.

AIM: To evaluate the agreement between Fitbit Charge3™ & in-lab polysomnography (PSG) in patients who require a PSG for assessment.

METHODS: A prospective study of patients attending a PSG through Epworth Camberwell Sleep Lab between 2020-2021 was conducted. Fitbit Charge3™ was worn on the dominant wrist with concurrent PSG monitoring. Parameters measured included total sleep time; TST (min), Sleep onset latency; SOL (min), sleep efficiency; SE (%), wake after sleep onset; WASO (min) and time spent in N1, N2, N3 and REM sleep (min). 30 second epoch-by-epoch analyses were conducted.

RESULTS: 70 patients (74% males), median age of 55 years; IQR(45,67) completed the study. On average, the Fitbit significantly overestimated light sleep by 62.99 min, TST by 29.50 min, and SE by 3.33% and underestimated deep sleep by 40.55 min and WASO by 28 min. Fitbit and PSG did not significantly differ on REM or SOL. Fitbit did not pick up on all short periods of wake that PSG did, this led to higher levels of TST (with all stages) and SE. As values for variables increased (e.g., TST), the Fitbit became more accurate at assessing sleep.
CONCLUSION: Our findings may support the use of Fitbit Charge3™ as an initial screening device to assess sleep duration and architecture in select patients attending sleep clinics. Application of wearable technology in estimation of sleep has wide reaching practical implications and could be a useful tool in clinical practice.

93. MANNITOL PROVOCATION ENHANCES LARYNGOSCOPIC DIAGNOSIS OF SUSPECTED INDUCIBLE LARYNGEAL OBSTRUCTION

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BACKGROUND: Inducible laryngeal obstruction (ILO) is confirmed by observing paradoxical vocal fold movement (PVFM) on laryngoscopy, but test sensitivity is reduced by its intermittent nature and variable dependence on exposure to a recognised trigger. Specificity of isolated expiratory PVFM is also unclear, possibly denoting a physiologic response to lower airway obstruction.

AIM: To clarify laryngoscopic diagnosis in suspected ILO through mannitol provocation.

METHODS: In patients with suspected ILO, we assessed rates of laryngoscopic PVFM, both at baseline and following mannitol provocation, defined as; any inspiratory adduction, ≥50% expiratory adduction, or both. We noted accentuation of laryngoscopic findings following mannitol provocation, defined as new, or increased, PVFM. We explored relationships between isolated expiratory PVFM, lower airway obstruction on spirometry, and bronchial hyperresponsiveness to mannitol. Healthy volunteers, all without a prior or current diagnosis of laryngeal dysfunction and with normal scores on the Newcastle Laryngeal Hypersensitivity Questionnaire, were also studied.

RESULTS: Among 80 patients with suspected ILO, PVFM rates were 42/80 (52.5%) at baseline and 58/80 (72.5%) following mannitol. Mannitol accentuated laryngoscopic findings in 45/80 (56%), with new PVFM in 17/80 (21%) and increased PVFM in 28/80 (35%). Among patients with baseline isolated expiratory PVFM, 21/30 had accentuation by mannitol; there was no relationship with airway obstruction or bronchial hyperresponsiveness. Among healthy volunteers; PVFM rates were identical at baseline and following mannitol (4/15, 27%, all four with isolated expiratory PVFM); none (0/15) had accentuation by mannitol.

CONCLUSION: Mannitol provocation enhances laryngoscopic diagnosis of suspected ILO with an increased raw rate of PVFM detection compared to baseline laryngoscopy alone. Accentuation of laryngoscopic findings following mannitol provocation is more useful than PVFM at baseline laryngoscopy to distinguish patients with suspected ILO from healthy volunteers. Isolated expiratory PVFM without accentuation by mannitol can be a normal finding, and also unrelated to bronchial obstruction or hyperresponsiveness.
94. CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION (CTEPH) AND MASSIVE HEMOPTYSIS: 
THE RATIONALE FOR BRONCHIAL ARTERY EMBOLIZATION

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INTRODUCTION: In many patients with Chronic Thromboembolic Pulmonary Hypertension (CTEPH), bronchial artery hypertrophy is observed. Patients with bronchial dilatation have been shown to be at increased risk of haemoptysis introducing the risk of airway obstruction. In this study from an academic tertiary referral centre, we aimed to assess the incidence of massive haemoptysis in our CTEPH patients, the success of bronchial artery embolization (BAE), recurrence, and haemoptysis-related mortality.

METHODS: Retrospective cohort study of all adults with CTEPH who underwent BAE for massive haemoptysis between 1 January 2015 and 30 July 2021. Primary endpoints were haemoptysis relapse and haemoptysis-related mortality.

RESULTS: There were 367 patients who were being treated and managed with a diagnosis of CTEPH at our institution. There were 24 bronchial artery embolization procedures performed for all causes. A total of 3 patients during this time met inclusion criteria with acute massive haemoptysis and CTEPH. All patients were taking therapeutic-dose anticoagulation. Technical success after BAE was 100%. No haemoptysis recurrence was demonstrated at 17, 24, and 40-months follow-up respectively. No patient died from haemoptysis. However, 1 patient died 24 months after the embolization procedure due to a non-haemoptysis cause.

CONCLUSION: This study highlights the low but important incidence of massive haemoptysis in patients with CTEPH. Unlike other causes of haemoptysis, this unique cohort requires balancing anticoagulation and haemorrhage control. Given the high degree of success, BAE is a viable option, allowing continuation or early re-establishment of anticoagulation.

95. PRONE VENTILATION: CAN WE SLEEP LIKE THIS?

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Central Clinical School – Monash University, Melbourne Australia 
School of Public Health and Preventative Medicine- Monash University, Clayton Australia

Interest in body position has peaked during the COVID-19 pandemic, particularly in the use of prone ventilation for the treatment of acute respiratory distress syndrome. COVID patients with respiratory failure are subject to lying prone for most of the day and night. There is little normative data on human sleeping position. Sleep is a powerful immunomodulator and despite proning benefits, we may be trading off position for sufficient sleep.

AIM: To describe the sleeping body position and associations in patients without sleep apnea.

METHODS: All sleep studies in patients for the past six years were analyzed in this retrospective cohort study. Patients who had a level 1 sleep study with a total sleep time (TST) of ≥360 minutes and apnea-hypopnea index (AHI) <5 were included. Sleep position was categorized into lateral, supine and prone based on sensor and video recording.

RESULTS: 309 studies were included in the analysis. 127 (41.1%) of the patients were male. Median age was 36 (IQR 28–49) years. Overall median AHI was 2.5 (1.2-3.6). Epworth Sleepiness Scale median score was 9 (5-13). The median total sleep time (TST) observed was 412 (361-415) minutes. Patient characteristics showed no strong correlation with time spent in any position. The most prevalent position was lateral at 59 (±27)% then supine 37 (±28)% and prone 5 (±13)%. Body position did not differ significantly in REM versus non-REM sleep. Younger age was associated with higher TST (Spearman correlation -0.21, p<0.01) and sleep efficiency (-0.3, p<0.01).
CONCLUSION: In this sleep laboratory population without sleep disordered breathing, the most common body position during sleep was lateral. A higher TST and sleep efficiency was seen in younger patients. When using prone ventilation as a form of therapy, we should recognize this position may be unnatural and could affect sleep.

TRAUMA AND EMERGENCY MEDICINE

96. EMERGENCY DEPARTMENT MANAGEMENT OF BENIGN PAROXYSMAL POSITIONAL VERTIGO.

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Benign paroxysmal positional vertigo (BPPV) is a peripheral vestibular condition causing vertigo and nausea and may result in presentation to the emergency department (ED). BPPV is distressing and disabling for patients but can be readily treated at the bedside. Evidence suggests low adherence to recommended practice in ED however little is known about the underlying reasons. Workforce pressures have resulted in new models of care and physiotherapists now play a role in managing these presentations.

AIM: To describe adherence to evidence-based practice, identify patient or clinician factors associated with receiving evidence-based practice and explore the factors influencing medical and physiotherapy clinical practice.

METHODS: A retrospective clinical audit of six months of vertigo, dizziness, and unsteadiness presentations investigated adherence. Primary outcomes were documentation of a Dix-Hallpike test for diagnosis and an Epley Manoeuvre for treatment. Semi-structured interviews based on the Theoretical Domains Framework were conducted with 13 emergency physicians and 13 physiotherapists to identify the barriers and facilitators to evidence-based practice. Interviews were analysed thematically.

RESULTS: Of 397 eligible presentations, 26.4% of patients with symptoms of BPPV received a Dix-Hallpike test. In presentations diagnosed with BPPV 50.9% received an Epley Manoeuvre. Presentations seen by a physiotherapist were more likely to receive evidence-based care than those seen by medical staff alone for both diagnosis (44.4% vs 18.1%, p<0.001) and treatment (66.7% vs 22.8%, p<0.001). Perceptions of role, reduced learning opportunities for medical staff due to the physiotherapy service, ability to recall techniques and interpret results, and emotional responses to BPPV were identified as barriers to practice.

CONCLUSION: In an ED with vestibular physiotherapy, adherence to recommended practice is low. The influences on practice identified by staff will guide a future intervention to improve the management of patients presenting to ED with BPPV.

97. THE IMPACT OF COVID-19 VACCINATIONS ON EMERGENCY DEPARTMENT PRESENTATIONS

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1 The Alfred Emergency & Trauma Centre, Alfred Hospital; 2 Emergency Department, Cabrini Hospital; 3 School of Public Health & Preventive Medicine, Monash University; 4 Haematology Department, Alfred Hospital; 5 Central Clinical School, Monash University; 6 National Trauma Research Institute; 7 Department of Obstetrics and Gynaecology, Monash University; 8 Department of Infectious Diseases, Alfred Hospital; 9 Adult Retrieval Victoria.

AIM: The aim of this study was to describe the burden of patients presenting to the emergency department (ED) with symptoms occurring after receiving a COVID-19 vaccination.

METHODS: This was a retrospective cohort study performed over a four-month period across two EDs. Participants were eligible for inclusion if it was documented in the ED triage record that their ED attendance was associated with receipt of a COVID-19 vaccination. Data regarding the type of vaccine (Comirnaty or ChAdOx1) was subsequently extracted from their electronic medical record. Primary outcome was ED length of stay (LOS) and secondary outcomes included requests for imaging and ED disposition destination.
RESULTS: During the study period of 22 Feb 2021 to 21 June 2021, 632 patients were identified for inclusion in this study, of which 543 (85.9%) had received the ChAdOx1 vaccination. The highest proportion of COVID-19 vaccine related attendances occurred in June 2021 and accounted for 21 (8%) of 262 total daily ED attendances. Patients who had an ED presentation related to ChAdOx1 had a longer median ED LOS (253 vs 180 minutes, p<0.001) compared to Comirnaty and a higher proportion had haematology tests and imaging requested in the ED. Most patients (588 (88.8%)) were discharged home from the ED.

CONCLUSION: There was a notable proportion of ED attendances related to recent COVID-19 vaccination administration, many of which were associated with lengthy ED stays and had multiple investigations. In the majority of cases the patients were able to be discharged home from the ED.

98. PREVELANCE OF MALNUTRITION AND ASSOCIATION WITH FRAILTY, CLINICAL OUTCOMES AND DISCHARGE DESTINATION IN PATIENTS ADMITTED TO AN AUSTRALIAN TRAUMA CENTRE

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Nutrition Department, Alfred Health¹; Major Trauma Service, Alfred Health²

BACKGROUND: Data on malnutrition rates and associated outcomes in hospitalised trauma patients are limited. This study aimed to describe the prevalence of malnutrition in patients admitted to an Australian trauma centre and association with frailty, clinical outcomes, and discharge destination.

METHODS: Data was collected as part of a study evaluating the outcomes of early and intensive allied health therapy to patients on the trauma ward from November 2020–August 2021. Patients diagnosed with community-acquired malnutrition (CAM) and hospital-acquired malnutrition (HAM) were identified via dietitian documentation in the medical record. Chi² tests were used to compare categorical data and Wilcoxon signed-rank test was used for the outcome of length of stay (LOS).

RESULTS: 1722 patients were included, with 103 (6%) diagnosed with malnutrition (75% CAM, 25% HAM). Malnutrition was significantly associated with frailty, hospital LOS, intensive care unit (ICU) admission and discharge destination (p<0.001). After adjusting for frailty and ICU admission, malnutrition remained an independent predictor for discharge to in-patient rehabilitation (IPR) (p<0.001).

Table 1. Association between malnutrition, frailty and outcomes

<table>
<thead>
<tr>
<th></th>
<th>n=1722</th>
<th>Not Malnourished n=1619 (94%)</th>
<th>Malnourished n=103 (6%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Frailty Scale n=1699</td>
<td>&lt;4 (not frail)</td>
<td>1619</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>4 (at risk)</td>
<td>179</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>&gt;=5 (frail)</td>
<td>250</td>
<td>43</td>
</tr>
<tr>
<td>Hospital LOS (days)</td>
<td>Median hospital LOS (IQR)</td>
<td>5 (2.2–9.4)</td>
<td>13.3 (6.4–25)</td>
</tr>
<tr>
<td>ICU admission</td>
<td>Yes</td>
<td>389 (24%)</td>
<td>42 (41%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>1230 (76%)</td>
<td>61 (59%)</td>
</tr>
<tr>
<td>Discharge destination</td>
<td>Home</td>
<td>1318 (81.4%)</td>
<td>46 (44.7%)</td>
</tr>
<tr>
<td></td>
<td>IPR</td>
<td>270 (16.7%)</td>
<td>48 (46.6%)</td>
</tr>
<tr>
<td></td>
<td>TCP</td>
<td>21 (1.3%)</td>
<td>5 (4.8%)</td>
</tr>
<tr>
<td></td>
<td>Death</td>
<td>10 (0.6%)</td>
<td>4 (3.9%)</td>
</tr>
</tbody>
</table>

CONCLUSIONS: There was a moderate rate of malnutrition in this cohort of trauma patients, with most patients diagnosed with CAM. Having a diagnosis of malnutrition was associated with an increased hospital LOS, and discharge to IPR.
INTRODUCTION: Targeted rehabilitation within the acute inpatient setting could have a substantial impact on improving outcomes for major trauma patients. The aims of this study were to investigate the impact of the introduction of a purpose-built ward environment, and new allied health model of care (AHMOC) delivered in the acute inpatient setting, on hospital and patient-reported outcomes, and to assess the cost-effectiveness of these interventions in a major trauma population.

METHODS: The Victorian State Trauma Registry, The Alfred’s data warehouse and costing unit, and medical record data were used for this observational study. There were three phases; baseline, new ward, new ward and new AHMOC. Cost-effectiveness was measured in terms of cost per Quality-Adjusted Life Year (QALY) using pre-injury, hospital discharge, 1-month and 6-month EQ-5D-5L utility scores. Total costs included acute care and inpatient rehabilitation, and outpatient, readmission and ED presentations to 6-months.

RESULTS: 411 patients were included. Case-mix was stable between phases. The median (IQR) number of allied health services received by patients was 8 (5-17) at baseline, 10 (5-19) in the new ward phase, and 17 (9-23) in the AHMOC phase. The proportion discharged to rehabilitation was 28% with the AHMOC compared to 37% at baseline and 45% with the new ward. Mean (SD) total costs were $69,335 ($141,175) at baseline, $55,943 ($82,706) with the new ward and $37,833 ($49,004) with the AHMOC. The probability of the AHMOC being cost-effective at a willingness-to-pay threshold of $50,000 per QALY was 99.4% compared to baseline and 98% compared to the new ward.

CONCLUSION: The new allied health model of care was found to be a cost-effective intervention. Uptake of this model of allied health care at other trauma centres has the potential to reduce the cost and burden of major trauma.

BACKGROUND: While survival and functional outcomes following trauma have improved in recent decades, the incidence of persistent pain or mental health conditions remains high. Pain and mental health conditions often co-occur; however, few interventions have been developed that target both outcomes. Therefore, the present study examined the feasibility of adapting and trialling the implementation of an integrated model of care that incorporated principles from the Trauma Survivor Outcome Support case management intervention, which primarily focuses on posttraumatic stress disorder (PTSD) symptoms, and the Toronto Transitional Pain model that primarily focuses on pain. The intervention was adapted with input from interdisciplinary experts and people with lived experience.
AIM: To examine feasibility and acceptability of providing stepped collaborative care case management targeting PTSD and pain symptoms after major traumatic injury.

METHODS: Participants were major trauma survivors in Victoria, Australia, at risk of persistent pain or PTSD with high baseline symptoms were block-randomized, stratified by compensation-status, to the usual care (n=15) or intervention (n=17) group (46% of eligible patients). The proactive case management intervention was delivered by a hospital social work clinician and targeted PTSD and pain symptom management for 6-months using cognitive behavioural therapy, behaviour activation, motivational interviewing, and collaborative care. Qualitative interviews explored acceptability in the intervention group.

RESULTS: Intervention participants received a median of 7 hours case manager contact and reported that they valued the supportive and non-judgmental listening, and timely access to effective strategies, resources, and treatments post-injury from the case manager. Participants reported few disadvantages from participation, with positive impacts on symptoms and recovery outcomes consistent with reduced PTSD and pain symptoms measured at 1-, 3- and 6-months.

CONCLUSION: Stepped collaborative care was low-cost, feasible, and acceptable to people at risk of PTSD or pain after major trauma.

101. RANDOMISED CONTROLLED TRIAL IN CADAVER INVESTIGATING METHODS FOR INTUBATION VIA A SUPRAGLOTTIC AIRWAY DEVICE: COMPARISON OF FLEXIBLE AIRWAY SCOPE GUIDED VERSUS A RETROGRADE TECHNIQUE

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OBJECTIVE: A supraglottic airway device (SAD) may be utilised for rescue re-oxygenation following a failed attempt at endotracheal intubation with direct or video laryngoscopy. However, the choice of subsequent method to secure a definitive airway is not clearly established. The aim of this study was to compare two techniques for securing a definitive airway via the in-situ SAD.

METHODS: A randomised controlled trial was undertaken. The population studied was emergency physicians (EPs) attending a cadaveric airway course. The intervention was intubation through an SAD using a retrograde intubation technique (RIT). The comparison was intubation through an SAD guided by a flexible airway scope (FAS). The primary outcome was time to intubation. The trial was registered with ANZCTR.org.au (ACTRN12621000995875).

RESULTS: 4 emergency physicians completed intubations using both methods on 4 cadavers for a total of 32 experiments. The mean time to intubation was 18.2 seconds (SD 8.8) in the FAS group compared with 52.9 seconds (SD 11.7) in the RIT group; a difference of 34.7 seconds (95% CI 27.1 – 42.3, p<0.001). All intubations were completed within 2 minutes and there were no equipment failures or evidence of airway trauma.

CONCLUSION: Successful tracheal intubation of cadavers by EPs is achievable, without iatrogenic airway trauma, via an SAD using either an FAS or RIT, but was 35 seconds quicker with the FAS.
102. EARLY AND INTENSIVE ALLIED HEALTH THERAPY FOR HOSPITALISED TRAUMA PATIENTS LEADS TO IMPROVED OUTCOMES
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INTRODUCTION: Evidence suggests that early and intensive allied health (AH) therapy may allow for improved outcomes following hospitalisation.

METHODS: In 2018, the Transport Accident Commission and Alfred Health partnered to establish a new 7-day model of AH care for acute hospital trauma patients with the primary goal of providing early intervention and increased therapy (increase to 3.5 hours/per of therapy per patient).

Outcomes included discharge destination, length of stay (LOS), and readmission rates as compared to a similar patient cohort in 2019. Reviewing specific cohorts including elderly trauma, patients with altered weight bearing status and patients discharged from the intensive care unit (ICU) formed an integral part of the analysis.

RESULTS: The 12-month project commenced in January 2020, and paused for 6 months due to COVID. At twelve months, the intensive therapy cohort were more likely to be discharged directly home rather than to another inpatient bed (acute or rehabilitation) with no increase in LOS or readmissions. Patients aged over 65, major trauma patients and those who had an ICU stay showed the greatest benefits in hospital based outcomes with average LOS savings of 0.3, 2 and 0.4 days respectively and a significant increase in the percentage of patients discharged direction home following acute hospital care. Results for major trauma patients showed significant hospital and post discharge cost savings alongside improved quality of life for patients.

CONCLUSION: Overall, providing a patient focused, early, intensive AH therapy through a team based approach can lead to improved patient and hospital outcomes, and reduced health service utilisation which is a vital resource in this post pandemic era.

103. PATIENT ISOLATION IMPACTS ON TIME TO ANALGESIA IN THE EMERGENCY DEPARTMENT: A COHORT STUDY
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BACKGROUND: Pain is a common presenting complaint among emergency department (ED) patients. Although previous research has identified factors influencing time to analgesia (TTA), the impact of isolation, an infection control measure for selected communicable diseases, has not been investigated.

AIM: To determine the association between isolation precautions and TTA for patients presenting to the ED with pain.

METHODS: A retrospective cohort study including all adult patients with selected acute pain conditions and a triage category of 2 or 3 presenting to two urban EDs in Melbourne, Victoria between 01/01/2021 and 31/03/2021. Patients were identified using the health services Registry for Emergency Care (REC).

The primary outcome was the proportion of patients that received analgesia within 30 minutes of ED arrival. Secondary outcomes included TTA and ED disposition. The primary exposure variable was placement in isolation precautions in the ED.

RESULTS: During the study period 2786 eligible patients were identified. There were no differences in baseline characteristics between the exposure groups. Among isolated patients, 3.3% (18/541) received analgesia within 30 minutes, compared with 8.0% (180/2245) of patients who did not require isolation precautions (OR: 0.39 [95%CI: 0.24-0.65], p=<0.001). Representing a decrease in the likelihood of receiving analgesia within 30 minutes, when isolation precautions were in place. Median TTA was 164 minutes for isolated patients and 106 minutes for those that did not require isolation (p=<0.001).
CONCLUSION: Among patients presenting to the ED with acute pain, placement in isolation precautions was associated with prolonged TTA. Further research is required to determine specific factors that can help mitigate delays to analgesia, including for isolated patients.

104. PREVALENCE OF SUBSTANCE USE IN NON-TRANSPORT INJURY EVENTS
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INTRODUCTION AND AIM: Substance use is a key modifiable risk factor for serious injury. Except for road traffic injuries, research on the prevalence of substance use in injury events remains limited. This study aims to measure the prevalence of substance use in non-transport injury events.

METHODS: Patients admitted to the trauma service at The Alfred Hospital (an adult major trauma centre) with non-transport injuries between July 1, 2021 and April 31, 2022 were included. Prevalence was determined using the results of routine blood alcohol and urine drug screens extracted from patient medical records. Prescription medication data were also extracted to enable the removal of drug detections resulting from pre-existing and inpatient prescriptions.

RESULTS: A total of 972 patients were included. Patients were predominantly male (n=659, 68%) and had a median age of 59 years (IQR: 38-78). The most common injury causes were low falls (n=364, 37%), high falls (n=237, 24%), and being struck by/colliding with an object/person (n=120, 12%). Blood alcohol concentrations (BAC) >0 were detected in 132/703 (19%) patients who were tested for alcohol (median BAC=0.19g/100mL, range=0.01-0.48g/100mL). Drugs other than alcohol were detected in 167/424 (39%) urine samples and included cannabinoids (n=88, 21%), amphetamine-type substances (n=58, 14%), benzodiazepines (n=55, 13%), opiates (n=34, 8%) and cocaine (n=13, 3%). Of the 167 patients who tested positive for drugs other than alcohol, 47 (28%) had a BAC >0.

DISCUSSION AND CONCLUSIONS: Substances were commonly detected in patients with non-transport injuries. However, prevalence estimates may be limited by the number of patients who were not tested for substances. Further research is needed to explore the role and level of substances involved in these injury events, as well as opportunities for identifying people with substance use disorders who may benefit from brief intervention and referral to treatment.

105. INTRODUCTION OF A MODIFIED ANALGESIC LADDER IN THE EMERGENCY DEPARTMENT: EFFECT ON OXYCODONE USE FOR BACK PAIN
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OBJECTIVE: The aim of this study was to assess the introduction of an analgesic ladder and targeted education on oxycodone use for patients presenting to the emergency department (ED).

DESIGN: A retrospective pre-post implementation study was conducted. Data were extracted for patients presenting from June to July 2016 (preintervention) and June to July 2017 (post-intervention).

SETTING: The EDs of a major metropolitan health service and an affiliated community-based hospital.

PARTICIPANTS: Patients with back pain where nonpharmacological interventions such as mobilization and physiotherapy are recommended as the mainstay of treatment.
INTERVENTIONS: A modified analgesic ladder introduced in May 2017. The ladder promoted the use of simple analgesics such as paracetamol and nonsteroidal anti-inflammatory drug (NSAIDs) prior to opioids and tramadol in preference to oxycodone in selected patients.

MAIN OUTCOME MEASURE(S): The proportion of patients prescribed oxycodone and total doses administered.

RESULTS: There were 107 patients pre and 107 post-intervention included in this study. After implementation of the analgesic ladder, 78 (72.9 percent) preintervention patients and 55 (51.4 percent) post-intervention patients received oxycodone in ED (p = 0.001). The median oxycodone doses administered in the ED was 14 mg (interquartile range: 5-20 mg) and 5 mg (interquartile range: 5-10 mg; p < 0.001), respectively. On discharge from hospital, a prescription for oxycodone was issued for 36 (33.6 percent) patients preintervention and 26 (24.3 percent) patients post-intervention (p = 0.13).

CONCLUSIONS: Among patients with back pain, implementation of a modified analgesic ladder was associated with a statistically significant but modest reduction in oxycodone prescription. Consideration of multifaceted interventions to produce major and sustained changes in opioid prescribing is required.

106. IMMUNE FUNCTION AFTER SPLENIC ARTERY EMBOLIZATION FOR BLUNT TRAUMA: A PROSPECTIVE LONG-TERM STUDY ASSESSING CD27+ IGM B CELL LEVELS

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BACKGROUND: Splenic artery embolisation (SAE) has a critical role in treatment of high-grade splenic injury in haemodynamically stable patients. Compared with splenectomy, embolisation provides preservation of splenic tissue, which is advantageous given the immune function of the spleen.

CD27+ IgM+ memory B cells, also termed splenic marginal zone B cells, have been shown to be significantly lower in patients who have undergone splenectomy and are commonly used as a quantitative indicator of splenic immune function.

This study aimed to determine the long-term splenic immune function of patients after SAE for blunt abdominal trauma based on CD27+ IgM B cell levels.

METHODS: IRB approval was obtained. All patients who had undergone SAE for blunt abdominal trauma between 2006 and 2016 were invited to participate, with the latter date selected to allow a minimum of 5-year follow-up.

RESULTS: 220 SAE procedures, of which 170 patients were able to be contacted, and 17 patients consented to participate. Median injury grade was AAST IV and 75% were proximal. Median follow-up was 92 months (7.7 years), range 56-153 months. All patients had normal levels of IgM memory B cells as %B Cells, median 14.30 (IQR 10.0-24.16); Reference range 4.9-22.0).

Ultrasound confirmed splenic parenchyma in the abdomen in all patients, median volume 122cc (range 49.0-234cc).

CONCLUSION: This study quantitatively demonstrated preserved long-term splenic immune function after SAE for blunt abdominal trauma. This supports the position that routine vaccination may not be necessary post-SAE, and further highlights the importance of splenic salvage procedures after trauma.
OBJECTIVE: This study aims to describe presentations to the designated emergency department (ED) from the Victorian COVID-19 hotel quarantine program.

METHOD: A retrospective cohort study was conducted between 7 December 2020 and 6 June 2021 at the Alfred Emergency & Trauma Centre (E&TC), a major adult quaternary referral teaching hospital. Participants included adult patients (> 18 yo) who were quarantining as part of Victoria’s COVID-19 quarantine program. The primary outcome was discharge destination from the emergency department (admission to hospital vs discharge from ED).

RESULTS: 164 patients presented to the Alfred E&TC during the study period. The mean (SD) age was 50.9, with most patients being male (n=96 (58.5%)). Most patients were referred from a Quarantine Hotel (n=83 (50%)). 34% (n=56) of ED presentations were admitted to hospital (31.5% to a ward, 2.5% to ICU). 46% (n=75) were discharged to the Complex Care (CC) Hotel to be looked after by Alfred Health, with only 16% (n=26) being discharged to a standard Quarantine Hotel (QH). The most common presenting complaint categories were: CVS (n=33 (20%)), miscellaneous (n=25 (25%)), GI (n=25 (15.1%)), and mental health (n=11 (6.8%)).

CONCLUSION: The study demonstrates that the number of ED presentations from quarantine was low (<1 presentation/day). COVID Quarantine Victoria (CQV), along with Alfred Health, put significant resources into the program to allow most returned international travellers to be safely cared for within a hotel and thus reduce the burden on the public hospital system.

BACKGROUND: Emergency care (EC) addresses the needs of patients with acute illness and injury and has fulfilled a critical function during the COVID-19 pandemic. ‘Processes’ (e.g. triage) and ‘data’ (e.g. surveillance) have been nominated as essential building blocks for EC systems. This qualitative research sought to explore the impact of the pandemic on EC clinicians across the Pacific region, including the contribution of EC building blocks to effective responses.

METHODS: The study was conducted in three phases, with data obtained from online support forums, key informant interviews and focus group discussions. There were 116 participants from more than 14 Pacific Island Countries and Territories. A phenomenological approach was adopted, incorporating inductive and deductive methods. The deductive thematic analysis utilised previously identified building blocks for Pacific EC. This paper summarises findings for the building blocks of ‘processes’ and ‘data’.

RESULTS: Establishing triage and screening capacity, aimed at assessing urgency and transmission risk respectively, were priorities for EC clinicians. Enablers included support from senior hospital leaders, previous disaster experience and consistent guidelines. The introduction of efficient patient flow processes, such as streaming, proved valuable to emergency departments, and checklists and simulation were useful implementation strategies. Some response measures impacted negatively on non-COVID
patients, and proactive approaches were required to maintain ‘business as usual’. The pandemic also highlighted the value of surveillance and performance data.

CONCLUSION: Developing effective processes for triage, screening and streaming, among other areas, was critical to an effective EC response. Beyond the pandemic, strengthening processes and data management capacity will build resilience in EC systems.

109. RESTRICTION OF OXYCODONE IN THE EMERGENCY DEPARTMENT (ROXY-ED): A RANDOMISED CONTROLLED TRIAL
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The widespread misuse of prescription opioids is a ‘crisis’ being experienced in many countries, particularly in the USA and Canada. Australia is rapidly following the same path and ranks eighth internationally on number of daily doses of prescription opioids per million population (approximately 40% the level of USA).

AIM: To assess restriction of access to oxycodone (ROXY), in combination with education and guideline modifications, versus education and guideline modifications alone (standard care) to reduce oxycodone administration in the Emergency Department (ED).

METHODS: This was an unblinded, active control, randomised controlled trial, including patients aged 18-75 years who had analgesia administered in the ED. In the week randomised to ROXY, all oxycodone 5mg immediate release tablets were removed from the main ED imprest. Oxycodone was available only after authorisation from emergency physicians and accessible by senior nursing staff. In the week randomised to standard care, nursing staff had access to and could administer oxycodone when prescribed and no authorisation was required.

RESULTS: Among 2208 included patients, oxycodone was administered to 78 (6.1%) in the ROXY group and 218 (23.6%) in the standard care group (relative risk (RR) 0.26; 95%CI: 0.20-0.33; p<0.001). Tapentadol was prescribed more frequently in the ROXY group (RR 2.18; 95%CI: 1.72-2.76), while there were no differences in prescription of other analgesic medications. On discharge, significantly fewer patients were prescribed oxycodone (RR 0.50; 95%CI: 0.39-0.66) and no differences were observed in prescription rates of other analgesic medications. There was no difference in time to first analgesia (HR 0.94; 95%CI: 0.86-1.02).

CONCLUSIONS: Restricted access to oxycodone was superior to education and guideline modifications alone for reducing oxycodone use and reduced discharge prescriptions of oxycodone from the ED. The addition of simple restrictive interventions is recommended to enable rapid changes to clinician behaviour to reduce potential harm associated with prescribing oxycodone.

110. 10-YEAR INCIDENCE AND TREATMENT OUTCOMES OF CLOSED DEGLOVING INJURIES (MOREL-LAVALLÉE LESIONS) IN A LEVEL 1 TRAUMA CENTRE.
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INTRODUCTION: Morel-Lavallée lesions (MLL), also referred to as closed degloving injuries, result from traumatic shearing forces with separation of the subcutaneous fat from the underlying fascia. The aim of this study was to determine the incidence and treatment of MLLs at a level 1 trauma centre.

METHODS: Single-centre retrospective cross-sectional study of consecutive patients with an imaging diagnosis of a Morel-Lavallée lesion from 1/1/2010–31/12/2019. Demographic data, mechanism of injury, volume of lesion, management and outcome data were collated.
RESULTS: Sixty-six MLLs were identified in 63 patients (64% Male) with a median age of 49.5 years (19–94 years). Mechanism of injury were road traffic accidents in the majority (66%). Median injury severity score (ISS) was 17 (range 1–33). Patients on oral anti-coagulants had significantly larger lesions (181.9 cc v 445.5 cc, P = 0.044). The most common lesion location was the thigh (60.5%). Patients that underwent imaging within 72 h of injury had significantly larger lesions than those imaged more than 72 h after the inciting trauma (65 cc v 167 cc, P < 0.05). Management data were documented in 59% of lesions (39/66) in which 66.6% (n = 26) had invasive treatment. In the 31 patients where follow-up was available, 64.5% (n = 20) were persistent but decreasing in size. There was no significant difference in follow-up size for those who had invasive compared to conservative treatment (P = 0.3).

CONCLUSION: The diagnosis of MLL should be considered for soft-tissue swelling in the context of shearing trauma. A variety of management options have been employed, with good overall outcomes.

111. MULTI-DISCIPLINARY, SIMULATION-BASED, STANDARDISED TRAUMA TEAM TRAINING WITHIN THE VICTORIAN STATE TRAUMA SYSTEM

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OBJECTIVE: Inconsistency in the structure and function of team-based major trauma reception and resuscitation is common. A standardised trauma team training programme was initiated to improve quality and consistency among trauma teams across a large, mature trauma system. The aim of this manuscript is to outline the programme and report on the initial perception of participants.

METHODS: The Alfred Trauma Team Reception and Resuscitation Training (TTRRT) programme commenced in March 2019. Participants included critical care and surgical craft group members commonly involved in trauma teams. Training was site-specific and included rural, urban and tertiary referral centres. The programme consisted of prescribed pre-learning, didactic lectures, skill stations and simulated team-based scenarios. Participant perceptions of the programme were collected before and after the programme for analysis.

RESULTS: The TTRRT was delivered to 252 participants and 120 responses were received. Significant improvement in participant-reported confidence was identified across all key topic areas. There was also a significant increase in both confidence and clinical exposure to trauma team leadership roles after participation in the programme (from 53 [44.2%] to 74 [61.7%; P = 0.007]). This finding was independent of clinician experience.

CONCLUSIONS: A team-based trauma reception and resuscitation education programme, introduced in a large, mature trauma system led to positive participant-reported outcomes in clinical confidence and real-life team leadership participation. Wider implementation combined with longitudinal data collection will facilitate correlation with patient and staff-centred outcomes.
112. INFORMING THE ALFRED REGISTRY FOR EMERGENCY CARE PROJECT: AN ANALYSIS OF PRESENTING COMPLAINT DOCUMENTATION IN AN EMERGENCY DEPARTMENT

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OBJECTIVE: To assess the feasibility of an ED presenting complaint (PC) tool that categorised all ED PCs into 10 categories.

METHODS: A retrospective analysis of 1445 consecutive patient encounters was conducted. The primary outcome was the frequency of use of the 10 PC categories.

RESULTS: Of the 1203 patient encounters meeting inclusion criteria, the PC tool was completed by clinicians in 574 (47.7%). When completed, the tool’s 10 options were selected for most presentations (72.3%).

CONCLUSION: The PC tool captured the majority of presenting complaints in 10 categories. External validation is recommended.

113. FACTORS ASSOCIATED WITH DISCHARGE DESTINATION IN PATIENTS WITH TWO OR MORE NON-WEIGHTBEARING LIMBS RECEIVING INTENSIVE ALLIED HEALTH THERAPY

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INTRODUCTION: As many as 39% of patients treated for trauma (without brain injury) are discharged to inpatient rehabilitation (IPR). Discharge to IPR is associated with significant financial burden to the hospital system with research suggesting poorer outcomes for patients with isolated lower limb orthopaedic injuries when compared to discharge home. IPR admission rates and outcomes of patients with ≥ 2 non-weightbearing (NWB) limbs following trauma are not known.

AIM: To identify factors associated with discharge destination in trauma patients with ≥ 2 limbs managed as NWB.

METHODS: Data including patient demographics, funding group, intensive care (ICU) stay, hospital length of stay (LOS), hospital acquired complications (HACS) and discharge destination were collected for patients undergoing intensive therapy admitted to The Alfred trauma ward between November 2020 - August 2021. Multi-variable regression analysis was performed for trauma patients with ≥ 2 NWB limbs to determine factors associated with discharge to IPR.

RESULTS: Ninety-one patients had ≥ 2 NWB limbs. More than half (51%) of patients with ≥ 2 NWB limbs were discharged directly home. Patients who were discharged to IPR were less likely to be working (p = 0.043), have one or more HACS (p = 0.001), had a longer acute LOS (p < 0.001) and were more likely to require an ICU stay (p < 0.001). Following a multivariable regression analysis, only admission to ICU was associated with discharge to IPR (Adjusted OR = 3.73). There was no influence of compensable status on discharge disposition within this population.

CONCLUSION: Admission to ICU is the only factor associated with discharge to IPR for patients with ≥ 2 NWB limbs following trauma. Future research should consider engaging these patients in early and intensive therapy within ICU to enhance discharge home opportunities.
114. INITIAL NEUTROPHIL AND LYMPHOCYTE RATIO AS A PREDICTOR OF MORTALITY AND ICU ADMISSION AFTER MAJOR TRAUMA

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BACKGROUND: The neutrophil-to-lymphocyte ratio (NLR) has been proposed as a marker of systemic inflammation in major trauma patients that is associated with in-hospital mortality. We aimed to determine the discriminative ability of initial NLR as a predictor of outcomes following major trauma.

METHODS: This was a registry-based cohort study involving all major trauma patients meeting criteria for inclusion into the Alfred Health Trauma Registry who presented directly from the scene of injury over a 24-month period (January 2018 to December 2019). The initial NLR was calculated for each patient and was compared against the Shock Index (SI), lactate and Revised Trauma Score (RTS). Outcomes observed were mortality at hospital discharge and intensive care unit (ICU) admission. We assessed the predictive capacity of each test using the receiver operating characteristic (ROC) curve and performed area under the ROC curve (AUROC) analysis to compare their performance.

RESULTS: Data were extracted for 1687 major trauma patients, of which 72% were male, the median age was 49 years (IQR 31–68) and most (90%) of patients presented after a blunt mechanism of injury. In-hospital mortality occurred in 165 (9.77%) patients, and 725 (42.92%) patients required ICU admission. The median NLR was 6.84 (IQR 3.89–11.52). Initial NLR performed poorly with an AUROC of 0.46 (95% confidence interval (CI): 0.40–0.52) for prediction of mortality and AUROC of 0.53 (95% CI: 0.50–0.56) for prediction of ICU admission. The AUROCs of initial NLR for both mortality at hospital discharge and ICU admission were significantly lower than SI, lactate and RTS.

CONCLUSION: Initial NLR was not predictive of outcomes in major trauma. NLR at other time-points may provide better predictive capacity for outcomes.

115. PERCEPTIONS OF AN INTERACTIVE TRAUMA RECOVERY INFORMATION BOOKLET: A QUALITATIVE EVALUATION

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Previous research has shown that people with traumatic injuries have unmet information needs with respect to their injuries, management, and recovery. To address these information needs, an interactive trauma recovery information booklet was developed and implemented at a major trauma centre in Melbourne, Australia.

AIM: To evaluate the usefulness and acceptability of the trauma recovery information booklet in the trauma ward of The Alfred hospital.

METHODS: Seventy individual interviews were conducted (34 patients, 10 family members, and 26 health professionals) over two phases of evaluation (49 participants at phase 1, and 21 participants at phase 2). Data were thematically analysed using a framework approach.

RESULTS: Three themes were identified: 1) The booklet was a key information resource; 2) Introduction of the booklet into practice; and 3) Use of the booklet. After two evaluation cycles, the booklet was reported to be a key resource that was helpful and useful for patients and family members. The booklet’s content, design, readability, and interactive features supported active patient involvement in personalising their care. Many trauma patients used the suggested questions in the booklet to communicate with health professionals and obtain personalised information. Some used the booklet to record health information in their own words for later reference, while others engaged with the booklet to find specific information. Health professionals reported that to gain maximum benefit from the
booklet, patients and family members needed to be orientated to it, and patients needed to be ready to receive the information. Overall, the booklet has shown to be a promising complementary information resource for trauma patients that supplements and reinforces verbal information provided by health professionals.

CONCLUSION: Our findings highlight the usefulness and acceptability of a low-cost interactive booklet intervention to facilitate the provision of quality of information and patient-health professional interactions on a trauma ward.

116. PHARMACISTS IN TRAUMA (PHIT): A RANDOMISED TRIAL OF EMERGENCY MEDICINE PHARMACISTS IN TRAUMA RESPONSE TEAMS

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AIM: Analgesia is an important component for patient well-being, but commonly delayed during trauma resuscitation. The Pharmacists in Trauma (PHIT) trial assessed the effects of integrating pharmacists into trauma teams to improve analgesia delivery and medication management.

METHODS: This randomised trial compared Emergency Medicine (EM) pharmacist involvement in trauma callouts versus standard care at an Australian level 1 trauma centre. Eligible patients included those managed with a trauma call-out during working hours of an EM pharmacist. Pharmacists were able to prescribe medications using a partnered pharmacist medication charting model. The primary outcome was the proportion of patients that had first dose analgesia within 30 minutes.

RESULTS: From July 15th, 2021, until January 31st, 2022, there were 119 patients randomised with 37 patients excluded as no analgesia was required. There were 82 patients included for analysis, 39 in the control arm and 43 to the intervention arm. The primary outcome was achieved in 25 (64.1%) patients in the control arm and 36 (83.7%) patients in the pharmacist arm (RR 1.31; 95%CI 1.0-1.71; p=0.042). Time to analgesia in the control arm was 28 (22-35) mins and 20 (15-26 mins) with pharmacist involvement; p=0.025. In the pharmacist arm, the initial dose of analgesia was prescribed by the pharmacist for 38 (88.4%) patients. There were 27 other medications prescribed by the pharmacist for the management of these patients. There were no differences in emergency department or hospital length of stay.

CONCLUSION: Addition of the EM pharmacist in trauma response teams improved time to analgesia. Involvement of an EM pharmacist in trauma reception and resuscitation demonstrated benefits by allocating medication management to pharmacists, thereby reducing cognitive load on resuscitation teams.

117. DIAGNOSTIC ACCURACY OF A COMMERCIALLY AVAILABLE DEEP-LEARNING ALGORITHM IN SUPINE CHEST RADIOGRAPHS FOLLOWING TRAUMA

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OBJECTIVES: Trauma chest radiographs may contain subtle and time-critical pathology. Artificial intelligence (AI) may aid in accurate reporting, timely identification and worklist prioritisation. However, few AI programs have been externally validated. This study aimed to evaluate the performance of a commercially available deep convolutional neural network - Annalise CXR V1.2 (Annalise.ai) - for detection of traumatic injuries on supine chest radiographs.

METHODS: Chest radiographs with a CT performed within 24 h in the setting of trauma were retrospectively identified at a level one adult trauma centre between January 2009 and June 2019. Annalise.ai assessment of the chest radiograph was compared to the
radiologist report of the chest radiograph. Contemporaneous CT report was taken as the ground truth. Agreement with CT was measured using Cohen's κ and sensitivity/specificity for both AI and radiologists were calculated.

RESULTS: There were 1404 cases identified with a median age of 52 (IQR 33-69) years, 949 males. AI demonstrated superior performance compared to radiologists in identifying pneumothorax (p = 0.007) and segmental collapse (p = 0.012) on chest radiograph. Radiologists performed better than AI for clavicle fracture (p = 0.002), humerus fracture (p < 0.0015) and scapula fracture (p = 0.014). No statistical difference was found for identification of rib fractures and pneumomediastinum.

CONCLUSION: The evaluated AI performed comparably to radiologists in interpreting chest radiographs. Further evaluation of this AI program has the potential to enable it to be safely incorporated in clinical processes.

ADVANCES IN KNOWLEDGE: Clinically useful AI programs represent promising decision support tools.

118. IMPACT OF COVID VACCINATION ROLLOUT ON THE USE OF COMPUTED TOMOGRAPHY VENOGRAPHY FOR THE ASSESSMENT OF CEREBRAL VENOUS SINUS THROMBOSIS
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INTRODUCTION: Cerebral venous sinus thrombosis (CVST) is rare; however, it has been observed in patients with vaccine-induced immune thrombotic thrombocytopenia syndrome (VITT) following the use of adenovirus vector vaccines against COVID-19. Adverse vaccine effects have been heavily addressed in mainstream media, likely contributing to vaccination anxiety. This study aimed to assess how the vaccine rollout and media coverage has influenced the use of computed tomography venography (CTV) in an acute care setting of a tertiary hospital.

METHODS: Single-centre retrospective cohort study from 30 March 2021 to 13 June 2021 of patients who received CT in an emergency department setting after vaccine administration. Comparison of CTV usage was performed with the same calendar dates in the preceding 3 years.

RESULTS: In 2021, 57 patients received CTV with headache being the reason in 48 (84%) and 40 (70%) had received ChAdOx1 nCov-19 (AstraZeneca COVID-19 vaccination). Only 20 of these patients received CTV after platelets and D-Dimer had returned, and only three patients met existing guidelines for imaging. Zero cases were positive. The number of CTV studies was 5.2 times than in 2020 and 2.7 times the mean number for the 3 preceding years.

CONCLUSION: The use of CTV in patients with headache markedly increased at our centre since negatively biased vaccination influence of mainstream media. Headache is a common vaccine-related side effect and VITT is exceptionally rare. With the rates of vaccination increasing in the community, these results highlight the importance of strict adherence to established evidence-based guidelines. Otherwise, critical care capacity, and in particular imaging resources already under pressure will be strained further.

119. REINTERVENTION FOLLOWING INTERCOSTAL CATHETER REMOVAL IN ADULT THORACIC TRAUMA: A RETROSPECTIVE REGISTRY ANALYSIS AT A TERTIARY TRAUMA CENTRE.
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BACKGROUND AND OBJECTIVE: Pleural drainage using intercostal catheters (ICC) is a lifesaving procedure and a mainstay of treatment for thoracic trauma. Despite its common use, the management post-insertion is poorly understood and complication rates following removal vary greatly. This retrospective study aimed to examine the incidence of complications requiring reintervention following ICC removal and its associated factors in an adult trauma cohort from a large Australian metropolitan major trauma centre.
METHODS: The Alfred Health Trauma Registry was queried for all trauma patients ≥16 years who underwent in-hospital ICC insertion and removal between 2018-2019. Reintervention was defined as any invasive procedure, including thoracentesis, pigtail catheter insertion, ICC reinsertion, thoracoscopy and thoracotomy, performed due to development of ICC removal-related complications. Variables relating to demographics, mechanism and severity of injury, and interventions pre and in-hospital were compared using univariable and multivariable logistic regression.

RESULTS: There were 537 ICC removals among 457 patients revealing a 7.6% reintervention rate following ICC removal, with almost 90% of these patients required an additional ICC. On univariable analysis, injury severity score ≥31 (p=0.04), requirement for mechanical ventilation (p=0.03), bilateral ICC insertion (p=0.04) and haemopneumothorax (p=0.02) were associated with reintervention following ICC removal. Following multivariable analysis, only use of mechanical ventilation (p=0.01) and haemopneumothorax (p=0.01) remained statistically significant.

CONCLUSION: Reinterventions following ICC removal are common, even in a well-resourced hospital in a high-income country. Haemopneumothorax or mechanical ventilation were identified as risk factors among our cohort, and should be taken into careful consideration in clinical practice. Further research may indicate incorporation of such factors in ICC management guidelines to reduce rates of reintervention following ICC removal.

120. PREDICTION OF FUNCTIONAL INDEPENDENCE OF ADULTS IN POST-TRAUMATIC AMNESIA FOLLOWING TRAUMATIC BRAIN INJURY

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INTRODUCTION: Traumatic brain injury (TBI) may lead to a range of impairments, including post-traumatic amnesia (PTA).

OBJECTIVES: The aim of this study was to examine the incidence of early PTA following trauma, so as to determine its contributions to prediction of functional outcome at discharge from inpatient acute care.

METHOD: Using an inception cohort design, data on consecutive patients (n=1546) admitted to The Alfred trauma ward (Nov 2020 – Apr 2021) were analysed. A subset of patient files (n=25) were additionally audited to describe occupational therapy assessments and interventions delivered to support PTA emergence.

RESULTS: Few trauma inpatients experienced PTA (n=192, 12%), however, those who did were more likely to have been admitted to intensive care (22%, chi² 15.16; p=0.0001), require inpatient rehabilitation (18%, chi² 37.20; p=0.0001), and have a longer acute length of stay (3 days, p=0.0001). Most (n=159, 83%) emerged from PTA at the time of discharge/transfer from acute care. The presence of PTA was associated with lower levels of independence at admission (SMAF -41.1 vs -30.5) and discharge (SMAF –17.7 vs -14.5). Daily reorientation was the most commonly provided intervention (n=20, 80%) and approximately half (n=12, 48%) received formal education related to PTA management.

CONCLUSION: PTA incidence was low, however, occurred more frequently in those with severe injuries necessitating referral for inpatient rehabilitation. PTA incidence was associated with reduced perceived independence at admission and discharge despite having achieved a significant functional improvement during the acute admission.