RESEARCH WEEK
21-25 OCTOBER 2024
INSPIRED RESEARCHERS
Northern Health

OCTOBER 2024 ABSTRACT BOOK

Northern Health

Northern Health

Our Vision

A healthier community, making a difference for every person, every day.

Our Values

- **Safe** - We provide safe, trusted care for our patients. We are inclusive and culturally safe, celebrating the diversity of our staff and community.
- **Kind** - We treat everyone with kindness, respect and empathy. We provide patient-centred and compassionate care.
- **Together** - We work together with our staff, patients, consumers and health system partners.

Our Priorities

- A safe, positive patient experience
- A healthier community
- An innovative and sustainable future
- Enabled staff, empowered teams
- Engaged learners, inspired researchers

Northern Health acknowledges Victoria's Aboriginal communities and their rich culture and pays respect to their Elders past, present and emerging. We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land (the Wurundjeri and Taungurung people) on which Northern Health's campuses are built.

We recognise and value the ongoing contribution of Aboriginal people and communities to our lives and we embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

Northern Health celebrates, values, and includes people of all backgrounds, genders, sexualities, cultures, bodies and abilities.

FOREWORD

Professor Prahlad Ho
Chief Medical Officer
Chair, Research Executive Committee

Professor Shekhar Kumta
Research Executive Committee
Working Group Representative

Dr Justine Ellis
Research Operations Manager,
Research Development and
Governance Unit

Welcome to Northern Health Research Week 2024! This year, we continue to highlight the breadth of successful research programs at our health service, and our focus on collaboration, innovation, and translation of research into clinical practice. Research Week serves as a crucial platform for showcasing the range of research initiatives led by our staff and partners, including collaborations with La Trobe, RMIT, and The University of Melbourne.

2024 has been a remarkable year for research at Northern Health. We were successfully assessed as a fully mature clinical trial service under the National Clinical Trials Governance Framework (NCTGF), one of the few hospitals nationally to achieve this prestigious status. This year also marks a successful grant year for NH. Together with our partners, we secured over $14 million from MRFF, CRC-P and VMRAF grants.

Furthermore, this year has marked the creation of two important centres for research within Northern Health – NorthErn Clinical diagnostics and ThrombovAscular Research Centre (NECTAR) as well as the Victorian Centre for Virtual Health Research (VCVHR). These research arms will continue to drive our success in translational and innovative health services research.

Research Week 2024 will celebrate these achievements with presentations from national experts and our talented in-house researchers.

Highlights include:

- An opening session to highlight research at Northern presented by NH Interim Chief Executive, Ms Debra Bourne, and Research Operations Manager, Dr. Justine Ellis.
- A number of prominent keynote speakers will join us throughout the week including:
  - Professor Paul Monagle (RCH/MCRI/UoM) on developing impactful research questions to improve patient outcomes.
  - Professor Jonathon Karnon from Flinders University on evaluating virtual ED services
  - Professor Elif Ekinci (UoM) on the Australian Centre for Accelerating Diabetes Innovations (ACADI).
  - Professor Richard Saffery (MCRI), showcasing the Generation Victoria (GenV) project as an example of taking a big research idea and turning it into state-wide health research program.
- Presentations from the newly formed Northern Health and RMIT University Clinical Translational Research Partnership (CTRP)
- Showcasing Northern researchers behind the top-ranked abstract submissions. We will also be hosting a series of poster sessions throughout the week, that we welcome you all to visit at the Northern Hospital, Main Foyer.

The week will conclude with a range of celebratory events including presentations from our researchers who have successfully secured competitive grants, a lively trivia session and an awards ceremony for best poster, people's choice poster and the Peter Brooks Research Award for the best oral abstract.

Research Week 2024 promises to be an inspiring and insightful event, offering numerous opportunities for researchers at all career stages to connect and showcase their work.

We look forward to your participation in celebrating the remarkable research happening here at Northern Health.

RESEARCH WEEK PROGRAM

Monday, 21st October 2024

LECTURE SESSION 1: GRAND OPENING AND KEYNOTE

NCHER Lecture Theatre 1 (and via Teams)

12.30pm – 1.50pm

Chair: A/Prof Rebecca Jessup

Acknowledgement of Country: Ms Stephanie Thompson
Aboriginal Liaison Officer, Narrun Wilip-giin Aboriginal Support Unit, Northern Health

Official Opening: Ms Debra Bourne
Interim Chief Executive, Northern Health

Research at Northern: Dr Justine Ellis
Research Operations Manager, Northern Health

RESEARCH WEEK PROGRAM

Monday, 21st October 2024

LECTURE SESSION 1: GRAND OPENING AND KEYNOTE

NCHER Lecture Theatre 1 (and via Teams)

12.30pm – 1.50pm

Chair: A/Prof Rebecca Jessup

Keynote: Professor Paul Monagle

Developing Research Questions: it's not about what you can't do, but what you can do.

Medical research is a tough landscape. However, the gaps in our knowledge remain large and there is always something that can be done to Improve patient outcomes. Using examples from his 27-year experience in paediatric haemostasis and thrombosis, anticoagulation, cardiac surgery and ECMO, and finally COVID related research and the INHERIT trial, Prof Monagle will present an approach to focussing on patient outcomes, making the most of available resources and maximising your impact, and keeping it simple. Integration with clinical service, patient driven research questions and always questioning the prevailing dogma and assumptions are key.

Bio: Prof Paul Monagle is a past chair of the paediatric/perinatal SSC of ISTH; leader paediatric chapter of the ACCP antithrombotic guidelines for over a decade; member of the ASH venous thrombosis guideline steering committee, and chair of the paediatric panel; Co-author of multiple textbooks; over 40 chapters in major international textbooks; over 390 publications, with over 11000 citations. Paul has long term interests in reference ranges and normative data, thrombosis and anticoagulation in children, and more recently COVID 19 including the INHERIT trial. His research spans basic science, discovery, translational, and clinical trials. Paul is a past Stevenson Chair and Head of Department of Paediatrics, University of Melbourne, previous director of laboratory services, Head of Haematology, and Acting Head of Children's Cancer Centre Royal Children's Hospital (RCH), Melbourne. A member of CCOPPMM for 12 years and chair of the child and adolescent subcommittee for 6 years.

RESEARCH WEEK PROGRAM

Monday, 21st October 2024

REFRESHMENTS AND NETWORKING

NCHER Level 1 Atrium

1.50pm

POSTER SESSION 1

Foyer - Northern Hospital, Epping.

3.00pm – 4.00pm (displayed all day)

Authors of posters will be in attendance to answer any questions regarding their research

Abstract #5: Does virtual technology close the gap? Perceptions of health professionals managing deteriorating patients

Abstract #7: Comprehensive Geriatric Assessment in High-Risk Pre-admission Clinic: Service Evaluation and Clinical Audit

Abstract #8: Artificial Intelligence Image Reconstruction in Computed Tomography

Abstract #9: Awareness, Assessment, Action and Advocacy; a scoping review on the role of occupational therapy in Fetal Alcohol Spectrum Disorder

Abstract #10: 'I'd rather be proactive than reactive again.' Patient and staff perspectives on digital care pathways for low-back pain

Abstract #13: Detecting the Adulteration of Ghee using Raman Spectroscopy

Abstract #14: Implementation of an Advanced Practice Physiotherapy model substantially reduces the need for Gynaecologist assessment

Abstract #57: Measuring Infliximab Drug Levels Using Spectroscopy

Note: *Posters on display may be subject to change*

RESEARCH WEEK PROGRAM

Tuesday, 22nd October 2024

LECTURE SESSION 2: TRANSLATIONAL RESEARCH

NCHER Lecture Theatre 1 (and via Teams)

10.00am – 12.00pm

Chairs: Prof Shekhar Kumta & Prof Ross Vlahos

1. Dr Kay Weng Choy (Northern Health)

   Introduction of the Northern Clinical Diagnostics and Thrombovascular Research Centre (NECTAR)

   Title: Clinical Biochemistry Research

2. Dr Julie Wang (Northern Health)

   Title: Global Coagulation Assays in Thrombovascular Diseases

3. Prof Shekhar Kumta (University of Melbourne & Northern Health)

   Title: Spectroscopy - Unravelling Biofluid Analytics

4. Prof Ravi Shukla (RMIT University)

   Title: Nucleic Acid Delivery Strategies using Organo-Metallic Compounds

5. Prof Ricky O'Brien (RMIT University)

   Title: New approaches for motion management in radiation therapy and medical imaging

6. Prof Zhen Zheng (RMIT University)

   Title: Meeting Patient Needs: Co-design for Long-COVID care (LAMP) and Personalised Acupuncture for Acute Pain in Emergency Department (PANDA)

RESEARCH WEEK PROGRAM

Tuesday, 22nd October 2024

LIGHT LUNCH AND NETWORKING

NCHER Level 1 Atrium

12.00pm – 12.30pm

LECTURE SESSION 3: RESEARCH GRAND ROUND

NCHER Lecture Theatre 1 (and via Teams)

12.30pm – 1.30pm

Chairs: A/Prof Rebecca Jessup

Keynote: Professor Jonathan Karnon, Health Economist, Flinders University

Evaluating virtual ED services: Challenges and (proposed) Solutions

A range of Virtual ED services have been introduced across Australia over the last few years, incorporating quite different designs. These are challenging services to evaluate, primarily because the main outcome effects are linked to reducing demand for hospital services, but also because there are potentially complicated workforce effects. The co-evaluation of multiple virtual ED services should support more robust evaluations. This talk will outline the challenges and present a proposed evaluation approach that combines observational data methods such as interrupted times series analyses and decision analytic approaches to estimating counterfactual scenarios.

Bio: Jon Karnon is a professor of health economics with over 25 years' experience in developing and applying methods for the economic evaluation of health care services and technologies using decision analytic modelling methods. He was president of the Health Services Research Association of Australia and New Zealand from 2014 to 2018.

RESEARCH WEEK PROGRAM

Tuesday, 22nd October 2024

POSTER SESSION 2

Foyer - Northern Hospital, Epping.

2.00pm – 3.00pm (displayed all day)

Authors of posters will be in attendance to answer any questions regarding their research

Abstract #58: Optimising abortion care in Melbourne's north: Perspectives of consumers

Abstract #15: Integrating Digital Technologies into Clinical Education for Psychiatrists

Abstract #20: An audit of antibiotic prescribing for animal bites in the Emergency Department

Abstract #29: Understanding Barriers to Clinical Trial Participation in Cancer Patients from Culturally and Linguistically Diverse Backgrounds

Abstract #41: Safety, efficacy, and implementation of home-based high-intensity interval training for patients with cardiac disease: a systematic review

Abstract #6: Malnutrition Point Prevalence Study 2024

Abstract #52: What are the limitations for the diagnosis of meningitis or encephalitis via neonatal lumbar puncture?

Abstract #53: An initial 24-months review of NH Neonatal Telehealth Support Program for a regional maternity hospital.

Note: *Posters on display may be subject to change*

RESEARCH WEEK PROGRAM

Wednesday, 23rd October 2024

LECTURE SESSION 4: BEST ABSTRACT ORAL PRESENTATIONS SESSION A

NCHER Lecture Theatre 1 (and via Teams)

12.00pm – 1.15pm

Chair: Dr Vicky Kartsogiannis

Abstract #31: Assessment of plasmin generation in patients with diabetes mellitus
Presenter: **Vincent Lu**

Abstract #33: Exploring the Uptake and Outcomes of a Virtual Emergency Department in First Nations Peoples: A Population-Based Study
Presenters: **Dr Jason Talevski, Imogen Nund Dam and Nicole Watt**

Abstract #68: An audit of suspected pulmonary embolism (PE) management in the Emergency Department- is it ok to play by the rules?
Presenter: **A/Prof Joe Rotella**

Abstract #28: Multimodal cardiovascular risk prediction model in diabetes outperforms HbA1c and Framingham Risk Score
Presenter: **Dr Rowena Brook**

Abstract #61: A comparison of traditional health care professional-collected FLOQSwab and self-collected binasal Rhinoswab for SARS-CoV-2 PCR testing
Presenter: **Dr Taylor Corocher**

Abstract #51: Major bleeding risk in elderly patients receiving anticoagulation for venous thromboembolism - a 10-year retrospective review
Presenter: **Dr Julie Wang**

RESEARCH WEEK PROGRAM

Wednesday, 23rd October 2024

LIGHT LUNCH AND NETWORKING

NCHER Level 1 Atrium

1.15pm

POSTER SESSION 3

Foyer - Northern Hospital, Epping.

2.00pm – 3.00pm (displayed all day)

Authors of posters will be in attendance to answer any questions regarding their research

Abstract #23: Improved mortality associated with specialist liver-focused at home care program for patients with cirrhosis following hospitalisation.

Abstract #25: The power of knowledge – Evaluating disease knowledge and awareness in patients with cirrhosis.

Abstract #43: Assessing the feasibility and outcomes of a staff physiotherapy service for in a public hospital

Abstract #45: Outcomes of early antiviral treatment in ambulatory COVID -19 end stage kidney disease patients- an Observational, Single-centre Experience

Abstract #48: Frequency and potential causes of non-beneficial Code Blue activations at a metropolitan teaching hospital

Abstract #49: Northern Health Operating Theatres: an environmental sustainability audit

Abstract #50: Palliative care for patients with Motor Neurone Disease: a survey of multidisciplinary healthcare providers

Abstract #70: The impact of maternal diabetes on fetal growth and stillbirth risk: A population-based cohort study from Victoria

RESEARCH WEEK PROGRAM

Thursday, 24th October 2024

LECTURE SESSION 5: MEDICAL GRAND ROUNDS

Northern Hospital, Ground Floor, Main Hospital Lecture Theatre (and via Teams)

8.00am – 9.00am

Chair: A/Prof Craig Aboltins

Keynote: Professor Elif Ekinci

Australian Centre for Accelerating Diabetes Innovations (ACADI)

Australian Centre for Accelerating Diabetes Innovations (ACADI) was established in 2022 through MRFF funding from the Australian Government's Targeted Translation Research Accelerator (TTRA) program, delivered by MTPConnect. ACADI has been awarded $10million from the Australian Government's Medical Research Future Fund and received over $13million in cash and in- kind support from its > 50 partners. Led out of the University of Melbourne, ACADI will deliver novel interventions for timely diagnosis, prevention and treatment of diabetes and its complications with the access to clinical evaluation, leadership and networks, research commercialisation experience and workforce training. ACADI's design responds to key barriers slowing Australian development of innovations.

Bio: Professor Elif Ekinci is a clinician scientist, an academic endocrinologist who is working to translate research into improved outcomes for people with type 1 and type 2 diabetes. Her research is focused on the pathophysiology, prevention, detection and treatment of diabetes and its complications in humans. She is the Head of Department of Medicine at the University of Melbourne. She is also the Weary Dunlop Medical Research Foundation Professorial Fellow in Metabolic Medicine and Dame Kate Campbell Fellow at The University of Melbourne. The Dame Kate Campbell Fellowship is given to researchers recognising incredible contributions to the University of Melbourne for outstanding research and wider involvement in our local community and across the globe. She has supervised 12 higher degrees to completion and is currently supervising 16 PhD students. She has over 200 peer reviewed publications in the leading diabetes, obesity and metabolism journals and has an H index of 43. She has attracted over $40 M in research funding and has received multiple awards for her work. She has had an accelerated career trajectory in the past five years, having had career disruptions to care for her three young children previously. She is also the Head of Diabetes at Austin Health, where she co-ordinates the clinical care of inpatients and outpatients with diabetes. She heads diabetes and obesity clinical trials at Austin Health at the Centre for Research and Education in Diabetes and Obesity.

Prof Ekinci is the inaugural director of Australian Centre for Accelerating Diabetes Innovations (ACADI). In 2022, ACADI was established through MRFF funding from the Australian Government's Targeted Translation Research Accelerator (TTRA) program, delivered by MTPConnect. ACADI has been awarded $10million from the Australian Government's Medical Research Future Fund and received over $13million in cash and in- kind support from its partners. Led out of the University of Melbourne, ACADI will deliver novel interventions for timely diagnosis, prevention and treatment of diabetes and its complications with the access to clinical evaluation, leadership and networks, research commercialisation experience and workforce training. ACADI's design responds to key barriers slowing Australian development of innovations.

RESEARCH WEEK PROGRAM

Thursday, 24th October 2024

POSTER SESSION 4

Foyer - Northern Hospital, Epping.

1.00pm – 2.00pm (displayed all day)

Authors of posters will be in attendance to answer any questions regarding their research

Abstract #3: Establishing a Cancer Survivorship Surveillance Clinic: Enhancing Care Beyond Treatment

Abstract #65: A Novel Thin Film Technique Improves Quality of Spectra from Biological Fluids

Abstract #67: The impact of [18F]fluoro-2-Deoxy-D-glucose Positron Emission Tomography for the diagnosis of dementia at Northern Health

Abstract #69: Supporting clinician-led research: Outcomes of the Allied Health Research Clinic

Abstract #77: Advancements in Photon-Counting Computed Tomography: A Literature Review

Abstract #12: A systematic review of Assertive Community Treatment for adults with complex mental illness; its effect on Emergency Department presentations and patient outcomes

Abstract #36: Baseline characteristics of participants in the ENhancing HEAlth literacy in secondary pRevenTion of cardiac evENts (ENHEARTEN) study

Abstract #73: Impact of a Virtual Heart Failure Unit on mortality rates

LECTURE SESSION 6: SURGICAL RESEARCH FORUM

Northern Hospital, Ground Floor, Main Hospital Lecture Theatre (and via Teams)

5.30pm – 6.30pm

Chair: Dr Russell Hodgson

A showcase of surgical research being undertaken at Northern Health

RESEARCH WEEK PROGRAM

Friday, 25th October 2024

LECTURE SESSION 7: FOUNDATION BREAKFAST | PUTTING BIG RESEARCH IDEAS INTO ACTION

NCHER Conference Room 3.1 (and via Teams)

8.00am – 10.00am

Chair: Dr Justine Ellis

Northern Health Foundation

Introduction to the NH Foundation

Keynote: Professor Richard Saffery

Generation Victoria (GenV): A national data and research asset to transform the health and wellbeing of an entire generation

History and progress of GenV and the potential for this longitudinal birth cohort of over 100,000 Victorians to revolutionise discovery and interventional research

Bio: Prof Richard Saffery is leader of the Molecular Immunity group at MCRI, and Professor of Paediatrics, University of Melbourne. He is Director of Biosciences for the Generation Victoria Open Science Cohort and ResearchPlatform. His 'Early Origins of Chronic Disease' agenda spans pregnancy to adolescence and focusses on applying state-of-the-art cellular and molecular profiling approaches (including epigenomics) to a series of unique longitudinal cohorts with clinical and environmental data plus biospecimens. Richard has over 450 publications and >20,000 citations for this work and his team have received over $80M of funding since 2000.

Professor Prahlad Ho

(Chief Medical Officer, Chair of Research Executive Committee, Northern Health)

Zooming in from Apple California

RESEARCH WEEK PROGRAM

Friday, 25th October 2024

LECTURE SESSION 7: (CONT)

5-minute Funding Celebration

Rapid-fire presentations from Northern Health Chief Investigators on successful nationally competitive research grants.

- **Prof Shekhar Kumta**
  StrepSure™: An ultrasensitive biosensor for protecting newborns from GBS
- **A/Prof Rebecca Jessup**
  Showcase of recent Victorian Virtual Emergency Department (VVED) successful grants
- **Prof Don Campbell**
  Emerging from the long shadow: Optimising supportive consumer and provider journeys through the post-acute sequelae of COVID-19 (PASC)
- **Dr Jason Talevski**
  Co-design and evaluation of a resource to improve patient-clinician communication in rural chronic disease settings
- **Dr Hazel Heng**
  Safe Recovery - Reducing Falls Injuries by Older People in Australian Hospitals

NETWORKING AND BREAKFAST BUFFET

RESEARCH WEEK PROGRAM

Friday, 25th October 2024

LECTURE SESSION 8: BEST ABSTRACT ORAL PRESENTATIONS SESSION B

10.00am – 11.15am

Chair: Dr Tilini Gunatillake

Abstract #66: The Musculoskeletal Wellness Program: Evaluating the Impact of a Web-Based Resource on Pain, Function, and Surgical Intent in patients with Knee Osteoarthritis

Presenter: **Lin Tong (via teams)**

Abstract #55: Readmission and Mortality During and After an Admission with Acute Kidney Injury: a Victoria-wide Data-linkage Analysis

Presenter: **Dr Zena Barakat (via teams)**

Abstract #17: Over-the-counter Carrageenan-based sprays may interfere with PCR testing of nasopharyngeal swabs to detect SARS-CoV-2

Presenter: **Kira Edwards**

Abstract #60: Enhancing Health Literacy and Accessibility Through Peer Health Navigators: Insights from the Victorian Health Navigation Workforce Training Initiative

Presenter: **Simone Said**

Abstract #39: Higher tissue factor pathway inhibitor in healthy controls is associated with increased cardiovascular risk factors

Presenter: **Tengyi Cai**

Abstract: #44: Tailored Treatment: The Quest for Optimal Renal Function Estimation Tools in Oncology

Presenter: **Hasitha Mudiyanselage**

RESEARCH WEEK PROGRAM

Friday, 25th October 2024

ANNUAL QUIZ
11.15am – 12.00pm

Moderated by Dr Jason Talevski and **Dr Hazel Heng** the Trivia Session brings researchers together for some fun and friendly competition.

AWARDS CEREMONY
12.00pm – 12.15pm

Join us as we announce the award recipients for the best poster and oral presentations and celebrate the great work being done by Northern Health researchers.

Awards will be presented by Prof Don Campbell, Member of the Research Executive Committee.

WRAP-UP & CLOSE
12.00pm – 12.15pm

Prof Shekhar Kumta

Please join us for the formal closing of Northern Health Research Week for 2024.

ABSTRACTS

RESEARCH WEEK
21-25 OCTOBER 2024
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Northern Health

ALLIED HEALTH

#9

Awareness, Assessment, Action and Advocacy; a scoping review on the role of occupational therapy in Fetal Alcohol Spectrum Disorder

Jasmine Buxton[1], Rebecca Ball[1], Leah Rampling[1], Nastaran Doroud[1]*

[1]Swinburne University of Technology, Hawthorn, VIC, Australia

Department of Nursing and Allied Health

Background: Fetal Alcohol Spectrum Disorder (FASD) is a diagnostic term to describe the neurodevelopmental impacts of prenatal exposure to alcohol. FASD can cause significant impacts on everyday lives of individuals across the lifespan. Occupational therapists are well placed to provide a range of services for those impacted by FASD; however, their role is yet to be fully defined. This scoping review aims to outline evidence-based approaches employed by Occupational Therapists when working with children, adolescents and families impacted by FASD.

Method: The Arksey and O'Malley's scoping review framework (2005) guided this review. The review question was identified through consultations with a multidisciplinary team and based on the gaps in knowledge and in practice. Peer-reviewed journal articles were identified through electronic database searches, citation tracking and hand search. Studies were selected that explored occupational therapy approaches in working with children and adolescents (up to 17 years of age) to improve occupational performance or functioning. Relevant studies were data extracted and thematically synthesized.

Results: Sixteen articles were selected including quantitative, qualitative and systematic review studies. Synthesis of the studies demonstrated the role of occupational therapy in assessment and intervention across major themes including sensory approaches, motor coordination, executive functioning and adaptive behaviour. These approaches were applied across individual, family and community levels.

Conclusions: Occupational therapy can play a pivotal role in enhancing occupational performance and functioning of children, adolescents and families impacted by FASD. Occupational therapists adopt a range of individual, family-based or community-oriented approaches in assessments and interventions. These approaches are summarised into four key areas: Awareness, Assessment, Action and Advocacy.

#6

Malnutrition Point Prevalence Study 2024

Nadia Obeid[1], Maggie Bradley[1], Rachael Evans[1], Georgia Kennett[1], Nga Nguyen[1], Emillya Tjahjono[1]

[1]Northern Health, Melbourne, Australia

Background: Malnutrition is estimated to affect up to 40% of patients in Australian hospitals. This study aimed to describe malnutrition prevalence at Northern Health (NH) at a singular time-point.

Method: Auditors collected data across all inpatient beds at Northern Hospital Epping (NHE), Bundoora Centre (BC) and Broadmeadows Hospital (BH) over a two-week period during June-July 2024. The auditors screened electronic medical records and where indicated, completed the Malnutrition Screening Tool (MST) and Subjective Global Assessment (SGA) to diagnose malnutrition and its severity. Data was analysed descriptively.

Results: Of the 397 participants included in this study 23% (n=93) were malnourished (mean age 75 years, 49% male 51% female). Malnutrition prevalence was highest at BC site (43%) and on BC Percy Cleland Ward (48%). All (100%) patients with a malnutrition diagnosis had, or were, receiving care from the NH Dietetics Service.

Conclusions: The overall prevalence of malnutrition at NH (23%) is lower than the national estimated prevalence (up to 40%) but subacute site BC had a higher prevalence of 43%. This is the sixth year we have completed this study; the data can provide comparison to past and future malnutrition prevalence studies and evaluation of malnutrition prevention and management strategies at NH.

#43

Assessing the feasibility and outcomes of a staff physiotherapy service for in a public hospital

Tom Cooper[1], Hazel Heng[1], Adam Semciw[1]

[1]Northern Health, Melbourne, Australia

Background: Workplace musculoskeletal injuries represent a significant burden as it relates to pain, disability and quality of life for injured workers and associated costs to organisations who employ them. There is currently limited evidence about the effect of in-house physiotherapy services for injured workers. A physiotherapy clinic was established at Northern Health to treat workers who sustained musculoskeletal injuries. The aim of this study was to examine the feasibility and clinical outcomes of this clinic.

Method: The Bowen's Framework was utilised to assess the Demand, Acceptability, Implementation, Practicality and Limited Efficacy of the clinic. Demographic data and clinical outcomes were captured using a self-reported survey. Patient reported outcome measures included pain location, intensity of pain, Hospital Anxiety and Depression Scale, EQ-5D, UCLA activity scale, and Global Rating of Change. Dependent on pain location, participants may complete the Upper Extremity Functional Index (UEFI), Lower Extremity Functional Score (LEFI), Owestry Disability Index (ODI) or Neck Disability Index (NDI). These measures were collected at baseline, 6 weeks and 12 weeks post treatment.

Results: 307 staff attended the clinic over a 12-month period, with 73.4% rating their experience as 10 out of 10. 95.7% of respondents reported feeling "better" or "much better" on the Global Rating of Change scale following treatment. At 6 weeks, there were significant improvements in the EQ-5D (domains 1 to 4) and the UEFI, LEFI, Owestry and NDI outcome measures

(p<0.05). This change was maintained at 12 weeks. There were no significant differences between 6- and 12-week measures.

Conclusions: The staff physiotherapy clinic was found to be feasible to establish and operate within a public hospital setting and demonstrated that staff made clinically significant improvement in pain and function.

#69

Supporting clinician-led research: Outcomes of the Allied Health Research Clinic

Adam I Semciw[1,2], Hazel Heng[1,2], Mark Tacey[1,3], Jingfei Wu[1,4], Rebecca L Jessup[1,2]

[1]Northern Health, Melbourne, Australia

[2]La Trobe University, Melbourne, Australia

[3]Olivia Newton John Cancer Wellness and Research Centre, Melbourne, Australia

[4]University of Melbourne, Melbourne, Australia

Background: Building research capacity amongst Allied Health (AH) clinicians is key to ensure evidence-based practice in clinical settings, thereby improving patient outcomes and promoting a strong research culture. This study aimed to assess the structure, uptake and impact of a newly developed AH Research Clinic, which provided tailored support to AH professionals through individualised research consultations.

Method: Using a prospective observational pre-post design, baseline and six-month follow-up surveys were collected from AH clinicians who self-registered for the clinic and received guidance from PhD-qualified clinician-researchers. The Research Capacity and Culture (RCC) tool was used to assess research capacity and research activities, motivators and barriers. Multivariable binomial logistic regression was used to analyse the influence of gender and seniority on research motivators, barriers and progression.

Results: 43 consultations were provided over a period of 32 months. 73.5% of participants reported progress in their research at six months, with senior staff being significantly more likely to advance compared to junior staff (OR 9.60, 95% CI 1.40 to 195.70, p = 0.049). Primary motivators for research included skill development, problem-solving, and intellectual stimulation. Significant barriers included lack of time, competing work roles, and inadequate research skills. Senior staff were more motivated by practical problem-solving, while junior staff looked for intellectual stimulation and research opportunities at their level.

Conclusions: The AH Research Clinic was effective in supporting AH clinicians in progressing their research, particularly for senior staff. Addressing barriers to research and providing individualised mentorship is crucial for building a sustainable research culture amongst AH clinicians.

#78

Determining care outcomes of admitted patients after peripheral arterial disease is identified and escalated by podiatry.

Kalejs, Tomas[1], Baines Belinda[1], Kaur Jaspreet[1], Tucker Stephen[1]

[1]Northern Health Podiatry Department, Northern Hospital Epping, Epping, Australia.

Background: Northern Health Podiatry Services perform thorough vascular assessments for new patients referred for wound management and suspected Peripheral Arterial Disease (PAD), to guide treatment. These assessments include pedal pulse palpation, absolute toe pressures, and audible doppler ultrasound. Severe PAD is escalated to the admitting medical team or Vascular Surgery team for further imaging and surgical opinion. This study aims to evaluate the care outcomes following escalation of suspected PAD relating to access and rate of Vascular Surgical intervention during admission and after discharge.

Results: A cohort of 32 patients was evaluated. Patient outcomes were varied, with some deceased, others undergoing or awaiting intervention, and some cases where escalation was not actioned by the medical team. Absolute toe pressure results indicated 14 patients had severe PAD with a score of '0' as per the WifI scoring classification (<30mmHg).

Conclusions: The study highlights the significant role of podiatry in identifying and escalating severe PAD, leading to varied outcomes, including surgical intervention and amputation. Given the advanced age of patients (82.5 (±7.86 SD) years), it is crucial to review the goals of care before escalation to ensure alignment with patient preferences and overall health status. This study underscores the need for larger-scale studies and access to advanced vascular assessment equipment to improve consistency and reliability. Ethical considerations preclude a control group; however, future research should compare findings with existing epidemiological data to further understand PAD management outcomes.

#66

The Musculoskeletal Wellness Program: Evaluating the Impact of a Web-Based Resource on Pain, Function, and Surgical Intent in patients with Knee Osteoarthritis

Tong L[1,2], Gentle J[1], Galea-O'Neill R[1], Chau H[1], Harms A[1], Cattapan G[1], Collins T[1], Shahin S[1], Alousis N[1], El Baba Z[1], Semciw AI[1,2]

[1]Northern Health, Melbourne, Australia

[2]La Trobe University, Melbourne, Australia

Background: People with knee osteoarthritis (OA) are commonly referred for orthopaedic review. Whilst being on the waitlist, many patients do not receive recommended first-line non-surgical management, and the excessive wait time leads to prolonged suffering. To address this, Northern Health implemented a digital resource including education, exercise, and dietary advice, paired with telephone coaching by a physiotherapist for patients on the orthopaedic waitlist for knee OA. This study evaluates the updated outcomes for those who completed a twelve-week program of a digitally delivered web-based resource for knee OA.

Method: Patients from the orthopaedic waitlist were screened and referred to the program. Demographics (age, BMI, sex) were recorded. Pain (VAS [0-10]; KOOS [0-100]), function (KOOS [0-100]), and quality of life (QoL) (KOOS [0-100]) changes over 12-weeks were assessed using linear mixed effect models.

Results: Among 887 screened patients, 287 were recommended for the program,164 registered and 72 had completed. Of the completers (63 % female), the mean (SD) age was 63.64 (9.35) years and BMI was 34.89 (8.13) kg/m^2. Small improvements were observed in average walking pain (-0.84 [-0.45, -1.24], p<0.001); QoL (KOOS) (6.57 [3.11,10.03], p<0.001); and function (KOOS) (4.17 [0.61, 7.71], p<0.05). Such changes were maintained at 26 weeks follow-up. Twenty-three (32%) people described themselves as better at twelve weeks, and 43 (60.0%) no longer sought surgical review.

Conclusion: A digital resource has a positive influence on patient's beliefs on the need for surgery in managing their knee OA. It is associated with small improvements in pain and quality of life. Future evaluation will aim to explore the potential to further scale the program, and to stratify those who might benefit from this resource and those who require more intensive support, or surgery.

CANCER SERVICES

#3

Establishing a Cancer Survivorship Surveillance Clinic: Enhancing Care Beyond Treatment

Louise Scolieri[1], **Rachel Cooke**[2]

[1]Northern Health, Melbourne, Australia

[2]Northern Health, Melbourne, Australia

Background: The Victorian Cancer Plan 2021-20241 identified survivorship care as a key component in improving the well-being and support of patients with cancer. The primary objective of Northern Health (NH) Cancer Survivorship/Surveillance Clinic (CSSC) is to provide comprehensive, multidisciplinary care tailored to the unique needs of cancer survivors. By offering personalised survivorship care plans, CSSC aims to address physical, psychosocial, and long-term health issues that arise post-treatment.

Method: CSSC offers comprehensive support for haematological cancer survivors, including survivorship care plans, screening tools, education, counselling, surveillance for late effects, and psychosocial support. The Patient Activation Measure (PAM) questionnaire assesses patients' readiness for self-management, guiding early interventions. The NH Supportive Care Screening (NCCS) guideline aids in addressing diverse healthcare needs and managing distress.

Results: CSSC has seen 49 new individuals and over 74 encounters between 17/2/2023 – 17/05/2024. There was an intentional bias with the start of the service towards recruiting younger patients, with a medium age of 28 years and 35% of patients with a diagnosis of non-Hodgkin disease. Reflecting our catchment, over half of patients were from a CALD (culturally and linguistically diverse) background. The majority of patients rated a PAM score of 3 (44%), whilst fewer scored 1 or 2 (15% and 19% respectively) who required more intensive guidance. Most frequent referrals to Allied Health were to Exercise Physiology (65%) and Psychology (31%).

Conclusions: The establishment of the CSSC and the use of the PAM questionnaire, coupled with early interventions based on the results, presents a pivotal advancement in cancer care. Implementing early interventions guided by PAM results not only enhances patient engagement but also fosters proactive management of healthcare needs. This approach empowers patients, facilitates timely interventions, and ultimately contributes to enhanced well-being and survivorship outcomes within the haematology community.

#29

Understanding Barriers to Clinical Trial Participation in Cancer Patients from Culturally and Linguistically Diverse Backgrounds

Shaghayegh Norouzi[1], **Lisa Walker**[1], **Stefania Zen**[2], **Mokhaled Mohammed**[3], **Rebecca Jessup**[4], **Belinda Lee**[1], **Marrian Tejada**[1], **Melanie Greco** [5], **Chong Chyn Chua**[1]

[1]Cancer clinical trials services, Northern Health, Melbourne, Australia

[2]Transcultural and Language Services, Northern Health, Melbourne, Australia

[3]Victorian Virtual Emergency Department, Northern Health, Melbourne, Australia

[4]Allied Health, Northern Health, Melbourne, Australia

[5]NEMICS, Austin Health, Melbourne, Australia

Background: It is well recognised that people from culturally and linguistically diverse(CALD) backgrounds face greater challenges navigating the health care systems, with disproportionately lower rates of clinical trial participation. Northern Health(NH) serves one of the most CALD catchments in Victoria. The NH Cancer Clinical Trials Unit collaborated with Transcultural and Languages Services (TALS) and North Eastern Melbourne Integrated Cancer Service (NEMICS) to identify key gaps impacting on clinical trial participation amongst CALD communities.

Method: We designed three questionnaires and surveyed three cohorts at NH between Feb-Jul2024: 1) cancer patients/caregivers from CALD backgrounds (consumers), 2) TALS staff, 3) clinical staff working with cancer patients.

Results: 108 survey responses were received: 47 consumers, 18 TALS and 43 clinical staff. Of these, 87%, 94.5% and 71% were born outside Australia, respectively. Of consumers, the most common countries of origin were India(17.5%), Syria(15%), Philippines(12.5%), Turkey(10%) and Iraq(10%).

66% of consumers have heard of clinical trials, with 43% acknowledging poor understanding and 39% expressing fear/uncertainty about trials. Consumers also noted the "lack of simplified information in English", "insufficient time in clinic" and "cost/time to participate" as main concerns. Top barriers from clinical staff were "language barriers" and "varying levels of health understanding". From TALS perspective, "fear/uncertainty about trials" and "language barriers" were key concerns. Additionally, the "absence of translated trial documents" was a significant barrier across all groups.

The top preferred solution from both clinical and TALS staff was "ensuring enough time for each appointment". While the first solution was similar for consumers, the next most preferred solutions were "covering the cost of parking/transport" and "having bilingual patient navigators".

Conclusions: This survey has identified key barriers to clinical trial participation with unique perspectives across three cohorts. The insights and solutions gained will form the basis towards developing tools to achieve equity in clinical trial participation at NH.

#42

Implementation of Frailty Screening and Comprehensive Geriatric Assessment service in older people with haematological cancer

Gopika Krishnamurthy[1], **Teresa Leung**[1], **Gisha George**[1]

[1]Northern Health, Melbourne, Australia

Background: Comprehensive Geriatric Assessment (CGA) can be beneficial in geriatric populations with haematological malignancies. Since 2021, our health service established a streamlined pathway involving frailty screening-CGA referral. This audit aims to determine its feasibility and potential challenges to its implementation.

Method: We performed a retrospective audit from 1st September 2021 - 30th April 2024 on the following populations: patients aged ≥65 years, diagnosed with lymphoma/myeloma and requiring treatment. Patients unable to consent or enrolled in clinical trials were excluded. A baseline G8 score (frailty score) was performed primarily by haematologists. Cancer Care Coordinator (CCC) co-screening commenced from September 2023. Patients with G8 score ≤14 were categorised as frail and referred to geriatrics clinic for a full CGA. Dedicated E-referrals pathways were created and geriatric clinic appointments offered within 4 weeks.

Results: Of the 94 eligible patients, only 30 were screened for frailty (31.9%). This was due to inconsistent screening by clinicians. A third of all screening was performed by CCC.

Of the 30 patients screened, median age was 80 years with median G8 score of 10. 18 of the 30 patients had aggressive lymphomas, 9 had indolent lymphomas and 3 had multiple myeloma. 23 were referred for CGA (76.6%). Of the 7 patients not referred for CGA, the most common reasons were rapid clinical deterioration (n=3) and patient refusal (n= 2).17 out of 23 patients had full CGA completed. The most common reason for not attending CGA post referral was death prior to review (n=3).

Conclusions: Frailty screening in older people with haematological cancer is feasible, with use of G8 screening tool adequately captures those most at risk of poor clinical outcomes. However, its implementation is challenging due to screening inconsistencies, rapid disease progression and low health literacy. Utilisation of CCC to conduct screening improves screening rate significantly.

#50

Palliative care for patients with Motor Neurone Disease: a survey of multidisciplinary healthcare providers

Jaclyn Yoong[1], **Marita Rees**[1]

[1]Northern Health, Melbourne, Australia

Background: Motor Neurone Disease (MND) is associated with significant symptom burden, functional decline and caregiver stress; and patients have limited life expectancy. Studies exploring utility and timing of Palliative Care (PC) services for MND are limited but prevailing themes are that involvement of PC services is beneficial to patients/caregivers, in regard to symptoms and quality of life. This study aimed to explore and understand when and why the Northern Health (NH) multidisciplinary outpatient care team for progressive neurological disease (neurology and respiratory doctors, nursing and allied health staff) feel that referral to PC services is indicated.

Method: 9-item questionnaire pertaining to respondents' interaction with PC services, and perceptions of utility and timing of PC services administered to members of the multidisciplinary care team at the NH outpatient clinic. Quantitative responses were analysed with descriptive statistics and qualitative responses were analysed for emergent themes.

Results: Response rate was 92%. All responders felt that MND patients should be referred to PC services. Majority (56.5%) felt timing of referral should be based on trajectory and needs equally; 30.4% felt needs more than trajectory. PC needs that would universally trigger referral were symptom management and end-of-life-care (100%). Other needs that rated highly (>85%) included assistance with information provision/illness understanding/treatment decision-making, advance care planning, carer support and psychological support. Functional assessment/needs was not rated as highly (57%). Other members of the care team were also noted to address PC needs. PC services were thought to be best value-add for symptom management, end-of-life-care and information-related needs.

Conclusions: Elements of PC, or a palliative approach, can be applied at any time during the illness trajectory, and by all involved in patient care. While PC referral should be universal for MND patients, this should probably be on a needs-basis; which are primarily symptom management, end-of-life-care and information-related needs.

DIAGNOSTIC SERVICES

#8

Artificial Intelligence Image Reconstruction in Computed Tomography

Natalie Wong[1], Maimuna Ali[2], Ruth Wilson[3], Antony Nguyen[4], Tobechi Azubuike[5]

[1]Northern Imaging Victoria, Northern Health, Melbourne, Victoria, Australia

Background: Computed tomography (CT) imaging has greatly advanced since its inception, evolving from low-resolution scans with prolonged reconstruction times to high-resolution images with rapid processing capabilities. Despite improvements, the increase in CT scans globally has raised concerns about radiation exposure and image quality. Recent advancements, including iterative reconstruction (IR) and deep learning (DL), aim to address these issues by improving image quality and reducing radiation doses, yet challenges remain in optimising these technologies for global clinical use.

Method: This review analyses the evolution of CT image reconstruction techniques, focusing on Filtered Back Projection (FBP), Iterative Reconstruction (IR), and Deep Learning Reconstruction (DLR). The study uses data from multiple clinical studies and technological advancements, assessing the performance of these methods in terms of image quality, radiation dose reduction, and processing speed. Comparative analyses of algorithmic efficiency and clinical outcomes were performed using data from peer-reviewed literature and worldwide-approved technologies.

Results: The review found that while FBP was efficient, it struggled with image noise at lower doses. IR methods improved image quality and reduced radiation dose but had longer reconstruction times. DLR techniques, using demonstrated superior performance by improving image quality, reducing noise, and fast-tracking reconstruction times, with dose reductions ranging from 44-83% compared to traditional methods. DLR also showed enhanced diagnostic capabilities for various clinical scenarios, including paediatrics, brain imaging, and chest CT.

Conclusions: The transition from FBP to IR and DLR marks significant progress in CT imaging, particularly in reducing radiation exposure while enhancing image quality. DLR technologies, with their ability to further lower doses and improve diagnostic accuracy, represent a major advancement in CT imaging. These findings demonstrate the potential of AI-driven methods to enhance clinical practice by providing high-quality images at reduced radiation doses, ultimately benefiting patient care and diagnostic precision.

#17

Over-the-counter Carrageenan-based sprays may interfere with PCR testing of nasopharyngeal swabs to detect SARS-CoV-2

Taylor Corocher[1,2], Kira Edwards[1,2], Yvonne Hersusianto[1,3], Don Campbell[4,8], Hui Yin Lim[1,2], Paul Monagle[5,6,9,10], and Prahlad Ho[1,2,7]

[1]Northern Pathology Victoria, Northern Health, Epping, VIC, Australia

[2]NorthErn Clinical diagnostics and ThrombovAscular Research (NECTAR) Centre, Northern Health, Epping, VIC, Australia

[3]Infectious Diseases, Northern Health, Epping, VIC, Australia

[4]Hospital without Walls, Northern Health, Epping, VIC, Australia

[5]Department of Paediatrics, University of Melbourne, Melbourne, VIC, Australia

[6]Murdoch Children's Research Institute, Melbourne, VIC, Australia

[7]Department of Medicine – Northern Health, University of Melbourne, Epping, VIC, Australia

[8]Department of Medicine – Southern Clinical School, Monash University, Clayton, VIC, Australia

[9]Department of Haematology, Royal Children's Hospital, Parkville VIC, Australia

[10]Kids Cancer Centre, Sydney Children's Hospital, Randwick, NSW, Australia

Background: Carrageenan-containing nasal sprays, available over-the-counter (OTC), are often marketed as having anti-viral effects. Carrageenan belongs to the glycosaminoglycan family alongside heparin and has some structural similarities. Heparin is known to inhibit real-time quantitative polymerase chain reaction (RT-qPCR) in nasopharyngeal swabs used to detect SARS-CoV-2 and increase the occurrence of false negative results.

Method: We investigated the interferent effect of carrageenan on RT-qPCR for SARS-CoV-2 detection on 4 different diagnostic platforms demonstrated inaccurate and invalid results on the Seegene STARlet, whilst maintaining qualitative accuracy on the Cepheid GeneXpert, Roche Cobas LIAT, and Hologic Panther Aptima.

Results: There was a marked increase in Ct values on both the Seegene STARlet and the Cepheid GeneXpert. Carrageenan interference was consistent across two OTC brands and research-grade reconstituted iota-carrageenan, where 80% of samples for each carrageenan formulation produced invalid results on the Seegene STARlet. Further, a preliminary in vivo interference study demonstrated an increased Ct value within 15 minutes of dosage, with Ct values restored 60 minutes post-application. A direct comparison of carrageenan- and heparin-mediated PCR interference demonstrated that heparin interference is stronger at lower concentrations, and that heparinase I treatment has no effect on carrageenan-interference.

Conclusions: Taken together, this data suggests that carrageenan has an inhibitory effect on PCR that can result in false negative results, an effect which is currently not reversible, and could therefore have significant public health impacts on community testing of respiratory infectious diseases via PCR.

#26

Association between tissue factor pathway inhibitor and atherothrombotic events in patients with cardiovascular risk factors

Rowena Brook[1,2,3], **Joe Rigano**[1,3], **Mani Suleiman**[4,5], **Prahlad Ho**[1,2,3], **Hui Yin Lim**[1,2,3]

[1]Northern Clinical Diagnostics & Thrombovascular Research (NECTAR), Northern Health, Melbourne, Australia

[2]Department of Haematology, Northern Health, Melbourne, Australia

[3]Northern Pathology Victoria, Melbourne, Australia

[4]Research and Governance Unit, Northern Health, Melbourne, Australia

[5]Research and Industry Engagement, Latrobe University, Victoria, Australia

Background: Tissue factor pathway inhibitor (TFPI) is a natural anticoagulant and the principal inhibitor of tissue factor induced coagulation. We aim to explore the association between TFPI and atherothrombotic events in patients with cardiovascular risk factors.

Method: A prospective observational study recruiting adults with existing cardiovascular risk factors was performed at Northern Health. Patients on therapeutic anticoagulation were excluded. The primary outcome was arterial thromboembolism including myocardial infarction, stroke/transient ischaemic attack or critical limb ischaemia. Time-to-event analysis was performed with mortality as a competing event. Two high risk subcohorts were also analysed; chronic kidney disease (CKD) (defined as eGFR <30ml/min/1.73m2) and diabetics (excluding eGFR <30ml/min/1.73m2).

Results: 306 patients were recruited with median age 65 years (IQR 56, 74), 55.6% males (n=170) and median follow-up time 3.35 years. There were 77 patients in the CKD group and 143 in the diabetes group, with comparable median TFPI values between both subgroups (36.4 vs 35.4ng/mL, p=0.44). There was minimal correlation seen between TFPI and creatinine (Spearman coefficient =0.09) or HbA1c (0.21). A total of 49 (16.0%) atherothrombotic events were captured including 34 (25.2%) in the CKD group and 12 (8.4%) in the diabetes group (p<0.001). While higher TFPI was associated with atherothrombotic events in the overall cohort (p=0.012) and CKD group (p<0.001) this was not significant in the diabetes group. An optimal TFPI cutoff to predict atherothrombotic events was created for each group based on Youden index and ROC curve. The overall cutoff was TFPI>42.0ng/mL (subhazard ratio (sHR) 2.28, 95%CI 1.30-4.00) while it was >61.4ng/mL in the CKD group (sHR 3.23, 95%CI 1.59-6.57).

Conclusions: This pilot data suggests that elevated TFPI may be predictive of atherothrombotic events in CKD patients but not patients with diabetes. Further studies are required to validate these findings and explore the mechanisms behind this association.

#27

Fourier Transform Infrared Spectroscopy for Rapid Point of Care Screening for Plasma Cell Dyscrasias

Rowena Brook[1,2,3], **Sanjana Prasad**[1], **Prahlad Ho**[1,2,3], **Hui Yin Lim**[1,2,3], **Shekhar Kumta**[1,4]

[1]Northern Clinical Diagnostics & Thrombovascular Research (NECTAR), Northern Health, Melbourne, Australia

[2]Department of Haematology, Northern Health, Melbourne, Australia

[3]Northern Pathology Victoria, Melbourne, Australia

[4]Department of Surgery, Northern Clinical School, The University of Melbourne, Melbourne, Australia

Background: Plasma cell dyscrasia (PCD) is a heterogenous disease group, ranging from monoclonal gammopathy of undetermined significance (MGUS), an asymptomatic premalignant condition; to multiple myeloma (MM), an aggressive blood cancer. The presentation of PCM is often non-specific with symptoms overlapping with many other conditions. Fourier transform infrared spectroscopy (FTIR) can provide rapid complex information on the constituents of biological samples. We aim to evaluate the capability of FTIR spectroscopy to identify patients with PCD as a potential rapid point-of-care (POC) screening test for PCD.

Method: Adult PCD patients were recruited at Northern Health. Citrated plasma samples from the PCD patients were compared to a cohort of laboratory discard samples (control). FTIR scanning was performed on the Perkin Elmer Spectrum 3 across the range of 1800 to 800 cm^{-1} using a dried plasma film technique. Hierarchal cluster analysis was performed using Ward's method and a categorisation model was constructed using partial least squares discriminatory analysis (PLSDA).

Results: 32 patients were included, 10 MGUS, 15 MM and 7 control samples. The Ward's hierarchal cluster analysis demonstrated the control samples had 1 degree of separation from MGUS and 2 degrees of separation from MM. This is in keeping with the expected PCD disease spectrum with the MGUS samples sitting between the control and MM samples. The PLSDA classification model had a sensitivity and specificity for control classification of 81.81% and 95.74%, MGUS classification of 90% and 81.81%, and MM classification of 88.64% and 88.64% respectively.

Conclusions: The robust performance of the PLSDA categorization model supports the use of FTIR-Spectroscopy as a rapid POC screening test for PCD and strengthens the need to improve and validate this machine-learning model so that it may be used as a valuable POC screening tool.

#28

Multimodal cardiovascular risk prediction model in diabetes outperforms HbA1c and Framingham Risk Score

Authors: Rowena Brook[1,2,3], Mani Suleiman[4,5], Prahlad Ho[1,2,3], Hui Yin Lim[1,2,3]

[1]Northern Clinical Diagnostics & Thrombovascular Research (NECTAR), Northern Health, Melbourne, Australia

[2]Department of Haematology, Northern Health, Melbourne, Australia

[3]Northern Pathology Victoria, Melbourne, Australia

[4]Research and Governance Unit, Northern Health, Melbourne, Australia

[5]Research and Industry Engagement, Latrobe University, Victoria, Australia

Background: Cardiovascular disease (CVD) is the most prevalent cause of mortality in diabetes. However, HbA1c alone and current CVD risk prediction scores do not adequately predict individual risk of CVD. Global coagulation assays (GCAs) can provide a more comprehensive coagulation assessment, a key arm of thrombosis. We aim to create a multimodal CVD risk assessment score which includes GCAs, to predict arterial thrombosis for patients with diabetes.

Method: This prospective observational study recruited adult patients with diabetes from outpatients at Northern Health. Exclusion criteria included end-stage chronic kidney disease (egfr<15ml/min/1.73m^2) and anticoagulation. A baseline assessment was performed with routine laboratory testing and three GCAs; thromboelastography (TEG), calibrated automated thrombogram (CAT) and overall haemostatic potential (OHP). The primary outcome was arterial thromboembolism including myocardial infarction, stroke/transient ischaemic attack or critical limb ischaemia. Time-to-event analysis was performed with mortality as a competing event.

Results: 154 patients were recruited with median age 63 years old (IQR 50-72), 55.8% (n=86) males and median follow-up of 3.7 years (IQR 1.8-4.2). The median HbA1c was 7.5% (IQR 6.6-8.5). Fifteen (9.7%, 3.2/100-person-years) arterial thromboembolic events were captured with median time-to-event of 1.8 years. Patients with events were more likely to have hypercoagulable GCA markers (higher maximum amplitude (clot strength) on TEG and higher OHP (reduced clot breakdown)) compared to those who did not. The overall mortality was 13.0% (n=20), with no mortality due to arterial thromboembolic events. A multimodal risk score incorporating key GCA parameters outperformed HbA1c alone and the Framingham Risk Score in predicting arterial thromboembolic events (Harrell's C score 0.907 vs 0.675 vs 0.574 respectively).

Conclusions: While larger validation studies are required to confirm these findings, this pilot study suggests a multimodal CVD risk assessment approach incorporating GCA parameters may be practice changing and can improve individual prediction of arterial thrombosis in patients with diabetes.

#30

Assessment of plasmin generation in patients with chronic kidney disease

Vincent Lu[1,2], Ilaria De Simone[3], Dana Huskens[3], Vicki Guppy[4], Bas de Laat[3], Prahlad Ho[1,2], Hui Yin Lim[1,2]

[1]Northern Pathology Victoria, 185 Cooper Street, Epping 3076, Victoria, Australia

[2]Haematology Department, Northern Health, 185 Cooper Street, Epping 3076, Victoria, Australia

[3]Synapse Research Institute, 6217 KD Maastricht, The Netherlands

[4]Diagnostica Stago, 351 Burwood Hwy, Forest Hill VIC 3131, Victoria, Australia

Background: Chronic kidney disease (CKD) is associated with both high risk of cardiovascular disease (CVD) and bleeding. We have previously reported that overall haemostatic potential (OHP) can be useful in predicting atherothrombosis and bleeding in patients with CKD, which highlights the importance of further investigation into the impact of CKD on fibrinolysis. This study aims to assess the dynamic process of plasmin generation in patients with CKD.

Method: Patients aged ≥18 years with estimated glomerular filtration rate (eGFR) <30 mL/min/1.73m^2 were recruited from renal outpatients and dialysis centres at Northern Hospital, Epping. Patients on anticoagulation or with active malignancy were excluded. Plasmin generation was tested in platelet-poor citrated plasma using a calibrated, automated method based on established principles used to measure thrombin generation. The results were compared with healthy controls.

Results: Plasmin generation testing was performed on the samples of 84 CKD patients and 127 healthy controls. CKD patients demonstrate a prolonged lag time (2.7 vs 2.4 min, p<0.001) and time-to-peak (5.1 vs 4.7 min, p<0.001) indicating a hypofibrinolytic state. However, endogenous plasmin potential (EPP, 271 vs 257 nM/min, p=0.21) and plasmin peak (45.2 vs 43.8 nM, p=0.27) showed no significant difference. In addition, the OHP to EPP ratio was higher in CKD patients (0.07 vs 0.03, P<0.001).

Conclusions: Our analysis revealed a delay in plasmin generation in CKD patients, which may contribute to hypofibrinolysis. An increase in the OHP:EPP ratio suggests an imbalance in the haemostatic system and a predisposition towards prothrombotic risk factors.

#31

Assessment of plasmin generation in patients with diabetes mellitus

Vincent Lu[1,2], Ilaria De Simone[3], Dana Huskens[3], Vicki Guppy[4], Bas de Laat[3], Prahlad Ho[1,2], Hui Yin Lim[1,2]

[1]Northern Pathology Victoria, 185 Cooper Street, Epping 3076, Victoria, Australia

[2]Haematology Department, Northern Health, 185 Cooper Street, Epping 3076, Victoria, Australia

[3]Synapse Research Institute, 6217 KD Maastricht, The Netherlands

[4]Diagnostica Stago, 351 Burwood Hwy, Forest Hill VIC 3131, Victoria, Australia

Background: Hypofibrinolysis is a key abnormality in diabetes and contributes to increased risk of atherothrombosis. However, the optimal assay to test the efficiency of fibrinolysis is yet to be established. In diabetes, the glycosylation of plasminogen can impair its conversion to plasmin, a critical enzyme for clot dissolution.

This study aims to assess the dynamic process of plasmin generation in patients with diabetes mellitus.

Method: Diabetes patients were recruited from Endocrinology Outpatients at Northern Health. Patients on anticoagulation or with active malignancy were excluded. Plasmin generation was tested in platelet-poor citrated plasma using a calibrated, automated method based on established principles used to measure thrombin generation. The results were compared with healthy controls.

Results: Plasmin generation testing was performed on samples of 143 diabetes patients and 127 healthy controls. Diabetes patients demonstrate a longer lag time (2.7 vs 2.4 min, p<0.001) and time-to-peak (5.2 vs 4.7 min, p<0.001), indicating a hypofibrinolytic state. Paradoxically, patients with diabetes have higher endogenous plasmin potential (EPP, 308 vs 257 nM/min, p<0.001) and plasmin peak (48.3 vs 43.8 nM, p<0.001), as well as a lower endogenous thrombin potential (ETP) to EPP ratio (ETP:EPP) (4.4 vs 5.8, p<0.001). There was no correlation between EPP and HbA1c levels

Conclusions: Our analysis has shown delayed plasmin generation in diabetes patients, which may be a contributing factor to hypofibrinolysis. Higher EPP levels have demonstrated a correlation with multiple cardiovascular risk factors. Further analysis to investigate association with clinical outcomes and incorporate plasmin generation into our multimodal biomarker risk stratification model for prediction of atherothrombosis in diabetes patient is being performed.

#39

Higher tissue factor pathway inhibitor in healthy controls is associated with increased cardiovascular risk factors

Tengyi Cai[1], Joseph Rigano[1,2], Julie Wang[1,2,3], Prahlad Ho[1,2,3], Hui Yin Lim[1,2,3], Rowena Brook[1,2,3]

[1]Northern Clinical Diagnostics & Thrombovascular Research (NECTAR), Northern Health, Melbourne, Australia

[2]Department of Haematology, Northern Health, Melbourne, Australia

[3]Northern Pathology Victoria, Melbourne, Australia

Background: Tissue factor pathway inhibitor (TFPI) is synthesized by endothelial cells and is a potent anticoagulant regulating tissue factor-induced coagulation. Elevated TFPI levels are associated with endothelial dysfunction and atherothrombotic disease. We aim to evaluate TFPI in healthy controls and association with cardiovascular risk factors (CVRF) and coagulation pathways using global coagulation assays (GCA).

Method: This is an observational study involving healthy adults with no known CVRF. Clinical data and blood samples were collected at recruitment for standard blood tests, TFPI and GCA including overall haemostatic potential (OHP) and calibrated automated thrombogram (CAT).

Results: 131 participants were recruited, with median age 38 years (IQR 25, 57) and 63% female (n=83). Median TFPI was 14.45ng/mL (lowest tertile (T1) < 8.66ng/mL and highest tertile (T3) > 24.30ng/mL). Compared to participants with TFPI in T1, T3 participants were older (27 vs 51 years, p<0.01) with worse lipid and glycemic profiles, characterised by higher total cholesterol (4.85 vs 5.70mmol/L, p<0.01), low-density lipoprotein (2.70 vs 2.95mmol/L, p<0.01), triglycerides (0.90 vs 1.10mmol/L, p<0.01) and HbA1c (5.20% vs 5.50%, p<0.01) levels. T3 participants demonstrated longer CAT lag time (3.08 vs 3.67min, p<0.01), lower thrombin peak (245.81 vs 200.32nM, p<0.01), slower velocity index (80.00 Vs 56.97nM/min, p<0.01) with no difference in endogenous thrombin potential (ETP, 1372.10 vs 1315.00nM, p>0.99), representing comparable total thrombin amount but generated at a slower rate. Additionally, T3 participants showed higher OHP (6.07 vs 8.76, p<0.01) and lower overall fibrinolytic potential (OFP) (1.70 vs 78.58, p=0.03), with higher plasminogen activator inhibitor-1 (PAI-1) (4.96 vs 18.52ng/mL, p<0.01).

Conclusions: Higher TFPI levels in healthy adults was associated with increased CVRF and slower thrombin generation, but paradoxically reduced fibrinolysis. This may represent early endothelial dysfunction with associated compensatory mechanisms, with further studies required to explore these findings.

#51

Major bleeding risk in elderly patients receiving anticoagulation for venous thromboembolism - a 10-year retrospective review

Wang J[1,2,4], **Lui B**[2], **Chellaram V**[3], **Ho P**[1,2,4], **Lim HY**[1,2,4].

[1]Northern Clinical Diagnostics and Thrombovascular Research (NECTAR) Centre, Northern Health, Melbourne, Australia

[2]Department of Haematology, Northern Health, Melbourne, Victoria

[3]Department of Pharmacy, Northern Health, Melbourne, Victoria

[4]University of Melbourne, Melbourne, Australia

Background: Elderly patients receiving anticoagulation for venous thromboembolism (VTE) are at increased risk of bleeding complications. There is limited real-world data to guide clinical management in this cohort. We aim to review the risk of major bleeding (MB) in elderly patients being anticoagulated for VTE at Northern Hospital, Victoria.

Method: This is a retrospective review of patients >75 years-old receiving anticoagulation for a new diagnosis of VTE from December 2010 to December 2020. Patients with active malignancy at time of VTE diagnosis were excluded. Univariate cox-regression analysis was performed, with MB (defined as per ISTH-SSC criteria) as the endpoint. Patients without MB were censored at the time of last follow-up or death.

Results: 674 patients (median age 82 years, 36.7% male) were identified. Over a total follow-up of 958.8 patient-years (PY), there were 54 MB events (5.6/100PY) including 17 gastrointestinal and 13 intracranial bleeds, leading to 13 (1.9% overall) bleeding-related deaths. The median time to MB was 1.9 months. MB was associated with previous history of bleeding (18.9% vs 6.8%, p=0.002), lower haemoglobin (114g/L vs 123.2g/L, p=0.002) and concurrent use of CYP3A4 metabolised medications (7.4% vs 2.3%, p=0.027). MB rate was highest for patients treated with enoxaparin (27.7/100PY) and compared to patients on DOAC, enoxaparin was more likely to lead to bleeding (hazard ratio (HR) 5.6, 95%CI 2.4-13.3, p<0.001). No significant differences for MB occurrence were found between patients on therapeutic DOAC (5.2/100PY), prophylactic DOAC (4.4/100PY), warfarin (4.4/100PY) or antiplatelets alone (1.37/100PY), logrank p=0.57

Conclusions: Major bleeding was common (5.6/100PY) and occurred early in older patients being anticoagulated for non-malignancy related VTE regardless of type of anticoagulation and is associated with a substantial risk of death. Enoxaparin was associated with the highest risk. Careful consideration is required when anticoagulating older patients with VTE.

#54

ST-Genesia Thromboscreen following DOAC-Stop neutralisation correlates with venous thromboembolism recurrence in direct oral anticoagulant patients

Rowena Brook[1,2,3], **Vincent Lu**[1,3], **Prahlad Ho**[1,2,3], **Hui Yin Lim**[1,2,3], **Julie Wang**,[2,3]

[1]Northern Clinical Diagnostics & Thrombovascular Research (NECTAR), Northern Health, Melbourne, Australia

[2]Department of Haematology, Northern Health, Melbourne, Australia

[3]Northern Pathology Victoria, Melbourne, Australia

Background: Direct oral anticoagulants (DOACs) interfere with predictive biomarker testing for recurrent venous thromboembolism (VTE). We aim to remove the DOAC effect using DOAC-stop from plasma collected from therapeutically anticoagulated VTE patients and assess thrombin generation with the ST-Genesia, in correlation to risk of VTE recurrence.

Method: Adult VTE patients receiving therapeutic anticoagulation with rivaroxaban or apixaban were recruited. Plasma was collected at around 3 months following VTE (while still therapeutically anticoagulated). Thrombin generation testing was performed following the addition of DOAC-stop using the ST-Genesia Thromboscreen.

Results: 259 patients were recruited (mean age 55.9 years, 55.2% male). 48.3% (n=125) proceeded to maintenance anticoagulation (MA) and were more likely to have had major and/or unprovoked VTE (p<0.01). Compared to patients with limited duration of anticoagulation (LD), the MA group showed higher endogenous thrombin potential (ETP) without thrombomodulin (TM-, normalised 104.2% v 110.0%, p=0.02), with thrombomodulin (TM+, 783.5nM v 671.9nM, p=0.04), and a trend towards reduced ETP inhibition (49.6% v 55.2%, p=0.08).

There were 7 (5.6%) recurrences occurred in the MA group and 16 (12.7%) in the LD group. Within the LD group, there were 6 unprovoked recurrences within a year of anticoagulation cessation. These recurrences were associated with calculated optimal cut offs TM- for peak height >297.7nM (p=0.04), ETP >1553nM (p=0.02) and TM+ normalised ETP>109.6% with a trend towards normalised velocity index>148% (p=0.07)

Conclusions: This study found the MA group (deemed at high VTE recurrence risk by the treating clinician) and LD patients who developed unprovoked recurrence within one year to have more hypercoagulable thrombin generation parameters during the therapeutic anticoagulation period. These pilot findings support the use of DOAC-stop to enable testing during therapeutic anticoagulation for VTE, which can help to stratify risk of VTE recurrence without having to interrupt anticoagulation for patients. Larger studies are required to confirm these findings.

#61

A comparison of traditional health care professional-collected FLOQSwab and self-collected binasal Rhinoswab for SARS-CoV-2 PCR testing

Taylor Corocher[1,2], Kira Edwards[1,2], Yvonne Hersusianto[1,3], Don Campbell[4,8], Paul Monagle[5,6,9,10], and Prahlad Ho[1,2,7]

[1]Northern Pathology Victoria, Northern Health, Epping, VIC, Australia
[2]Northern Clinical diagnostics and ThrombovAscular Research (NECTAR) Centre, Northern Health, Epping, VIC, Australia
[3]Infectious Diseases, Northern Health, Epping, VIC, Australia
[4]Hospital without Walls, Northern Health, Epping, VIC, Australia
[5]Department of Paediatrics, University of Melbourne, Melbourne, VIC, Australia
[6]Murdoch Children's Research Institute, Melbourne, VIC, Australia
[7]Department of Medicine – Northern Health, University of Melbourne, Epping, VIC, Australia
[8]Department of Medicine – Southern Clinical School, Monash University, Clayton, VIC, Australia
[9]Department of Haematology, Royal Children's Hospital, Parkville VIC, Australia
[10]Kids Cancer Centre, Sydney Children's Hospital, Randwick, NSW, Australia

Background: As part of the INHERIT clinical trial, participants self-collected samples using the binasal Rhinoswab, in conjunction with health-care professional-(HCP) collected samples, using FLOQSwabs. We compared the positive and negative percent agreement (PPA and NPA, respectively) of the two collection methods when testing for SARS-CoV-2 via PCR.

Methods: During the initial period of the trial, each self-collected binasal Rhinoswab had its prongs separated immediately after collection, with one prong placed in universal transport media (UTM) for SARS-CoV-2 PCR testing and the other placed in sterile water for alternative testing. After the first 12 months of the trial, both Rhinoswab prongs were placed in UTM. HCP-collected FLOQSwabs and self-collected Rhinoswabs that were collected on the same day were paired for analyses with the exclusion of indeterminate results.

Results: In total, 583 single-prong result-pairs, and 276 double-prong result-pairs were included in the final data set. Overall, the double-prong result-pairs showed 88.0% PPA and 97.0% NPA, comparable to the single-prong PPA and NPA of 84.0% and 98.0%, respectively. The percentage of discordant results that were false negative or false positive was consistent between the single-(84.0% false negative, 16.0% false positive) or double-prong (82.0% false negative, 18.0% false positive) result-pairs. Sample-pairs collected on study day 1 and study day 3 demonstrated an increased PPA (2 prongs, 1 prong) (Day 1: 95.6%, 91.1%; Day 3: 89.0%, 86.1%), however this had decreased by study day 10 (69.2%, 57.8%).

Conclusions: We conclude that SARS-CoV-2 PCR testing with self-collected Rhinoswab samples gives comparable results to HCP-collected samples. The PPA and NPA calculated on study day 1 align with previously published data, however, the decrease in PPA over time indicates that Rhinoswabs may be more appropriately used for random screening, but may not be as useful in surveillance situations where multiple samples are collected over time.

#65

A Novel Thin Film Technique Improves Quality of Spectra from Biological Fluids

Sanjana Prasad[1-2], Sukhneet Sher Gill[1] Rowena Brook[1-4], Shekhar Kumta[1]

[1]University of Melbourne, Melbourne, Australia
[2]Northern Clinical Diagnostics and Thrombovascular Research (NECTAR) Centre, Northern Health, Melbourne, Australia
[3]Northern Pathology Victoria, Melbourne, Australia
[4]Department of Haematology, Melbourne, Victoria

Background: Vibrational Spectroscopy of biological fluids has an emerging role in biomarker discovery and clinical diagnostic applications. Given the aqueous nature of most biological fluids, the vibrational intensities of the water bonds (H-O-H) dominate, thereby overlapping the spectral signature from other analytes. Eliminating the "water" background from the spectrum improves analyte signal, but it distorts the signal emanating from hydrated molecules (proteins and carbohydrates). The dry-drop method improves analyte concentration signals significantly – however, analytes tend to coalesce unevenly given the well-known 'doughnut effect'.

Method: A novel Thin-Film method of Spectral acquisition was compared with the aqueous method using 32-plasma samples of patients with Myeloma (n= 15) and MGUS (n=10) (Normal controls (n=7)), and compared with the spectra obtained using the aqueous method. Briefly, 4 µL of Plasma was pipetted onto the germanium crystal of a Spectrum-3 FTIR Spectrometer. The excess fluid was withdrawn to create a thin-film which was then dried using an air-dryer for 1 minute. The spectra were obtained between 4000-800 cm-1 at 4 cm-1 resolution. Spectra from both methods were analysed using Unsupervised Cluster Analysis (Ward's method) and Supervised classification (Partial Least Squares Discriminant Analysis) using MATLAB-PLS Tool Box (Eigenvector Solo®) to see which of the methods resulted in better clustering and/or classification.

Results: The spectra obtained with the Thin-Film Technique showed consistency and did not require baseline shift correction. Unsupervised Cluster analysis of the 'Dry Spectra' showed 100% accurate clustering (Myeloma, MGUS, Normals) while the Aqueous background method was 95% accurate with supervised PLSDA classification.

Conclusions: The convexity of the Germanium crystal allows the formation of a thin film; provided, the puddle effect of the excess fluid is removed. The consistency of spectra obtained by our method is reflected in intra-sample consistency and has enabled us to perform accurate quantitative analysis as well.

#77

Advancements in Photon-Counting Computed Tomography: A Literature Review

Antony Nguyen[1], Hun Lee[1], Carmen Feng[1], Fiona Nguyen[1], Georgia Ross[1], Kristianne Tarvina[1],

[1]Northern Health, Melbourne, Australia

Background: The introduction of Dual Energy Computed Tomography (CT) has opened many pathways in Diagnostic Imaging. However, the advancement of Photon Counting Technology challenges what we know CT to be. With the use of dual energy techniques, it was possible to distinguish and measure different materials. Attenuation measurements at two different energies are obtained to achieve this. There are a number of ways of accomplishing this, rapid kV switching, multilayer detectors, sequential scans and dual source to name a few. Photon Counting has the potential to overcome the drawbacks of dual energy with improved spatial resolution and decreased noise.

Method: A comprehensive literature search was conducted to identify and review 10 relevant articles on the advancements in photon-counting CT. Articles were selected based on their contributions to the understanding of the technology's principles, applications, and potential improvements over conventional CT imaging.

Results: The review highlighted the significant advantages of photon-counting CT, including enhanced image resolution, reduced noise, and improved material differentiation. Additionally, the findings suggest that photon-counting detectors offer substantial radiation dose reduction while maintaining diagnostic accuracy.

Conclusions: Photon-counting CT is a promising development in medical imaging, with the potential to improve diagnostic practices by offering better image quality and decreased radiation dose. Further research is recommended to explore its clinical applications and long-term benefits in various medical fields.

DIGITAL AND VIRTUAL SERVICES

#5

Does virtual technology close the gap? Perceptions of health professionals managing deteriorating patients

Elisha O'Dowd[1], Sing Tan[2,3,4], Rachel L Duckham[1,5,6,7]

[1]Clinical Leadership Effectiveness and Outcomes, Northern Health, Epping, Victoria, 3076. Australia

[2]Department of Intensive Care and Division of Digital Health, Northern Health, Epping, Victoria, Australia

[3]Faculty of Engineering and Information Technology, University of Melbourne

[4]Department of Critical Care, University of Melbourne

[5]Australian Institute for Musculoskeletal Science (AIMSS), the University of Melbourne and Western Health, St. Albans, VIC 3021, Australia

[6]School Allied Health, Human Service and Sport, La-Trobe University, Bundoora, Victoria

[7]Institute for Physical Activity and Nutrition, Deakin University, Burwood, VIC, 3125, Australia

Background: The COVID 19 pandemic has had significant impact on health services, particularly in the way healthcare providers connect, communicate and collaborate to improve the reach of care in physically disconnected settings. Digital health is now routinely applied across clinical care to aid decision making and management of patients. However, few studies have explored the perceptions of healthcare professionals when digital technologies are utilised to aid management of deteriorating patients. This qualitative study aimed to explore the knowledge, perceptions and barriers of the management of deteriorating patients across Northern Health satellite wards and the acceptability of an integrated virtual approach to aid care and decision making.

Method: Data was collected through in-depth focus groups (N=7) with 16 healthcare professionals working across satellite wards (head of nurse managers and nurses) and the ICU (registrars, nurse liaisons and nurses). Thematic analysis was used to identify common themes in the data.

Results: Four main themes emerged: 1) lack of communication 2) inconsistent education and experience 3) rapid service expansion and 4) digital patient assessment. The results highlight the emotional toll satellite staff experience when managing deteriorating patients especially with the inconsistent transfer protocols between the main hospital and the satellite sites. Improving the communication strategies between sites will help decision making and management of patients and potentially reduce unnecessary patient transfers to the emergency department. Healthcare professionals indicated openness to the use of digital technologies to improve communication but showed concern with the practicality of such devices.

Conclusion: These insights have implications for healthcare organisations in terms of addressing continued communication and consultation when digital devices are considered to aid care in healthcare services that operate across multiple sites. Specifically, the insights gathered from this study will inform the co-designed digital escalation of deteriorating patient protocol to be implemented across Northern Health.

#10

'I'd rather be proactive than reactive again.' Patient and staff perspectives on digital care pathways for low-back pain

Emily C Bell[1,2], Hazel Heng[1], Nicole Alousis[1], Matthew G King[2], Andrew Hahne[2], Thomas Collins[1], Katharine See[1], Tracey Webster[1], Elisha O'Dowd[1], Paul Jackson[1], Adam I Semciw[1,2]

[1]Northern Health, Melbourne, Australia

[2]La Trobe University, Melbourne, Australia

Background: Back pain affects a significant proportion of the population globally. Some people experience pain so severe; they present to an emergency department (ED).

This research aims to investigate patient and staff views, barriers and facilitators around the introduction of a digital care pathway (DCP) for people with low back pain presenting to ED.

Method: A descriptive phenomenology approach with thematic analysis was utilised. Semi-structured interviews were conducted with NH patients and staff. Two researchers developed data codes from transcribed interviews and discussed themes until a consensus was reached.

Results: A total of 16 interviews were carried out, half of which were patient participants. Three major themes arose from the data: (i) the expectations and experiences of staff and patients with low back pain in ED; (ii) a DCP can empower patients and support staff in providing care; and (iii) acceptability, barriers, facilitators and recommendations of engaging with a DCP. Each theme was further categorised into subthemes.

Conclusions: A DCP for people with low back pain in ED was perceived as acceptable and beneficial by patients and staff. This could be a valuable adjunct to current care models by providing a standardised source of education with the potential for individualised tracking and monitoring. The future development of a DCP will need to consider reported facilitators and address perceived barriers to optimise engagement.

#41

Safety, efficacy, and implementation of home-based high-intensity interval training for patients with cardiac disease: a systematic review

Rebecca Turnbull[1,2], **Dylan Perera**[1], **Hazel Heng**[1,2], **Adam Semciw**[1,2]

[1]Division of Allied Health, Northern Health, Epping, Victoria, Australia,

[2]School of Allied Health, La Trobe University, Bundoora, Victoria, Australia

Background: High-intensity interval training (HIIT) is safe and more effective than moderate-intensity continuous training for improving cardiorespiratory fitness in adults with cardiac disease. Home-based delivery of cardiac rehabilitation has been introduced to increase the uptake and participation of programs. The aim of this systematic review was to investigate the safety, efficacy, and implementation of home-based HIIT programs for patients with cardiac disease.

Method: A systematic review of the literature was conducted in three electronic databases (MEDLINE, CINAHL and EMBASE) before 2nd October 2023. Studies were included if they were written in English, peer-reviewed and compared home-based HIIT to other centre-based or home-based exercise interventions. A secondary analysis investigating intervention safety, efficacy and implementation was conducted using the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) framework.

Results: Five studies, involving 153 participants were included in the analysis. There were no differences in exercise capacity or quality of life (QOL) between home-based HIIT and other centre-based or home-based exercise interventions ($p > 0.05$). Across all studies, the reporting rates were highest for program effectiveness (75%) and adoption (75%), followed by reach (70%), implementation (40%), and maintenance (10%). Adherence to the home-based HIIT program ranged between 36% and 100% in three studies. Two studies utilised weekly phone calls with participants to maintain engagement with the HIIT program. Two studies reported adverse events during the home-based HIIT intervention (3%).

Conclusions: Home-based HIIT resulted in similar effects in exercise capacity and QOL as other centre-based and home-based exercise interventions for patients with cardiac disease. HIIT in the home appears to be safe and effective, however adherence to the protocol varies. Further high-quality studies are needed to inform best practices for prescribing HIIT in the home.

EDUCATION AND TRAINING

#18

Virtual health service delivery and clinical learning for nursing and allied health student placements

David Edvardsson[1], **Anthony McGillion**[2], **Adam Semciw**[1,2], **Tania Barry**[2], **Annabel Milonas**[2], **Peter Brack**[2], **Rebecca Jessup**[1,2], **Rachael Duncan**[1], **Monika Aulakh**[1], **Navneet Grewal**[1]

[1]La Trobe University, Melbourne, Australia

[2]Northern Health, Melbourne, Australia

Background: During the Coronavirus (COVID-19) pandemic, health services and educational institutions around the world had to increase their online service delivery and education. Innovative models for online care and support now exist, with further knowledge needed on models and outcomes from virtual clinics for student placements. This study aimed to explore the scientific literature on virtual clinical school models to enable further clinical and pedagogical development.

Method: A literature search was conducted and results were screened and de-duplicated in Zotero. Searches were made using the search terms of clinical school(s) or partnership(s) or university(s), virtual or hybrid or online or remote, student(s), nurs(e/es/ing), midwifery, in English language, based on literature from the last 5 years in Medline, Emcare, Cumulative Index of Nursing and Allied Health Literature (CINAHL) and the Joanna Briggs Institute (JBI). Both forward and backward searching was undertaken. Articles were identified from Medline (n = 393), Emcare (n = 234), CINAHL (n = 162) and Joanna Briggs Institute (JBI) (n = 117). Duplicate records were removed (n = 494) and n = 412 records were screened (title/abstract). N =347 records were excluded and n= 65 studies were included in the review.

Results: Most studies focussed on attitudes, perceptions and experiences of online teaching delivery and pedagogy, as well challenges to and effects on learning outcomes

from online teaching delivery. No studies were found that focussed on virtual clinical school learning and student placements.

Conclusion: Based on successful clinical developments such as the Victorian Virtual Emergency Department, there is a need to further develop and explore the evidence for virtual clinical placements and virtual clinical school models for nursing and allied health students.

EMERGENCY SERVICES

#20

An audit of antibiotic prescribing for animal bites in the Emergency Department

Mahta Mohajeri[1,2], **Joe Anthony Rotella**[1,2,3,4]

[1]Emergency Department, Northern Health, Epping, Victoria, Australia

[2]Addiction Psychiatry and Toxicology, Northern Health, Epping, Victoria, Australia

[3]Victorian Poisons Information Centre, Austin Health, Heidelberg, Victoria, Australia

[4]Department of Critical Care, Melbourne Medical School, University of Melbourne, Parkville, Victoria, Australia

Background: Animal bites are a global public health issue. In Australia, the incidence of hospitalisation has tripled in the past ten years1. As affected individuals can be exposed to a variety of pathogens, current guidelines such as the electronic Therapeutic Guidelines (eTG) recommend prophylactic antibiotic administration.

On our local Electronic Medical Record (EMR), antibiotics can be charted as regular or STAT, however STAT doses are not recognised as part of the regimen and therefore manual errors are common with respect to timing of next administered dose. We sought to audit current EMR antibiotic prescribing in the Emergency Department (ED) for animal bites.

Method: A retrospective audit of patients presenting with animal bites to the ED that required hospital admission under Plastics Surgery was undertaken from 14/04/2024 to 19/07/2024 inclusive.

Results: Twenty-nine patients were included. All received prophylactic intravenous Piperacillin / Tazobactam (Piptaz). Most (68.96%, 20 patients) received an initial stat dose of antibiotic which was then recharted by Plastic Surgery to regular administration and 9 patients (31.03%) were charted regular IV Piptaz in the ED. Almost half (48.27%) received their next dose on time. Seven (24.13%) patients were given their subsequent dose earlier than required (Range 30-185 minutes). Five (17.24%) had a delay in their subsequent dose (14-298 minutes) and one patient (3.44%) never received their next dose.

Conclusions: In order to avoid errors in the timing of antibiotic administration for animal bites in the ED, regular charting reduces errors in timing of next dose compared to STAT dosing.

[1]Dendle, claire (2009) Management of Mammalian bites, RACGP. Available at: https://www.racgp.org.au/getattachment/6d326a0b-e2a4-433d-b691-b814e9617ccd/Mammalian-bites.aspx (Accessed: 07 August 2024).

#48

Frequency and potential causes of non-beneficial Code Blue activations at a metropolitan teaching hospital

David Crosbie[1] **Josta Barton**[1] **Angaj Ghosh**[1] **Barbara Hayes**[2] **Daryl Jones**[3,4]

[1]Intensive Care Unit, Northern Health Epping

[2]Advanced Care Planning, Northern Health

[3]Intensive Care Unit, Austin Health

[4]Dept of Epidemiology & Preventative Medicine, Monash University

Background: Code Blue activations in patients who are not for resuscitation (NFR) may be regarded as non-beneficial, and may cause harm to patients, relatives and hospital staff. This study aimed to estimate the prevalence of non-beneficial Code Blue calls in a metropolitan teaching hospital and identify modifiable factors that could be utilised to reduce these events.

Methods: The study consisted of two parts:

1. A retrospective analysis of all Code Blue activations over a twelve-month period using prospectively collected data. Non-beneficial activations were defined as calls made in patients with a NFR order in either the current or any previous hospital admissions.
2. An anonymous voluntary survey of staff who were present at a Code Blue activation.

Results: There were 186 Code Blue activations over the study period, with 48 (25.8%) defined as non-beneficial. Such patients had more co-morbidities, previous hospitalisations and greater levels of frailty. Most non-beneficial calls occurred on general wards and more than three quarters of patients had been reviewed by a consultant prior to the call. The survey identified that despite ward staff having a considerable degree of resuscitation experience, there were deficiencies in understanding of Code Blue criteria, the resuscitation status of patients under their care and interpretation of goals of care.

Conclusions: Over a quarter of Code Blue calls were deemed non-beneficial. Improving the visibility of NFR status and staff understanding of patient goals of care are needed, along with timely, proactive documentation of NFR status by experienced clinicians.

#68

An audit of suspected pulmonary embolism (PE) management in the Emergency Department- is it ok to play by the rules?

Joe-Anthony Rotella[1,2,3], George Vaughan[1], Amanda Sloan[1]

[1]Northern Health, Melbourne, Australia

[2]Victorian Poisons Information Centre, Heidelberg, Australia

[3]Department of Critical Care, Melbourne Medical School, Parkville, Australia

Background: Pulmonary embolism (PE) is a potentially lethal condition if not identified and treated promptly. As chest pain is a common presentation to the Emergency Department (ED), pulmonary embolism is often considered during clinical assessment. Clinical scores exist to ensure consumers are appropriately investigated for pulmonary embolism without increasing risk to consumers from the investigations (such as radiation from CT imaging) and reduce resource constraints on health care systems. We sought to audit the management of suspected PE in our ED and assess adherence to current evidence-based practice.

Method: A retrospective audit was undertaken of all consumers who had definitive imaging for PE (CTPA or ventilatory-perfusion, VQ imaging) over a 12-month period. Outcomes of interest included key demographics (age, gender), PE yield, whether consumers were 'positive' on either the PE rule out critieria (PERC) rule and/or Well's criteria, D-Dimer result, Troponin result, CoVid status, hospital length of stay and death.

Results: 1608 consumers were identified with a PE yield of 11.12%. In consumers under 50 years of age, 36 patients were negative for both PE rule out scores but had a positive D-Dimer. Of these, two (0.05%) patients had CoVid-related issues (one active infection, one post vaccination). Conversely, 26 consumers had imaging despite negative rule out scores and D-Dimers. In consumers over 50 years, only 2 had a PE and met PE rule out criteria. 422 (26.24%) consumers did not meet any criteria for definitive imaging but underwent imaging in spite of this.

Conclusions: Adherence to current evidence-based practice did not miss any cases of PE in this cohort. Conversely, consumers not meeting this criterion went on to have negative imaging, which highlights equity, resource and time implications for the wider health care system. The PE yield for our ED was in keeping with reported averages in the literature.

#73

Impact of a Virtual Heart Failure Unit on mortality rates

Ahthavan Narendren[1,2], Vikki Hannah[1], Robert Clayton[1], Sarah Noori[1], Naveen Sharma[1], Chiew Wong[1], Larry FA Ponnuthurai[1], William van Gaal[1,3], Don Campbell[1,4], Bill Shearer[1], Rabin Sinnappu[1], Gautam Vaddadi[1], Prasanna Venkataraman[1]

[1]Northern Health, Epping, Victoria, Australia,

[2]Austin Health, Heidelberg, Victoria, Australia,

[3]The University of Melbourne, Melbourne, Victoria, Australia,

[4]Monash University, Clayton, Victoria, Australia

Division of Emergency Services, Department of Cardiology

Background: In Australia, there were 179,000 HF-related hospitalisations in 2020–2021. Hospitalisations for HF are associated with an estimated all-cause mortality rate of 25% at 1 year after a HF hospitalisation. Heart failure and cardiomyopathy contributed to 15% of all deaths in 2021. In November 2021, a dedicated multidisciplinary, consultant-led Virtual Heart Failure Unit (VHFU) was established at Northern Health, Victoria, to manage decompensated HF and to up-titrate guideline-directed medical therapy in patients' homes. We sought to assess change in HF over time and the impact of a VHFU on mortality rates.

Method: A retrospective audit of unplanned admissions to the cardiology department with acute decompensated HF across two time periods (TP1: July 2018–December 2019 and TP2: November 2021–January 2024) excluding the period most affected by COVID-19. Mortality data was collected until February 2024.

Results: 641 patients were admitted across both time periods. 143 patients were admitted to the VHFU (63% male vs. 37% female). 498 patients were not admitted to the VHFU (59% male vs. 41% female). No significant difference in age between the two groups (72 vs. 72, p = 0.27). No significant difference in gender (63% vs. 59%, p = 0.43) in patients admitted to the VHFU and those not admitted to the VHFU. At 30 days post-discharge, the mortality rate for the VHFU was 0.1% (vs. 4%). At 360 days post-discharge, the mortality rate for the VHFU was 8% (vs. 14%). A Cox-Proportional Hazard model showed the VHFU adjusting for age, gender, and time period, was associated with a 60% lower mortality rate.

Conclusions: Patients admitted to the VHFU had a 60% lower mortality rate compared to those not admitted to the VHFU. Accounting for age, gender, and VHFU admission, mortality remained stable across both time periods.

#74

Non-attendance to heart failure outpatient appointments: trends and challenges

Ahthavan Narendren[1,2], Naveen Sharma[1], Chiew Wong[1], Larry FA Ponnuthurai[1], William van Gaal[1,3], Gautam Vaddadi[1], Prasanna Venkataraman[1]

[1]Northern Health, Epping, Victoria, Australia,

[2]Austin Health, Heidelberg, Victoria, Australia,

[3]The University of Melbourne, Melbourne, Victoria, Australia

Background: Population growth and macroeconomic factors have strained the capacity of hospitals to meet ambulatory care needs. An outpatient appointment within 30 days post-discharge following an admission with heart failure (HF) significantly reduces the risk of 30-day mortality by 81%. Only 18.2% of eligible patients with HF with reduced ejection fraction hospitalised with acute HF receive an outpatient clinic appointment and HF disease management review within 30 days post-discharge. We assessed the trends in admission and non-attendance to outpatient HF clinics (OPHC).

Method: In patients admitted with decompensated HF to cardiology and non-cardiology units at Northern Health, Victoria, we assessed time to first outpatient appointment and percentage of appointments non-attended across two time periods (TP) (TP1: 6/2019–6/2020 and TP2: 1/2022–1/2023). We assessed predictors for multiple admissions with HF within each time point.

Results: A total of 2079 (1088 in TP1 and 991 in TP2) patients were admitted with HF and 1243 (60%) patients received an OPHC appointment within 12 months. Percentage of patients admitted under the cardiology unit increased from 33% to 40% ($p < 0.01$). Patients admitted under non-cardiology units were less likely to receive an OPHC appointment and the percentage decreased between time periods (58% vs. 42%, $p < 0.01$). Overall attendance to the first OPHC was 78% with no significant difference between time periods or admitting units. Risk for multiple admissions was higher in TP2 compared to TP1. Attendance to OPHC and a cardiology unit admission was associated with lower risk of multiple HF admissions. Time to first OPHC post-discharge increased by on average 29 days between time periods ($p < 0.01$).

Conclusions: Improving attendance and capacity of OPHC can help reduce readmissions and improve clinical outcomes. Further research is essential to understand and address the underlying factors contributing to non-attendance at HF clinics.

#75

Predictors for non-attendance of cardiology outpatient appointments

Ahthavan Narendren[1,2], Naveen Sharma[1], Chiew Wong[1], Larry FA Ponnuthurai[1], William van Gaal[1,3], Gautam Vaddadi[1], Prasanna Venkataraman[1]

[1]Northern Health, Epping, Victoria, Australia,

[2]Austin Health, Heidelberg, Victoria, Australia,

[3]The University of Melbourne, Melbourne, Victoria, Australia

Background: Non-attendance to cardiology outpatient appointments (COA) can prolong waiting lists, waste hospital resources and impact clinical outcomes. Non-attendance to hospital outpatient appointments is significantly associated with presentations to the emergency department and all-cause mortality. We sought to evaluate predictors of nonattendance to COAs.

Method: This audit assessed attendance and non-attendance for all COAs between 2020–2023 at Northern Health, Victoria, according to appointment type and Indigenous status. Cancelled appointments were excluded from the analysis.

Results: In total, 40,505 COAs were analysed during the study period. The overall NA of all COAs was 17% (6906 vs 33599). Non-attendance was highest for heart failure clinics (19%) compared to electrophysiology and general cardiology clinics (15% and 17%, $p < 0.001$). Non-attendance was greater in first appointments, face-to-face, and in patients requiring an interpreter. Indigenous Australians demonstrated higher nonattendance for all appointment types. In particular, attendance was higher for review appointments compared to first appointments.

Conclusions: Non-attendance to cardiology outpatient appointments is high particularly for Indigenous Australians, initial appointments, and those that require an interpreter. Identifying strategies to improve patient engagement and access can reduce health inequalities and improve patient outcomes.

#76

Impact of a Virtual Heart Failure Unit on readmission rates

A**hthavan Narendren[1,2], Naveen Sharma[1], Chiew Wong[1], Larry FA Ponnuthurai[1], William van Gaal[1,3], Don Campbell[1,4], Bill Shearer[1], Rabin Sinnappu[1], Gautam Vaddadi[1], Prasanna Venkataraman[1]**

[1]Northern Health, Epping, Victoria, Australia,

[2]Austin Health, Heidelberg, Victoria, Australia,

[3]The University of Melbourne, Melbourne, Victoria, Australia,

[4]Monash University, Clayton, Victoria, Australia

Background: In Australia, there were 179,000 HF-related hospitalisations in 2020–2021. The average length of hospital stay for patients admitted with HF in Australia is 6.6 days. The estimated 30-day and 1-year all-cause readmission rates following a HF hospitalisation are 20% and 56% respectively. At Northern Health, Victoria, a dedicated Heart Failure Unit (HFU) was established in August 2019. In November 2021, a dedicated multidisciplinary, consultant-led Virtual

Heart Failure Unit (VHFU) was established at Northern Health, Victoria, to manage decompensated HF and to up-titrate guideline-directed medical therapy in patients' homes. We sought to assess change in HF over time and the impact of a VHFU on readmission rates and length of hospital stay.

Method: A retrospective audit of patients admitted to the cardiology unit with acute decompensated HF (ADHF) from July 2018–December 2019 was compared to ADHF admissions to the HF unit from July 2022–December 2023.

Results: From July 2018–December 2019, there were 223 admissions (62% male vs. 38% female) with an average age of 74. From July 2022–December 2023, there were 309 admissions (62% male vs. 38% female) with an average age of 69. The average length of in-

hospital length of stay reduced from 4.8 to 4.6 days and the average length of hospital in the home length of stay increased from 2.4 to 3.5 days. There was a significant reduction in non-ADHF readmission rates (NAR) by 9% within 30 days. There was a significant increase in ADHF readmission rates by 7% within 30 days.

Conclusions: The introduction of a VHFU was associated with a reduction in non-ADHF readmissions within 30 days. Further research on domiciliary models of care may be necessary to effectively reduce ADHF readmission rates.

EMERGENCY AND VIRTUAL

#32

The VVED Then and Now: A Descriptive Analysis of The Reach and Uptake of The Victorian Virtual Emergency Department

Adam I Semciw[3,4], James H Boyd[2], Rebecca L Jessup[3,4], Jason Talevski[1,2], Suzie M Miller[1], Jennie Hutton[1,2], Joanna Lawrence[1], David Bevan[5], Loren Sher[1,2]

[1]Victorian Virtual Emergency Department (VVED), Northern Health, Melbourne, Victoria, Australia

[2]School of Psychology and Public Health, La Trobe University, Melbourne, Victoria, Australia

[3]School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Victoria, Australia

[4]Allied Health, The Northern Hospital, Northern Health, Melbourne, Victoria, Australia

[5]Victorian Department of Health, Melbourne, Australia

Background: The Northern Health Virtual Emergency Department (ED) began as a pilot in October 2020. In February 2022, it expanded statewide as the Victorian Virtual Emergency Department (VVED), now averaging over 700 patients daily. This study describes the reach and uptake of the VVED over its first and third years of operation.

Method: Data from year 1 (Oct 2020 - Sept 2021) and year 3 (Oct 2022 - Sept 2023) of the VVED. Outcomes were presented separately for each cohort. Logistic regression described the distribution of sex across age groups, presented as odds ratios (OR) with 95% confidence intervals (CI). The reach of the VVED was illustrated using local government areas (LGAs) and presented as age and sex-standardised incidence rates per 1000 person-years.

Results: In year 1, there were 5579 presentations. Registrations were bimodal, with those aged 65+ accounting for 4% of presentations. Male patients were fewer than females in adults aged 18-64 years (OR=0.49 [0.36, 0.65]) and those ≥65 years (OR=0.58 [0.37, 0.89]). Standardised registration rates in the top four LGAs ranged from 6-10/1000 person-years, all from one health service catchment. In year 3, there were 108,313 presentations. Registrations were trimodal, with those aged 65+ accounting for 27% of presentations. Male patients were fewer than females in those aged 13-17 years (OR=0.79 [0.71, 0.89]), a trend maintained in older adults. Standardised registration rates in the top four LGAs ranged from 63-140/1000 person-years, representing multiple health service catchments across the state.

Conclusions: The VVED has grown exponentially and is now a statewide service. Uptake across age groups is not uniform, however, uptake in older adults has increased more recently, likely due to the expansion of dedicated registration pathways (e.g. Residential Aged Care Facilities).

#33

Exploring the Uptake and Outcomes of a Virtual Emergency Department in First Nations Peoples: A Population-Based Study

Jason Talevski[1,2], Imogen Nund Dam[1,3], Nicole Watt[3], Hayley Pepper[3], Greta Basham[1], Loren Sher[1,2], Rebecca L Jessup[4,5], Adam I Semciw[4,5], James H Boyd[2], Suzie M Miller[1], Joanna Lawrence[1], Jennie Hutton[1,2]

[1]Victorian Virtual Emergency Department (VVED), Northern Health, Melbourne, Victoria, Australia

[2]School of Psychology and Public Health, La Trobe University, Melbourne, Victoria, Australia

[3]Wilam Ngarrang, St Vincent's Hospital Melbourne, Melbourne, Victoria, Australia

[4]School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Victoria, Australia

[5]Allied Health, The Northern Hospital, Northern Health, Melbourne, Victoria, Australia

Background: Australian Indigenous populations present to the emergency department (ED) more often than non-Indigenous populations. Preventable hospitalisations for Indigenous Australians and is almost three times the rate for non-Indigenous Australians. The introduction of virtual care represents an opportunity to bridge this access gap. This study aims to describe the characteristics and discharge outcomes Aboriginal and Torres Strait Islander peoples to the Victorian Virtual Emergency Department (VVED) compared to non-Indigenous patients.

Method: This study was a retrospective cohort study analysing data from all individuals who presented to the VVED between 15 March 2022 and 14 March 2024. The VVED is a multidisciplinary virtual emergency care service that provides telehealth consultations for patients as an alternative to in-person care for non-life-threatening emergencies. Patient demographics and discharge outcomes of Indigenous Australians were compared to Non-Indigenous participants using logistic regression modelling.

Results: There were 224,486 presentations to the VVED representing 165,369 individual patients (mean age: 40.1 years; 58.1% female; 72.5% metropolitan). Aboriginal and/or Torres Strait Islander peoples accounted for 2.5% of all presentations (n=5,677). Compared to non-Indigenous patients, Indigenous patients were younger (p<0.001), more likely to be female (p=0.044), reside in a regional/rural area (p<0.001), and more likely to present with respiratory system illness or infectious diseases (p<0.001). Indigenous patients were significantly more likely to be referred to an ED or hospital at discharge compared to non-Indigenous patients (adjusted OR=1.17, 95% CI: 1.07-1.28; p<0.001) and more likely to leave the VVED before being seen or complete their care (adjusted OR=1.14, 95% CI: 1.02–1.05, p<0.001).

Conclusions: The findings of this study provide important insights that will be used to inform healthcare policy and practice by guiding further research and advocacy work in improving virtual emergency care services and contributing to better patient outcomes and health equity for Aboriginal and/or Torres Strait Islander patients.

#34

From Concept to Reality: A Comprehensive Exploration into the Development and Evolution of a Virtual Emergency Department

Suzie M Miller[1], Jason Talevski[1,2], Adam I Semciw3[4], Rebecca L Jessup[3,4], James H Boyd[2], Jennie Hutton[1,2], Joanna Lawrence[1], Loren Sher[1,2]

[1]Victorian Virtual Emergency Department (VVED), Northern Health, Melbourne, Victoria, Australia

[2]School of Psychology and Public Health, La Trobe University, Melbourne, Victoria, Australia

[3]School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Victoria, Australia

[4]Allied Health, The Northern Hospital, Northern Health, Melbourne, Victoria, Australia

Background: Emergency Department (ED) overcrowding remains a persistent global public health problem, leading to detrimental outcomes for patients and healthcare providers. Our team developed the first comprehensive statewide virtual ED in Australia, the Victorian Virtual Emergency Department (VVED), offering an alternative to in-person care for non-life-threatening emergencies.

Method: This paper describes the implementation and evolution of the VVED from its initial concept in 2020 to its current status as a statewide service for nearly seven million residents of Victoria, Australia.

Results: The initial model was established at The Northern Hospital (Melbourne) in October 2020 and only served patients in the Northern Hospital catchment (self-referred) between 1:00-9:30pm. A partnership with Ambulance Victoria was launched in June 2021 that enabled paramedics to seek virtual consultations with an emergency physician to try avoiding unnecessary ED transports. By February 2022, the VVED expanded to a statewide, 24/7 service and has consulted with more than 300,000 patients (currently averaging >750 presentations daily) and employs a multidisciplinary team of >350 healthcare professionals. In addition to self- and ambulance-referral, the VVED includes several additional access pathways, including Residential Aged Care Facilities, Urgent Care Centres, and other healthcare professional practices. The service appears to be highly effective based on ad hoc audits, which indicate that referrals to physical EDs are low (<15%) and that there has been a positive response from patients about the service based on responses in a voluntary post-discharge survey.

Conclusions: The VVED model of care is a pioneering virtual emergency care service that spotlights the feasibility of digital health solutions in alleviating barriers to emergency care access. The successful implementation of the VVED is due to strong stakeholder collaboration, significant government financial investments in infrastructure, clear guidelines and continuous staff education, and proactive efforts to raise public awareness and engagement.

#35

Impact of the Victorian Virtual Emergency Department on Physical ED Utilisation and Patient Mortality

Loren Sher[1,2], Adam I Semciw[3,4], Rebecca L Jessup[3,4], Jason Talevski[1,2], Suzie M Miller[1], Jennie Hutton[1,2], Joanna Lawrence[1], David Bevan[5], James H Boyd[2]

[1]Victorian Virtual Emergency Department (VVED), Northern Health, Melbourne, Victoria, Australia

[2]School of Psychology and Public Health, La Trobe University, Melbourne, Victoria, Australia

[3]School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Victoria, Australia

[4]Allied Health, The Northern Hospital, Northern Health, Melbourne, Victoria, Australia

[5]Victorian Department of Health, Melbourne, Australia

Background: The Victorian Virtual Emergency Department (VVED) is a public telehealth service designed to treat non-life-threatening emergencies. A key objective is to safely redirect patients away from physical Emergency Departments (EDs). This study aimed to: i) describe the discharge destination after VVED presentation, and ii) describe physical ED presentations (within 24 hours) and mortality (30 days) after VVED presentation.

Method: VVED presentations were linked to physical ED presentations and mortality data from the Victorian Centre for Data Linkage. Data covered 12 months (July 2022-June 2023), with 11 months of presentations and one month of follow-up. Descriptive statistics were used to describe discharge destinations, physical ED presentations within 24 hours, and mortality within 30 days.

Results: There were 90,797 linked presentations from July 2022-May 2023. Of these, 55% were discharged to their usual residence, 17% were referred to a General Practitioner (GP), and 13% were advised to present to their local ED. Low rates of physical ED presentations were observed following VVED presentation: 17% of

all VVED presentations and 6% of those discharged to their usual residence. 70% of patients advised to attend a physical ED did so. The 30-day mortality rate was low, at 1.5%.

Conclusions: The VVED has reduced the burden on physical EDs by safely managing a significant number of non-life-threatening emergencies remotely. The low rate of subsequent physical ED visits, especially among those discharged to their usual residence, demonstrates the VVED's efficiency in resolving medical issues through telehealth. The compliance rate of patients advised to attend physical ED is consistent with other telehealth triage services. The low 30-day mortality rate further supports the safety and effectiveness of the VVED model. These findings highlight the VVED's potential as a safe, sustainable, scalable solution for emergency care.

HOSPITAL WITHOUT WALLS

#60

Enhancing Health Literacy and Accessibility Through Peer Health Navigators: Insights from the Victorian Health Navigation Workforce Training Initiative

Simone Said[1], **Natali Cvetanovska**[1], **Susan Whicker**[1], **Rebecca Jessup**[1]

[1]Northern Health, Melbourne, Australia

Background: The role of a peer health navigator (PHN) is increasingly recognised as important for enhancing health system navigation and accessibility, particularly in underserved populations. This study aimed to develop an understanding of the skills and attributes required for PHNs and to develop a capability framework for the Australian healthcare system.

Method: A mixed-methods approach was used to develop an in-depth understanding of the skills and attributes of PHNs. A systematic review established an understanding of the training provided for health navigator roles globally. In addition, we conducted 16 interviews with patients, 15 interviews with managers and expert academics, and 3 focus groups with health navigators and clinicians to gather diverse perspectives on the required skills and attributes.

Results: The Peer Health Navigator Capability Framework developed provides an overview of intrinsic and extrinsic skills and attributes needed by a PHN to support patients in health service navigation. Intrinsic factors include personal characteristics (empathy, trustworthiness, ability to form connections), and knowledge from lived experience (language, culture, disability). Extrinsic factors encompass the education and support gained through both formal training and from an employing organisation through mentoring and supervision. Formal training should include responding to client needs, privacy requirements, facilitating patient rights, communication skills, crisis and escalation, and managing personal stressors. Mentoring and supervision should address the specific needs of both the role and the employing organisation.

Conclusions: Integrating PHNs into healthcare settings can address critical barriers in health literacy and accessibility. This capability framework has informed the development of a new vocational training curriculum tailored for health navigators in the Australian context, and can support the employment of PHNs by providing an overview of the skills and attributes organisations should look for.

MEDICINE

#7

Comprehensive Geriatric Assessment in High-Risk Pre-admission Clinic: Service Evaluation and Clinical Audit

Siomha Murphy[1], **Jia Hao Hui**[1], **Kate Hurley**[1]

[1]Department of Aged Gare, Northern Health, Epping, Victoria, Australia

Background: Pre-admission clinic at our Victorian tertiary health service was re-designed in February 2023 to include multidisciplinary High Risk Pre-admissions Clinic (HRPAC). Patients are triaged to undergo a pre-operative Comprehensive Geriatric Assessment (CGA) by a Geriatrician. This study aims to assess the characteristics of patients seen by the Geriatricians in HRPAC, CGA interventions provided and post-operative outcomes for patients who proceeded to surgery.

Method: A retrospective observational study was conducted. Patient characteristics including Clinical Frailty Scale (CFS) and Charlson Comorbidity Index (CCI) were collected over a 1-year period from February 2023-2024. CGA interventions including cognitive assessment, multidisciplinary team referral and patient-centered goals discussions were recorded. For patients who decided to proceed with surgery, perioperative outcomes were analysed.

Results: There were 132 patients seen in the Geriatrician HRPAC clinic during the study period (mean age 78 years, 38.6% female). The patients were frail with median CFS of 5 (IQR 1.5) and mean CCI of 4.1. 70 patients (53%) had cognitive assessment, 33 (25%) had cognitive impairment. Goals of care discussion were facilitated in most consultations (118, 89.3%). Patients received multidisciplinary allied health input; 48 (36.4%) seen by physiotherapist, 43 (32.6%) by dietician and 119 (90.2%) by pharmacist. Shared decision-making discussions were evident by surgical diversion, 21 patients (15.9%) decided for non-operative management. Most patients were discharged home directly (94%).

Conclusions: Our study identified a cohort of frail patients with significant comorbidities waitlisted for surgery. Integrated CGA in HRPAC model has the potential to optimise pre-operative care pathways for geriatric surgical patients.

#21

A specialist liver nurse-led home-based program following inpatient admission facilitates earlier discharge from hospital.

Leya Nedumannil[1], Catherine Yu[1], Kristen Peake[1], Vanessa Lowen[1], Kendall Fitzpatrick[1], Mustafa Mohamedrashed[1], Mayur Garg[1,2], Diana Lewis[1], Siddharth Sood[1,2].

[1]Northern Health, Melbourne, Australia

[2]The University of Melbourne, Melbourne, Australia

Background: Liver At Home (L@H) is a 3-month liver-focused home-based program. It provides outpatient care for patients with cirrhosis following hospitalisation through regular home and telehealth reviews. We hypothesised that the availability of L@H would facilitate earlier inpatient discharge and reduce hospital length of stay (LOS) those enrolled.

Methods: Patients with cirrhosis were enrolled to L@H between 01/03/2023-01/03/2024. Only index referrals to L@H were analysed (i.e. re-enrolments excluded). Estimated discharge date (EDD) from hospital was provided by the ward Gastroenterology team. Exclusion criteria from L@H included patient included residence outside the hospital catchment and high-risk score on safety screening. LOS in L@H patients were compared to patients with cirrhosis who were not enrolled, using intention to treat analysis.

Results: 71 initial referrals were made to L@H, of which 47 were enrolled and 24 were not. Patient demographics, cirrhosis severity, and reason for admission were similar in both groups. Median hospital LOS in days was 3-(IQR 2-3) in L@H vs 5-(IQR 3-6) in non-L@H patients, p=0.68. Whilst non-L@H patients had a higher proportion with hepatic encephalopathy (p=0.14) and variceal bleeding (p=0.07), median LOS in this subset did not differ from L@H patients [6-(IQR 4-7) vs 8-(IQR 5-11), p=0.19]. Earlier than anticipated inpatient discharge was facilitated by L@H in 31.9%-(n=15) of enrolled patients, by 1 day in 21.3%-(n=10) and 2 days in 10.6%-(n=5) patients. L@H primarily enabled earlier discharge in patients admitted for alcohol-associated hepatitis [40%-(n=6)] and uncomplicated ascites [27%-(n=4)].

Conclusion: Patients with cirrhosis enrolled to L@H had a shorter median hospital LOS by two days relative to a comparator non-enrolled cohort. Our findings suggest that L@H may have facilitated earlier hospital discharge in a subset of these patients with alcohol-associated hepatitis or uncomplicated ascites, who could be effectively observed at home with the close support provided through specialist liver nurses.

#22

Assessing the quality of non-targeted liver biopsies – A portal towards improved reporting

Leya Nedumannil[1], Natasha Walker[1], Eda Gungormez[1], Mustafa Mohamedrashed[1], Siddharth Sood[1,2], Diana Lewis[1]

[1]Northern Health, Melbourne, Australia

[2]The University of Melbourne, Melbourne, Australia

Background and aims: Liver biopsy plays a crucial role in the diagnosis and prognostication of several liver pathologies. The aim of this study was to assess the quality and diagnostic accuracy of non-targeted liver biopsies at our institution.

Methods: We examined non-targeted liver biopsies performed between 1st June 2021 and 1st November 2023. Data was collected on procedural details [interventionalist, biopsy method, and needle size], biopsy specimen characteristics and histopathology. Primary outcome was proportion of diagnostic specimens. Secondary outcomes included specimen length and portal tract number.

Results: Of 169 liver core biopsies identified, 68 were non-targeted. 83.8% (n=57) were performed by interventional radiology, of which 80.9% (n=55) were percutaneous (median needle gauge 16, IQR 14-18) and 3% (n=2) transjugular. 14.7% (n=10) of biopsies were obtained laparoscopically, and 1.5% (n=1) via endoscopic ultrasound. Median sample number per biopsy was 2 (IQR 1-2), yielding 142 individual samples of median length 14mm (IQR 8.5-17). Median aggregate length per biopsy was 24mm (18-36). Portal tract number was reported in 58.8% (n=40) of biopsies [median 9 (IQR 6.5-12)], and 20% (n=8) had <6 portal tracts. Of the 68 biopsies, 58.8% (n=40) were diagnostic, 20.6% (n=14) were non-diagnostic, and 20.6% (n=14) were partially diagnostic. Diagnostic biopsies had greater median individual sample length [14mm (IQR 9-18) vs.13mm (IQR 8-16), p=0.047]. Diagnostic and partially diagnostic specimens combined had more reported portal tracts compared to non-diagnostic specimens [median 9 (IQR 7-12) vs. 5.5 (IQR 2-10), p=0.059].

Conclusion: Our audit revealed a deficit in the reporting of non-targeted liver biopsy results, particularly with respect to portal tract number. Of the biopsies which had portal tract numbers reported, 20% did not meet the Royal College of Pathologists of Australasia criteria for minimum number of 6 portal tracts. Predictors of non-diagnostic biopsies included smaller individual core sample length and portal tract number.

#23

Improved mortality associated with specialist liver-focused at home care program for patients with cirrhosis following hospitalisation.

Leya Nedumannil[1], Catherine Yu[1], Kristen Peake[1], Vanessa Lowen[1], Kendall Fitzpatrick[1], Mustafa Mohamedrashed[1], Mayur Garg[1,2], Diana Lewis[1], Siddharth Sood[1,2]

[1]Northern Health, Melbourne, Australia

[2]The University of Melbourne, Melbourne, Australia

Background and aims: Liver At Home (L@H) is a liver-focused 3-month home-based care program involving regular specialist liver nurse-led home visits and/or telehealth reviews. We aimed to examine readmission and mortality outcomes in patients with cirrhosis enrolled during the first year of L@H.

Methods: Patients with cirrhosis enrolled to L@H between 01/03/2023-01/03/2024 were compared to patients with cirrhosis who were referred to L@H but not enrolled. Only index enrolments were included. Admission back to hospital within 0-7 days was defined as a failed discharge, whilst 8 days-3 months was defined as readmission. Differences between groups were evaluated using intention-to-treat analysis. Cox proportional hazards regression was used to evaluate survival and readmission differences.

Results: 47-index L@H patients were compared to 24-non-L@H patients. There were no significant differences between L@H and non-L@H patients with respect to median age (60 vs 58.5 years, p=0.37), gender (33% vs 46% female, p=0.25), and non-English speaking proportion (28% vs 17%, p=0.31), respectively. Cirrhosis severity was also similar with median MELD-Na score 19 (IQR 13-23) in L@H vs 18 (IQR-13-20.5) in non-L@H patients (p=0.33). Whilst proportion of failed discharges was similar at 4.2% in both groups (p=0.99), 3-month follow-up demonstrated a trend towards reduced liver-related hospital readmission [25% (n=12) vs 33% (n=8), hazard-ratio (HR)-0.70-(0.30-1.60)], and all-cause mortality [6.3%-(n=3) vs 25%-(n=6), HR-0.30-(0.01-1.10)] in L@H patients. During extended follow-up [median 28 weeks (IQR 17-47), total 2175 patient weeks], a statistically significant sustained mortality benefit associated with the L@H program was observed [15% (n=7)-vs 42%-(n=10), HR-0.30-(0.1-0.8), p=0.0086].

Conclusion: This study demonstrates a sustained reduction in all-cause mortality associated with enrolment to L@H in recently hospitalised patients with cirrhosis, relative to a comparator non-enrolled group, despite similar patient demographics and cirrhosis severity. Our findings suggest that L@H has potential benefits including mortality benefits extend well beyond the program's completion.

#24

Strong engagement with home-based liver nurse-led management following discharge from hospital in patients with chronic liver disease.

Leya Nedumannil[1], Catherine Yu[1], Kristen Peake, Vanessa Lowen, Kendall Fitzpatrick, Mustafa Mohamedrashed[1], Mayur Garg[1,2], Diana Lewis[1], Siddharth Sood[1,2]

[1]Northern Health, Melbourne, Australia

[2]The University of Melbourne, Melbourne, Australia

Background and aims: Patients with chronic liver disease (CLD) often have limited access to integrated multidisciplinary outpatient care. Liver-At-Home (L@H) was initiated to bridge this gap through regular home and telehealth reviews for 3 months following hospital discharge. We aimed to evaluate patient engagement with this program and assess predictors of poor engagement.

Methods: Patients enrolled to L@H between 01/03/2023 and 01/03/2024 were divided into the "engaged-group" and "disengaged-group". The former included patients who completed L@H ("completed-L@H"), and who discontinued L@H involuntarily due to long hospital readmission ("incomplete-L@H"). Disengagement was classified as refusal or failure to participate in visits on > 3 occasions. Admission back to hospital within 0-7 was defined as a failed discharge, whilst 8 days-3 months was defined as a readmission. Patient demographic and clinical characteristics were compared between the engaged and disengaged groups.

Results: Of 67 CLD patients enrolled to L@H, 79% (53/67) engaged well with the program [58%-(n=39) completed L@H, 21%-(n=14) incomplete L@H], leaving 21%-(n=14) who disengaged. The disengaged group was significantly younger (p=0.001), with a higher proportion born outside Australia-(p=0.03) and with alcohol-related CLD-(p=0.01). Median MELD-Na score appeared higher in the disengaged group (22 vs. 17, p=0.15). Whilst both groups had similar 3-month all-cause hospital readmission [29%-(n=4) vs. 53%-(n=28), p=0.11], all (n=4) readmissions in the disengaged group were liver-related, compared to 61% (n=17 out of 28) in the engaged group, p=0.27.

Conclusion: A high level of engagement with L@H was observed amongst recently hospitalised CLD patients. We identified younger age, birth outside Australia, and alcohol-related liver disease as predictors of disengagement from the program. These findings from the first year of L@H suggest that despite the psychosocial complexities which tend to afflict this patient cohort, many CLD patients are motivated to partake in home-based specialist liver nurse management to optimise their health.

#25

The power of knowledge – Evaluating disease knowledge and awareness in patients with cirrhosis.

Leya Nedumannil[1], Catherine Yu[1], Mustafa Mohamedrashed[1], Diana Lewis[1], Siddharth Sood[1,2]

[1]Northern Health, Melbourne, Australia

[2]The University of Melbourne, Melbourne, Australia

Background: In patients with cirrhosis, inadequate disease comprehension has been associated with increased healthcare utilisation. We aimed to evaluate knowledge regarding chronic liver disease and its complications in this patient cohort.

Methods: Inpatients with cirrhosis admitted to the Gastroenterology Unit were offered a knowledge questionnaire to voluntarily complete on discharge. The questionnaire comprised 14 questions, each scored out of 1, which covered management of ascites, varices, hepatic encephalopathy (HE), hepatocellular carcinoma, and lifestyle measures.

Results: 61 patients with cirrhosis [median age 61 years (IQR 46.5-70.5), 34% (n=21) female] were identified between 01/03/2023-01/03/2024. Median Child Pugh score was 8 (IQR 7-9) and MELD-Na score 19 (IQR 14-23). 73.8% (n=45) patients had ascites, 20% (n=1) had > Grade 2 HE, and 5% (n=3) presented with variceal bleeding. 66% (n=40) of patients invited completed the questionnaire, achieving a median total score of 8.5 out of 14 (IQR 7-10). Median scores per topic demonstrated poor knowledge particularly with respect to HE. A presentation with > Grade 2 HE did not improve knowledge regarding HE compared to those without [median score 1 out of 3 (IQR 0-2) for both groups, p=0.76]. Despite poor knowledge scores regarding HE, 57% (n=35) patients were prescribed lactulose with/without rifaximin. Of the 21 patients who did not complete the questionnaire, 38% (n=8) were from a non-English-speaking background, compared to 25% (n=10) of those who completed it (p=0.29).

Conclusion: Our patients, regardless of encephalopathy status, exhibited notable shortcomings in their understanding about HE. Given daily clinician assessment for hepatic asterixis, and prescription of anti-encephalopathy medications for a majority of patients, the deficiency in patient knowledge about HE reflects a failure in clinician-patient communication. These findings highlight the need to enhance clinician-led education for patients with cirrhosis and ideally, their next of kin.

#36

Baseline characteristics of participants in the ENhancing HEAlth literacy in secondary pRevenTion of cardiac evENts (ENHEARTEN) study

Jason Talevski[1 2 3], **Denise Azar**[1], **Stephen J Nicholls**[4], **Anna Wong Shee**[5 6], **Catherine Martin**[7 8], **William Van Gaal**[9 10], **Ernesto Oqueli**[11 12], **Jaithri Ananthapavan**[13], **Laveena Sharma**[1 14], **Adrienne O'Neil**[14], **Sharon Lee Brennan-Olsen**[15], **Adam Nelson**[4], **Rebecca Leigh Jessup**[16 17], **Alison Beauchamp**[1, 4]

[1]School of Rural Health, Monash University, Warragul, Victoria, Australia,
[2]The Northern Hospital, Northern Health, Melbourne, Victoria, Australia
[3]Institute for Physical Activity and Nutrition Research (IPAN), School of Exercise and Nutrition Sciences, Deakin University, Geelong, Victoria, Australia,
[4]Victorian Heart Institute, Monash University, Clayton, Victoria, Australia,
[5]Community and Aged Care, Grampians Health, Ballarat, Victoria, Australia,
[6]Deakin Rural Health, Deakin University, Ballarat, Victoria, Australia,
[7]Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, Victoria, Australia,
[8]Data Science and AI, Monash University, Melbourne, Victoria, Australia,
[9]Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne, Victoria, Australia,
[10]Department of Cardiology, The Northern Hospital, Melbourne, Victoria, Australia,
[11]School of Medicine, Deakin University, Burwood, Victoria, Australia,
[12]Cardiology, Ballarat Health Services - Grampians Health, Ballarat, Victoria, Australia,
[13]Deakin Health Economics, School of Health and Social Development, Institute for Health Transformation, Deakin University, Geelong, Victoria, Australia,
[14]Institute for Mental and Physical Health and Clinical Training, Food & Mood Centre, Deakin University, Geelong, Victoria, Australia,
[15]School of Health and Social Development, Deakin University - Geelong Waterfront Campus, Geelong, Victoria, Australia,
[16]School of Allied Health, Human Services and Sport, La Trobe University, Melbourne, Victoria, Australia,
[17]Staying Well Program, Northern Health, Melbourne, Victoria, Australia

Background: Health literacy – the ability to find, understand, and use health information – is a determinant of health that contributes to health inequalities. Low health literacy is common in people with cardiac disease, however no previous studies have examined the relationship between health literacy and long-term health outcomes post myocardial infarction (MI). The ENHEARTEN study will examine associations between health literacy and health outcomes in adults with incident MI.

Method: ENHEARTEN is a multicentre, prospective observational study with the primary outcome of unplanned hospital admissions within 6-months of first MI. Adults (>18 years) were recruited across three metropolitan and one regional hospital in Victoria. Baseline data included medical history and sociodemographic variables. Health literacy was assessed using the 12-item European Health Literacy Survey (HLS- Q12). Four scales from the Health Literacy Questionnaire (HLQ) (Actively managing health, Navigating healthcare services, Social support for health, and Actively engaging with providers). Linear regression was used to determine associations between health literacy and sociodemographic/health variables.

Results: 450 participants were enrolled between November 2021-January 2024. Mean age was 59.5 years, with 77.8% male, 39.6% born outside Australia and 35.7% residing in rural/regional Victoria. Stratifying the HLS-Q12 scores using tertiles, 36% had lower, 34.8% intermediate and 29.2% higher health literacy. Older age ($p<0.05$) and not completing secondary education ($p<0.05$) were associated with lower HLS-Q12 scores. Higher depression and anxiety scores ($p<0.01$) were associated with lower scores on the HLS-Q12 and the four HLQ scales. In addition, lower income was associated with lower social support for health scores and living rurally was associated with lower scores for actively engaging with providers ($p<0.05$).

Conclusions: Baseline findings suggest that additional support may be needed for older and socioeconomically disadvantaged cardiac patients. Findings from this study will inform the development of cardiac secondary prevention interventions that target health literacy deficits.

#45

Outcomes of early antiviral treatment in ambulatory COVID -19 end stage kidney disease patients- an Observational, Single-centre Experience

Chui Lynn Lai[1], Ashani Lecamwasam[2], David Barit[2]

[1]Northern Health, Melbourne, Australia

Background: In the end stage kidney disease cohort, infection with Covid-19 can result in increased morbidity and mortality. There is a paucity of data on Covid-19 antiviral treatment outcomes in the ambulatory setting of this group. Furthermore, there is conflicting literature on the use of antivirals, specifically remdesivir, in dialysis patients due to nephrotoxicity. Therefore, we conducted a retrospective, observational analysis on this group of patients to assess the safety of early antiviral treatment of Covid-19 in this high risk group with outcomes focusing on hospitalization and mortality as well as adverse effects.

Method: Data on patient demographics, antiviral treatment and outcomes inclusive of hospitalization, 30-day mortality and adverse drug events of 160 ambulatory end stage kidney disease and renal transplant patient presentations with Covid-19 were collected from the hospital's electronic medical record between January 2022 and January 2024.

Results: Of the 160 patient presentations, 117 (73.1%) received outpatient treatment while the rest did not receive treatment either due to ineligibility, patient refusal or had completed therapy as inpatients. Four of the 117 patients had adverse effects secondary to treatment-namely, medication-related transient hypo/hypertension. Thirty of the 160 patients (18.7%) were admitted to hospital within 3 weeks of their Covid diagnosis. The majority of these (66.7%) were admitted for Covid-19 related causes, including 4 due to outpatient treatment administration logistics. The remainder of the admissions (33.3%) were for non-Covid-19 related causes. Mortality directly due to Covid-19 was only 1.32%.

Conclusion: Our study shows that early treatment of Covid-19 in a high risk, vulnerable group is effective in reducing hospitalization and mortality with minimal adverse effects.

#55

Readmission and Mortality During and After an Admission with Acute Kidney Injury: a Victoria-wide Data-linkage Analysis

Zena Barakat[1,2], Timothy J. Pianta[1,3]

[1]Northern Health, Melbourne, Australia

[2]Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne, Australia

[3]Medical Education, University of Melbourne, Melbourne, Australia

Background: Acute kidney injury (AKI) is a relapsing condition, but its incidence in Australia, including Victoria, are primarily based on admitted care episodes, leaving its epidemiology ill-defined.

Methods: This retrospective data-linkage analysis integrated the Victorian Death Index, Cancer Registry, Integrated Non-Admitted Health, and Admitted Episode Datasets, providing patient-level data. International statistical classification of diseases (ICD-10-AM) data for all adult, acute, overnight, and inpatient admissions in Victorian public and private hospitals between July 2016 and June 2017 was interrogated to identify admissions caused or complicated by AKI.

The first AKI episode for each individual was designated the Index Admission (IA). The look-back and follow-up time was 36 months to define comorbidity and outcomes, respectively. Primary outcomes were incidence and prevalence of AKI. Secondary outcomes included readmission, mortality rates, associations, and diagnosed causes.

Results: 7.00% ([196,784 hospitalisations, (95%CI: 6.96-7.02%)] of 2,817,098 hospitalisations were caused or complicated by AKI. Incidence was highest for elderly, overseas-born, and comorbid patients. Since our and other previous studies demonstrate AKI is underdiagnosed, the estimated true incidence is 17.5%. 38,033 individuals experienced 96,549 AKI episodes, producing a prevalence of 10.8 per 100 Victorians p.a. (95%CI: 10.7–10.8).

Inpatient mortality at IA for AKI was 5.2%, associated with Indigenous status, higher co-morbidity burden, age, and aged care facility residence (each $p < 0.05$).

Among IA survivors, 70.4% were readmitted within 12 months, with 43.3% experiencing recurrent AKI. New diagnoses at readmission included kidney disease (34.9%), cardiovascular disease (40.0%), and cancer (10.9%). Mortality was 27.2% by 12-months and 39.8% by 36-months, primarily attributed to cancer (26.0%) and cardiovascular disease (20.8%).

Conclusion: This Australian-first, jurisdiction-wide, patient-level study verifies AKI is a relapsing condition with high incidence. AKI represents a major public health problem with substantial readmission and mortality. These results should inform prognostication, counselling, policy, resource allocation, and targeted clinical research.

#57

Measuring Infliximab Drug Levels Using Spectroscopy

Saiumaeswar Yogakanthi[1], Shehkar Kumta[2], Sanjana Prasad[2], Sukhneet Shergil[3], Mustafa Mohamedrashed[1], Mayur Garg[1,2]

[1]Department of Gastroenterology, Northern Health, Epping, Victoria, Australia

[2]The University of Melbourne, Melbourne, Victoria, Australia

[3]Deakin University, Melbourne, Victoria, Australia

Background: Infliximab is an established therapy in inflammatory bowel disease however is affected by variable pharmacokinetics, thereby requiring measurement of drug levels. Given the prolonged turnaround times associated with enzyme linked immunosorbent assays (ELISA) used to measure infliximab drug levels currently, fourier transform infrared spectroscopy (FTIR) offers a possible novel point of care test. This study aimed to assess the feasibility of assessing infliximab drug levels in plasma using spectroscopy.

Methods: Infliximab (Inflectra©) was spiked into pooled human plasma with 35 dilutions spanning 0.625 ug/ml to 300ug/ml created. Spectroscopy was conducted with a Perkin Elmer FTIR Spectrometer (Model Spectrum-3, USA) equipped with a mid-infrared 785nM laser source, a DTGS detector for low signal-to-noise ratio detection and an ATR (Attenuated Total Reflectance) accessory for scanning of plasma. Spectral scans were performed by placing a 10ul drop of plasma on the ATR crystal and scanning at a 4cm-1 resolution. Each sample underwent 3 repeats with 32 acquisitions per scan. Spectral data was acquired using Spectrum™ 10 (PerkinElmer Inc) with subsequent analysis using Solo™ (Eigenvector Research Inc).

Results: A regression model using the partial least squares regression technique was established using 10 latent variables. Autoscaling was used as pre-processing. Cross-validation was performed using the venetian blinds technique with 10 splits and a blind thickness of 1. The model's root squared mean error of calibration, cross validation and prediction was 15.2ug/mL, 28ug/mL and 15.5ug/mL respectively whilst the R^2 of calibration, cross validation and prediction was 0.97, 0.91 and 0.98.

Conclusion: In this study, we have demonstrated the ability to detect infliximab levels in plasma using spectroscopy. Whilst demonstrating a good fit, current limitations include the mean error in prediction of 15ug/ml. Nonetheless, these results provide the basis for future improvements in predictive accuracy through additional spiked samples and testing on patient cohorts.

#62

Insights into Patient Perspectives: Acute Severe Ulcerative Colitis Inpatient Experience Survey

Mustafa Mohamedrashed[1], **Saiumaeswar Yogakanthi**[1], **Ayushi Chauhan**[1], **Sarah Lucas**[1], **Soleiman Kashkooli**[1], **Mayur Garg**[1]

[1]Northern Health, Melbourne, Australia

Background and Aims: Acute severe ulcerative colitis (ASUC) represent a severe manifestation of inflammatory bowel disease (IBD) that requires close monitoring and aggressive treatment. This study aimed to evaluate the experience of patients admitted to a single tertiary service with ASUC, focusing on perception of the received therapy, and preferences regarding location of care.

Method: Patients admitted with ASUC between May 2022 and October 2023 were invited to participate in a retrospective qualitative and descriptive study by completing a short online survey in February 2024. Patients were identified through retrospective review of the unit's existing inflammatory bowel disease database, with 35 patients randomly selected for participation.

Results: Of the 35 patients invited, 27 (77%) responded. Only patients fulfilling Truelove and Witt's criteria for ASUC were included in this study (20/27, 74%). The median length of stay was 5 (IQR 4.37-6.62) days. The majority of study participants were exposed to 5ASA therapy prior to their index admission at 14/20 (70%), and 7/20 (35%) had received prior immunomodulator or biological therapy. Most study participants reported they received excellent overall inpatient care (75%) and strongly agreed with feeling safe when being managed as an inpatient (85%). Furthermore, 15/20 (75%) of participants felt their individual needs and questions were met during their hospitalisation and 16 (80%) strongly agreed that their management plan and disease was well explained during hospitalisation. A preference for inpatient rather than ambulatory setting was noted by the majority (14/20, 70%) for management of their episode of ASUC.

Conclusion: Patients admitted with ASUC experienced a high degree of satisfaction with their care, with a preference towards inpatient care. Most patients preferred inpatient intravenous based management. Larger studies are required to elucidate the additional factors that drive this preference and those that would increase patient comfort with ambulatory care.

#63

Is there a "Weekend Effect" on Clinical Outcome of Acute Severe Ulcerative Colitis? A single centre retrospective analysis

Mustafa Mohamedrashed[1], **Saiumaeswar Yogakanthi**[1], **Diana Lewis**[1], **Ryan Bartlett**[1], **Melissa Chew**[1], **Rebecca Pearce**[1], **Leya Nedumannil**[1], **Solieman Kashkooli**[1], **Mayur Garg**[1]

[1]Northern Health, Melbourne, Australia

Background: Acute severe ulcerative colitis (ASUC) represents a medical emergency that requires hospitalisation, close monitoring and intensive medical therapy. The "weekend effect" refers to the observed phenomenon of poorer patient outcomes when admitted over the weekend compared to weekdays. The aim of this study is to examine this phenomenon in patients admitted with ASUC.

Method: Patients admitted with ASUC between January 2016 to May 2023 were identified retrospectively, and separated into 2 groups depending on time of triage – weekdays (Monday 0800 – Friday 0800) or weekends (Friday 0800-Monday 0800). The primary outcome was length of initial hospitalisation, with secondary outcomes being time to first endoscopic assessment, requirement for rescue therapy, time to rescue therapy, rate of colectomy, and 12-month readmission rate.

Results: 95 patients (53% male; median age 35 [IQR 28.5-49] y) fulfilling Truelove and Witts' criteria were included in this study. 72 (75.8%) were admitted on weekdays, and 23 (24.2%) on weekends.

The median length of hospitalisation was 5 (IQR 4.5-8) days in patients admitted on weekdays compared with 10 (IQR 6-12) days in those admitted on weekends (p = 0.006). The time to first endoscopic assessment was 43.5 hours vs 72.5 hours (p = 0.25), respectively. Rescue therapy with infliximab was required in 32 (33.6%) vs 15 (15.7%) patients. The median time for infliximab therapy was 98 (IQR: 76.5-134) hours in weekday group vs 121 (IQR: 95.5-164) hours in weekend group (p = 0.12). There was no significant difference in requirement for colectomy (3 vs 1 patients, p = 1.0) or twelve-month all-cause readmission rates (34/72 [72.2%] vs 9/23 [39%], p = 0.66).

Conclusion: Patients admitted to hospital with ASUC on weekends had a longer length of stay and trend towards delayed endoscopy, but no statistically significant differences across other parameters. Weekend admission did not negatively influence clinical outcomes.

#67

The impact of [18F]fluoro-2-Deoxy-D-glucose Positron Emission Tomography for the diagnosis of dementia at Northern Health

Arabelle Douglas[1,2], Carol Chong[1], Douglas Crompton[1].

[1]Northern Health, Melbourne, Australia.

[2]St Vincent's Hospital, Melbourne, Australia.

Background: Alzheimer's disease (AD) is the most common cause of dementia and an increasingly important public health issue. Reliable, sensitive and specific diagnostic tools for AD are therefore essential. From November 2021, 18F]fluoro-2-Deoxy-D-glucose Positron Emission Tomography (FDG-PET) was included in the Medicare Benefits Schedule (MBS) for patients where the diagnosis of AD is equivocal. This form of cerebral imaging shows glucose metabolism in the brain, where specific patterns of glucose hypometabolism are associated with neurodegeneration. This audit evaluated whether patients referred for an FDG-PET met MBS criteria, and whether their diagnosis changed after FDG-PET from the pre-scan diagnosis.

Method: This audit included all new patients seen in the Northern Health Cognitive Dementia and Memory Service (CDAMS) between November 1 2021 and November 2 2022. Sociodemographic and clinical data were collected from the Clinical Patient Folder. Where patients were referred for FDG-PET it was documented whether the referral met MBS criteria. The impact of the FDG-PET result was scored, based on whether the FDG-PET result changed the clinician's diagnosis or prescription of medication, or whether it changed the pre-test diagnosis of dementia to a non-neurodegenerative condition.

Results: 156 new patients were included. 54 patients (35%) were referred for FDG-PET. 45 patients (83%) met MBS criteria for FDG-PET. 34 patients (63%) had an FDG-PET pre-scan diagnosis of possible or probable AD, 8 (15%) with non-AD dementia and in 12 (22%) patients, dementia was thought unlikely. Diagnosis following FDG-PET confirmed a neurodegenerative disease in 33 patients (61%): 19 (35%) with AD and 14 (26%) with non-AD dementia. 21 (39%) had a post-scan diagnosis of a non-neurodegenerative cause for cognitive symptoms. Overall, in 25 (46.3%) patients, FDG-PET had a significant impact, changing the diagnosis, treatment, or both.

Conclusions: FDG-PET changed the diagnosis or treatment plan for almost half of all patients in Northern Health CDAMS clinics. These valuable results will help to guide decision making when investigating people with suspected dementia.

#71

Mitigating Hypoglycaemia: Rethinking Gestational Diabetes Screening in Bariatric Surgery Patients

Ashni Goshrani[1], Vinh Hong[1], Jasmine Seah[1], Michele Bardin[1]

[1]Northern Health, Melbourne, Australia

Background: Gestational diabetes mellitus (GDM) is a common complication during pregnancy. The standard screening for GDM involves a 75g oral glucose tolerance test (OGTT). However, in patients with a history of bariatric surgery, the OGTT poses a risk of dumping syndrome, potentially leading to maternal hypoglycaemia and increased neonatal complications. This audit aims to identify the incidence of GDM, diagnostic methods, and rates of hypoglycaemia associated with the OGTT in pregnant patients with prior bariatric surgery at Northern Health. We hypothesize that there is a high rate of hypoglycaemia post-OGTT, with a lower incidence of GDM in patients achieving a normal BMI compared to those with a BMI ≥25.

Method: This observational, retrospective audit spans from 2014 to 2023. A total of 121 patients from the Obesity in Pregnancy clinic, all with a history of bariatric surgery, were included. Patients without bariatric surgery or with type 2 diabetes were excluded. Data on demographics, type of bariatric surgery, hypoglycaemia episodes, and maternal and neonatal outcomes were collected.

Results: The frequency of GDM was 32/121 (26.45%) of the cohort. The OGTT was the most common diagnostic method (45.5%), followed by fasting plasma glucose and self-monitoring of blood glucose. Hypoglycaemia (≤3.5 mmol/L) related to the OGTT occurred in 29.1% (16/55) of cases. The most common bariatric procedure was gastric sleeve, followed by gastric banding.

Conclusions: The GDM rate among patients with prior bariatric surgery in this cohort is higher than in other observational studies. Despite the risks of dumping syndrome and hypoglycaemia, the OGTT remains the most common testing method. We are currently conducting a prospective study to determine the optimal diagnostic approach for this population and to develop appropriate guidelines.

#72

Effect of escalated or intensified infliximab dosage on outcomes in acute severe ulcerative colitis hospitalisations

Ryan Bartlett[1], **Mustafa Mohamedrashed** [1], **Saiumaeswar Yogakanthi** [1], **Melissa Chew1** , **Leya Nedumannil**[1], **Rebecca Pearce1, Sarah Lucas**[1], **Ayushi Chauhan**[1], **Diana Lewis**[1], **Soleiman Kashkooli**[1], **Mayur Garg**[1,2]

[1]Northern Health, Melbourne, Australia

[2]University of Melbourne, Parkville, Australia

Background: 30-50% of patients admitted with Acute Severe Ulcerative Colitis (ASUC) require rescue therapy, with modern strategies transitioning toward escalated or intensified infliximab dosing. This project evaluated the association between evolving strategies with length of stay, 12-month cumulative steroid burden and colectomy rate.

Method: Patients who received Infliximab rescue therapy in index ASUC admissions between January 2016 and December 2023 were analysed. Patients were grouped based on Infliximab dosage administered in first 14 days of admission as either standard (<5mg/kg) or escalated/intensified (≥10mg/kg). Outcomes assessed included length of hospitalisation, 12-month cumulative steroid exposure (in prednisolone mg equivalent) and 12-month colectomy rate. Analysis was performed using Mann-Whitney U and Pearson's Chi-Square tests.

Results: 111 patients (47 [42.3%] female, median age 38) met Truelove and Witts criteria for ASUC. 55 (49.5%) patients required infliximab, with 25 receiving standard and 30 receiving escalated/intensified dosing. There was an increasing trend in the proportion of patients receiving escalated/intensified infliximab from 2016-2019 (20.8%) to 2020-2023 (40.9%) (p=0.08). Median hospitalisation length was similar in both groups (6 [standard] vs 8.5 days [escalated/intensified], p=0.13). Median 12-month cumulative steroid usage was similar with standard and escalated/intensified infliximab (1850mg vs 1650mg, p=0.16). 12-month colectomy rate post admission was greater in the standard group than escalated/intensified group (12% vs 0%, p=0.05). Median length of stay and 12-month cumulative steroid usage did not significantly change between 2016-2019 and 2020-2023 (6 vs 6 days, p=0.19; 1705mg vs 1667.5mg, p=0.98).

Conclusions: There has been a non-significant trend towards patients receiving escalated/intensified doses of infliximab. Intensified and standard infliximab dosages showed similar rates of 12-month steroid usage and length of stay; however, 12-month colectomy rates were lower in the intensified group. Ongoing monitoring of infliximab dose related outcomes in ASUC, along with adjustment for disease severity, is required.

MENTAL HEALTH

#12

A systematic review of Assertive Community Treatment for adults with complex mental illness; its effect on Emergency Department presentations and patient outcomes

Ms Vanessa von Berg[1,3] **Dr Md Shapin Ibne Sayeed**[2,3] **Dr Hazel Heng**[2,3] **Ms Billy-Jo Bruce**[1] **Associate Professor Adam Semciw**[2,3]

[1]Division of Mental Health, Northern Health, Broadmeadows, Victoria, Australia

[2]Division of Allied Health, Northern Health, Epping, Victoria, Australia

[3]School of Allied Health, La Trobe University, Bundoora, Victoria, Australia

Background: Assertive Community Treatment (ACT) could be a useful approach to addressing psychiatric over-presentation to the ED, but has been criticised for lack of client outcomes/voice. This systematic review explored ACTs efficacy in addressing client identified psychosocial needs and reducing ED visits to suggest improvements in a Model of Care (MOC) for those with Serious and Persistent Mental Illness (SPMI).

Methods: A systematic review was undertaken on nine electronic databases (CINAHL, MEDLINE, Scholar, Scopus, PsycINFO, PubMed, Social Care Online, Cochrane, and Social Work Abstracts) for articles published between 31/12/2013 and 25/10/23 to understand the state of research since its general withdrawal from MOCs. English language peer-reviewed articles relating to ACT consumers frequency of, or costs associated with ED visits were included. A secondary analysis examining change in psychosocial functioning was also conducted to address criticisms raised on client choice/voice.

Results: Ten articles were included where variations were prominent (multiple models and change measures). Descriptive analysis found significant and non-significant reductions in ED visits in all but one article. Psychosocial reports were not well represented with only five measuring patient outcomes. Of those, significant improvement in functioning and relationships but not symptom reduction was observed. Few self-report measures were included.

Conclusions: ACT is likely a tool for reducing ED presentations in clients with SPMI however improvement in patient outcomes are not as consistent. Further research would benefit from clarifying this area and incorporating self-report measures.

#2

Safer For All - Reducing Restrictive Interventions

Carl Magri, Jason Ray, Llewella Vivian-Taylor, Rhea Balintag, Reji Jaison, Lee Frampton

Background: Reducing restrictive interventions has been on the agenda in Acute Inpatient Units for many years. However, Safer Care Victoria has initiated the Safer For All project to improve healthcare in Victorian publicly funded mental health and wellbeing services, making them safer, and more effective, appropriate and connected. The projects aim was to reduce the use of restrictive practices in acute mental health inpatient units. Ward 23 participated in this improvement project and saw some promising benefits.

Method: A method of improvement science was used by conducting Plan Do Study Act (PDSA) cycles. The Safer For All multidisciplinary team brainstormed low effort and high impact ideas that may reduce the use of restrictive practices. We would run these ideas through a PDSA cycle at a very small scale. We would then review the outcome, see what worked and what didn't work. We continued to adjust our findings and run further PDSA cycles on the change idea as we scale up the volume. If we didn't see any desirable effects we would cease the testing and move to a new change idea.

Results: We found that the method allowed us to try many different ideas at a quicker rate leading to higher success. Through the change ideas in the project we were able to achieve a reduced use of seclusion, mechanical and physical restraints by 20% or more on Ward 23.

Conclusions: In conclusion the project was successful in assisting the team with a method to discover change ideas that produced a reduction in restrictive interventions. During the project the team moved wards to a newly purpose-built location. This new environment was incorporated into the project as change idea and may have influenced the result.

#15

Integrating Digital Technologies into Clinical Education for Psychiatrists

Yang Yun

Mental Health Division. Northern Health, Melbourne, Australia

Background: Ongoing clinical education is pivotal to the success of health professionals' training, from undergraduate and postgraduate levels through to specialty training in various disciplines. The rapid rise of digital technologies, such as virtual reality (VR) and augmented reality (AR), is significantly influencing how clinical education is delivered at both institutional and individual levels. There has been a notable increase in the adoption of these technologies by learners across many health disciplines. This presentation aims to explore the impact of digital innovations on psychiatric education and training.

Method: Summary of literature based on publications and discussions with educators, researchers, and clinicians in mental health services

Results: In psychiatric training and education, new digital technologies impact two main areas. First, they influence curriculum development by highlighting the need to address the effects of digital technologies on clients' mental health, incorporating digital tools in service delivery (such as tele-psychiatry and VR techniques), considering ethical implications of digital innovations, and understanding technical requirements in clinical practice. Second, they affect the delivery models of education and training, including online education sessions, online supervision, and the use of VR in clinical assessment and learning. Although there are current limitations to the utility of digital technologies, the trend toward integrating these tools into psychiatric education and training is unavoidable.

Conclusions: Educators and clinicians should seize the opportunity to evaluate current teaching practices that incorporate digital innovations and actively adopt these new approaches as part of clinical education in psychiatry

PHARMACY

#37

Cost-Effective Analgesia: The role of inhaled Methoxyflurane (Penthrox®) in Patient-Controlled Analgesia

Sema Akan[1], Joyce Anthony Edman[1], Mani Suleiman[1], Jeff Khoshaba[1], David Nguyen[1], Vinod Chellaram[1], Jier Nguyen[1]

[1]Northern Health, Melbourne, Australia

Background: In late 2022, inhaled methoxyflurane (Penthrox®) gained approval for use in Acute Pain Services at Northern Health, extending the indication for burns management and dressing changes. Penthrox® has since been adopted as an alternative analgesic in ward settings, reducing the need for additional interventions such as transferring patients to operating theatres (OT) and administering multiple opioids, thereby reducing associated costs and addressing safety concerns. The aim of this study is to assess the impact of Penthrox® on the rate of transfers to OT, medication safety, opioid usage, cost reduction and patients' analgesia outcomes pre and post Penthrox® introduction within the Northern hospital.

Method: A retrospective audit was conducted for the periods before and after the introduction of Penthrox® for surgical patients aged 18 years and over. Indications included dressing changes, burns management and wound debridement. Data was collected across two periods: 2021 (pre- Penthrox® introduction) and 2023 (post- Penthrox® introduction).

Results: Following the initial data collection, the period after introducing Penthrox® demonstrated a marked decrease in transfers to OT for debridement and dressing changes, significantly reducing costs. There was a noticeable decline in opioid use observed both before, during, and after procedures. The data also indicated a proportion of patients during the post-Penthrox® period did not require any OT interventions throughout their admission. Importantly, there were no medication safety concerns noted for either groups.

Conclusions: The use of Penthrox® has enabled cost-saving measures by reducing the need for OT, equipment, utilities, and personnel. OT utilisation costs have decreased from approximately $2,500 per hour to $120 per hour. Penthrox® has shown significant benefits in the studied procedures by providing immediate, patient-controlled analgesia. Future implementation to include other indications and expanding to use in outpatient services may aid in improving patient tolerability and satisfaction.

#38

Enhancing Post-Partum Care: An Audit of VTE Risk Assessment and Prescribing Practices

Rimsha Kalia[1], **Emma Hatherley**[1], **Jeff Khoshaba**[1], **Mani Suleiman**[1], **Dorothy Tu**[1], **Vinod Chellaram**[1], **Jier Nguyen**[1]

[1]Northern Health, Melbourne, Australia

Background: Venous thromboembolism (VTE) is the leading cause of direct maternal deaths in Australia, with the risk being highest during the first six weeks postpartum. A VTE risk assessment should be conducted for all post-partum patients to guide appropriate VTE prophylaxis, as determined by patient risk factors and local guidelines. The aim of this study is to determine the level of compliance with local VTE prophylaxis guidelines among post-partum patients at Northern Health.

Method: A retrospective audit was conducted on postpartum patients discharged from maternity services in February 2024 from Northern Health. Patients were identified by birth records and reviewed in the hospital's electronic medical record. Data collected included: patient weight and body mass index (BMI), VTE risk assessment completion, VTE prophylaxis prescribing (dosage and duration), whether clinical pharmacy review occurred on discharge and any interventions performed.

Results: There were 229 postpartum patients included in the study. Pre-natal weight and BMI was recorded for 97% (222) and 96% (220) of patients respectively. VTE risk assessment screen was completed for 86% (197) of patients. Compliance with local VTE prophylaxis guidelines was observed in 71% (162) of the cohort. Enoxaparin was prescribed for 94 patients, of which 41% (39) and 67% (63) of prescriptions were compliant in terms of duration and dose respectively. Clinical pharmacy review was performed for 68 prescriptions, increasing overall compliance from 31% (29) to 56% (53).

Conclusions: A large proportion of enoxaparin prescriptions were non-compliant with local prescribing guidelines. Contributing factors may include prescriptions being written prior to confirmed discharge date, and lack of clear enoxaparin dose recommendations for postpartum patients in local guidelines. Pharmacist screening and intervention contributed to increased compliance, highlighting the value of clinical pharmacy review. There is a need for further education and protocol reviews to improve VTE prophylaxis prescribing practices in post-partum patients.

#44

Tailored Treatment: The Quest for Optimal Renal Function Estimation Tools in Oncology

Hasitha Herath Mudiyanselage[1], **Catherine Yan**[1], **Jeff Khoshaba**[1], **Mani Suleiman**[1], **Dorothy Tu**[1], **Vinod Chellaram**[1], **Jier Nguyen**[1]

[1]Northern Health, Melbourne, Australia

Background: Current renal function estimation tools are not validated in an oncology cohort, leading to variability in dosing for therapies that have a narrow therapeutic window. CamGFR V2 is a new renal function estimation tool developed specifically for an oncology population, aiming to enhance dosing accuracy. This research aims to identify the degree of variation in dosing carboplatin using CamGFR v2 compared to Cockroft-Gault and Chronic Kidney Disease epidemiology collaboration equation (CKD-EPI).

Method: A retrospective cohort study was conducted within The Northern Hospital's day oncology ward. The study sampled 162 patients that were initiated on carboplatin between 2022 and 2024. Creatine clearance and eGFR (CKD-EPI) was calculated using eviQ calculators. Renal function estimation using CamGFR was derived using an online calculator provided by the original study. The Calvert formula was used to calculate a theoretical carboplatin dose using the three renal function assessment tools. The theoretical doses were then compared in 2 groups, Group 1 CamGFR v2 vs Cockroft-Gault; and Group 2 CamGFR v2 vs CKD-EPI. Clinically significant dose variation was defined as an absolute dose variation that exceeds 10%.

Results: Clinically significant dose variation was observed in 41% of the study population in Group 1 compared to only 7% in Group 2. In Group 1, 75% had a Creatinine clearance greater than 100mL/min. A positive correlation was identified in Group 1, with dose variability increasing in response to increasing creatinine clearance. This trend was however absent in Group 2.

Conclusions: This study demonstrates that using Cockroft-Gault leads to a large variation in dosing, especially in patients with a normal to high renal function. CKD-EPI produces a more tailored dosing, regardless of renal function, making it a safe and practical tool for estimating renal function for carboplatin dosing.

#47

Is a real-time infusion audit an effective strategy for basic infusion identification and minimisation?

Sherry Ibrahim[1], **Vallavan Kulasekaran**[1], **Mani Suleiman**[1], **Uyen Hua**[1], **David Nguyen**[1], **Jeff Khoshaba**[1], **Vinod Chellaram**[1], **Jier Nguyen**[1]

[1]Northern Health, Melbourne, Australia

Background: Smart pumps equipped with dose error reduction software rely on compliance with medication therapies programmed with safety guardrails. A 'basic therapy' option bypasses guardrails but is necessary for exceptional circumstances or undeveloped therapies. Organisations using smart pumps must have effective methods for assessing and minimising basic infusions in line with international recommendations. No literature has compared efficiency and effectiveness between conventional methods. This study aims to evaluate the effectiveness of a prospective bedside audit of intravenous infusion administration compared to retrospective audits of infusion administration records and intravenous medications stored on imprest.

Method: Basic therapy use was observed in real-time (Audit A) and from infusion listing reports (Audit B). Medication administration was determined from direct observation and electronic administration records, respectively. The proportion of basic infusions identified and time taken, were measured as primary outcomes between Audits A and B only. New therapies flagged for medication library inclusion from these observations and review of imprest lists (Audit C) were assessed as additional primary outcomes. The number of unexpected infusion discrepancies identified were assessed as secondary outcomes.

Results: A total of 100% and 98% of basic infusions were successfully identified in Audits A and B, respectively. Audit B identified 1.6 more basic infusions per hour of assessment when compared to Audit A. Audit C identified an increased amount of new therapies flagged for inclusion in the medication library when compared to Audit A and B, at a rate of 21.5 infusions/hour. Infusion discrepancies (24%) were discovered from Audit A only.

Conclusions: A real-time audit is an equally effective method for assessing compliance with appropriate basic therapy use. Its lower efficiency is balanced by its advantage in identifying other inappropriate administration practices. However, neither infusion-based audits are comparable to a formulary-based review for identification of new therapies for medication library inclusion.

#56

Old tools - new tricks? iGuidance as a decision support tool in prescribing COVID antivirals

Angela Given[1], **Danni Miatke**[1], **Taksh Mann**[1], **Bruce Lin**[1], **Vinod Chellaram**[1], **Jier Nguyen**[1]

[1]Northern Health, Melbourne, Australia

Background: The COVID-19 pandemic saw rapid development of antiviral treatments for mild COVID-19, including Paxlovid© (nirmatrelvir/ritonavir), molnupiravir, and remdesivir. Ensuring patients met National Medical Stockpile (NMS) criteria and medication suitability was time intensive for the Infectious Diseases (ID) and pharmacy team. The Northern Hospital aimed to streamline this process by creating an approval pathway using the antimicrobial stewardship program, iGuidance. This project evaluated iGuidance's effectiveness in determining patient suitability, reducing ID consultations for mild COVID-19, and assisting in appropriate medication choices.

Method: Pharmacists developed an approval pathway for "COVID-19 Early Therapy" with two distinct arms. The first ensures patient suitability according to NMS criteria, while the second provides the most suitable medication recommendation based on individual parameters. The effectiveness of the iGuidance approval pathway was assessed by reduction in number of ID consultations for mild COVID-19 treatment and appropriateness of medication recommendations.

Results: Across a 3-month period, 156 patient approvals were generated on iGuidance for mild COVID-19 therapy. Retrospective analysis of data entered into iGuidance showed 93.5% patients did meet NMS criteria, and 89.8% of these patients were approved for an appropriate choice of therapy. Among the 10 patients that did not meet criteria, the prevailing factor was oxygen requirement (50%). The significance of medication interactions appears to be the most difficult criteria for clinicians to assess, leading to prescribing of the less efficacious molnupiravir in 10.2% of patients. iGuidance provided automatic approval for 156 patients during this 3-month period without the need for an ID consult, compared with 310 consults for treatments in a 3-month period prior to implementation.

Conclusions: iGuidance provides a decision support tool for COVID-19 early therapies to ensure patients meet NMS criteria for treatment, which reduces ID consult time. However, pharmacist review is essential to ensure appropriate dosing, medication selection, and management of potential interactions.

#59

Give Them Back They're Mine: Assessment of Documentation and Storage of Patients' Own Medications

Aisha Sean[1], **Alexandra Camilleri**[1], **Mani Suleiman**[1], **Jeff Khoshaba**[1], **David Nguyen**[1], **Vinod Chellaram**[1], **Jier Nguyen**[1]

[1]Northern Health, Melbourne, Australia

Background: As part of the process of collecting a best possible medication history (BPMH), sources of information such as patients' own medications (POMs) provide a significant benefit for healthcare professionals. Although, the availability of POMs in the inpatient setting can be associated with various risks such as self-administration of medications, lost POMs and lack of transfer of POMs with patients to other wards or on discharge. Limited adherence to storage and documentation policies for POMs is a contributing factor to these risks. The aim of the project is to assess adherence to protocols for storing and documenting POMs in the inpatient hospital setting.

Method: A prospective audit was conducted on acute medical and surgical wards within the Northern Hospital. Data was collected by creating patient lists on the Electronic Medical Records (EMR) and identifying the patients with documented POMs through a Patient Valuables Form (PVF) and pharmacist admission documentation. This documentation was compared to the POMs stored in ward medication rooms to determine the accuracy of information documented.

Results: Data analysis revealed a 50.5% non-compliance rate with the protocol for storage and documentation of POMs. Reasons for non-compliance included incorrect storage, no or incorrect patient identification on stored POMs, no or incorrect documentation of location on the PVF, and no POMs brought into hospital but documented otherwise. The most common reason for non-compliance was no documentation of POMs in the PVF, with a 48% occurrence.

Conclusions: Compliance rates show the hospital policy is not being adequately followed and improvement is needed. Documentation of POMs was poorly done, suggesting further prompting is needed. This could involve improving workflows in the EMR by mandating documentation of POMs in the PVF and pharmacist admission form. Greater training and reminders may be required for staff to increase adherence to policy for storage of POMs.

SURGICAL SERVICES

#1

Adequacy of lymph node dissection during surgical resection of lung cancer at Northern Health

Mathew Muir[1], **Ryan Lowe**[1], **Krishna Bhagwat**[1], **Mani Suleiman**[1] **Bibhusal Thapa**[1]

[1]Northern Health, Melbourne, Australia

Background: Suboptimal nodal staging is common during curative-intent resection of lung cancer. The resection is termed uncertain or R(un) when margins are free of tumour, but the conditions for complete resection are not fulfilled. Inadequate nodal assessment is the commonest reason for resections being classified as R(un). Studies have demonstrated poorer outcomes in patients with R(un) compared to those with R0. Audit of completeness of lung cancer resections at Northern Health would be an important step towards assuring quality service to our patients.

Method: We conducted an audit of all patients who have had a curative-intent anatomical lung resection for lung cancer between January 2017 and December 2023 at Northern Health. The operation notes and histopathology reports of included patients were queried for number of mediastinal, hilar and intra-pulmonary nodal stations sampled and other factors that would contribute to a R(un) status.

Results: 60 out of 124 resections assessed were judged to be R(un). Inadequate lymphadenectomy was the cause of the R(un) status in 52 (86.6%). There was no relation between R(un) status and approach, tumour histology or lobe resected. There is however an improvement in rates of R(un) over the period from 70% in 2020-2022 to 16% in 2023.

Conclusions: Rates of inadequate lymphadenopathy are unacceptably high in the institution. Various measures have been employed worldwide to improve lymphadenectomy. Use of a lymph node retrieval chart during the procedure may be an easy, inexpensive method. We intend to trial this and study its outcome in the future.

#13

Detecting the Adulteration of Ghee using Raman Spectroscopy

Avni Patil[1] **Sukhneet Sher Gill**[1], **Sanjana Prasad**[1,2], **Shekhar Kumta**[1,2]

[1]University of Melbourne, Melbourne, Australia

[2]Northern Clinical Diagnostics and Thrombovascular Research (NECTAR) Centre, Northern Health, Melbourne, Australia

Background: Ghee made from **anhydrous milk fat** is often adulterated with Hydrogenated vegetable oil, posing significant threats to consumer health. Despite similar physical characteristics, **Hydrogenated Vegetable fats** have higher Trans-fat content posing a risk to people with pre-existing cardiac/lipid/Thrombo-vascular health concerns. Raman Spectroscopy is a non-destructive method of interrogating analytes in mixtures. Raman Peak shifts represent underlying molecular bond vibrations and may be used to identify adulterations and authenticity of complex compounds. We hypothesized that a) Raman Spectroscopy could establish the authenticity of Milk-Fat Ghee and distinguish it from ghee made from animal-fats or Lard; and b) Detect Vegetable Oil Adulteration in commercial Ghee products

Method: We procured a) Traditional Ghee b) Commercial Ghee c) Vegetable Oil and d) Animal Fat from a commercial grocery store. A hand-held Raman Spectrometer (785nM – 100mW laser Power) was used to obtain Raman Spectra. Three representative portions of each analyte were placed in the Spectroscope's Vial Accessory and the MIRA-XCAL Software was used to record and process the scans.

Results: Traditional Ghee made from Milk Fat showed distinct Peaks at **1984** cm^{-1} and **2125** cm^{-1} – representing **Saturated Fatty Acids**. The spectra of Commercial Ghee showed spectral peaks at **1303**, **1441**, **1658** and **1747** – these were identical to the prominent peaks seen in **Vegetable oils**. **The 1656-88 Peak is a highlight of Vegetable Oils.** The overlaid spectra of Traditional Ghee, Vegetable Oil, Commercial Ghee and Animal enabled us to identify the signal vegetable oil and animal fat in commercially available ghee's.

Conclusions: The Adulteration of Ghee continues to be a major socioeconomic problem, yet it is possible to identify adulterated Ghee's using appropriate technologies. Adulteration of foodstuffs may impose unwarranted health burdens on unsuspecting consumers. This project highlights the need for continued vigilance and for the integration of a strong consumer focus on research.

#16

Improving Patient Experience and Surgical Efficiency with Magseed® Localization for Non-Palpable Breast Lesions

Nelson Chen[1], **Xin Ran Wang**[1], **Michael Issac**[1], **Wei Ming Ooi**[1]

[1]Northern Health, Melbourne, Australia, Department of Breast and General Surgery

Background: Hookwire localisation (HWL) has long been the gold standard for excising non-palpable breast lesions. However, it causes discomfort, necessitates morning admissions for insertion which restricts surgical access to afternoons, and negatively impacts the overall patient experience. In contrast, a novel technique utilising a 5mm

metallic seed (Magseed®) detectable intraoperatively with a probe can be used to localise these lesions and can be placed up to 30 days before surgery. This flexibility enables better utilisation of operating room time, and improves both patient flow and experience.

Method: A retrospective review was conducted over three months at Northern Hospital to evaluate Magseed for non-palpable breast lesions

Results: 18 patients were identified. Six surgeons participated in the trial. The average age of patients was 57.67 years (range 32-81). The Magseeds were placed on average 10.72 days before surgery (range 2-28). 8 surgeries occurred in the morning, while 13 took place in the afternoon. 10 cases were cancer-related, and 8 were benign. Only one patient (5.55%) required re-excision of margins. There was one post-operative complication requiring hematoma evacuation. One patient had had previous HWL and gave positive feedback about their subsequent Magseed experience. The average admission duration for day cases was 388 minutes (range 275-574) compared to 595.78 minutes (range 393-780) in 18 consecutive patients undergoing day case HWL indicating improved patient flow.

Conclusions: The utilisation of Magseed for pre-operative localisation of non-palpable breast lesions demonstrates significant advantages over traditional HWL. The ability to place Magseeds pre-operatively allows for greater flexibility in scheduling, leading to more efficient use of operating room time and earlier discharges. The short trial at Northern Hospital has demonstrated that Magseed is a reliable, effective and safe alternative that can enhance patient experience, streamline surgical workflow and improve hospital efficiency.

#49

Northern Health Operating Theatres: an environmental sustainability audit

Nicholas McCabe[1], Russell Hodgson[2], Charlie Harding[3]

[1]Northern Clinical School, Melbourne Medical School, University of Melbourne

[2]Department of Surgery, Northern Health, Melbourne

[3]Department of Anaesthesia and Perioperative Medicine, Northern Health, Melbourne

Background: Healthcare is responsible for 7% of Australia's annual greenhouse gas emissions. Operating theatres (OTs) are known to generate significant quantities of solid waste, thus contributing to the burden of healthcare emissions. Northern Health is committed to sustainability, however the contribution of its operating theatres to healthcare emissions is unknown. Therefore, this audit aimed to quantify the amount and type of solid waste generated in Northern Health operating theatres.

Methods: Medical students were recruited to collect solid waste data from OTs at the Northern Hospital, Epping over an audit period of 10 weekdays. After each operation, waste bags were transported from theatres to a central waste processing room. Each bag was subsequently weighed, the type of waste identified (general, clinical, recycling), and the surgical unit responsible for the waste recorded. Descriptive statistics were generated using Jamovi statistical software.

Results: 386 operations were performed during the audit period. A total of 2,310 kg of solid waste was generated, an average of 231 kg per day or 5.98 kg per case. Clinical waste comprised 45% of the total, general waste 39% and recycled waste 14%. Obstetrics, orthopaedics and general surgery generated the highest median waste per case (6.07, 5.6 and 4.79 kg respectively), and plastic surgery, gynaecology and respiratory procedures the least (2.73, 2.66 and 1.61 kg). Of the 330 kg of recycled waste generated, polypropylene (32%), cardboard (27%), and sterilisation wrap (14%) waste streams predominated.

Conclusions: OT waste generation at Northern Health is significant. Recycling of OT waste is proportionally lower than at other similarly sized hospitals, and the volume of clinical waste generated proportionally higher. These findings should therefore encourage institutional behavioural change interventions to promote recycling. Further auditing of appropriate waste disposal may reveal opportunities to improve institutional recycling rates and reduce volume of clinical waste requiring energy-intensive sterilisation.

WOMEN'S AND CHILDREN'S

#14

Implementation of an Advanced Practice Physiotherapy model substantially reduces the need for Gynaecologist assessment

Authors: Claire Schofield[1], Catherine Ransom[1], Adam Semciw[1, 2]

[1]Northern Health, Melbourne, Australia,

[2]La Trobe University, Melbourne, Australia

Background: Level 1A evidence exists supporting the effectiveness of physiotherapy-supervised pelvic floor muscle training as first line treatment for urinary incontinence (UI) and pelvic organ prolapse (POP). Despite this, patients within the Northern Health catchment are routinely referred to gynaecology first, where they can wait up to 5 years for assessment before being referred for physiotherapy management.

The aim of this project was to determine whether an Advanced Practice Physiotherapy (APP) model could be safely and effectively implemented to reduce the need for specialist intervention and improve access to care, for patients with UI and POP on the gynaecology waitlist, and to assess acceptability of this model to patients and clinicians.

Method: 450 patients with UI and POP meeting inclusion criteria were identified on the NH Gynaecology waitlist. Patients were contacted and offered the option to attend the APP Pelvic Health Clinic (PHC) for assessment and management, or remain on the gynaecology waitlist. A mixed methods evaluation framework was utilised to assess the Reach, Effectiveness, Adoption, Implementation and Maintenance of the APP PHC implementation.

Results: At project completion, 192 patients had been assessed in the APP clinic. There was a substantial reduction in the need for medical specialist intervention for the patient population. Whereas previously all of these patients would have had gynaecology assessment, only 19.79% of the sample population required escalation to medical care. The new model of care demonstrated high acceptability, with an average patient satisfaction score of 93.75%, and 86.60% of patients reporting they would feel confident recommending the PHC to a family member experiencing similar problems.

Conclusions: An Advanced Practice Physiotherapy model of care is highly acceptable to patients and can be used to safely and effectively reduce the need for specialist care for women with UI and POP.

#52

What are the limitations for the diagnosis of meningitis or encephalitis via neonatal lumbar puncture?

Catherine Brock[1]; Wei Qi Fan[1, 2]

[1]Northern Health, Melbourne, Australia [2]Melbourne University, Melbourne, Australia

Background and Aim: Lumbar punctures (LPs) are often performed during suspected sepsis evaluation in neonates. They can be painful, commonly unsuccessful, and interpretation difficult. We aimed to examine demographic, clinical, and laboratory parameters associated with diagnosis or exclusion of meningitis or encephalitis (ME) where cerebrospinal fluid (CSF) was successfully obtained (<10,000 red blood cells (RBC) per microlitre µL).

Methods: We retrospectively reviewed medical records of neonates up to 28 days corrected gestational age, who had a septic work-up including LP at The Northern Hospital over the 10-year period ending 31st of December 2022. Descriptive and univariate statistical analyses were performed.

Results and Implications: CSF success rate was 67.54%. CSF was less likely to be successfully obtained ($p<0.01$), more likely to be traumatic ($p<0.01$) and have a higher RBC count ($p<0.01$) if meningitis was diagnosed. Documentation for meningitis diagnosis or exclusion rationale was lacking. CSF laboratory findings were of limited applicability as comparing diagnosed to excluded cohorts; abnormal white blood cell counts were 20% v 0% ($p<0.01$); abnormal PMN counts were 100% v 38.3% ($p<0.01$); abnormal protein or glucose levels did not differ. Minimal documentation of position or analgaesia limited the assessment of procedural outcomes. Irritability, respiratory support, the combination of fever and irritability were more common with meningitis diagnosis (23% v 12.7%, $p=0.02$; 15.6% v 6.1%, $p<0.01$; and 20.00% v 7.90%, $p<0.01$). No other demographic, clinical, or laboratory markers were significantly associated with ME diagnosis.

Conclusion: The non-specific nature of neonatal ME presentations and laboratory markers makes avoiding an LP difficult. However, neonatal LP success rates remain sub-optimal and accurate CSF interpretation in practice is challenging. Better identification of infants at high or low risk of ME to prioritise or avoid an LP, as well as factors that optimise procedural success rates and sample interpretation, are needed.

#53

An initial 24-months review of NH Neonatal Telehealth Support Program for a regional maternity hospital.

Wei Qi Fan[1,4], Danielle Cook[1], David Tran[1,4], Michael Steward[3,4,5], Tania Nicholson[2], Melanie Riseley[1,2], Jennifer Gilham[2], Nicole Carlon[1] Debra Bourne[1]

[1]The Northern Hospital, Melbourne, Australia

[2]Kilmore and District Hospital, Kilmore, Victoria, Australia

[3]Paediatric Infant and Perinatal Retrieval (PIPER) Melbourne, Australia

[4]University of Melbourne, Melbourne, Australia

Background: The Kilmore and District Hospital (TKDH) provides a Level 2-3 maternity service (220 average yearly births). In August 2021, a telehealth support program (NHTHP) was commenced by the neonatal team at The Northern Hospital Neonatal Unit. TDKH maternity staff (GPs, Midwives) access NHTHP 24 hours a day via a dedicated mobile phone to provide support, follow up and transfer. Urgent and critical concerns require PIPER supervision. The aim of the NHTHP is to: promote effective TKDH on-site neonatal management; facilitate timely neonatal transfer as required

Methods: TKDH referrals to NHTHP (August 2021 to June 2023) were retrieved and maternal and infant characteristics recorded including transfer and admission details. PIPER data was provided on TKDH referrals and transfers 24-months before and after NHTHP commencement. Descriptive and univariate statistical analyses were performed.

Results: 74 referrals. Male 40.5%. Primiparity 43.2%. Main obstetric concerns: hypertension 12.2%; ante- or post-partum haemorrhage 33.8%; gestational diabetes 12.2%; GBS positive status 18.0%; fetal distress 24.3%; smoking 23.5%. Neonatal characteristics: NVD 37.8%; Instrumental birth 17.6%; Caesarean 44.6%; neonatal resuscitation 37.8%; gestational age range 36.6-41.4;

birthweight range 2940-4380. Referral characteristics: weight loss concerns 35.2%; jaundice 26.8%; infection 9.9%. Transferred: 6 infants (8.1%); RDS 3; Hyperbilirubinemia 2; hypoglycaemia 1. Comparison of PIPER data showed reduction in: referrals by 12.1% (per annualised TKDH births); transfers by 5.3% - statistically significant (<0.01 and <0.01 respectively).

Conclusions: NHTHP has facilitated successfully the on-site management of multiple TKDH neonatal concerns - associated with significant transfer cost savings and reductions in mother-infant separations.

#58

Optimising abortion care in Melbourne's north: Perspectives of consumers

Eleanor Johnson[1,2], Kate Chaouki[1,2], Dr Jeanette Henderson[1], Prof Bodil Rasmussen[3], Prof Cathy Vaughan[2], Prof Lisa Hui[1,2]

[1]Northern Health, Melbourne, Australia

[2]The University of Melbourne, Melbourne, Australia

[3]Deakin University, Melbourne, Australia

Background: Women/gender diverse people of reproductive age based in Melbourne's north may face socioeconomic disadvantage and discrimination which could delay or inhibit abortion access. This study aimed to explore consumers' experiences of accessing abortion care in the northern region of Melbourne, and their insights into barriers and ideas for service improvements.

Methods: We conducted individual in-depth semi-structured interviews with thirteen consumers in-person or via Zoom. The qualitative data were analysed thematically, with the coding framework developed both deductively, based on relevant literature and findings from our earlier research exploring care providers'/ stakeholders' perspectives, and inductively from the empirical material.

Results: The consumers interviewed were heterogenous and largely representative of the diverse population in Melbourne's north. Participants had accessed surgical and/or medication abortions or had miscarried while trying to access care, in the public and/or private systems. The participants identified barriers to abortion access in the region at individual, service and socio-political levels and described corresponding quality improvement measures that could contribute towards addressing these barriers (e.g. enhancing information availability, reducing waiting times, addressing misinformation and stigma). They described experiences consistent with the typologies of both 'low-quality stigmatising abortion care' and 'high-quality non-stigmatising abortion care' described in existing literature.

Conclusions: Our findings highlight the wide range of abortion care experiences and variations in care provision in a relatively small geographical area. Quality improvements to facilitate access and areas requiring further advocacy have been identified and these findings will be further developed in future research, including co-design workshops.

#70

The impact of maternal diabetes on fetal growth and stillbirth risk: A population-based cohort study from Victoria

Hannah Gordon[1,2,3], Alexis Shub[2], Sue Walker[1,2], Richard Hiscock[1,2], Stephen Tong[1,2], Roxanne Hastie[1,2], Anthea Lindquist[1,2*], Natasha Pritchard[1,2,3*]

[1]Northern Health, Melbourne, Australia

[2]Department of Obstetrics, Gynaecology and Newborn Health, University of Melbourne, Australia

[3]Mercy Perinatal, Mercy Hospital for Women, Heidelberg, Victoria, Australia

*Equal contribution

Background: Diabetes in pregnancy is associated with perinatal complications including stillbirth. Interventions including planned earlier delivery aim to mitigate these risks. The relationship between birthweight, stillbirth and maternal diabetes status in the setting of risk-mitigating interventions remains uncertain.

Methods: All singleton births in Victoria, Australia between 2009–2021 were included. Data from the Victorian Perinatal Data Collection were linked with Pharmaceutical Benefits Scheme and National Diabetes Service Scheme data. We calculated the relative risk (RR) of stillbirth for women with pre-existing diabetes (type 1 diabetes (T1DM), type 2 diabetes (T2DM)) and gestational diabetes (GDM) (diet-controlled; insulin) compared with no diabetes, and assessed how this was affected by birthweight.

Results: Our cohort of 860,042 women included 100,856 with diabetes in pregnancy. A greater proportion of infants born to mothers with pre-existing diabetes (but not GDM) had macrosomia (birthweight >97th centile); 24.4% T1DM, 9.4% T2DM, compared with 1.6% of unexposed infants. Women with GDM-diet were more likely to have an infant <10th centile than diabetes unexposed women (RR 1.14 [95% confidence interval (CI):1.12–1.16]).

Pre-existing diabetes was associated with a more than twofold increased unadjusted risk of stillbirth overall, compared with no diabetes (T1DM: RR 2.38 [95%CI:1.14–4.98]; T2DM: RR 2.73 [95%CI:2.01–3.72]). However, women with GDM had an unadjusted lower risk of stillbirth compared with the diabetes unexposed cohort (GDM-diet: RR 0.75 [95%CI:0.64–0.89], GDM-insulin: RR 0.37 [95%CI:0.25–0.53]). This may be because infants exposed to GDM were born earlier than diabetes unexposed infants (median gestation at birth: 38.4 weeks GDM-insulin, 38.9 weeks GDM-diet, 39.4 unexposed).

Conclusion: Pre-existing diabetes increases the risk of stillbirth, irrespective of infant birthweight. In unadjusted analyses, maternal GDM (diet-controlled; insulin) was associated with a decreased risk of stillbirth compared to women without diabetes. This may be due to dietary interventions, increased surveillance and planned early birth.

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- RUSSELL HODGSON
- DARREN LOWEN
- VICKY KARTSOGIANNIS
- SHEKHAR KUMTA
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