RESEARCH WEEK
28,29,31 MARCH 2022
INSPIRED RESEARCHERS
Northern Health

2022 ABSTRACT BOOK

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 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.

Research Year In Review

So another year at Northern Health which has tested every one to the limits and beyond – yet we have come through it and can now see a light ahead. The strength of all staff has been phenomenal and the organisation can be justly proud. Research has been affected in many ways but it has continued and as we start our return to a world where we learn to live with the virus, non-Covid projects are starting up again.

The research carried out at Northern Health both before and during the pandemic in the area of 'Virtual Health' be it telehealth, in-hospital monitoring and home-based healthcare solutions will stand us in good stead going forward. It has also demonstrated the importance of listening and learning from our patients and from the community about what they think is important to them. We must continue to engage with them in shaping the future health services Northern Health will provide as it expands services in response to our growing community and the consequences of the pandemic.

We know that a health service which commits to, and nurtures, a research culture has happier and more satisfied staff and better patient outcomes. We should all be proud of the clinical care we deliver and strive to underpin this with education and research. This will ensure we evaluate and question everything we do, leading to continuous improvement in the way we deliver trusted care to our community and, importantly, educate our staff and our students which provides Northern Health's workforce of the future.

Research Week 2022 will, like last year, be a primarily 'virtual' event with virtual presentations, posters and guest speakers. This will see presentations of the work that was to have been presented at Research Week 2021 which was cancelled because of Covid. They will highlight the quality of research occurring across the spectrum that are being driven by an increasing number of our Northern Health staff. Highlighted is the increasing volume of projects being conducted with our academic partners; Melbourne, La Trobe, RMIT and Swinburne Universities. Future service challenges are not to be underestimated, but by reviewing and evaluating what we do, and how we do it, we will have the opportunity to change things for the better and to deliver trusted care for our community, now and into the future.

Funding Highlights

- Mark Tacey secured $9,336 to provide assistance in analysing the IMPART (Improving Palliative care in Residential aged care using Telehealth) Study. This is a NHMRC funded trial that also includes Barbara Hayes as an investigator.
- Dr Barbara Hayes is also the Victorian Lead on the NHMRC funded national multi-site study "A randomised trial of a Carer End of Life Planning Intervention (CELPI) in people dying with dementia" ($98,802), administered by University of Western Australia.
- Rebecca Jessup and Anthony Gust secured $122,916 from the La Trobe Large Collaborations Scheme for the project "Digital technology and virtual care delivery in Australia: Co-designing eNav for Health and Wellbeing". This project is led by Professor Brian Oldenberg and is part of the CRE Virtual Health which has a major base at Northern Health.
- Eleanor Johnson was awarded a grant from the Nurses Board of Victoria for $52,044. This is to be used for the project 'Partnering with Consumers to co-design comprehensive abortion care in Melbourne's North".
- Natalie Hannan was awarded an NHMRC ideas grant as CIA for the project "Improving the pipeline for translation of therapies for serious complications of pregnancy" to the total value of $965,933. Part of the work will be done at Northern Health.
- Professor Don Campbell, Northern Health's Director of Hospital without Walls Program, is pioneering a new trial into COVID-19 treatment with heparin. A $4.2 million grant has been made for University of Melbourne and Monash University to establish a six-month clinical trial at Northern Health
- Northern Health is Lead in a $2.3 million project with Swinburne University and Medibank Private to develop a new workforce of Health Navigators.

Research translation and Impact Highlights

- Heather Mackenzie won the 'Best Abstract' and 'Best Poster Presentation' at the United Kingdom Clinical Pharmacy Association Virtual Conference.
- Northern Health Haematology Department had two presentations recognised as "Top 5 Australian Research" by 'The Limbic' when they attended the 2021 Annual Scientific Meeting of International Society on Thrombosis and Heamostasis.

- A/Prof Lisa Hui wins top prize at RANZCOG Annual Scientific Meeting for her research on obstetric and newborn outcomes during the pandemic lockdown in Melbourne.
- Rebecca Jessup and her research team have developed a 'check back' website that aims to teach patients how to have better conversations with their health professionals. All the videos on the website were filmed onsite at NCHER earlier in the year, and the content was developed by Rebecca and her colleagues following a series of focus groups and interviews with patients and volunteers and both NH, Monash and Ballarat Health Services. It was funded by SaferCare Victoria and is part of Rebecca's health literacy and health communication project. This website will form an important part of our evidence for accreditation Standard 2.
- A total of 147 projects Audit/QI/Clinical research/ Clinical trials projects were initiated this year.
- NH has now released a sponsorship pathway to enable our talented staff to run investigator-initiated trials. There are four projects initiated already.
- NH publications continue to grow, this year we published 225 journal articles.

Funding for research is always competitive and we are grateful of the continuing support that is provided by the Northern Health Foundation that currently fund four PhD scholarships and awarded six Small Research Grants in 2021.

We can only speculate on the future but what is clear is that research will always be key to getting us there. Our staff and community should be proud of the research contributions in what has been an extraordinary year. Congratulations and thank you to all who have contributed to research at Northern Health.

A/Prof Wanda Stelmach
Chief Medical Officer

Professor Peter Brooks
Research Lead

Dr Faye Zaibak
Director, Research Operations

EVENT SCHEDULE

Monday 28 March 2022

Grand Opening and Keynote Speaker

12.30 pm – 1.30 pm, Webinar

Hosted by: A/Prof Wanda Stelmach

Keynote Speaker: Prof John Prins

Topic: Healthcare workforce issues of today and the future – how can Universities help?

Oral Presentation Session 1

3.00 pm – 4.00 pm, Webinar

Hosted by: Dr David Crosbie

Speakers: A/Prof Lisa Hui, Sarah Hassan, Dr Julie Wang

Tuesday 29 March 2022

Diagnostic and Cancer Services Research Seminar

10.00 am – 11.30 am, Webinar

Hosted by: A/Prof Prahlad Ho

Topic: Thrombosis and Cancer – What is new?

Speakers: Prof Harshal Nandurkar, Mr Niki Lee, Dr Brandon Lui, Dr Kay Weng Choy, Dr Belinda Lee, Dr Chong Chyn Chua

Oral Presentation Session 2

12.30 pm – 1.30 pm, Webinar

Hosted by: Dr Rebecca Jessup

Speakers: Belinda Baines, Rebekah De Losa, Dr Karen Van

Thursday 31 March 2022

Research Medical Grand Round

8.00 am – 9.00 am, Webinar

Hosted by: A/Prof Craig Aboltins

Speaker: Prof Anthony Russell

Topic: Supporting GPs to deliver specialist diabetes care in the community

Research Trivia and Awards Session

12.30 pm – 1.30 pm, Webinar

Trivia MC: A/Prof Hamish Ewing

Awards MC: Dr Faye Zaibak

Event Schedule

Monday, 28 March 2022

Grand Opening and Keynote Speaker

12.30 pm – 1.30 pm

Webinar

Hosted by A/Prof Wanda Stelmach

Please join us for the opening of Research Week at Northern Health where Chief Medical Officer A/Prof Wanda Stelmach will welcome you and formally open Research Week. A/Prof Stelmach will talk to the research highlights and achievements at Northern Health and introduce our guest speaker Professor John Prins

Professor John Prins

Professor John Prins is Head of the Melbourne Medical School (MMS) and Professor of Medicine at the University of Melbourne (UoM). He is an active clinician-scientist with a strong focus on translation and commercialisation, a key opinion leader in diabetes and endocrinology, and sits on numerous scientific, clinical and educational committees and boards nationally and internationally.

Professor Prins undertook clinical training in endocrinology in Brisbane and completed a PhD in adipose tissue biology at The University of Queensland (UQ). Following postdoctoral research at the University of Cambridge, Professor Prins returned to Brisbane to take up a Welcome International Senior Research Fellowship. He then became the founding Director of the highly successful UQ Centre for Diabetes and Endocrine Research which merged with the UQ Centre for Immunology and Cancer Research in 2007 to form the UQ Diamantina Institute. Professor Prins was then appointed CEO/Director of Mater Research concurrent with Professor of Endocrinology (UQ) and Senior Staff Endocrinologist (Princess Alexandra Hospital) roles. Prior to joining the University of Melbourne, Professor Prins was Interim CEO of Mater Health Services in Brisbane.

Professor Prins remains an active clinician with clinical appointments in endocrinology at the Royal Melbourne Hospital, Goulburn Valley Health and Rumbalara Aboriginal Co-operative.

Event Schedule

Monday, 28 March 2022

Topic: Healthcare workforce issues of today and the future – how can Universities help?

The Australian healthcare industry faces many challenges.

Prominent are the split Federal/State/Private funding models; very high numbers of doctors per capita; geographical maldistribution of doctors and specialists; chronic shortage of nurses; "new" and expanding issues related to an ageing and weight-gaining population; increasing diversity of our population (overall, a very good thing); and growth in hospital bed numbers outstripping the available workforce.

Many of these issues are acutely felt in Health Districts such as the Northern, and multiple approaches will be needed to meet the challenges. Many are underway, not least hospital in the home, telehealth, and more sophisticated triaging systems. However, it is becoming clearer that the "traditional" doctor-centric health care workforce needs serious consideration.

As major health-care training providers, Universities have a key role, and a responsibility, to help address this issue. Opportunities include more formal multi- and inter-disciplinary training; post-graduate upskilling and/or retraining; approaches to training new and/or expanded work-force categories including nurse-practitioners, clinical assistants, and allied health professionals; and improved integration and/or collaboration with Specialist Colleges.

Oral Presentations (Session 1)

3.00 pm – 4.00 pm

Webinar

MC: Dr David Crosbie

- A/Prof Lisa Hui — Increase in stillbirths and reduction in medically-indicated preterm birth: adverse impacts of Melbourne lockdown
- Sarah Hassan — Surgical antimicrobial prophylaxis in open reduction internal fixation procedures at Northern Health – a retrospective audit
- Dr Julie Wang — Overall Haemostatic Potential assay can risk stratify for venous thromboembolism recurrence in anticoagulated patients

Event Schedule

Tuesday, 29 March 2022

Diagnostic and Cancer Services Research Seminar

10.00 am – 11.30 am

Webinar

MC: A/Prof Prahlad Ho

Topic: Thrombosis and Cancer – What is new?

Presenter: Prof Harshal Nandurkar

Bio: Head of the Australian Centre for Blood Diseases, Director of Clinical Haematology at Alfred Health and Director of the Alfred Cancer Program

Topic: Designing a novel treatment for post cardiac arrest syndrome

Synopsis: Outcomes for patients who have out of hospital cardiac arrests are poor. This is about a novel approach for a therapeutic agent to be given at the time of resuscitation by a paramedic on commencing CPR. It addresses thromboinflammation that is known to be associated with delayed resuscitation.

Presenter: Mr Niki Lee

Bio: Senior Haematology, Coagulation and Blood Bank Scientist

Topic: Overall haemostatic potential identifies greater severity of COVID-19 infection

Synopsis: COVID-19 is associated with significant thrombotic complications and coagulopathy. Here, we described the utility of a fibrinolytic assay (overall haemostatic potential assay) in COVID-19.

Event Schedule

Tuesday, 29 March 2022

Presenter: Dr Brandon Lui

Bio: Basic Physician Trainee (BPT 1)

Topic: Epidemiology of VTE management at Northern Health – a decade of experience

Synopsis: Venous thromboembolism (VTE) is a common presentation to Northern Health and constitutes a significant amount of costs and contributes to a substantial rate of morbidity and mortality. The management of VTE has significantly evolved over the last decade with the introduction of the direct oral anticoagulants (DOACs), resulting in a paradigm shift from warfarin. This audit analyses the VTE presentation and management to Northern Health and how patient outcome compares to the warfarin era.

Presenter: Dr Kay Weng Choy

Bio: Chemical pathologist at Northern Pathology Victoria

Topic: Assessment of analytical bias in ferritin assays and impact on functional reference limits

Synopsis: Serum ferritin is currently the recommended laboratory test to investigate iron deficiency. There have been efforts to standardise serum ferritin assays with implementation of traceability to the World Health Organization reference standard. We evaluate the analytical bias among five widely used commercial ferritin assays in Australia.

Presenter: Dr Belinda Lee

Bio: Head of Cancer Clinical Trials, Cancer Services Research Lead, Northern Health, Consultant Medical Oncologist Northern Health & Peter MacCallum Cancer Centre, Hemstritch Centenary Research Fellow, Walter & Eliza Hall Institute of Medical Research

Topic: Developing a National Pancreatic Cancer Translational Registry Platform – PURPLE Registry

Synopsis: Pancreatic cancer is predicted to become the second leading cause of cancer research death by 2030 globally. These statistics highlight the urgent need to improve our approaches to earlier detection, optimise current therapies and develop better therapeutics. The PURPLE translational registry was established by Dr Lee in 2016 with the aim of increase collaboration between centres and accelerating translational research in pancreatic cancer.

Event Schedule

Tuesday, 29 March 2022

Presenter: Dr Chong Chyn Chua

Bio: Head of malignant haematology, head of acute leukaemia/MDS and haematology clinical trials lead at Northern Health, PhD candidate at the Australian Centre of Blood Diseases with Alfred Health and Monash University

Topic: Optimising pro-survival targeting therapies in Acute Myeloid Leukaemia

Synopsis: Outcomes of older patients with acute myeloid leukaemia have been dismal. The recent introduction of a BCL-2 inhibitor venetoclax in combination with lower intensity therapies such as hypomethylating agents or low dose cytarabine has brought pivotal improvements in patient outcomes, however large therapeutic gaps continue to exist. This talk will delve into the development and findings of investigator initiated studies focused on optimising pro survival targeting therapies in this difficult to treat patient subgroup.

Oral Presentations (Session 2)

12.30 pm - 1.30 pm

Webinar

MC: Dr Rebecca Jessup

- Belinda Baines — Does haemodialysis affect lower limb arterial assessment results?
- Rebekah De Losa — Location, location, location: Determining the ideal site for allergen controls in forearm skin prick testing
- Dr Karen Van — Proactive Inpatient Diabetes Service decreases severe hyperglycaemia and hypoglycaemia: repeated cross-sectional study at Northern Health

Event Schedule

Thursday, 31 March 2022

Research Medical Grand Round

8.00 am – 9.00 am

Webinar

MC: *A/Prof Craig Aboltins*

Professor Anthony Russell
MBBS PhD FRACP

Tony has been Director of the Department of Diabetes and Endocrinology at the Alfred Hospital, Melbourne since January 2022, after moving from the Princess Alexandra Hospital, Brisbane, where he was Director of Diabetes and Endocrinology for 16 years.

Tony is also Professor of Medicine with the School of Public Health and Preventive Medicine, Monash University.

Tony's research interests are around models of care for management of diabetes; in particular integrated care with general practice and use of technology to support these models of care. He has over 120 publications and has attracted over $12 million in research funding.

Tony has previously been Co-Chair of the Qld Statewide Diabetes Clinical Network and Statewide Digital Diabetes Network. Tony is currently Vice-president of the Australian Diabetes Society.

Topic: Supporting GPs to deliver specialist diabetes care in the community

The health care journey for people with chronic disease, and in particular diabetes, can be fragmented. Over the last 14 years, research and service delivery collaborations between the hospital and primary care have seen the development of innovative models of care to improve the journey for people with type 2 diabetes. We have piloted and then tested the "Beacon" model where general practitioners (GPs) have been trained to act as GPs with Special Interests and deliver, in the community, care for people with complex Type 2 diabetes under the supervision of an Endocrinologist. We have demonstrated this model to have equivalent clinical outcomes with good patient satisfaction and improved cost effectiveness compared with the service delivered within a tertiary hospital. In the digital COVID world, we have also implemented a proof-of-concept eConsult model which has provided timely specialist advice to GPs, avoiding the need to refer patients for specialist review. Research collaborations between specialists and GPs has lead to implementation of innovative models of care, improving the experience for people with type 2 diabetes.

Event Schedule

Thursday, 31 March 2022

Research Trivia and Awards Session

12.30 pm – 1.30 pm

Webinar

Trivia MC: *A/Prof Hamish Ewing*

Moderated by A/Prof Hamish Ewing,

The Trivia Session brings researchers together for some fun and friendly competition.

Awards MC: *Dr Faye Zaibak*

The Awards Ceremony, recognising the work of Northern Health researchers, will follow the trivia.

ABSTRACTS

RESEARCH WEEK
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Does haemodialysis affect lower limb arterial assessment results?

Baines B[1], Jessup R[1], Cotchett M[1], Tacey M[1,2], Pianta T[1], Tucker S[1]

[1]Northern Health, Epping, Australia; [2]Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia

Allied Health

Background: Toe brachial index (TBI) assessment is considered standard practice for lower limb arterial assessment to detect peripheral arterial disease (PAD). The toe systolic blood pressure is divided by the brachial systolic blood pressure (which is known to fluctuate whilst undergoing dialysis). It is not known if inter/intradialytic blood pressure changes affect toe systolic pressures and subsequent TBI results. These results will guide clinical practice around time points to complete TBI assessments in identification of PAD.

Methods: 30 participants undergoing haemodialysis at Northern Health Dialysis Satellite Clinics were recruited. Both brachial and toe systolic blood pressures were obtained at pre-dialysis, during dialysis (at one, two, and three hours), and post-dialysis and subsequent TBI results found.

Results: TBI decreased significantly from pre-dialysis levels (Mean 0.72) in the 1st and 2nd hours during dialysis (Means 0.63 and 0.64 respectively, both p=0.011), and returned to mean values consistent with pre-dialysis values by the 3rd hour (0.69, p=0.412) and the post-dialysis time-points (0.73, p=0.679). Estimated means for toe-pressure and systolic blood pressure remained significantly below pre-dialysis means at the post dialysis time point (103.2 vs 11.6, p=0.015 and 141.5 vs 156.7, p=0.004, respectively).

Conclusions: The decrease in TBI results during the first 1-2 hours of dialysis indicate that TBI assessments should be conducted during hours 3 and 4. Absolute toe pressure assessments are less accurate for those on dialysis, they remain significantly below the pre-dialysis mean. Analysis of secondary measures is planned to investigate if there is any other significant factors affecting TBI results.

Malnutrition Point Prevalence Study 2021

Obeid N[1], Reynolds N[1], Evans R[1], Tran J[1], McGreal P[1], McShane E[1]

[1]Northern Health, Epping, Australia

Allied Health

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.

Methods: 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 July 2021. The auditors screened medical files 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 230 NH patients included in the study 13% (n=30) were malnourished (mean age 70 years [range 37-96 years], 60% male 40% female). The NH site with the highest rate of malnutrition was BC at 22%, and the ward with the highest malnutrition rate was Percy Cleland Ward (BC) at 30%. All malnourished patients were receiving care from the NH Dietetics service.

Conclusions: The overall prevalence of malnutrition at NH (13%) is lower than the national estimated prevalence (up to 40%). The data from this study can provide comparison to past and future malnutrition prevalence studies and evaluation of malnutrition prevention and management strategies at NH.

Understanding barriers to malnutrition risk screening at Northern Health

Obeid N[1], Evans R[1], Coles C[1], Semciw A[1,2]

[1]Northern Health, Epping, Australia; [2]La Trobe University, Melbourne, Australia

Allied Health, Nursing

Background: Nurses at Northern Health (NH) are required to screen for malnutrition risk and weigh patients within 24 hours of admission and weekly thereafter. Audits of this process throughout January to June 2021 have shown half of wards have not been reaching the 90% key performance indicator target for these tasks. The aim of this study was to identify barriers expressed by NH nursing staff that contributes to malnutrition screening, weighing and dietitian referral not taking place, and identify strategies to facilitate improved malnutrition screening and weighing completion.

Methods: NH nurses were surveyed over the month of June 2021 across the inpatient wards at Northern Hospital Epping (NHE), Broadmeadows Hospital (BH) and Bundoora Centre (BC). Surveys were completed in paper form with at least two nurses from each inpatient ward. Data was analysed using descriptive statistics and thematic analysis.

Results: Fifty-two surveys were completed (25 at NHE, 21 BH and 6 BC). The most commonly reported barriers were i) the format of the current Adult Weight and Malnutrition Screening form and ii) difficulty tracking when repeat screening and weighing is due. Two common themes for improvement regarding reformatting of the current form, and three common themes for strategies to improve timeliness of form completion were identified.

Conclusions: The current Adult Weight and Malnutrition Screening form used for malnutrition risk screening and weighing will be re-formatted with the feedback received, and strategies identified to help improve compliance with completing this form will be communicated to the NH nursing teams.

A co-design process to assess the feasibility and acceptability of a group-based psycho-oncology program

Pourliakas A[1], Froud-Cummins B[1], Tilekar A[1], Bird S[1], Cole S[1], Shepherd R[1], Jessup R[2,3]

[1]Psychology Department, Northern Health, Epping, Australia; [2]Department of Education and Research, Northern Health, Epping, Australia; [3]Monash University, Melbourne, Australia

Allied Health

Background: Approximately 30 percent of cancer patients experience anxiety and depressive disorders impacting quality of life and treatment adherence. Increased clinical demand on Northern Health's (NH) Psycho-oncology Clinic has meant that access to individual psychotherapy is often inappropriately delayed. Group-based psychological programs are a potential solution to increase timely access. This project aimed to examine the evidence base and determine the acceptability and feasibility of a group-based psycho-oncological program.

Methods: A triangulated qualitative design was employed consisting of Rapid Evidence Assessment (REA) of randomised controlled trials and conducting Focus Groups. The Focus Groups included seven English-speaking participants with lived experience of cancer, previously referred to the Psycho-oncology Clinic at NH.

Results: Eight studies were included in the REA. Four provided Cognitive Behavioural Therapy (CBT), two Supportive Expressive Group Therapy and two Body-Mind-Spirit Intervention. Preliminary analysis showed group intervention was superior to control in seven out of eight studies. Focus Group analysis demonstrated themes of strong support for group-based intervention irrespective of cancer type or treatment stage. Some apprehension was expressed regarding groups with both early and end stage cancer together.

Conclusions: Evidence for group interventions was broadly supportive, with some limitations based on quality of evidence and generalisability. A group-based psycho-oncology program for those with cancer appears to be acceptable and feasible for those with lived experience of cancer at NH. The results of the current study support further exploration of such a program at NH.

Frailty Assessment in Elderly patients with Diffuse Large B cell lymphoma (DLBCL): Exploring the role of Clinical Frailty Score (CFS) as a Frailty Screening Tool

Cuschieri D[1], Leung T[1]

[1]Department of Clinical Haematology, Northern Health, Epping, Australia

Cancer Services, Medicine

Background: Managing older patients with haematological cancers can be challenging due to heterogenicity in their functional reserves. We explore the utility of Clinical Frailty Score (CFS) as a frailty assessment tool in predicting toxicities and survival compared to Eastern Cooperative Oncology Group (ECOG) Score.

Methods: We performed a retrospective audit of patients aged > 60 with DLBCL managed at Northern Health between 2013-2020. Clinical frailty score was retrospectively assigned by investigators based on reviewing clinical documentation. Descriptive statistics and univariate analysis including T Test and Chi Square testing were used for data analysis.

Results: 55 patients with a mean age of 73.4 years were evaluated, with 40% defined as frail using CFS (Score >3) vs 29% using ECOG (Score $\geq$2). Both CFS > 3 and ECOG $\geq$ 2 highlighted a cohort of patients with higher age (mean = 78.5) and more aggressive disease markers (Median International Prognostic Index = 4). There are strong associations between both frailty indices with prolonged hospital admissions (67% and 75%; p<0.01) and upfront dose reductions (55% and 64%; p< 0.01). 2 year overall survival is significantly lower: 59% for CFS >3 and 50% for ECOG$\geq$ 2, compared to 76% across the entire cohort.

Conclusions: This study supports CFS as a useful frailty screening tool, with similar ability as ECOG in predicting mortality and major morbidities. CFS appears to capture more frail patients in early state of decline. Prospective studies incorporating Comprehensive Geriatric Assessment and supportive care referral may improve the outcomes of this vulnerable patient group.

10-year audit of Myelodysplastic Syndromes at Northern Health

Loh Z[1], Ho P[1], Leung T[1], Chua C[1,2]

[1]Northern Health, Epping, Australia; [2]Alfred Health, Melbourne, Australia

Cancer Services

Background: Northern Hospital Epping (NHE) faces the challenges of a rapidly growing migrant population with lower socioeconomic status in the outer suburbs and regional Victoria. We sought to report the outcomes and identify treatment barriers of patients with myelodysplastic syndrome (MDS) at NHE.

Methods: Retrospective review of demographics, treatment and outcomes of all adult patients with newly-diagnosed MDS from January 2010 – December 2020.

Results: 137 patients were identified. Median follow-up was 15 months (mo). Median age at diagnosis was 78 years. Majority were overseas-born (58%) and 35% required interpreter services. Patients lived a median of 10km (range 2-220) from NHE and 20km (range 10-250) from Melbourne CBD. Overall survival (OS) according to International Prognostic Scoring System was 36mo for low, 29mo for intermediate-1, 19mo for intermediate-2 and 3.5mo for high risk - poorer than previously published cohorts. 89 (65%) patients have died: 29% due to AML transformation, and 23% due to infections. Of the 54 patients eligible for PBS treatment, 37 (69%) received treatment, 9 (17%) deteriorated rapidly after diagnosis and 5 (9%) declined treatment. Clinical trial uptake was low: 5/12 referred declined due to travel distance. Comorbidity burden was substantial with a median Charlson Comorbidity Index (CCI) of 5 (range 0-14), which significantly impacted on OS. Azacitidine-eligible

overseas-born patients had a trend to a lower OS (10mo vs 19mo, p=0.20) and higher CCI score (median 6 vs 3, p=0.06) compared to Australian-born patients.

Conclusions: Multiple factors such as increased comorbidity burden and limited access to trials likely contribute to poor outcomes in this cohort. Better strategies are urgently needed to improve our care of this multicultural population.

Initial experience of TAS-102 chemotherapy in Australian patients with chemo-refractory metastatic colorectal cancer

Jalali A[1-4], Gard G[1], Banks S[1], Dunn C[1], Wong HL[1,5], Wong R[1,6,7], Lee M[1,2,6,7], Gately L[1], Loft M[1], Shapiro JD[8], Kosmider S[2], Tie J[1,2,5], Ananda S1[2,5,9], Yeung JM[10,11], Jennens R[9], Lee B[1,4,5], McKendrick J[6,9], Lim L[6], Khattak A[12], Gibbs P[1,2]

[1]Personalised Oncology Division, Walter and Eliza Hall Institute of Medical Research, Victoria, Australia; [2]Department of Medical Oncology, Western Health, Victoria, Australia; [3]Department of Medical Oncology, Latrobe Regional Hospital, Victoria, Australia; [4]Department of Medical Oncology, Northern Health, Epping, Australia; [5]Department of Medical Oncology, Peter MacCallum Cancer Centre, Victoria, Australia; [6]Department of Medical Oncology, Eastern Health, Victoria, Australia; [7]Eastern Health Clinical School, Monash University, Victoria, Australia; [8]Department of Medical Oncology, Cabrini Hospital, Victoria, Australia; [9]Department of Medical Oncology, Epworth Health, Victoria, Australia; [10]Department of Surgery, Western Health, University of Melbourne, Victoria, Australia; [11]Western Health Chronic Disease Alliance, Western Health, Victoria, Australia; [12]Department of Medical Oncology, Fiona Stanley Hospital, Western Australia, Australia

Cancer Services

Background: For patients with refractory metastatic colorectal cancer (mCRC) treatment with Trifluridine/Tipiracil, also known as TAS-102, improves overall survival. This study aims to investigate the efficacy and safety of TAS-102 in a real-world Australian population.

Methods: A retrospective analysis of prospectively collected data from the Treatment of Recurrent and Advanced Colorectal Cancer (TRACC) registry was undertaken. The characteristics and outcomes of patients receiving TAS-102 were assessed and compared to all TRACC patients and those enrolled in the registration study (RECOURSE).

Results: Across 13 sites, 107 patients were treated with TAS-102. The median age was 60 years (range: 31-83), compared to 67 for all TRACC patients and 63 for RECOURSE. Comparing registry TAS-102-treated and RECOURSE patients, 75% vs 100% were ECOG performance status 0-1, 74% vs 79% had initiated treatment more than 18 months from diagnosis of metastatic disease and 36% vs 49% were RAS wild-type. Median time on treatment was 10.4 weeks (range: 1.7-32). Median progression-free survival (PFS) was 3.3 months compared to 2 months in RECOURSE, while median overall survival was the same at 7.1 months. Two patients (2.3%) had febrile neutropenia and there were no treatment-related deaths, where TAS-102 dose at treatment initiation was at clinician discretion.

Conclusions: TRACC registry patients treated with TAS-102 were younger than both TRACC patients overall and those from the RECOURSE trial, with similar overall survival observed. Less strict application of RECIST criteria and less frequent imaging may have contributed to an apparently longer PFS.

Multidisciplinary assessment of resectability of oligometastatic colorectal cancer in Australia – Are we missing opportunities for curative intent surgery?

Jalali A[1-4], Dunn C[1], Gately L[1], Gard G[1,2], To YH[1,5], Wong V[1], Wong R[1,6,7], Lee M[1,2,6], Lee B[1,4,5], Yeung JM[8,9], Shapiro JD[10], Thomson B[11,12], Houli N[8,13], Jones IT1[1,14], Nott L[15], Kosmider S[2], Tie J[1,2,5], Gibbs P[1,2]

[1]Personalised Oncology Division, Walter and Eliza Hall Institute of Medical Research, Victoria, Australia; [2]Department of Medical Oncology, Western Health, Victoria, Australia; [3]Department of Medical Oncology, Latrobe Regional Hospital, Victoria, Australia; [4]Department of Medical Oncology, Northern Health, Epping, Australia; [5]Department of Medical Oncology, Peter MacCallum Cancer Centre, Victoria, Australia; [6]Department of Medical Oncology, Eastern Health, Victoria, Australia; [7]Eastern Health Clinical School, Monash University, Victoria, Australia; [8]Department of Surgery, Western Health, University of Melbourne, Victoria, Australia; [9]Western Health Chronic Disease Alliance, Western Health, Victoria, Australia; [10]Department of Medical Oncology, Cabrini Hospital, Victoria, Australia; [11]Department of Surgery, Royal Melbourne Hospital, University of Melbourne, Victoria, Australia; [12]Department of Surgery, Peter MacCallum Cancer Centre, Victoria, Australia; [13]Department of Surgery, Northern Health, Epping, Australia; [14]Colorectal Surgery Unit, Royal Melbourne Hospital, Victoria, Australia; [15]Department of Medical Oncology, Royal Hobart Hospital, Tasmania, Australia

Cancer Services

Background: Surgical resection of metastatic disease has remained the only potentially curative option in patients with metastatic colorectal cancer (mCRC). The selection of operative candidates is informed by multidisciplinary team meetings (MDT) across treatment sites. Currently, there are no local guidelines to define what constitutes resectability in mCRC.

Methods: We collected data prospectively from TRACC (Treatment of Recurrent and Advanced Colorectal Cancer) registry. At diagnosis treatment intent is documented for all patients as "resectable", "potentially resectable" or "palliative". We examined all patients who ultimately underwent resection of metastatic disease. We used Fisher exact test for significance and Kaplan Meier curves for survival analysis.

Results: Of 3281 patients registered to TRACC, 1109 (34%) had resection of metastatic disease including 512 (46%) with liver only disease. Patients who underwent resection were younger than those without resection

(median age 63 vs 69, p <0.01), had better functional status (ECOG 0-1, 93 % vs 76% p <0.01) and fewer comorbidities (Charlson score 0-3, 71% vs 56%, p <0.01). The median progression-free survival (PFS) and overall survival (OS) for all patients with resection were 16.5 and 62.4 months. Of the "palliative intent" patients 192 (17%) underwent resection following chemotherapy response with a median PFS and OS post resection of 11.5 and 34.7 months.

Conclusions: As a significant proportion of patients initially deemed to have unresectable mCRC ultimately underwent resection, with good survival outcomes, routine re-assessment by the MDT should be considered, particularly in younger, fitter patients with liver only disease.

Does routine practice of a second colonoscopy change the management of colorectal cancer?

Saboo A[1], Chen M[1], Tamang S[1], Strugnell N[1]

[1]Northern Health, Epping, Australia

Cancer Services, Surgical Services

Background: Colorectal cancer is the second leading cause of cancer mortality in Australia representing a significant health burden. Surgical localisation is paramount for operative planning and relies significantly on an accurate colonoscopy. Current literature suggests tumour localization error rates range from 4-20.8% and repeat colonoscopy needed in up to 40% of cases. Our study investigates the prevalence and reason for a second colonoscopy, subsequent deviation from the original surgical plan and adverse outcomes.

Methods: A retrospective study was conducted on all patients with colorectal cancer in the Colorectal Unit at Northern Hospital Epping from July 2016 to June 2021. A total of 591 patients were identified and data was extracted from the Australian and New Zealand Bi-National Colorectal Cancer Audit. The primary outcomes included delay to surgery and change in surgical plan due to second colonoscopy. Secondary outcomes include colonoscopy-related adverse outcomes, length of hospital stay and additional surgical time due to the second colonoscopy.

Results: Of the data analysed, 21.1% of cancers were screen-detected. The re-scoping rate was 7-10% depending on tumour location with need for tattooing being the most common reason.

Conclusions: Colorectal cancer management relies heavily on accurate tumour localisation at the initial colonoscopy. A repeat colonoscopy may potentially lead to delay in surgery or definitive treatment. Our study aims to establish local guidelines and standardised reporting during a colonoscopy to facilitate the timely management of newly diagnosed colorectal cancer.

Impact of Visitor Restrictions on Physical and Psychological Wellbeing of Northern Hospital Palliative Care Patients

Tu Y[1,2], Tacey M[1,3], Yoong J[1]

[1]Northern Health, Epping, Australia; [2]Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Victoria, Australia; [3]Melbourne School of Population and Global Health, University of Melbourne, Australia

Cancer Services

Background: Palliative care patients with advanced or life-threatening illnesses admitted to hospital during the COVID-19 pandemic are likely to be affected by visitor restrictions (VR) due to separation from family/friends. This study's aim was to assess the impact of VR on patients' levels of physical pain and psychological distress.

Methods: Retrospective cohort study of patients admitted to the Northern Hospital Palliative Care Unit from 1 April to 30 June in 2019 (pre-pandemic; n=96) and 2020 (during pandemic; n=95). Patient-rated pain scores (using the Symptom Assessment Scale; SAS) and clinician-rated pain and psychological/spiritual severity scores (using the Palliative Care Problem Severity Score; PCPSS) on admission and on discharge or death were compared between 2019 and 2020, with multivariable analyses also performed and presented as Relative Risk Ratios (RR).

Results: The case-mix of patients in the two cohorts were similar. After adjusting for demographics and functional status, SAS and PCPSS pain scores in 2020 were lower for those patients who were deceased on discharge (RR=0.49, 95%CI: 0.24-0.98, RR=0.49, 95%CI: 0.24-1.01, respectively). PCPSS psychological/spiritual scores were also lower (RR 0.66, p=0.29) for deceased patients. SAS and PCPSS pain and psychological/spiritual scores for those discharged alive were higher in 2020 (RR 2.94, 2.24, and 4.48, respectively), but not statistically significant.

Conclusions: There were reductions in patient-rated and clinician-rated pain scores for those who were discharged deceased, but increases for those discharged alive, indicating that admission to hospital during the pandemic under VR greatly impacted the subjective and observed physical wellbeing of palliative care patients.

Overall Haemostatic Potential assay can risk stratify for venous thromboembolism recurrence in anticoagulated patients

Wang J[1,2], Lim HY[1,2], Brook R[1], Nandurkar H[3], Ho P[1,2,3]

[1]Northern Health, Epping, Australia; [2]University of Melbourne, Parkville, Australia; [3]Australian Centre for Blood Diseases, Prahran, Australia

Cancer Services

Background: Assessing the risk of recurrent venous thromboembolic (VTE) events, particularly when patients remain on anticoagulation, remains a major challenge largely due to lack of biomarkers.

Methods: Adult patients following VTE were recruited between January 2018 and September 2020. Platelet-poor plasma was obtained whilst patients remained on therapeutic anticoagulation. Overall haemostatic potential (OHP) assay, which evaluates fibrin formation with and without tissue plasminogen activator (tPA), was performed.

Results: OHP assay results were obtained from 196 patients (52.6% male) with mean age 57.1 years. Compared to healthy subjects, VTE patients displayed significantly higher overall coagulation potential ((OCP) without tPA) (39.6 v 34.5 units, p< 0.001) and OHP (with tPA) (9.3 v 6.4 units, p< 0.001) as well as lower overall fibrinolytic potential (OFP) (75.6 v 81.1%, p< 0.001). There were 16 VTE recurrences including 11 unprovoked, all of which occurred above OCP cut-off of 40th percentile (recurrence rate (RR) 4.32/100 patient-years, 95% confidence interval (CI) 2.39-7.80, p=0.002). Of 97 patients who subsequently ceased anticoagulation, all unprovoked VTE recurrences (n=9) occurred above the 40th OCP percentile (RR 9.10 per 100 patient-years, 95% CI 4.74-17.49, p=0.005) and the 40th OHP percentile (RR 8.46 per 100 patient-years, 95% CI 4.40-16.25, p=0.009). OCP performed better than D-dimer at predicting unprovoked VTE recurrence (AUC 0.72 vs 0.43).

Conclusions: Our pilot study demonstrates that the OHP assay can detect a hypercoagulable and hypofibrinolytic state in anticoagulated VTE patients and may be able to risk stratify for VTE recurrence, allowing for more individualised targeting of long-term anticoagulation.

Implementing HOspitals and patients WoRking in Unity *(HOW-R-U?)* during COVID-19

Robinson E[1], Beard S[2], Dickins M[1], Hayes J[2], Fabri AM[2], Baas B[2], Wade H[2], Lowthian JA[1]

[1]Bolton Clarke Research Institute, Melbourne, Australia; [2]Northern Health, Epping, Australia

Community Services

Background: *HOW-R-U?* is a 12-week, volunteer-delivered, telephone-based social support program, based on a successful pilot. This project aimed to benefit socially isolated, lonely or depressed older people, and to implement *HOW-R-U?* at Northern Health if successful. Due to COVID-19 challenges throughout 2020 and into 2021, the *HOW-R-U?* program underwent multiple adaptations.

Methods: This evaluation of the implementation involved surveying patients, volunteers, and referrers (front line staff), and interrogation of volunteer call logs. Research participants were assessed pre- and post- for symptoms of isolation, depression, and loneliness.

Results: Over the three months (February – May 2021), 23 referrals were received from Northern Health community programs; with 10 consenting to research participation. 15 volunteers supported patients with 191 calls (median length 26 mins). Prior to intervention 70.8% of participants scored as lonely, 37.5% of participants scored as socially isolated and depressed. Post intervention results are being analysed. All 25 referrers surveyed indicated they believed the *HOW-R-U?* program should continue, however some indicated that using the service as a 'step down' from existing programs rather than a concurrent service would be of greater benefit for participants. Referrers identified a range of enablers, such as a simple referral process, and barriers, such as limited languages spoken by volunteers.

Conclusions: *HOW-R-U?* was well received by all involved and learnings from this evaluation have informed implementation of the program into business as usual by the Northern Health Volunteer Services department.

Overall Haemostatic Potential Identifies Greater Severity of COVID-19 Infection

Lee N[1], Wang J[1], Choy K[1], Brook R[1], Lim HY[1], Ho P[1]

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

Diagnostic Services

Background: Identifying patients at risk of severe COVID-19 infection is important to aid in clinical decision-making. We hypothesized that the Overall Haemostatic Potential (OHP) assay may be useful for this purpose.

Methods: COVID-19 positive samples in our institution was collected between 31/3/2020 and 29/9/2020. Samples were double spun and resultant platelet free plasma (PPP) analysed by the OHP assay. The overall coagulation potential (OCP) is the area under the time-curve of PPP activated by thrombin. The OHP is determined by the addition of tPA (350ng/mL) and thrombin to a parallel plasma sample. The overall fibrinolysis potential (OFP) is calculated by (OCP-OHP)/OCPx100%.

Results: Samples were collected from 105 COVID-19 patients, at median 2.3 days (range 0-19 days) after COVID-19 PCR positivity. Mean OHP in this cohort was markedly higher than mean OHP of previously collected normal control subjects (19.4 vs 7.3, p<0.001). Patients with OHP in the highest tertile, compared with those in the lowest tertile displayed significantly higher markers of inflammation including fibrinogen, C-reactive protein, lactate dehydrogenase and ferritin. OHP was associated with more severe clinical course and these individuals were more likely to require intensive care unit (ICU) admission, assisted ventilation, glucocorticoids and antibiotics. Patients who received ventilator support had significantly higher OHP compared to non-ventilatory supported patients (28.7 vs 17.7, p<0.001).

Conclusions: Higher OHP at presentation with COVID-19 infection appears to correlate with disease severity. The OHP assay can be used to identify patients who may need more intensive therapeutic support and monitoring.

Laboratory characteristics and clinical outcomes of COVID-19 infection in Northern Health inpatients

Brook R[1,2], Choy KW[1], Ho P[1,2], Lim HY[1,2]

[1]Northern Pathology Victoria, Northern Health, Epping, Australia; [2]Haematology Department, Northern Health, Epping, Australia

Diagnostic Services

Background: COVID-19 infection is a global pandemic with significant morbidity and mortality. We aim to identify laboratory factors associated with poor prognosis for hospitalised patients with COVID-19.

Methods: Retrospective audit of adult inpatients with confirmed COVID-19 infection at Northern Health, between March and September 2020. Patient demographics, first laboratory results on admission, treatment, qSOFA (sepsis mortality predictive score) and clinical outcomes were collected.

Results: 199 cases were identified (median age 70 years [range 18-98], 97 [49%] male). 63 patients (35.2%) were from residential care. Most common treatments were antibiotics n=120 (60.3%), glucocorticoids n=87 (43.7%) and antivirals n=12 (6.0%). Of the 121 (60.8%) patients assessed as suitable for intensive care, 20 (16.5%) were admitted to ICU with 16/20 (80%) requiring invasive ventilation. 174 (87.4%) received prophylactic or therapeutic dose anticoagulation. There were four incidences of venous thrombosis (2.0%). COVID-19 associated mortality rate was 20.6% (n=41) of which 31 (75.6%) were residential care residents. Only one patient deemed suitable for ICU admission (0.8%) succumbed. COVID-19 related mortality was associated with older age (median 85 vs 62 years), residential aged care status, goals of care not for ICU, high qSOFA score (scores 2-3) at presentation (p<0.001) and estimated Glomerular Filtration Rate (eGFR) <30mL/min/173m2 (p=0.029). Non-survivors had lower admission lymphocyte count (median 0.85 vs 1.0 x109/L, p=0.010).

Conclusions: COVID-19 associated mortality was higher in the elderly and those from residential care reflecting underlying significant co-morbidities. The non-survivors were more likely to have a high qSOFA score, lower lymphocyte count and eGFR <30mL/min/173m2.

Predictors of clinical outcomes in residential aged care residents admitted to hospital with COVID-19 infection

Brook R[1,2], Choy KW[1], Ho P[1,2], Lim HY[1,2]

[1]Northern Pathology Victoria, Northern Health, Epping, Australia; [2]Haematology Department, Northern Health, Epping, Australia

Diagnostic Services

Background: COVID-19 infection is a global pandemic with residential aged care residents at increased risk of infection and severe disease. We reviewed clinical and laboratory factors associated with clinical outcomes in COVID-19 infections in this population.

Methods: Retrospective audit of residential aged care residents with confirmed COVID-19 infection admitted to Northern Health, between March and September 2020.

Results: 63 patients identified with median age 85 years (range 70-98) and 22 (34.9%) males. Patients had significant medical comorbidities including cognitive impairment/dementia in 41 (65.1%) and only 3 (4.8%) were documented as suitable for Intensive Care Unit (ICU) admission. Seven patients (11.1%) were treated with palliative intent from presentation. 35 (55.6%) patients received antibiotics, 26 (41.3%) received glucocorticoid steroids. No patients were admitted to ICU. The mortality was high at 49.2% (n=31) and associated with male gender (p=0.027), chronic obstructive pulmonary disease (<0.001), high qSOFA (sepsis mortality prediction tool) score (p=0.020) and glucocorticoid use (p=0.03). Non-survivors had lower lymphocyte count (median 0.8 vs 1.1 x109/L, p=0.008). Other medical co-morbidities, neutrophil count, eGFR <30 (mL/min/1.73m2), CRP, D-dimer and ferritin were not associated with increased mortality. Of the survivors, 1 episode of post-discharge pulmonary embolism was captured.

Conclusions: The majority of aged care residents were assessed as unsuitable for ICU admission from time of presentation. COVID-19 associated mortality was high with non-survivors more likely to be male, have COPD, high qSOFA score and lower lymphocyte count. Glucocorticoid use was associated with higher mortality rate though may reflect treatment use in critically unwell patients.

A ten-year review of splanchnic vein thrombosis

Oktaviana J[1,2], Lui B[1,2], Ho P[1,2], Lim HY[1,2]

[1]Department of Haematology, Northern Health, Epping, Australia; [2]Northern Pathology Victoria, Northern Health, Epping, Australia

Diagnostic Services

Background: There is lack of consensus in the management of splanchnic vein thrombosis (SVT), due to the rarity and heterogeneity of these cases. We aim to evaluate the risk factors, diagnosis, management and complications of SVT.

Methods: A ten-year retrospective evaluation of consecutive SVT presentations at Northern Health, from January 2011 to December 2020 was conducted and compared to the deep venous thrombosis/pulmonary embolism (DVT/PE) database of the same period (n=3230).

Results: 98 patients (64 males; mean age 64 years) presented with 99 episodes of SVT. The most common provoking factors were intra-abdominal infection (41%) and active malignancy (33%). 34 patients had underlying cirrhosis and were more likely to not receive anticoagulation compared to non-cirrhotic patients and those with DVT/PE (37% vs 19% vs 6% respectively, p<0.001). Cirrhotic patients were treated for a median of 3 months compared to 5.5 months in the non-cirrhotic patients (p=0.31). Eighteen patients (including five cirrhotic patients) with SVT received direct oral anticoagulant without known bleeding or thrombotic complications. Cirrhotic patients reported more recurrent thrombotic events (three SVT, two DVT/PE) or clot progression (n=1), than non-cirrhotic patients with two recurrent thrombotic events (one SVT, one DVT) and one clot progression (15.6 vs 3.3 events/100-person-years; HR 7.0 (95%CI 1.3-26.6), p=0.022). The rate of clinically significant bleeding on anticoagulation was comparable across groups.

Conclusions: SVT is more likely to be provoked compared to DVT/PE with cirrhotic patients having a higher rate of thrombotic complications compared to non-cirrhotic patients, suggesting a careful assessment of individualised anticoagulation is needed.

Family Violence presentations to ED during the COVID-19 pandemic at the Northern Hospital

Sharma B[1], Wotherspoon S[1], Giompapa T[1], Jessup R[1]

[1]Northern Health, Epping, Australia

Emergency Services

Background: During the COVID-19 pandemic, it was widely reported in the media that there was an increase in Family Violence (FV) incidents at many hospitals. The Social Work (SW) Department at Northern Health (NH) wanted to better understand if the same patterns had been observed.

Methods: Coded Emergency Department (ED) admission data and FV assessment records were used to gain a comprehensive overview of number of ED presentations with FV as well as the total number of FV assessments completed. Date ranges were 30 weeks from April to October 2019 and 2020.

Results: There was a significantly higher rate of FV to ED in 2019 than 2020 (n= 83, 0.13% vs. n=38 0.08%, p <0.001). This difference remained significant when factoring in the 2019 2 week ED closure. In contrast, the number of FV assessment forms completed in this same time period was higher in 2020 (n=209) than in 2019 (n=173).

Conclusions: Our finding of a lower presentation rate for FV during COVID differs from other hospitals. There could be a number of explanations for this including FV was not the primary reason for the patient's presentation and so it was not identified at ED; patients avoided visiting the hospital during the pandemic; ED staff were overwhelmed and had less time to explore patients' social situations; SW reduced attendance at ED as it was classified as a high-risk area; or there were limitations in engaging the patient due to Personal Protection Equipment.

Use of sublingual Vitamin B12 in a patient with nitrous oxide-induced myelopathy and pulmonary emboli

Ivory S[1], Rotella JA[1,2]

[1]Department of Emergency Medicine, Northern Health, Epping, Australia; [2]Victorian Poisons Information Centre, Austin Health, Heidelberg, Australia

Emergency Services

Case Report: A 21-year-old male presented to the Emergency Department with four days of gait ataxia, bilateral hand paraesthesia and reduced dexterity. He also reported a one month of increasing dyspnoea on exertion. He divulged a three-year history of nitrous oxide abuse that had increased to 300 cannisters per day over the last 3-4 months during lockdown periods related to COVID-19. Other history included depression, anxiety, and obesity. He took diazepam for anxiety and occasional cannabis and LSD use. On physical exam, he was tachycardia (114bpm sinus), hypoxia (92-94% RA) and tachypnoeic (RR 24) but otherwise afebrile and normotensive.

Vitamin B12 deficiency with associated myelopathy was diagnosed based on pathology (Vitamin B12 113pmol/L, NR 120-680pmol/L) and MRI imaging. CTPA showed bilateral pulmonary emboli. Homocysteine concentrations were measured and found to be high (35.4µmol/L, normal 5-15 µmol/L). As standard treatment requires 14 days of daily intramuscular injections of Vitamin B12, a sublingual preparation of B12 was used instead due to anticoagulation. The patient was regularly reviewed over the next month and serial examination showed improvement and subsequent resolution of his physical symptoms. Vitamin B12 concentrations increased, and homocysteine concentrations returned to normal parameters (8.3 µmol/L). This novel treatment option has not been previously described in the literature and offers a safe and effective alternative to parenteral therapy.

That's new?! Acute gastroparesis reversed by intravenous naloxone following opioid overdose

Seet HR[1], Rotella JA[1,2]

[1]Department of Emergency Medicine, Northern Health, Epping, Australia; [2]Victorian Poisons Information Centre, Austin Health, Heidelberg, Australia

Emergency Services

Case Report: A 56-year-old male previously naïve to opioids, presented to the Emergency Department after taking 30 x 5mg oxycodone and 750ml of port wine with suicidal intent several hours prior. He had no other medical history and did not use any other medications. He was alert and orientated on presentation and after an initial period of observation, was admitted to the Short Stay Unit to await review by Emergency Mental Health.

Several hours later, he developed nausea, vomiting and severe abdominal pain with inability to tolerate any oral intake whatsoever. On examination, he had a tender, distended abdomen with diminished bowel sounds. CT imaging revealed a distended fluid-filled stomach with no obvious stricture suggestive of gastroparesis.

Targeted history did not reveal any risk factors for gastroparesis apart from his recent opioid exposure. The patient was given 200mg of intravenous naloxone and within 30 minutes, he reported resolution of his symptoms. He was able to tolerate oral intake shortly afterwards. After further observation, he was discharged home. Whilst chronic opioid use is associated with gastroparesis, this is the first described case of an acute presentation that responded to naloxone.

Factors associated with Assistive Technology prescription and acceptance in Motor Neurone Disease

Connolly A[1], Barba S[1], Tu A[1], Lamont R[1]

[1]Northern Health, Epping, Australia

Hospital Without Walls

Background: Motor Neurone Disease (MND) is a progressive and terminal neurological condition with no known cure. The timing of prescribing assistive technology (AT) is critical due to the progressive nature of the condition and the risks involved. Clinically we have found varying acceptance to AT recommendations and prescription. Therefore, the aim of this project is to understand perspectives regarding AT from both clients and clinicians.

Methods: An exploratory qualitative study utilising in-depth interviews with people with MND (PwMND) and focus groups with clinicians. PwMND were recruited from Northern Health Progressive Neurological Disease Clinic. Clinicians working with MND clients were invited to attend focus groups. Interviews and focus groups were audiotaped with notes taken. Thematic analysis was adopted to identify key themes.

Results: Ten PwMND and 16 clinicians were recruited. Enablers and barriers were identified in factors of PwMND, clinician, and extra-personal. For PwMND, personal characteristics was the main enabler, and not accepting MND diagnosis and AT recommendations the main barrier. For clinician, individualised communication approach was the main enabler, and poor timing of communication was the main barrier. For extra-personal, interactive education of AT was the main enabler, and delay of AT was the main barrier.

Conclusions: AT prescription and acceptance is a highly complex and multifactorial process. We may not be able to change who our clients are; however, we can upskill and attune our clinicians' communication approach to the needs of PwMND and work collaboratively as a team to share knowledge and experience.

The rate of unplanned gastrostomy replacements within a dietitian-led gastrostomy service in metropolitan Melbourne

Farrugia E[1], Tacey M[1,2], Barba S[1], Hannan LM[1]

[1]Northern Health, Epping, Australia; 2Melbourne School of Population and Global Health, University of Melbourne, Carlton, Australia

Hospital Without Walls

Background: Gastrostomy feeding represents a vital component of supportive care provided to people with swallowing or feeding difficulties and reducing risks is a crucial aspect of care. It is unknown whether people with Motor Neurone Disease (MND) are at increased risk of unplanned tube replacement. This study aimed to quantify and compare gastrostomy-related complications amongst people with MND compared to those with other disorders.

Methods: A retrospective audit in a mixed cohort of individuals enrolled within a single dietitian-led service between 2016 and 2021. A service database and relevant medical files were screened for frequency of unplanned gastrostomy replacement, complications (infection, hypergranulation, compromised tube integrity and tube displacement), non-invasive ventilation use and mortality, related to replacement tubes only.

Results: In total, 193 replacement tubes were examined in n=51 individuals. People with MND had a lower rate and likelihood of first unplanned tube replacement compared to those with other conditions (HR 0.42) after adjustment for age, though not statistically significant (p=0.10). Modelling demonstrated a reduced risk of unplanned replacement with previous infection and hypergranulation and an increased risk with compromised tube integrity and previous displacement. 48% of unplanned replacements occurred between 90 to 180 days, with tube integrity the most frequently associated complication (39%). The rate of hypergranulation appeared higher in people with MND at the first (p=0.01) and (p=0.03) second replacements.

Conclusions: Quality improvement strategies aimed at identifying tube integrity issues earlier, through introduction of routine tube integrity checks, standardised documentation and collaboration with other health services, are being considered.

As a result of the unique role of Social Work within the Hospital In The Home Service, Northern Health demonstrates how it is a leader in improving outcomes for patients via a case study.

Giompapa T[1], Sharma B[1]

[1]Northern Health, Epping, Australia

Medicine

Background: Social Work (SW) within Hospital In The Home (HITH) provides patients with complex social circumstances the opportunity to address any emerging psycho-social issues without compromising a discharge and/or increasing length of stay. As a result of a benchmarking study comparing the role of SW within HITH across eleven major hospitals in Victoria, it was discovered that Northern Health (NH) was one of only two hospitals out of the eleven, who provided SW services to HITH patients.

Methods: SW conducted phone interviews with eleven HITH providers based on a set of standardized questions. SW reviewed all the HITH cases with SW intervention, in the past eighteen months and described a case which highlighted the value of SW intervention. SW gained consent from the patient to present the case study.

Results: The benchmarking exercise highlighted the unique role of SW within HITH. The case study demonstrates the value of SW intervention in reducing length of stay, reducing preventable hospital re-admissions, addressing the psychosocial stressors, assisting with health literacy issues, addressing financial constraints and reducing carer burden through advocacy and support.

Conclusions: This incidental finding has now enabled NH to reveal how valuable and beneficial this unique role is to the consumer as well as to the organisation. Through a case study, NH will demonstrate how the role of SW can be rarely filled by other members of the health care team. Consequently, this is an opportunity for all hospitals to advocate for the inclusion of SW within the HITH service.

Goals of patient care in elderly patients during a pandemic – did they change?

Hurley K[1,2], Jeffs K[1]

[1]Northern Health, Epping, Australia; [2]Austin Health, Heidelberg, Australia

Medicine

Background: The current COVID-19 global pandemic has led to over 186 million infections and 4 million deaths worldwide with high mortality and morbidity in patients who are elderly and those with multiple co-morbidities. We aimed to determine if the COVID-19 pandemic changed decision-making regarding goals of patient care (GOPC) in elderly hospital patients in Melbourne, Australia.

Methods: We conducted a retrospective cohort study to compare GOPC for two cohorts of elderly patients admitted to a metropolitan Melbourne hospital between June – August 2019 (pre-pandemic) and June – August 2020 (during pandemic). Inclusion criteria were general medicine inpatients, aged 65 and over, with 300 patients randomly selected from each cohort. We collected data about GOPC form completion and GOPC categories defined as: A – for cardiopulmonary resuscitation (CPR) and all life sustaining treatments; B – not for CPR, for all active management including Intensive Care Unit (ICU); C – not for CPR or ICU, for active ward based management and D – terminal care. We collected data about the baseline characteristics of the patients including age, sex, Charlson co-morbidity index and functional status.

Results: Baseline characteristics of the two cohorts were similar. In 2019, 199 out of 300 (66%) patients had a GOPC form completed compared to 265 out of 300 (88%) patients in 2020 (p<0.001). Distribution of the GOPC categories was similar between the two cohorts.

Conclusions: There was a significant increase in GOPC form completion during the COVID-19 pandemic. Decision-making regarding GOPC treatment goal categories remained similar between the cohorts.

Older patients are more likely to present late to hospital for suspected food bolus obstruction

Tsoi AH[1], Chen L[1], Glance S[1], Garg M[1,2]

[1]Department of Gastroenterology, Northern Health, Epping, Australia; [2]Department of Medicine, University of Melbourne, Melbourne, Australia

Medicine

Background: Oesophageal food bolus impaction is a medical emergency requiring urgent endoscopic management within 6 hours of presentation for complete obstruction and within 24 hours for incomplete obstruction. Delayed food bolus presentations are associated with increased complications and risk of oesophageal perforation. This study aims to determine patient demographic factors that influence the time to presentation to the emergency department (ED) with acute food bolus impaction.

Methods: This study was a retrospective review of consecutive patients with food bolus obstruction requiring emergency endoscopy between March 2014 and December 2020. Medical records were interrogated for time of symptom onset to ED presentation, patient demographic data and endoscopic findings.

Results: Of the 113 separate food bolus episodes, 98 (86.7%) presentations to ED were within 24 hours of symptom onset and 15 (13.3%) presentations were greater than 24 hours. However, patients presenting after 24 hours were more likely to be older than those presenting within 24 hours (median age 70y [IQR 57-81] vs 56.5y [IQR 37-70], P<0.01). Patients aged over 65 were found to be more likely to present to ED after 24 hours than those under age 65 (10 (23%) vs 5 (7.5%), P=0.02).

Conclusions: Patients over 65 are more likely to present later to ED with symptoms of food bolus impaction compared to younger patients. As current guidelines suggest less than 6 or 24 hours for urgent endoscopy, perhaps this timeframe can made be shorter for older patients who, on average, present later and are at higher risk of possible complications.

Post-operative hyperglycaemia is associated with surgical site infection in patients undergoing emergency laparotomy

Nguyen N[1], Jayasekara I[2], Jeetah N[2], Liu D[1,3,4], Mori K[1,2,3], Kyi M[1,5]

[1]Northern Health, Epping, Australia; [2]University of Melbourne, Melbourne, Victoria; [3]Austin Health, Melbourne, Victoria; [4]Flinders Medical Centre, South Australia; [5]Royal Melbourne Hospital, Victoria

Medicine, Surgical Services

Background: Emergency laparotomies have high risk of post-operative complications such as surgical site infections (SSI). Hyperglycaemia causes adverse pathophysiology (impaired immunity and endothelial dysfunction), which may lead to SSI. This study sought to analyse the relationship between hyperglycaemia and SSI in patients who underwent emergency laparotomy.

Methods: This is a retrospective study of consecutive adult patients who underwent an emergency laparotomy at a metropolitan Melbourne hospital from 1 January 2018 to 31 October 2019. Blood glucose (BG) measurements (capillary, venous and blood gas) were collected from the day of patient admission until seven days post-operation. Association between SSI and BG in the pre-operative, intra-operative and post-operative periods were analysed for the entire cohort, and in subgroups depending on pre-existing diabetes status.

Results: A total of 225 patients undergoing emergency laparotomy were included, of whom 39 (17.3%) developed SSI on median of 9 days post-operatively. In the entire cohort, there was no association between SSI and BG. However, when separated into subgroups depending on diabetes status, post-operative hyperglycaemia was associated with SSI. In 184 patients without pre-existing diabetes, patient-day mean BG was higher in patients that developed SSI vs. without SSI (mean 7.7 (SD 2.6)) vs. 7.1 (2.0) (mmol/L, p=0.001). In the 41 patients with pre-existing diabetes, patient-day mean glucose was also higher in patients that developed SSI (10.0 (1.8) vs. 9.0 (2.7) mmol/L, p=0.003). Pre-operative and intra-operative BG were not associated with SSI.

Conclusions: In patients undergoing emergency laparotomy, hyperglycaemia in the post-operative period is associated with SSI, regardless of diabetic status.

A retrospective evaluation of the management of venous thromboembolism in cancer patients

Lui B[1], Khattak Z[1], Kwok A[1], Lai J[1], Ho P[1], Lim HY[1,2]

[1]Northern Health, Epping, Australia; [2]The University of Melbourne, Parkville, Victoria, Australia

Medicine

Background: Cancer is a well-recognised risk factor for venous thromboembolism (VTE) with higher mortality. We aim to evaluate the characteristics of VTE in cancer patients in our study population.

Methods: Retrospective evaluation of VTE events provoked by malignancy at Northern Health, Melbourne, Australia from January 2012 to July 2019 (median follow-up 5.4 years). Analysis included demographics, associated factors, management and outcomes. The outcomes of the cancer patients were compared to those without malignancy.

Results: 327 cancer patients presented with 346 (16.8%) VTE events out of a total 2055 VTE presentations, 224 (64.7%) events occurred in metastatic disease. This was compared to 1605 non-cancer patients who presented with 1709 VTE events - 51 of these individuals developed subsequent malignancy. Cancer patients were more likely to develop pulmonary embolism (56% vs 45%, p<0.001), above-knee deep vein thrombosis (DVT) (36% vs 18%, p<0.001) and bilateral DVT (13% vs 4%, p<0.001). 231 patients with malignancy received indefinite anticoagulation; the majority (233, 67%) received enoxaparin. There were 26 recurrences (8%) in the malignant population despite 12 patients being on therapeutic anticoagulation, compared to 194 recurrences (13%) in the non-cancer patients of which only 29 of these patients were on therapeutic anticoagulation (46.2% vs 14.9%, p<0.001).

Conclusions: Cancer patients have higher clot burden and increased recurrence rate despite therapeutic anticoagulation. Further evaluation is required to optimise treatment in these patients.

A real-world experience of venous thromboembolism management in Australia

Lui B[1], Khattak Z[1], Kwok A[1], Lai J[1], Ho P[1], Lim HY[1,2]

[1]Northern Health, Epping, Australia; [2]The University of Melbourne, Parkville, Australia

Medicine

Background: Venous thromboembolism (VTE), including deep vein thrombosis (DVT) and pulmonary embolism (PE), is increasingly recognised as a chronic disease with significant morbidity or mortality. We aim to characterise the real-world experience of VTE management in our study population.

Methods: Retrospective evaluation of VTE events managed at Northern Health, Melbourne, Australia from January 2012 to June 2019 (median follow-up 5.6 years). The analysis included patient demographics, risk factors, management and outcomes.

Results: 2055 VTE events involving 1932 individuals (median age 65 years; 53% females) were analysed. These events included 1450 (71%) DVTs, 965 (47%) PEs and 360 (18%) with concurrent DVT/PE. 60% events (n=1233) were provoked with the most common provoking factor being injury/immobility (n=486, 24%). The median duration of anticoagulation was 6 months. 872 (42%) cases were managed with warfarin, 365 (18%) with enoxaparin and 673 (33%) with a DOAC. 220 (11%) patients experienced recurrent VTE. Patients on warfarin and/or enoxaparin had higher rates of clinically significant major bleeding compared to DOACs (31/872 on warfarin (4%) vs 30/365 on enoxaparin (8%) vs 12/673 on DOAC (2%), p<0.001). Thrombosis and bleeding-related mortalities were comparable (30 (1.6%) vs 22 (1.1%), p=0.26).

Conclusions: The recurrent thrombosis rate was 11% with a 4% rate of clinically significant major bleeding in this study. Bleeding rates were lower in patients treated with DOAC supporting the use of DOACs as first-line therapy in appropriately selected patients.

A retrospective evaluation of the management of isolated distal deep vein thrombosis in Australia

Lui B[1], Lai J[1], Khattak Z[1], Kwok A[1], Ho P[1], Lim HY[1,2]

[1]Northern Health, Epping, Australia; [2]The University of Melbourne, Parkville, Australia

Medicine

Background: Isolated distal deep vein thrombosis (IDDVT) is often viewed to be of less clinical significance than major venous thromboembolism (VTE). However, studies report variable recurrence rate (2-19%) with significant heterogeneity in the IDDVT management.

Methods: Retrospective evaluation of IDDVT events managed at Northern Health, Melbourne, Australia from January 2012 to June 2019 (median follow-up 5.7 years). Analysis included demographics, associated factors, management and outcomes.

Results: 429 patients (median age 63 years, 56% females) presented with 438 cases of IDDVT in this time period. The majority (297 cases, 68%) were provoked. The median duration of anticoagulation was 3 months for provoked events compared to 4 months for unprovoked

events (p=0.015). Warfarin was the most common anticoagulant used (189 cases, 43%), followed by direct oral anticoagulants (DOACs) (152, 35%). There were 53 (12%) patients with recurrent VTE (including 18 (34%) as major VTE) and 9 (2%) patients with clinically significant major bleeding. An analysis of the overall database demonstrated that IDDVT patients had comparable VTE recurrence rate to those with major VTE (12% vs 11%, p=0.44) but lower major bleeding rates (2% vs 4%, p=0.036). There were four bleeding-related deaths (all on warfarin/enoxaparin), with no thrombosis-related deaths.

Conclusions: The majority of IDDVT were provoked although the risk of recurrent thrombosis was comparable to major VTE despite a lower major bleeding rate. These data suggest that IDDVT is not always as benign as assumed.

Performance of oesophageal biopsy at index gastroscopy for acute food bolus obstruction is suboptimal

Chen L[1], Tsoi A[1], Glance S[1,2], Garg M[1,2]

[1]Department of Gastroenterology, Northern Health, Epping, Australia; [2]Department of Medicine, The University of Melbourne, Melbourne, Australia

Medicine

Background: Eosinophilic oesophagitis (EOE) is an increasingly prevalent condition, affecting 1 to 6 per 10,000 persons. A minimum of 4 to 6 biopsies from both proximal and distal oesophagus is recommended, with eosinophilic infiltrate of >15 eosinophils per high power field on histology confirming diagnosis. The aim of this study was to evaluate the likelihood of capturing a diagnosis of EOE following presentation with acute food bolus obstruction.

Methods: The study was a retrospective review of consecutive patients presenting to an emergency department with acute food bolus obstruction requiring emergency endoscopy between March 2014 and December 2020. Medical records were interrogated for demographic data, endoscopic findings and histology results.

Results: Across 113 food bolus episodes (70.8% male, median age 57 [IQR 41-71]), oesophageal biopsies were performed in 35 (30.9%) patients at the time of emergency endoscopy; of these, 25 (71.4%) patients received more than four biopsies taken in more than two locations. Sixteen (15.1%) patients were newly diagnosed with EOE, and four (3.8%) had a known history. Three (2.8%) patients had initial biopsies that were non-diagnostic for EOE despite >4 samples taken, however had subsequent repeat biopsies that met diagnostic criteria. A further 4 (3.8%) patients had macroscopic features on index endoscopy but biopsies were not taken, and failed to attend follow up.

Conclusions: EOE remains a challenging diagnosis and clinicians should encourage follow up and pursue repeat biopsies with multiple samples. A missed diagnosis may lead to an increased risk of recurrent food bolus obstruction and complicating strictures.

Clinicians Uniting To Calm The Covid-19 Storm

Macauley L[1], Chellaram V[1]

[1]Northern Health, Epping, Australia

Medicine

Case Report: This case series examines tocilizumab use in five ventilated male patients with severe COVID-19 in intensive care, and pharmacist contribution to their management.

The average age of the patients was 51.4 years. Two had no past medical history, one had a history of thrombosis, another had T2DM and the eldest had multiple conditions, including hypertension and renal impairment. All had Acute Respiratory Distress Syndrome and significant oxygen requirements due to COVID-19, and raised 'cytokine storm' markers, like C-reactive protein and ferritin. Most were on concurrent antibiotics and dexamethasone. Tocilizumab was commenced on day 10 of COVID-19 illness, on average.

In mid-2020 there was some evidence, via case reports, that interleukin-6 inhibitors like tocilizumab reduce progression to a hyper-inflammatory state, known as 'cytokine storm', seen in severe COVID-19 and associated with tissue damage, multi-organ failure and mortality. As no in-house protocol for tocilizumab existed, the Infectious Disease (ID) pharmacist created one.

The decision to trial tocilizumab was made jointly by ID, Intensive Care Unit (ICU) and Rheumatology on a case-by-case basis, using clinical parameters and 'storm' markers. The ICU pharmacist reviewed the patients to ensure tocilizumab suitability. They received tocilizumab intravenous infusion prepared by Pharmacy. The pharmacist monitored FBE and LFTs, checked for drug interactions and ensured monitoring of hypersensitivity and infusion-related reactions. Side-effects like deranged LFTs and rash were flagged also.

Tocilizumab helped reduce oxygen supplementation and 'storm' markers in all patients. One patient died after developing multi-organ failure. The remainder were discharged, on average, 13 days after tocilizumab administration.

Interventions to improve pain control in pleural procedures

Du A[1], Muruganandan S[2]

[1]University of Melbourne, Melbourne, Australia; [2]Northern Health, Epping, Australia

Medicine

Background: Pleural disease is increasingly common and often requires both diagnostic and therapeutic procedures. Despite pain being a frequently reported symptom during and after pleural procedures, there remains no standardised method for reducing pain. This review examines the evidence for pain control strategies for individuals undergoing non-surgical pleural interventions.

Methods: A literature search was performed for English-language abstracts and full-text articles published between 1946 and 2020 in Medline, Pubmed and Embase. Studies were included if they evaluated a method of pain control in adults with pleural disease undergoing non-surgical pleural procedures.

Results: Both pharmacological (sedatives, paravertebral blocks, intrapleural anaesthesia, epidural anaesthesia, local anaesthetic, methoxyflurane, non-steroidal anti-inflammatory drugs [NSAIDs], opioids) and non-pharmacological measures (transcutaneous electric nerve stimulation [TENS], cold application, various chest tube sizes, vacuum and manual drainage, mini and semi-rigid thoracoscope, hospital protocols) were evaluated. Strategies that were more effective than placebo or standard care at improving pain included intrapleural anaesthesia, NSAIDs, small-bore intercostal catheters (ICC), cold application and TENS. Inhaled methoxyflurane and thoracic epidural anaesthesia also appear to be useful but require further studies to determine their effectiveness.

Conclusions: Small-bore ICCs, NSAIDs and intrapleural anaesthesia are reasonable options to reduce pain for individuals undergoing pleural procedures. Further research should be targeted at developing more consistent pain management algorithms that takes into consideration individual and procedural differences.

Proactive Inpatient Diabetes Service decreases severe hyperglycaemia and hypoglycaemia: repeated cross-sectional study at Northern Health

Van K[1], Ma XW[1], Loughran J[1], Brown A[1], Lindsey S[1], Wong H[1], Fourlanos S[2,3], Varadarajan S[1], Kyi M[1,2,3]

[1]Endocrinology Unit, Northern Health, Epping, Australia; [2]Department of Diabetes and Endocrinology, Royal Melbourne Hospital, Victoria; [3]University of Melbourne, Department of Medicine, Royal Melbourne Hospital

Medicine

Background: Hyperglycaemia and hypoglycaemia are common in hospital inpatients and should be avoided to prevent clinical complications. In February 2020, Northern Health implemented a multidisciplinary proactive Inpatient Diabetes Service (IDS). Observational hospital-wide cross-sectional studies were performed before and after implementation of IDS to assess glycaemic and clinical outcomes.

Method: Patients admitted at three Northern Health affiliated hospitals on a single day in November 2017 (pre-IDS) and in March 2021 (post-IDS commencement) were audited. For inpatients with diabetes, clinical features, diabetes treatment and capillary glucose measurements were collected and analysed. Primary outcome was the proportion of patient-days with mean glucose >15mmol/L. Secondary outcomes included hypoglycaemia, treatment intensification and clinical outcomes.

Results: Prevalence of diabetes amongst inpatients was 36% in both groups. In the post-IDS group 47% (65) of inpatients with diabetes had diabetes team consultation. After establishment of IDS, patient-days with mean glucose >15 mmol/L decreased by 30% (6.5% pre-IDS vs 4.5% post-IDS; p=0.03), as did patient days with level 2 hypoglycaemia (glucose <3mmol/L) (1.1% vs 0.2%; p=0.01). There was an increase in treatment intensification on discharge for patients with A1c>7% (3% pre-IDS vs 21% post-IDS; p=0.001) and treatment de-escalation for patients with A1c<7% and aged >75 (11% pre-IDS vs 35% post-IDS; p=0.02).

Conclusions: Northern Health continues to have one of the highest reported prevalence of inpatients with diabetes in Australia. We demonstrated that proactive IDS decreased severe hyperglycaemia and hypoglycaemia. Treatment change at discharge suggests there may be an impact on long term patient outcomes.

Validation of the Melbourne clinical prediction tool to identify inpatients with diabetes at risk for persistent adverse glycemia in hospital

Kyi M[1,2,3], Barmanray R[2,3], Nair I[1], Hng TM[4], Fourlanos S[2,3]

[1]Northern Health, Epping, Australia; [2]Royal Melbourne Hospital, Melbourne, Australia; [3]University of Melbourne, Melbourne, Australia; [4]Blacktown-Mount Druitt Hospital, Sydney, Australia

Medicine

Background: Hyperglycaemia and hypoglycaemia are common in hospitalised patients and are associated with adverse outcomes. Inpatient diabetes teams can improve glucose and clinical outcomes, but there is a need for targeted management. We previously developed the Melbourne clinical prediction tool for early identification (within 24 hours of admission) of inpatients at high risk of developing persistent adverse glycaemia (AG), defined as two or more days with glucose <4 or >15 mmol/L. We performed validation of the prediction tool in new cohorts including at Northern Health.

Methods: Cohorts of inpatients with diabetes from the Royal Melbourne Hospital (RMH), Northern Hospital Epping (NHE), and Blacktown & Mount Druitt Hospital, Sydney (BMDH) were used for validation. Logistic regression for persistent AG used four predictive variables comprising admission dysGlycaemia, Glucose-lowering regimen containing sulphonylurea or insulin, Glucocorticoid treatment and Glycosylated haemoglobin (the '4Gs').

Results: RMH, NHE and BMDH cohorts comprised 1310, 429, and 1003 inpatients respectively. Cohorts were well matched. Model discrimination was excellent. Receiver-operating characteristic area under curve was 0.85 for RMH, and 0.78 for NHE and 0.86 for BMDH cohorts respectively.

Conclusions: Melbourne clinical prediction tool to identify individuals at high risk for persistent AG performed well in an external validation exercise including at Northern Health. This tool can assist early identification of patients with acute dysglycaemia to enable targeted management by the Northern Inpatient Diabetes Service. These findings also validate the importance of the '4Gs' as predictive clinical factors for unstable diabetes in hospital.

Direct Oral Anticoagulants – A Competitor to Warfarin for Stroke Prevention in High-Risk Patients

Nou M[1], Donarelli C[1], Lim HY[2], Chellaram V[1]

[1]Pharmacy Department, Northern Health, Epping, Australia; [2]Clinical Haematology Department, Northern Health, Epping, Australia

Medicine, Pharmacy

Background: The safety and efficacy data of direct oral anticoagulants (DOACs) for stroke prevention in atrial fibrillation (AF) in the overweight to obese population is lacking. This project aims to compare bleeding and thrombotic outcomes between DOACs and warfarin in this cohort.

Methods: A 2-year retrospective analysis (2019-2020) of dispensed anticoagulants (warfarin, apixaban, rivaroxaban, dabigatran), prescribed for AF patients with body weight of ≥100kg were included. Bleeding and thrombotic outcomes of anticoagulants were analysed.

Results: 90 patients were included with average age of 66 years, 70% (63) being male, average weight of 119.5kg and 32.2% (29) were >120kg, most with CHA_2DS_2-VASc score of 4. 21 patients were prescribed dabigatran, 31 prescribed apixaban, 16 prescribed rivaroxaban and 22 prescribed warfarin, with 21.1% (19) of patients using a concurrent antiplatelet. Bleeding rates were similar between warfarin at 9.1% (2) and DOACs at 7.4% (5) with 1 bleed of International Society of Thrombosis and Haemostasis Grade 3 on apixaban. 71.4% (5) patients with a bleed had renal impairment (eGFR ≤59mL/min/1.73m2) and 57.1% (4) were >120kg. One patient readmitted >90 days after discharge with symptoms of stroke, on dabigatran, however no mortality or venous thromboembolism (VTE) outcomes were reported.

Conclusions: Our data supports the use of DOACs for stroke prevention in AF in the overweight to obese population with minimal bleeding or thrombotic adverse effects compared to warfarin.

Monitoring for Anthracycline/Trastuzumab related Cardiomyopathy in Breast Cancer Patients – a Research Audit into Clinical Practice

Marsden P[1], Sharma N[1,2]

[1]Northern Health, Epping, Australia; [2]The Cardiologists, Epping, Australia

Medicine

Background: Anthracyclines and the monoclonal antibody Trastuzumab are adjuvant therapies for the treatment of patients with breast cancer commonly implicated in the development of cardiomyopathy. Current *European Society for Medical Oncology* guidelines suggest baseline assessment of ventricular function with monitoring thereafter during treatment with these anticancer therapies. Recent presentations with progressed heart failure in this patient group in lieu of other risk factors prompted review of these surveillance practices to guide preventative care.

Methods: Retrospective audit conducted by review of correspondence, investigations, and clinical notes. Encounters with a primary diagnosis of breast cancer and chemotherapy treatment between 2015-2018 were included. Details relating to cardiac monitoring were extracted and analysed.

Results: 104 patient encounters were audited. 55 patients received Anthracyclines or Trastuzumab. One encounter was excluded due to insufficient information. Of 24 patients treated with Trastuzumab; 23 (96%) had documented baseline cardiac imaging, 23 (96%) received follow up, and 18 (75%) were assessed quarterly. Of 30 patients treated with Anthracyclines alone 24 (80%) had baseline imaging, 9 (30%) received follow up, and 3 (10%) were re-assessed in the first 6 months of therapy.

Conclusions: Surveillance of Trastuzumab related cardiomyopathy was found to be satisfactory with acknowledgement of study limitations and the complexities of oncological care. However, cardiac imaging for surveillance of Anthracycline related cardiomyopathy is underutilised. These findings suggest a role for increased cardio-oncology interdisciplinary care to facilitate referral and follow up.

Land-based exercise for osteoarthritis of the hip

Nakos O[1], Anjara P[1], Griffiths L[1]

[1]Northern Health, Epping, Australia

Medicine

Background: Hip osteoarthritis is a common, chronic, degenerative joint disease, for which there is no cure. Land-based exercises are currently recommended as first-line management for hip and knee osteoarthritis, however, the evidence to support this is far greater for knee osteoarthritis. The aim of this systematic review was to investigate the benefits and harms of land-based exercises, and to determine which land-based exercises are most effective, for the management of hip osteoarthritis.

Methods: We searched 2 electronic databases (MEDLINE (Ovid) and CINAHL (EBSCOhost)) in July 2021, for randomised controlled trials (RCTs) that assessed land-based exercise, in comparison to other forms of land-based exercise or usual care. Strict inclusion criteria were applied, so that only studies that assessed validated qualitative questionnaires (The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) or The Hip Disability and Osteoarthritis Score (HOOS)), were evaluated.

Results: Our search yielded 14 RCTs (1260 participants). 7 studies demonstrated statistically significant improvements, in favour of land-based exercises, for WOMAC and HOOS physical function (p-value range, 0.001 to 0.04), and 4 studies did so for WOMAC and HOOS pain (p-value range, 0.024 to <0.05), at various timepoints.

Conclusions: For those with hip osteoarthritis, land-based exercises such as muscle-strengthening and aerobic exercise, appear to improve pain, physical function, quality of life, and mental health outcomes, in the short-term, and possibly in the long-term. Further research is required to clarify the exact nature, intensity, and duration of exercise required, and to determine who will likely benefit.

Location, location, location: Determining the ideal site for allergen controls in forearm skin prick testing

De Losa R[1], Tampaline L[1], Hannan LM[1,2], Tacey M[1,3], Romeo N[1]

[1]Northern Health, Epping, Australia; [2]Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Melbourne, Australia; [3]Melbourne School of Population and Global Health, University of Melbourne, Victoria, Australia

Diagnostic Services, Medicine

Background: Interpretation of skin prick tests (SPT) for allergy investigation relies on administering a control solution of histamine (positive control) and glycerol (negative control). A SPT is considered uninterpretable if the histamine control fails to elicit a significant allergen response. Presently there is a lack of literature specifying the ideal skin sites to apply control solutions and current Australasian Society of Clinical Immunology and Allergy (ASCIA) guidelines suggest any difference in reactivity at different skin sites is clinically negligible. The aim of this study was to determine whether the forearm location that control solutions are applied influences SPT interpretability.

Methods: Results from individuals with suspected allergic disease referred for SPT at the Respiratory Function Laboratory, Northern Health were analysed. SPT were administered on the volar surface of the forearm consistent with the current 2020 ASCIA guidelines. Three different control sites were used to validate each SPT; 2cm from the wrist (distal wrist), 5cm from the wrist (proximal wrist) and 3cm from the antecubital fossa (elbow).

Results: Of 323 SPT analysed, the proportion of interpretable SPT was significantly lower with control solutions placed at the distal wrist (67.8%) when compared to both proximal wrist (89.8%) and elbow (96.9%), respectively. SPT interpretability was greatest when control solutions were applied at both the proximal wrist and the elbow (99.1%).

Conclusions: Interpretability of forearm SPT is significantly influenced by the location that control solutions are applied. These results will improve SPT reliability at Northern Health and may influence future recommendations for allergy testing.

Implementing the Australasian Society of Clinical Immunology and Allergy 2020 guidelines for skin prick interpretation: A retrospective audit

Saykao O[1], Hannan LM[1], Romeo N[1]

[1]Department of Respiratory Medicine, Northern Health, Epping, Australia

Medicine

Background: Skin prick testing (SPT) is an important test to determine the presence of a food or airborne allergen sensitisation which may allow a diagnosis of allergic disease. The Australasian Society of Clinical Immunology and Allergy (ASCIA) recently updated their guidelines to SPT interpretation to allow interpretation of results when positive (histamine) control wheals are ≥ 3mm. Prior to this, only when positive controls wheals were ≥4mm was an SPT considered interpretable. An uninterpretable SPT may need to be repeated or require other testing such as the measurement of allergen-specific IgE which adds cost and inconvenience. We sought to determine what impact this change would have on SPT interpretability at Northern Health.

Methods: A retrospective analysis of the Northern Health Respiratory Function Laboratory reporting database was conducted. Those referred for skin prick testing (SPT) with a standard panel of allergens between February 2018 and July 2021 were included. Positive and negative wheal sizes were evaluated and compared against both (2016) and (2020) ASCIA guidelines.

Results: During the 40-month audit period, n=1397 SPT were conducted. Using the 2016 recommendations, n=1201 (86.0%) were interpretable. With the updated 2020 recommendations, n=1304 (93.3%) were interpretable, representing a 7.4% increase in interpretable results (p<0.001).

Conclusions: Implementation of the 2020 ASCIA recommendations resulted in an additional 7.4% of SPT results being classified as interpretable. While the clinical impact of this change on the diagnosis of allergic disease is uncertain, adopting the updated guidelines may result in a reduction in the frequency of repeat testing or the need for other tests to identify allergic disease.

The Steroid Therapy and Outcome of Parapneumonic Pleural Effusions: a randomized trial

Fitzgerald DB[1,2,3], Waterer GW[2,4], Budgeon C[5], Shrestha R[6], Fysh ET[2,7], Muruganandan S[8], Stanley C[4], Saghaie T[9,10], Badiei A[11], Sidhu C[1,3,12], Harryanto H[6], Duong V[8], Azzopardi M[1], Manners D[7], Lan NSH[1], Popowicz ND[1,13], Peddle-McIntyre CJ[3,12,14], Rahman NM[15,16], Read CA[3,17], Tan AL[3], Gan SK[2,18], Murray K[5], Lee YC[1,2,3]

[1]Respiratory Medicine, Sir Charles Gairdner Hospital, Western Australia; [2]Medical School, Faculty of Health and Medical Sciences, University of Western Australia, Australia; [3]Pleural Medicine Unit, Institute for Respiratory Health, Perth, Western Australia; [4]Respiratory Medicine, Royal Perth Hospital, Western Australia, Australia; [5]School of Population and Global

Health, University of Western Australia, Australia; [6]Respiratory Medicine, Fiona Stanley Hospital, Western Australia; [7]Respiratory Medicine, St John of God Midland, Western Australia; [8]Respiratory Medicine, Northern Health, Epping, Australia; [9]Respiratory Medicine, Concord Repatriation General Hospital, New South Wales; [10]Faculty of Medicine and Health Sciences, Macquarie University, Sydney; [11]Department of Thoracic Medicine, Royal Adelaide Hospital, Adelaide; [12]School of Medical and Health Sciences, Edith Cowan University, Western Australia; [13]School of Allied Health, University of Western Australia; [14]Exercise Medicine Research Institute, Edith Cowan University, Joondalup; [15]Oxford Respiratory Trials Unit, University of Oxford, UK; [16]NIHR Oxford Biomedical Research Centre, Oxford, UK; [17]North Metropolitan Health Service, Perth, Western Australia; [18]Department of Endocrinology and Diabetes, Royal Perth Hospital, Western Australia

Medicine

Background: Pleural effusion commonly complicates community-acquired pneumonia (CAP) and is associated with intense pleural inflammation. Whether anti-inflammatory treatment with corticosteroids improves outcomes is unknown. We aim to assess the effects of corticosteroids in an adult population with pneumonia-related pleural effusion.

Methods: STOPPE was a pilot, multicenter, double-blinded, placebo-controlled randomized trial involving six Australian centers. CAP patients with pleural effusion were randomized (2:1) to intravenous dexamethasone (4mg twice daily for 48 hours) or placebo and followed for 30 days. Given the diverse effects of corticosteroids, a comprehensive range of clinical, serological, and imaging outcomes were assessed in this pilot trial (ACTRN12618000947202).

Results: 80 patients were randomized (1 withdrawn before treatment) and received dexamethasone (n=51) or placebo (n=28). There were no inter-group differences in time to sustained (>12 hours) normalization of vital signs (temperature, oxygen saturations, blood pressure, heart, and respiratory rates), median 41.0 [95%CI 32.3-54.5] in the dexamethasone arm vs 27.8 [15.4-49.5] hours in the placebo arm, HR 0.73 [95%CI 0.45-1.17], p=0.19. No differences in C-reactive protein or leukocyte counts were observed except for a higher leucocyte count in the dexamethasone group at Day 3. Pleural drainage procedures were performed in 49.0% of dexamethasone-treated and 42.9% of placebo-treated patients, p=0.60. Radiographic pleural opacification decreased over time with no consistent inter-group differences. Mean duration of antibiotic therapy (22.4 [SD=15.4] vs 20.4 [SD=13.8] days) and median hospitalization (8.1 [IQR=5.0] vs 6.9 [IQR=3.7] days) were similar between the dexamethasone and placebo groups. Serious adverse events occurred in 25.5% of dexamethasone-treated and 21.4% of placebo-treated patients. Transient hyperglycemia more commonly affected the dexamethasone group (15.6% vs 7.1%).

Conclusions: Systemic corticosteroids showed no benefits in adults with parapneumonic effusions.

Pharmacist Clinical Review in Anaesthetic Preadmission Clinics

Nouri A[1], Khoshaba J[1], Chellaram V[1]

[1]Northern Health, Epping, Australia

Pharmacy

Background: Traditionally at Northern Health, a clinical pharmacist review of elective surgical patients doesn't occur until they are admitted onto the ward post-surgery. A delay in pharmacist review could result in any potential medication discrepancies or errors only being identified later in the admission. This study aims to identify whether a clinical pharmacist review in anaesthetic preadmission clinics (ANAPAC) will improve peri-operative medication management in elective surgery patients.

Methods: A retrospective audit of a 12-week trial of clinical pharmacist review in ANAPAC from November 2020 to February 2021. Participants included 106 elective surgery patients that attended ANAPAC during this time, 47 patients had pharmacist review and were compared to 59 patients that had no review. Data was collected through electronic medical records to determine and compare frequency of medication errors, length of stay and time taken to complete medication reconciliation on admission.

Results: Significant differences were seen in the frequency of medication errors. 47% of patients who had no pharmacist review in ANAPAC had at least one medication error compared to 20% of patients with a pharmacist review. The average length of stay in hospital decreased by 44% in patients with pharmacist review, as well as 36% reduction in time taken to complete medication reconciliation.

Conclusions: The results confer an important pharmacy service to mitigate medication errors in the perioperative and postoperative setting. Findings are specific to Northern Health, which are expected to promote appropriate medication management, improve compliance with medication safety standards and expand the delivery of pharmacist services.

Prescribing Therapeutic Enoxaparin in Overweight Patients – What Is the Optimal Dose?

Poonawala A[1], Charles S[1], Chellaram V[1]

[1]Northern Health, Epping, Australia

Pharmacy

Background: Therapeutic dosing of enoxaparin to treat venous thromboembolisms (VTE) in overweight patients remains controversial due to several conflicting studies supporting different dosing methods. Dose capping is commonly used in overweight patients to minimise bleeding. However, this approach may result in a sub-therapeutic effect, increasing embolisation risk.

The primary objective was to examine compliance of dosing enoxaparin in patients ≥120kg at Northern Health compared to current hospital guidelines. The secondary objective was to explore which doses after appropriate anti-Xa level resulted in therapeutic effect.

Methods: A retrospective audit was conducted analysing 42 patients identified through clinical coding weighing ≥120 kg and prescribed therapeutic enoxaparin for VTE treatment from January 2018 to August 2020. Data on patient demographics, enoxaparin indication, dose and frequency, bleeding risk assessment, anti-factor Xa level collection times and levels and details of enoxaparin related inpatient complications was collected and analysed against current guidelines.

Results: 55% of patients were dosed according to guidelines, 33% received uncapped doses, and 12% were underdosed. The largest proportion of patients weighing 120-139kg achieved therapeutic anti-factor Xa levels (55.6%) when dosed between 0.91-1mg/kg. However, 22.2% of these patients had sub-therapeutic levels. There was large interpatient variability in patients >140kg as therapeutic doses were achieved at three different dose ranges.

Conclusions: This study supports the current hospital guideline and high inter-patient variability in overweight patients. Further study in overweight patients, particularly patients weighing

≥140kg is justified. Continued promotion of Anti-Xa monitoring has been implemented since this study to continue to optimise enoxaparin dosing.

Antimicrobial and sulfur-containing drug allergy documentation - How consistent are we at Northern Health?

Galappatthi AR[1], Mackenzie H[1], Chellaram V[1]

[1]Pharmacy Department, Northern Health, Epping, Australia

Pharmacy

Background: Comprehensive and consistent documentation of antimicrobial and sulfur-containing drug allergies is vital in ensuring the safest and most appropriate therapies are chosen for treatment of infections. This project seeks to identify Northern Health's baseline compliance with appropriate allergy documentation and review factors which may be associated with non-compliance. These findings will help to formulate strategies to improve allergy documentation.

Methods: A prospective audit with retrospective follow-up was conducted analysing the medication management plans (MMPs), drug charts and discharge summaries of patients with one or more documented antimicrobial or sulfur-containing drug allergies. Patients were sampled across the inpatient wards at Northern Hospital, with 100 patients included. Documentation of allergen, reaction, severity and date of reaction was recorded and compared between the 3 documents. Factors including non-English speaking background (NESB), nursing home and presence of a complete MMP were included to analyse for trends in compliance level.

Results: None of the patients audited had complete and consistent allergy documentation across all 3 documents. Only 69% of discharge summaries had an allergen documented, compared to over 90% of completed MMPs and drug charts. Overall, 48% of all drug charts had a reaction documented, compared to only 37.5% for NESB and 25% for nursing home residents.

Conclusions: The variability of clear allergy documentation demonstrated in this study indicate the need for education of the Northern Hospital's healthcare staff, consideration of methods to support improved compliance including possible expansion of Antimicrobial Stewardship services.

Analysing medication incidents in a pandemic, the tip of the iceberg in a big storm

Krstic A[1], Charles S[1], Chellaram V[1]

[1]Pharmacy Department, Northern Health, Epping, Australia

Pharmacy

Background: The COVID-19 pandemic has impacted the way healthcare services are provided worldwide. There have been limited studies analysing its impacts on the rates of medication related incidents in the hospital setting during this period.

Methods: A retrospective analysis of medication related incidents occurring between 1 March – 8 November 2019 and 2020 was performed. Incidents occurring within different restrictive zones (Red, Orange and Yellow) imposed by COVID-19 were analysed which included; prescription, administration, preparation and dispensing incidents. Medication incidents requiring a double check by nurses were examined. The top 10 medications involved in the highest proportion of incidents were analysed.

Results: A higher amount of medication incidents occurred during the COVID period, despite examining less patients than in 2019. The rates of errors per 1000 bed days increased across all restrictive zones with significant increase of 2.0% across the institution. No impact was observed in the occurrence of a 'double check incident' and the top 10 incidents indicated increases across the medications involved in the highest percentage of reports, when the pre-COVID period was directly compared to the COVID period.

Conclusions: The increased occurrence of medication related incidents during COVID is distinct when directly compared to previous years data. Furthermore, preliminary results indicate medication incident reporting during the pandemic observed a substantial decrease, despite more incidents occurring across the same period. Superficially, the data also indicates social distancing did not impact the prevalence of 'double check' errors.

Provision and use of Focus Rigidity Casting in the public health setting: a Delphi consensus review

Bramston C[1,2], Francis A[2], Jessup RL[1,2,3]

[1]Northern Health, Epping, Australia; [2]La Trobe University, Melbourne, Australia; [3]Monash University, Melbourne, Australia

Sub-Acute

Background: Focus Rigidity Casting is used by podiatrists and orthotists in the prevention of pedal pressure injuries and to offload bony prominences to promote wound

healing. The aim of the study was to achieve consensus on components required in the development of a clinical framework when using the technique in the clinical setting.

Methods: The Delphi methodology was used to conduct three rounds of online surveys using the Qualtrics© application. The first survey round consisted of open ended questions, of which three researchers independently identified 85 statements from participant responses. Survey rounds two and three sought to gain agreement on the components identified from the first round. Agreement was consider in components with 70% or higher.

Results: Consensus was achieved in 49 components. Experts from six metropolitan Melbourne health services rated components of the technique including clinical indications and contraindications, education and training, organisational procedures and guidelines, and perceived benefits of using the casting technique.

Conclusions: The Delphi method assisted in achieving consensus on essential components deemed by experts when considering, using and reviewing the Focused Rigidity Casting technique in the clinical setting. These components will assist in formulating a guideline in the clinical application of Focused Rigidity Casting technique.

Incidence of micronutrient deficiency in chronic wound patients

Zhu J[1], Graham S[1], Medica V[1], Butters T[1], Chong C[1]

[1]Northern Health, Epping, Australia

Sub-Acute

Background: Micronutrient deficiency is known to contribute to poor wound healing and the development of chronic wounds. Examples of relevant micronutrients include vitamin C and zinc. This study examines the incidence of micronutrient deficiencies at Craigieburn Centre (CC) Chronic Wound Clinic. It also aims to determine whether comprehensive micronutrient screening is warranted for new referrals.

Methods: 61 consecutive admissions to CC Chronic Wound Clinic from 2017 to 2019 were analysed. Blood parameters tested on admission were zinc, vitamin C and D, B12, folate, iron studies, HbA1c, haemoglobin and C-reactive protein (CRP).

Results: 44 patients were included for analysis as 17 patients did not have blood tests drawn. 73% of patients were vitamin C deficient, 48% were vitamin D deficient and 9% were iron deficient (with one patient having iron deficiency anaemia). HbA1c was greater than 9% in 21% of cases but no new diagnoses of diabetes mellitus were made. One patient had vitamin B12 deficiency and was treated with intramuscular replacement. Two patients had equivocal serum folate deficiency but no metabolite testing was performed. One patient had mild zinc deficiency. 14% of patients had CRP levels greater than 20mg/L. CRP did not affect clinical management in any of these patients.

Conclusions: Micronutrient screening for new chronic wound patients should include vitamin C and D levels, iron studies, haemoglobin and HbA1c. CRP levels should not be routinely tested. Further research is needed to determine whether routine testing for vitamin B12, folate and zinc is indicated in this group of patients.

Measuring surgical patient engagement: a scoping review

Law R[1], Wong Lit Wan D[1], Cleary S[1], Stelmach W[2], Mori K[2], Zheng Z[1]

[1]School of Health and Biomedical Sciences, RMIT University, Bundoora, Australia; [2]Department of Surgery, Northern Health, Epping, Australia

Surgical Services

Background: Patient engagement is a patient's capacity to participate and collaborate in their own healthcare. This scoping review aimed to identify: (1) tools used to measure engagement among surgical patients; (2) the levels of engagement; and (3) association between engagement and surgical outcomes. We hypothesise, highly engaged patients are more likely to achieve greater surgical outcomes.

Methods: MEDLINE/PubMed, CINAHL, SCOPUS and Embase were searched for studies that assessed adult perioperative patients for engagement. Analysis from charting the data identified the measurement tools, levels of capacity to engage and relationships between engagement and surgical outcomes.

Results: Twelve studies were selected out of 3975 identified, three valid and reliable tools to measure surgical patient engagement (Patient Activation Measure, Patient Health Engagement Scale and Hopkins Rehabilitation Engagement Rating Scale) to assess patient engagement among surgical patients. The capacity to engage was categorised into two, three or four levels. High levels of engagement were associated with enhanced patient satisfaction, better adherence to physical therapy, and decreased pain and disability.

Conclusions: Patients with a higher engagement level are more likely to report better health outcomes and greater satisfaction post-operatively. PAM is an ideal tool to assist healthcare providers in early identification of patients at risk for sound recovery and developing tailored support.

4DCT Analysis Of Cadaveric Knees To Determine Isometric Graft Positions in ACL Reconstruction – A Novel Technique

Lu M[1], Anderson N[2], Wong J[1]

[1]Orthopaedic Department, Northern Health, Epping, Australia; [2]Orthopaedic Department, Eastern Health, Box Hill, Australia

Surgical Services

Background: Incorrect positioning of tunnels during ACL reconstruction can lead to knee instability and risk of re-rupture. The aim of this study was to calculate the

change in length between multiple virtual graft points on the femur and tibia during knee movement and to define a safe zone for ACL graft placement that minimises graft anisometry.

Methods: An arthroscopic evaluation was performed on 6 fresh-frozen cadaveric knees. Tantalum reference markers were implanted into the femur and tibia of the specimens which were attached to a machine that allowed a range of movement (0-90o) whilst a 4DCT scan was performed. Using the DICOM data, virtual points were created at the femoral and tibial ACL footprints. The coordinates of these points were extrapolated for each knee position. The distance from each femoral to tibial point was calculated. Length variability of the virtual graft during range of movement was derived.

Results: Femoral points resulting in the least graft anisometry had an average depth of 30% in the shallow-deep direction and 10% in the high-low direction, according to Bernard-Hertel. On the tibial side, points within the ACL footprint did not affect graft length variability by more than 5mm.

Conclusions: The degree of graft anisometry is more dependent on the position of the femoral tunnel than the tibial tunnel. The least anisometric femoral points are mostly outside of the ACL footprint; they are shallower and higher than the traditionally described femoral tunnel position. Tibial tunnels placed within the tibial ACL footprint should not result in significant increases in graft anisometry.

Surgical antimicrobial prophylaxis in open reduction internal fixation procedures at Northern Health – a retrospective audit

Hassan S[1,2], Chan V[1], Stevens J[1], Stupans I[1], Gentle J[2]

[1]Pharmacy, School of Health and Biomedical Sciences, RMIT University, Melbourne, Australia; [2]Department of Orthopaedics, Northern Health, Epping, Australia

Surgical Services

Background: Open reduction internal fixation (ORIF) of closed fractures is a required indication for surgical antimicrobial prophylaxis (SAP). The Australian Therapeutic Guidelines: Antibiotic, updated in April 2019 (v16), advocates for single dose prophylaxis for ORIF procedures. Little is known on how SAP is prescribed for ORIF of closed fractures at Northern Health. The aim of this study was to identify prescribing practice and to evaluate guideline adherence pre- and post-guideline update.

Methods: A retrospective audit was conducted for patients undergoing an ORIF of closed fractures in a six-month period during 2018 (pre-guideline update) and 2019 (post-guideline update). Data were collected on prescribing practice and compared to SAP recommendations in Therapeutic Guidelines: Antibiotic v15 (2018) and v16 (2019). Binary logistic regression was used to identify factors associated with guideline adherence. A p-value <0.05 was deemed statistically significant.

Results: Data were collected for a total of 390 patients. Cefazolin was the most commonly prescribed antibiotic as per guideline recommendations. Overall adherence to guidelines was 63.2% in the 2018, and 18.0% in the 2019 audit periods respectively. Patient age was significantly associated with an increase in guideline adherence, while lower limb fractures, an American Society of Anesthesiologists (ASA) score of 3 or higher and emergency admissions were associated with decreased adherence to guidelines.

Conclusions: Greater adherence to v15 of guidelines was observed as compared to updated guidelines (v16), with patient factors having little impact on guideline adherence. Further work is required to understand what influences guideline adherence in the orthopaedic setting.

Complex venous disorders at Northern Health: management and outcomes

Shi M[1], Goh D[1], Rangarajan S[1], Bayat I[1]

[1]Northern Health, Epping, Australia

Surgical Services

Background: At Northern Health, the management of patients of complex venous disorders is an area of great interest. Here, we present results from our management of patients with non-thrombotic iliac vein lesions (NIVL) such as May-Thurner Syndrome (MTS), as well as pelvic congestion syndrome, nutcracker syndrome and IVC atresia.

Methods: We reviewed all venous procedures conducted at Northern Health from April 2017 until June 2021. Data was obtained using the Australasian Vascular Audit. Patient baseline demographics, VTE risk factors, chronicity of presentation, duration of follow up and patency rates (primary, primary-assisted and secondary) were recorded and reviewed.

Results: A total of 67 patients underwent 87 venous cases at Northern Health in the study period. Median patient age was 44.2 years. 37 patients were female and 30 were male. Acute indications accounted for 28.7% (25/87) of cases while chronic venous obstruction accounted for 71.2% (62/87) of cases. MTS was identified and confirmed using intravascular ultrasound (IVUS) in 51.6% (16/31) of all operative cases for left lower limb swelling, post-thrombotic syndrome or acute iliofemoral DVT. 16 patients underwent iliofemoral stenting and in this group, primary patency was 94% (15/16). 3 patients underwent IVC stenting with primary patency of 100%. In 49.4% of cases, we utilised IVUS as a procedural adjunct.

Conclusions: A range of complex venous disorders are managed at Northern Health. These results are promising and support the further growth and development of our service.

Intravascular ultrasound: review of the literature and a single-centre experience of its applications in vascular surgery

Shi M[1], Rangarajan S[1], Bayat I[1]

[1]Northern Health, Epping, Australia

Surgical Services

Background: Intravascular ultrasound (IVUS) has a wide-ranging application within the field of vascular surgery. We present a literature review on applications of IVUS and a single-centre experience on its use at our institution, including some more novel applications.

Methods: A review of the literature was conducted on the application of IVUS in the field of vascular surgery. Further to this, a retrospective review of all operations involving IVUS at Northern Health was undertaken using data extracted from the Australasian Vascular Audit. Procedures were categorised into indication and their outcomes reviewed.

Results: IVUS has been utilised in a range of different applications in the field of vascular surgery. Since April 2017, a total of 50 procedures at Northern Health involved the use of IVUS as an intra-operative adjunct. Of note, 29 of these cases involved management of deep vein thrombosis (DVT) with or without underlying May-Thurner Syndrome, 3 cases for pelvic congestion syndrome and 1 case each for SVC syndrome, thoracic outlet obstruction, and popliteal entrapment. Eight cases involved treatment of chronic venous obstruction presenting with venous claudication, venous ulceration and recurrent varicose veins. Four cases involved IVUS-guided division of median arcuate ligament syndrome (MALS).

Conclusions: In this presentation, we explore the utility of IVUS in a range of vascular surgical procedures as described in the literature. These include the management of peripheral arterial disease and Type B aortic dissection. In our centre, we routinely utilise IVUS in the management of acute iliofemoral DVT and the deployment of iliofemoral stent insertion and have pioneered a novel hybrid technique for the treatment of MALS.

Intravascular ultrasound (IVUS)-guided division median arcuate ligament syndrome: a case series

Bayat I[1], Wang J[1], Shi M[1], Ho P[1], Goh D[1], Bird D[1]

[1]Northern Health, Epping, Australia

Surgical Services

Background: Median arcuate ligament syndrome (MALS) is a rare and poorly understood condition that can have a significant impact on the quality of life of patients. Diagnosis is often difficult and delayed because of the need to exclude other pathologic processes. Treatment strategies traditionally involve open or laparoscopic division of the median arcuate ligament, with or without vascular reconstruction. We present a case series of median arcuate ligament syndrome treated with a novel hybrid technique using intravascular ultrasound technology to aid in laparoscopic median arcuate ligament division.

Methods: We conducted a retrospective review of all IVUS-guided division of median arcuate ligament cases conducted at Northern Health using the Australasian Vascular Audit and internal records. The baseline demographics, comorbidities, pre-operative clinical characteristics, procedural details, postoperative hospital course, and follow-up data were reviewed.

Results: A total of three cases of IVUS-guided division of the median arcuate ligament were identified. All patients were female with a mean patient age of 43.7 years. One case was converted from laparoscopic to open. Two out of three patients have been followed up with repeat CT angiograms while one patient is currently awaiting follow up.

Conclusions: The development of IVUS technology allows real-time guidance of laparoscopic release of the median arcuate ligament, offering immediate confirmation of successful decompression. This, coupled with endovascular reconstruction, presents a hybrid, minimally invasive approach to the treatment of MALS. The use of IVUS is a novel technique that should be considered in all cases of median arcuate ligament release.

A systematic review of maternal TORCH serology as a screen for suspected fetal infection

Fitzpatrick D[1,3], Holmes NE[2], Hui L[1,2,3]

[1]Melbourne Medical School, University of Melbourne, Melbourne, Australia; [2]Department of Perinatal Medicine, Mercy Hospital for Women, Heidelberg, Australia; [3]Northern Health, Epping, Australia

Women's and Children's

Background: 'TORCH' refers to well-recognised causes of perinatal infections: toxoplasmosis, rubella, cytomegalovirus and herpes simplex virus. A TORCH serology panel is often used to test for maternal primary infection following detection of ultrasound abnormalities in pregnancy. This review aims to estimate the diagnostic yield of maternal TORCH serology in pregnancy following fetal ultrasound abnormalities.

Methods: Primary studies published since 2000 that assessed maternal TORCH serology for suspected fetal infection and included information on indications for testing, definition of positive TORCH serology results, and perinatal outcomes were included.

Results: Eight studies with a total of 2,538 pregnancies were included. The main indications for testing were polyhydramnios, fetal growth restriction and hyperechogenic bowel. Only 26 confirmed cases of congenital CMV were detected, with no other infectious agents found.

Conclusions: The clinical utility of TORCH serology for non-specific ultrasound abnormalities such as isolated fetal growth restriction or isolated polyhydramnios is low.

Increase in stillbirths and reduction in medically-indicated preterm birth: adverse impacts of Melbourne lockdown

Hui L[1,2,3], Marzan MB[1], Potenza P[2], Rolnik DL[4,5], Pritchard N[1,2], Said JM[1,6], Palmer KR[4,5], Whitehead CL[1,7], Sheehan PM[1,8], Ford J[9], Mol BW[4,5], Walker SP[1,2]

[1]University of Melbourne; [2]Mercy Health; [3]Northern Health, Epping, Australia; [4]Monash Health; [5]Monash University; [6]Western Health; [7]Royal Women's Hospital; [8]Eastern Health; [9]Peninsula Health

Women's and Children's

Background: We sought to assess the impact of the Melbourne COVID-19 lockdown on perinatal outcomes including stillbirth, preterm birth (PTB) and fetal growth restriction (FGR).

Methods: Multicentre retrospective cohort study of singleton births > 24w without congenital anomalies from all 12 public maternity services in Melbourne. Lockdown period was defined as 23/3/2020 to 14/3/2021, when the weekly national stringency index was sustained >=50. The lockdown-exposed cohort comprised women for whom weeks 20-40 of gestation occurred during lockdown, and controls were women from the corresponding periods 1 and 2 years prior. We performed multivariate logistic regression analysis to compare odds of stillbirth, PTB, FGR < 3rd centile, and iatrogenic PTB birth for fetal compromise, adjusting for multiple covariates.

Results: There was a significantly higher risk of stillbirth in the exposed group compared with the control group (0.34% vs 0.25%, aOR 1.35, P < 0.05). There was also a significant reduction in preterm birth < 37 weeks (5.93% vs 6.23%, aOR 0.93, p<0.05), largely mediated by a reduction in iatrogenic PTB for live births (3.01% vs 3.27%, aOR 0.89, P < 0.05.), including iatrogenic PTB for suspected fetal compromise. There was no significant difference in spontaneous PTB rate or FGR between the exposed and control groups.

Conclusions: Lockdown restrictions, in the absence of high rates of COVID-19 disease, was associated with a significant increase in stillbirths, and a significant reduction in iatrogenic PTB.

The Provision of a Pre-School Wheeze Action Plan Improves Childhood Wheezing Management Quality of Care

*Bartlett H[1], *Sattar S[2], Calderon C[3], Tran D[3], Fan WQ[3,4]

[1]Royal Children's Hospital, Melbourne; [2]Mater Hospital, Brisbane; [3]Northern Health, Epping, Australia; [4]The University of Melbourne, Australia; *Co-first authors

Women's and Children's

Background: Pre-School wheeze (PSW) in children presenting to EDs prompts a range of diagnoses. Distinguishing between PSW and asthma is important because PSW management is different, and corticosteroids are not effective. As asthma action plans (AAP) have proven effective, we hypothesise that the provision of a Pre-School Wheeze Action Plan (PSWAP) will improve carer understanding of diagnosis and management (D&M).

Methods: Children presenting with PSW at Northern Hospital Epping were randomised to receiving an AAP or PSWAP. Data was collected via questionnaires, initially at plan administration, thereafter by follow up primary carer questionnaires via telephone 2, 6 and 12 weeks later.

Results: A tailored PSWAP improved primary carer understanding of D&M across the study period (p=<0.001). At 12 weeks: 72% of PSWAP carers rated D&M as "excellent" compared to 12% of AAP carers; 4% of PSWAP carers rated D&M as "fair" compared to 32% of AAP carers; (p<0.0001). No statistical difference occurred between patients presenting to GPs for wheezy symptoms at 6 and 12 weeks. This study also demonstrated that PSWAP carers understanding that oral steroids should only be considered if requiring hospital presentation, decreased oral steroids community prescription at 6 weeks and 3 months (p=<0.001).

Conclusions: A PSW specific action plan should be made widely available for primary carer education regarding bronchodilator use. A plan that is designed for Pre-School results in improved primary carer reported understanding of D&M. This has important implications for management, resulting in oral steroids being prescribed less frequently in the community setting.

Low-risk exclusively breastfed infant early readmission is multifactorial and associated with maternal mental health concerns

De Mare K[1], Bourne D[2], Rischitelli B[2], Fan WQ[2,3]

[1]Royal Children's Hospital, Melbourne; [2]Northern Health, Epping, Australia; [3]The University of Melbourne, Melbourne, Australia

Women's and Children's

Background: Low risk, late preterm and full-term infants comprise the majority of births at Northern Hospital Epping, via normal vaginal delivery (NVD) or Caesarean Section (LUSCS) with most exclusively breastfed. We wanted to know what factors are associated with early readmission following post-natal discharge to inform future initiatives for decreasing readmission rates.

Methods: A retrospective cohort study was performed. All neonates from 2016-2018, exclusively breastfed at discharge, born by NVD (n=4245) or LUSCS (n=1691), were grouped as non-readmitted (control) or readmitted within 30 days of discharge. Reason for readmission was determined and potential risk factors were identified using univariable and multivariable logistic regression.

Results: Rates of readmission were similar for both NVD and LUSCS infants (6.8% vs 7.3%, p=0.02). Jaundice (53%), infection (21%) and feeding (19%) were the main concerns for the NVD group – this order was reversed for the LUSCS group (25%, 32%, 34% respectively). Readmission mean bilirubin was higher for NVD (293 vs 236 µmol/L, p<0.05). Risk factors associated with readmission for both groups were similar to previous published studies. Edinburgh Postnatal Depression Score

was higher for mothers of readmitted infants (p<0.05). Importantly, for jaundice compared to non-jaundice readmission, EPDS categories indicated that both LUSCS and NVD mothers were more likely to have depression (p<0.05).

Conclusions: Early readmission of low risk fully breastfed infants is multifactorial. Mental health issues present from early pregnancy impact on readmission, raising a warning flag concerning the effects of perinatal depression on neonatal health.

Northern Health Family Planning Clinic: Factors associated with the uptake of prescription-based contraception for women seeking abortion care

Ilangamage I[1,2], Johnson, E[1], Chaouki, K[1,2], Buckley, E[1], Henderson, J[1], Hui L[1,2]

[1]Northern Health, Epping, Australia; [2]University of Melbourne, Melbourne, Australia

Women's and Children's

Background: Contraception choice and uptake play an essential role in reproductive health, with prescription-based contraceptive options offering better protection against unintended pregnancy compared to barrier methods. Presentation for abortion care provides a valuable opportunity for clinicians to offer contraception counselling. This study analysed contraceptive choices and factors associated with uptake in women presenting for abortion care at the Broadmeadows Hospital Family Planning Clinic (BH FPC).

Methods: This study utilised a retrospective design, analysing a cohort of 592 women who attended the BH FPC for an abortion between September 2018 - June 2021, of whom 560 had contraception uptake recorded. The frequency and percentage of the demographic features and characteristics of women attending the family planning clinic were calculated. The Chi-squared or Fisher's exact test were used to compare patients that requested prescription contraception (i.e. long acting reversible contraceptives [LARCS] or the oral contraceptive pill) and those that declined, with a significance level of p<0.05.

Results: A total of 446 women (76%) requested contraception, with LARCS being the most frequently chosen (n=345, 78%). Prescription contraception uptake was significantly associated with lower patient age (p=<0.001), being born in Australia (p=0.016), having English as a preferred language (p=0.01), and surgical abortion method (p=0.008).

Conclusions: This study demonstrates that factors including age, country of birth, language preference and abortion method may influence the likelihood of uptake of prescription-based contraception among women presenting to BH FPC. Further research is required to understand the knowledge, values and preferences underlying these differences in uptake.

Abortion care at Northern Health: Patient demographics and the impact of the COVID-19 pandemic

Johnson, E[1], Chaouki, K[1,2], Ilangamage I[1,2], Buckley, E[1], Henderson, J[1], Hui L[1,2]

[1]Northern Health, Epping, Australia; [2]University of Melbourne, Melbourne, Australia

Women's and Children's

Background: Women face a range of barriers which can delay or prevent access to safe, affordable abortion services. These barriers disproportionately affect the most vulnerable and marginalized people, especially during the COVID-19 pandemic. In order to ensure the Family Planning Clinic (FPC) at Broadmeadows Hospital (BH) remains accessible it is important to understand the demographics and preferences of those attending the clinic.

Methods: Retrospective audit of FPC clinic attendees from September 2018 to June 2021. The frequency and percentage of demographic features and characteristics of women attending the family planning clinic were calculated. The Chi-squared and Fisher's exact tests for categorical data were used to compare patients accessing the service before and during the COVID-19 pandemic, with a significance level of p<0.05.

Results: A total of 592 women attended the FPC for an abortion during the study period. The median age of attendees was 29, approximately two thirds (69%) were Australian-born; 2% identified as being an Aboriginal and/or Torres Strait Islander person, and English was the preferred language for 93%. During the COVID-19 pandemic, there was a significantly lower proportion of women requesting sexually transmissible infection (STI) screening (p=<0.0001) and prescription-based contraception (p=0.038).

Conclusions: Results demonstrate that consumers accessing the FPC are generally representative of the catchment that the clinic serves. The reduction in STI screening and contraception uptake during the COVID-19 pandemic may reflect changes in consumer priorities secondary to the impact of lockdown on sexual and reproductive health.

Northern Hospital
185 Cooper Street
Epping Vic 3076
T. (03) 8405 8000

Broadmeadows Hospital
35 Johnstone Street
Broadmeadows Vic 3047
T. (03) 8345 5000

Bundoora Centre
1231 Plenty Road
Bundoora Vic 3083
T. (03) 9495 3100

Craigieburn Centre
274-304 Craigieburn Road
Craigieburn Vic 3064
T. (03) 8338 3000

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