HERSTON HEALTH PRECINCT SYMPOSIUM 2022

Connections and Community

5 – 8 September 2022
Education Centre, RBWH

Clinical Research

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID #CLIN-0016

Compliance with Documentation of "High Risk Medications" in the Post Anaesthetic Care Unit (PACU)

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Purpose

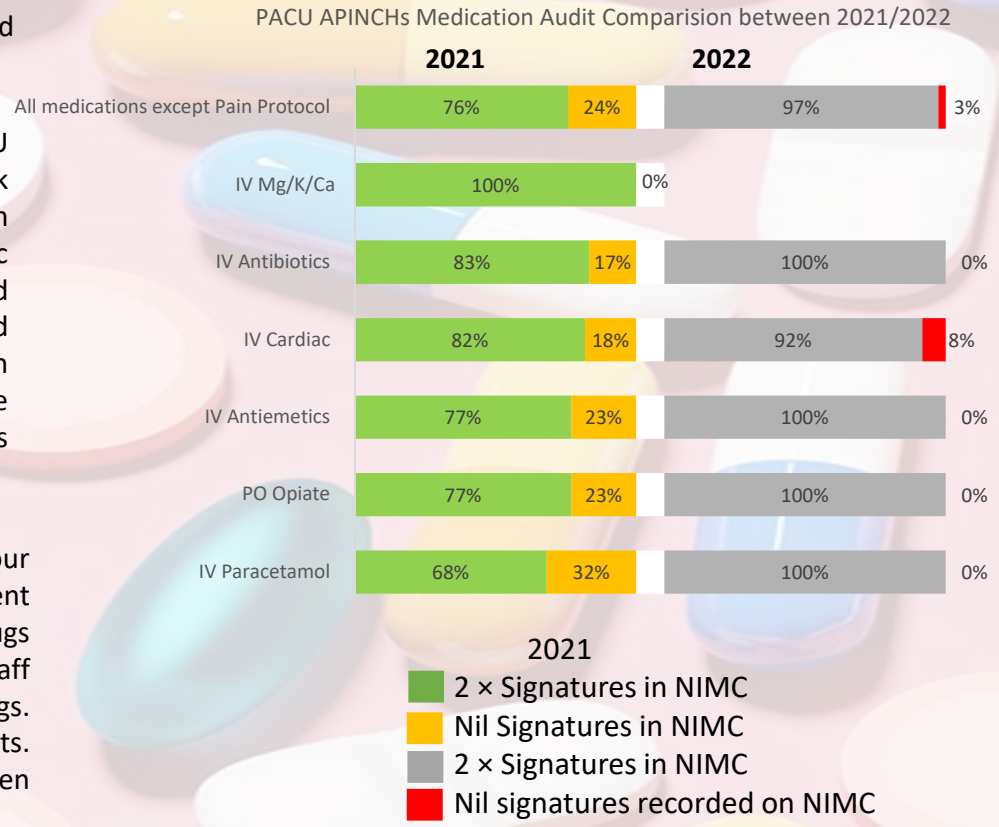
High risk medications (HRMs) have been shown to cause significant harm or death if not administered correctly.

Methods

The aim of this project is to review practice in PACU and the compliance of documentation for "High Risk Medications" on the National Inpatient Medication Chart (NIMC) and on the Automated Anaesthetic Record Keeping (AARK) system. The team collected quantitative data over a one-month period and identified any barriers preventing compliance with documentation. A total of 123 dose audits were collected at baseline (June, 2021) and 101 dose audits post implementation (February, 2022)

Results

The pre- implementation audit showed that forty-four (44%) of PACU staff didn't double check and document the pain protocol dose in AARK. Audits of APINCHs drugs on the NIMC showed that only seventy-six (76%) of staff were observed to correctly document these drugs. Education was provided to PACU staff post these audits. This included in-servicing, an educational lanyard given to staff and a pledge board.



Results

A post implementation audit was completed, and results showed a significant improvement of twenty seven (27%) in which staff were correctly documenting the opioid pain protocol on AARK. Results from the audits on APINCHs showed a twenty-one (21%) increase of staff correctly documenting on the NIMC. During the in-services it was indicated by some nursing staff that they were unaware of the correct method of documentation. This was addressed and created good clinical discussions amongst the staff. These results are extremely positive and show that staff are now following the correct procedure for documenting high risk drugs within PACU.

Conclusion

By adhering to the hospital policy and procedure we should see a decrease in the amount of documentation errors within PACU leading to positive patient outcomes.

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CLIN-0037

An Unusual Cause of Headaches during Home Parenteral Nutrition Infusions - A Case Report and Management Strategy.

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INTRODUCTION

- Parenteral Nutrition (PN) is a life-saving treatment for patients who cannot meet their nutritional requirements via oral or enteral routes.
- Short bowel syndrome is the most common indication for long term home PN (HPN).
- Despite its benefits, PN may be associated with complications such as metabolic abnormalities, cholestasis, central line associated blood stream infections and thrombosis.
- Symptoms that occur exclusively during PN infusions are uncommon and challenging to diagnose and treat.
- We hereby report a case of a patient with severe headaches during PN infusions that was most likely caused by plasticizer toxicity and make suggestions for strategies to manage this symptom.

CASE REPORT

A 53-year-old female on HPN for 7 years for short gut syndrome secondary to surgical resections to treat fistulizing small & large bowel Crohn's disease complained of headaches during PN infusions. She never suffered from headaches preceding the use of HPN. There was a consistent pattern of symptom onset at the final hours of every HPN infusion. She described the headaches as dull, generalized and throbbing without associated nausea, vomiting or photophobia. The only medication that she used for many years was buprenorphine 400mcg sublingually once or twice per day to manage chronic back pain and she also used simple analgesia infrequently to manage her headaches. She did not experience headaches with the use of intravenous (IV) non-PN fluids or medications.

Her neurological examination was unremarkable. She always remained well-hydrated and normotensive.

With consent from the patient, her HPN was switched to a different but nutritionally equivalent product November 2021 for cost-saving reasons. Coinciding with this change, her headaches became more severe and did not resolve despite the use of analgesics. Her PN infusions were prematurely discontinued due to unbearable headaches on several occasions.

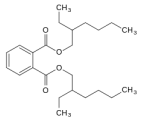
Her HPN was infused using a di(2-ethylhexyl) phthalate (DEHP) plasticizer-containing PN bag throughout the duration of her HPN use, and the same bag was maintained after making the change in her HPN prescription in November 2021. Coincidently, she reported to be asymptomatic during periods of hospitalisation when she received the hospital PN bags which did not contain the DEHP plasticizer. Consequently, she also did not require simple analgesia to treat headaches during her inpatient admissions.

INVESTIGATIONS

Her blood tests including plasma osmolality, electrolytes, renal function, thyroid function, serum cortisol, haematocrit, haemoglobin, blood manganese and liver function tests were within normal limits. A previous CT brain was reported as normal. A chest x-ray excluded malposition of her central line tip or kinking of the line.

OUTCOME

In March 2022, her bags were changed from polyvinyl chloride (PVC)-DEHP to latex due to a product recall by the company provider without a change in her PN prescription and, coinciding with this change, her headaches resolved. Follow-up at 31 days confirmed that the patient had remained asymptomatic and was able to complete all her PN infusions.



di(2-ethylhexyl) phthalate (DEHP),
Molecular formula $C_{24}H_{38}O_4$

DISCUSSION

Di(2-ethylhexyl) phthalate (DEHP), is a plasticizer that is used in PVC-based manufactured medical devices, such as PN bags and IV lines (1). Previous studies have reported of complications such as cholestasis and infertility when this product was used in some PN patients (2-3). Whilst the pathogenesis of DEHP toxicity is not well understood, it is believed that lipid emulsions from PN leach DEHP out of PVC devices that result in toxicity (1). Headaches have been identified as a symptom of plasticizer toxicity (4). To the best of our knowledge, this is the first reported case of headaches during PN infusions which we suspect was from plasticizer toxicity.

HEADACHES DURING PN INFUSIONS: A PROPOSED MANAGEMENT STRATEGY

Symptoms that emerge during PN infusions are challenging to investigate and manage as there is a deficiency of published reports. Moreover, symptoms are often mild and rarely require discontinuation of PN. To look into the possibility of DEHP toxicity, the best option is a trial of an elimination strategy as described in our patient given that biochemical testing is costly and not readily available in most hospital pathology laboratories.

Assessment for headaches during PN infusions warrants individualized assessment. In addition to considering well known causes of headaches, we also propose a management checklist specifically for headaches that occur during PN infusions, based on previous literature:

- ✓ Hydration assessment - hypertonicity may exert traction on pain-sensitive meninges (5).
- ✓ Blood pressure assessment - hypertension may present as headaches (6)
- ✓ PN preparation assessment – accidental sodium toxicity has been reported to cause headaches during infusions (7)
- ✓ Technique of PN administration assessment - fat overload syndrome that may present with headaches as a consequence of rapid infusions. (8)
- ✓ Catheter tip placement - tip malposition can cause headaches (9).

CONCLUSION

- Plasticizer toxicity is a rare and under-recognized cause for headache during PN infusions and we describe the first reported case.
- Its pathogenesis is not fully understood and proof of causality may rely on a trial of elimination of DEHP-containing products.
- Recognition of plasticizer toxicity and our proposed strategy to evaluate for other causes for this symptom occurring during PN infusion may avoid unnecessary and costly investigations, and discontinuation of PN.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0041

PISA

A comparative study of plasma pharmacokinetics of intravenous and nebulised sedative and analgesic agents in mechanically ventilated patients, a single centre prospective observational study: The role of the clinical research coordinator

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[1]RBWH Intensive Care, [2]UQ Centre for Clinical Research

Introduction:
The PISA study aimed to establish the safe and effective nebuliser dose for sedative agents (midazolam, dexmedetomidine and ketamine) and analgesic agents (morphine, fentanyl and clonidine). We aimed to describe the essential role of the clinical research coordinators (RC) in facilitating this research.

Methods:
We are reporting this work using the integrated Promoting Action Research in Health Services (iPARIHS) framework (Harvey and Kitson, 2016). The innovation was the investigation of inhaled sedatives and analgesics. The context was the RBWH Intensive Care Unit (ICU), and the innovation recipients were mechanically ventilated ICU patients. Other stakeholders included patient family members, medical teams, nurses, and University of Queensland laboratory investigators.

Results:
The RC were active agents in facilitating the PISA study from early feasibility right through to study delivery. The RC contributed to the development of the study protocol to ensure degree of fit with existing practice. Strategies to ensure protocol delivery included screening of patients for eligibility; facilitating ongoing consent with families; ensuring patient safety and wellbeing; timely drug delivery and accurate data measurement; consistency with sampling at protocol timepoints; maintaining the integrity of samples; and building collaboration with teams both in the ICU and UQCCR. The RC integrated study tools and provided education at the bedside to support clinical staff.

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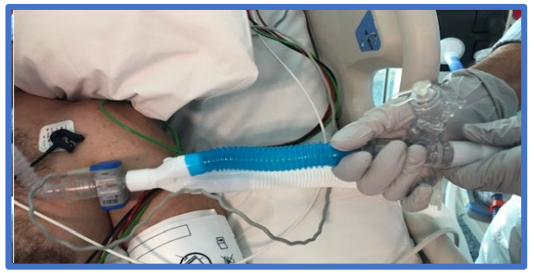

Figure 1 depicts an ultrasonic nebuliser attached to the inspiratory limb of ventilator tubing in the RBWH Intensive care unit

Conclusion: The ICU research team were a major driver to ensure the methodological rigour of the PISA study. Research coordinators provide value to research through their clinical expertise; the ability to work autonomously; and the building of partnerships with key stakeholders.

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5–8 September 2022
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CLIN-0042

The PISA study: A comparative study of plasma pharmacokinetics (PK) of intravenous and nebulised sedative and analgesic agents in mechanically ventilated patients: a single centre, prospective observational study

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[1]RBWH Dept of Intensive Care, [2]UQ Centre for Clinical Research

Background: Adequate analgesia and sedation are essential in clinical settings, however, there are sub-optimal side effects associated with intravenous administration. Nebulisation has been used in emergency care and shown to be effective with fewer side effects, however, the clinical PK of these agents require further investigation.

Aims: To establish the safe and effective nebulizer dose for sedative agents (midazolam, dexmedetomidine and ketamine) and analgesic agents (morphine, fentanyl and clonidine). We aimed to present the promising results of the Ketamine PK study.

Methods: Comparative studies of intravenous and nebulized agents were performed in mechanically ventilated patients in the RBWH ICU. Assay techniques were developed at the UQ laboratory, while bioanalysis is complete for Ketamine. Ketamine (Ket) and its metabolites norketamine (NK), hydroxynorketamine (HNK), and dehydronorketamine (DHNK)
in plasma specimens were measured by an ultra-high performance liquid chromatography – tandem mass spectrometry (UHPLC-MS/MS) assay.

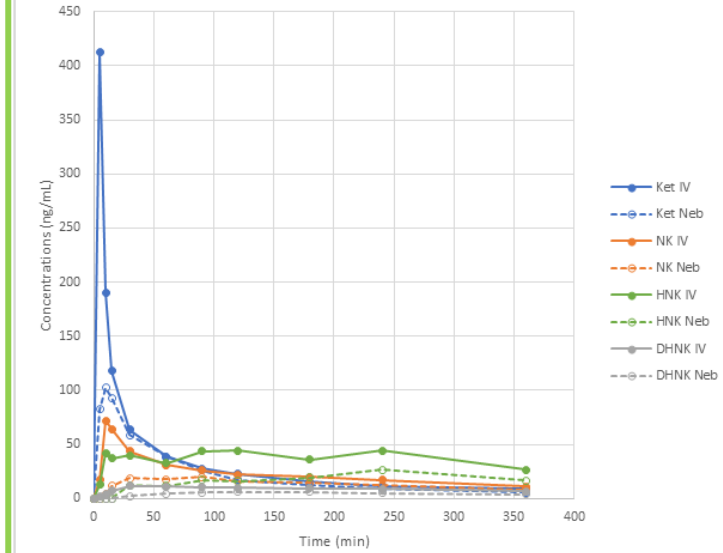

Figure 1
Concentrations from a typical subject receiving 50mg ketamine by nebulised delivery and 25mg by intravenous delivery are depicted in the figure.

Results:
Nebulised delivery produced lower concentrations in the first 15 minutes compared to intravenous administration, but ketamine concentrations were similar from 30 minutes onward.
Ketamine's first metabolite, norketamine, peaks at 10 minutes following intravenous administration, whereas nebulised delivery sees a slower and steadier emergence of this metabolite. Similar trends of lower concentrations emerging later are seen for the subsequent metabolites.

Conclusion: The PK profile of nebulised ketamine suggests this administration route may be a viable alternative to intravenous with fewer side effects and a comparable duration of action, which ultimately has the potential to improve the patient experience.

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CLIN-0044

Post Gastroscopy Upper Gastrointestinal Cancer Rate at a Tertiary Referral Centre – An Australian Data Linkage Analysis

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Background and Aims

- High quality gastroscopy is critical for early diagnosis of upper gastrointestinal cancers, and assessment of the proportion of cancers missed by gastroscopy may serve as a key quality indicator.
- Using a prospective gastroscopy database and data linkage with the Queensland Cancer Registry, we determined the rate of of post gastroscopy upper gastrointestinal cancer (PGUGC) developing within three years of a cancer-negative gastroscopy (PGUGC-3Y).
- Additional aims were to identify factors predictive of missed cancer and assess patient survival.

Methods

- Patients diagnosed with upper gastrointestinal cancer within three years of undergoing gastroscopy were identified (Fig. 1).
- Non-mucosal cancers, cancers distal to duodenum and patients undergoing surveillance were excluded.
- Cases diagnosed within six months of gastroscopy were defined as detected cancers, while those developing within 6-36 months were defined as missed cancers.
- PGUGC-3Y was calculated as: missed UGC / (detected + missed UGC).

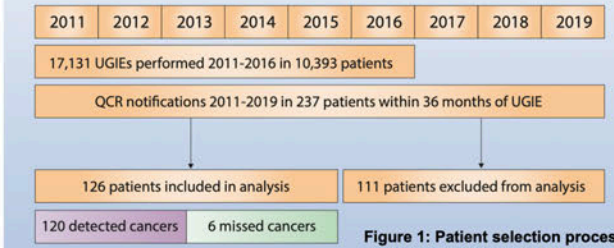

Figure 1: Patient selection process. UGC, upper gastrointestinal cancer; UGIE, upper gastrointestinal endoscopy; QCR, Queensland Cancer Registry.

Results

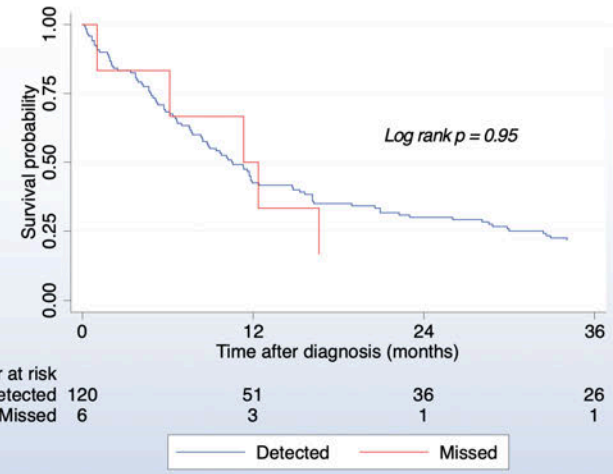

Figure 2: Kaplan Meier Curves for survival in patients with missed and detected UGCs over a three year period after diagnosis

- A total of 17,131 gastroscopies were performed on 10,393 patients at our centre between 2011 and 2016. Of these, six patients were diagnosed with missed cancer and 120 patients with detected cancer.
- The PGUGC-3Y rate was 4.8% (95%CI 2.1-10.4).
- Missed cancers included three gastric adenocarcinomas, two gastro-oesophageal junction adenocarcinomas and one oesophageal squamous cell carcinoma (Table 1).
- Overall, age at diagnosis, sex, indication for index gastroscopy including the presence of alarm symptoms, cancer location or histological subtype were not predictive of PGUGC.
- Three-year survival rates were comparable between patients with missed and detected cancers (Fig. 2, p=0.95).

Table 1. Characteristics of six patients with PGUGC

Age and Sex	Cancer type	Details of false-negative endoscopy	Indication for diagnostic UGIE	Time interval between FN-UGIE and diagnostic UGIE, months	Time to death after diagnosis, months
91M	ADC of the GOJ	**Indication**: Hematemesis **Findings**: Grade III oesophagitis, gastritis	Post hiatus hernia repair	11	16
68F	SCC of the oesophagus	**Indication**: Hematochezia **Findings**: Duodenal ulcers	Dysphagia	16	1
66F	ADC of the gastric body	**Indication**: Hematemesis and melaena **Findings**: Duodenitis	Epigastric pain	19	12
88M	ADC of the gastric body	**Indication**: Dysphagia. **Findings**: Monilial esophagitis.	Abnormal imaging	20	11
45M	ADC of the GOJ	**Indication**: Reflux **Findings**: Hiatal hernia. Normal oesophagus and stomach.	Refractory reflux	20	-
53F	ADC of the gastric body	**Indication**: Reflux **Findings**: Normal oesophagus and stomach.	Vomiting	13	6

ADC, adenocarcinoma; GOJ, gastroesophageal junction; SCC, squamous cell carcinoma; LOS, lower oesophageal sphincter; UGIE, upper gastrointestinal endoscopy; FN-UGIE, false-negative upper gastrointestinal endoscopy

Conclusions

- The majority of PGUGCs were adenocarcinomas of the stomach or GOJ.
- Age, sex, indication for gastroscopy and cancer location or histology were not predictive of missed cases and there was no mortality difference.
- As PGUGCs represent missed opportunities for early diagnosis and treatment, assessment of PGUGC rates may serve as an easily reproducible quality metric for tracking UGIE service performance.

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5–8 September 2022
Education Centre, RBWH

CLIN-0045

Efficacy and Safety of Colonic Endoscopic Mucosal Resection for large adenomatous polyps: Single centre prospective cohort study

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Background and Aims

- Endoscopic mucosal resection (EMR) is a standard therapy for endoscopic management of large colonic polyps, however carries a risk of local recurrence.
- We aimed to assess incomplete resection rate and complications following EMR for conventional adenomas.

Methods

- This single-centre study enrolled 197 consecutive patients who underwent successful EMR of an adenomatous polyp ≥ 20mm in size from February 2018 to August 2021 and had at least one surveillance colonoscopy more than three months after index procedure.
- Demographic, clinical, endoscopic and histologic variables were collected for both index procedure and all subsequent procedures.
- Wilcoxon-rank sum test was used to compare continuous variables and Fisher's exact test was used to compare frequencies of categorical variables. Logistic regression was used to identify independent predictors of incomplete resection.

Results

- A total of 200 lesions in 197 patients were included and followed up for a median of 10 months (IQR 5-18 months).
- Median age at index procedure was 68 years (IQR, 58.5-73.5) and 124 (66.6%) were male.
- The median size of polyp was 28 mm (IQR, 20-35mm) and majority (n=121, 60.5%) were located in the proximal colon and had high-grade features (villous changes or high-grade dysplasia) (n=128, 64%).

Table 1: Univariable analysis of factors associated with adenoma recurrence

	No recurrence n=172	Recurrence n=28	P Value
Age, years (median, IQR)	68 (58-73)	69.5 (64-77.5)	0.397
Sex (n, %)			0.163
Male	118 (68.6)	16 (57.1)	
Female	54 (31.4)	12 (42.9)	
Previous attempt at EMR (n, %)	4 (2.3)	1 (3.6)	0.533
Trainee involvement (n, %)	92 (53.4)	15 (53.6)	0.782
Quality of bowel preparation (n, %)			0.453
Adequate	151 (94.4)	23 (92)	
Poor	9 (5.2)	2 (7.1)	
Not stated	12 (7.0)	3 (10.7)	
Polyp size (n, %)			0.372
20-30mm	89 (51.7)	11 (40.7)	
31-40mm	46 (26.7)	8 (28.6)	
41-50mm	18 (10.5)	3 (11.1)	
>50mm	19 (11.1)	6 (22.2)	
Location of polyp (n, %)			
Distal colon	71 (41.3)	8 (28.6)	**0.003**
Proximal colon	96 (55.8)	14 (50)	
ICV	5 (2.9)	6 (21.4)	**0.001**
Resection type (n, %)			**0.004**
Piecemeal	139 (80.8)	28 (100)	
En-bloc	33 (19.2)	0 (0)	
Intraprocedural haemostasis (n, %)	61 (35.5)	10 (35.7)	0.979
Polypectomy method (n, %)			
Cold EMR	**64 (37.2)**	**16 (57.1)**	**0.038**
Conventional EMR	**108 (62.8)**	**12 (42.9)**	
Adjuvant STSC	53 (30.8)	2 (7.1)	**0.049**
Histological grade (n, %)			0.220
Low grade	65 (37.8)	14 (50)	
High grade	107 (62.2)	14 (40)	

EMR, endoscopic mucosal resection; STSC, snare tip soft coagulation; ICV, ileo-caecal valve

- Resections were performed by conventional EMR in 120 (60%) and cold EMR in 80 (40%), with adjuvant snare tip soft coagulation (STSC) used in 55 (27.5%).
- **Recurrent adenoma was found in 28 (14%, 95%CI 9.5-19.6) cases**, at median interval of 5 months (IQR 3-8 months) with 25 detected at the first SC.
- **All recurrences were successfully treated endoscopically.**
- **On multivariate analysis, predictors of incomplete resection included:**
  - Piecemeal-resection (OR 12.76, p=0.007)
  - Failure to use adjuvant STSC (OR 8.54, p=0.007)
  - Location at the ileo-caecal valve (OR 7.07, p=0.012)
  - Use of cold snare resection method (OR 5.83, p=0.019)
- **Six patients (3%) (5 conventional EMR, 1 CS-EMR) experienced a serious adverse event requiring admission:**
  - 5 patients developed post-polypectomy bleeding with 3 requiring endoscopic haemostasis
  - 1 patient had post-EMR abdominal pain, however there was no evidence of perforation on CT scan.

Conclusions

- In the present study, 40% of EMR were performed with cold snare. The overall incomplete resection rate was 14% (95%CI 9.5-19.6), while that after conventional EMR and STSC was 3.6% (95%CI 0.4-12.5).
- Predictors of incomplete resection included CS-EMR, piecemeal EMR, failure to use STSC and polyps involving ileo-caecal valve.
- Overall, serious adverse events developed in 3% cases, and were managed endoscopically or conservatively.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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ID# CLIN-0013

Promoting men-inclusive maternity services: Exploring the expectations, experiences and needs of men as fathers

Purpose:

To ascertain the experiences and needs of men who attend RBWH Maternity Services to inform the development of strategies to enhance men's inclusion in maternity services.

Method:

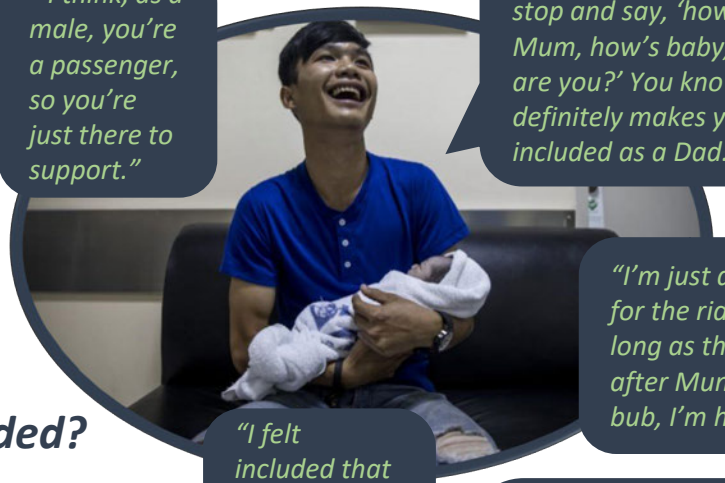
Semi-structured interviews were conducted with 48 men attending Maternity Services prior to and after their partner gave birth. Data were coded and analysed thematically.

Results:

Primary themes identified included:

- Men seeing themselves as 'just the support person'
- Equating their needs with those of their partner and baby

" I think, as a male, you're a passenger, so you're just there to support."



"She [midwife] would stop and say, 'how's Mum, how's baby, how are you?' You know, that definitely makes you feel included as a Dad."

"I'm just along for the ride, as long as they look after Mum and bub, I'm happy."

"I felt included that the staff gave me info as well as my partner."

"I was involved, because I was the first person the baby went to…I had to do the weighing and the checking and the cutting of the cord."

What made men feel included?

- Being directly addressed by staff
- Having their information needs met
- Feeling free to ask questions
- Performing practical tasks associated with the birth

Conclusion:

Adopting an inclusive style of communication promotes men's feelings of inclusion in maternity services. However, the participants' tendency to conflate their needs with those of their partner suggests the ongoing salience of traditional gender role beliefs which view childbirth primarily as the domain of women.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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Education Centre, RBWH

ID # - CLIN-0011

Home-based telerehabilitation is comparable to in-person physiotherapy exercise programs for patients with burn injuries: a randomized, controlled, non-inferiority clinical pilot trial

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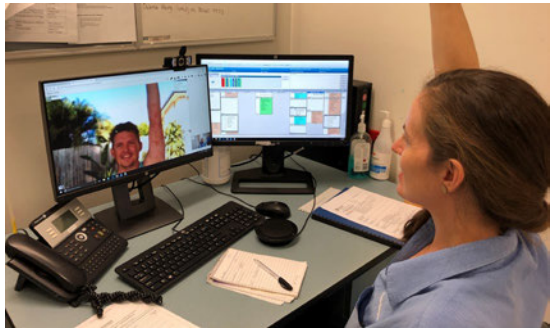
Background / Aim

Physiotherapy exercise programs are essential components of burn rehabilitation. The primary aim of this study was to determine if exercise programs delivered via home-based telerehabilitation (HBT) were as effective as in-person (IP) programs with respect to clinical outcomes and patient satisfaction.



Methods

- Single centre, randomized, controlled, non-inferiority pilot trial with blinded assessment
- Forty-five adults with ≤25% total body surface area burns were randomized to receive a 6-week exercise program delivered either by HBT (n=23) or IP (n=22).
- The primary outcome measure - Burn Specific Health Scale – Brief.
- Secondary outcomes - generic health-related quality of life (AQoL-4D), burn scar-specific outcomes, exercise self-efficacy, pain severity, muscle strength and range of motion (ROM).
- Participant and therapist satisfaction, technical disruptions and adverse events were also recorded.

Physiotherapy Research Foundation

This research was funded by a PRF 2021 Seeding grant

Results

- Non-inferiority was inconclusive for burn specific and generic quality of life and pain
- Statistically significant improvements in AQoL-4D ($p<0.006$), pain severity ($p<0.03$) and quadriceps strength ($p<0.001$) were shown by both groups at 6 weeks
- No significant between-group differences identified for any outcome measures except ROM (IP=100% achieved full ROM vs HBT=70% achieved at 12 weeks, p=0.005).
- Participant satisfaction was high (median ≥ 9.8/10), with no significant between-group differences.
- Therapist satisfaction with HBT was high (median ≥ 8.9/10)
- Major technical disruptions were low (8%)
- No adverse events reported.

Conclusion

- HBT is a safe, effective option to deliver exercise programs for patients with burn injuries ≤25% TBSA with comparable clinical outcomes to IP programs.
- Ongoing investigation is required to determine the effectiveness of HBT for patients with larger burn injuries.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
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Exploring clinical factors for rebleeding in patients presenting to the emergency department with upper gastrointestinal bleeding

Kimberley Ryan[1], Jacob Christensen[2], Mehul Lamba[1], Anthony FT Brown[3], Florian Grimpen[1]

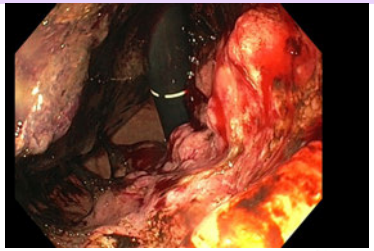
[1] RBWH Dept of Gastroenterology & Hepatology, [2]RBWH Emergency & Trauma Centre

Background / Aims

This retrospective observational study sought to determine risk of rebleeding <30days in patients presenting with upper gastrointestinal bleeding to the RBWH ETC over a 2-year period.

Methods:

Consecutive patients presenting to the ED with overt GI bleeding, over a two-year period were included. Primary outcome measure was 30-day rebleeding rate. Rebleeding was defined as either a representation to ED with an episode of overt UGIB and a haemoglobin (Hb) drop > 20gm/dL since last taken at discharge from index bleed, and those representing with UGIB and a Hb drop <20gm/dL who received an endoscopy and endotherapy for the rebleeding. Descriptive statistics were used to summarise the data.



Results

358 patients presented to ED with overt UGIB. Median age was 55 years (IQR 40-72) and 61.2% were male. Median Glasgow Blatchford score was 7 (IQR 2-11), and median Charlson comorbidity index was 3 (IQR 0-5). Gastroscopy was performed in 234 patients (65.3%) and 31.8% of these required endoscopic therapy. Following discharge, 10 patients (2.8%) developed rebleeding. Median GBS for patients with rebleeding was high at 11 (IQR 7-13) at index presentation. These patients required a median of 3 units of packed red blood cell transfusion (range 0-11). Repeat gastroscopy was performed in 9/10 patients. Pathology associated with rebleeding are described in the Table. All episodes of rebleeding were due to the initial culprit lesion, except a single Dieulafoy which was not seen at the index endoscopy. This included variceal bleeding or post-banding ulcers (6), Dieulafoy lesions (2) and a Mallory-Weiss tear (1). Highest risk of rebleeding was observed in patients with variceal bleeding (14.0%) and with a Dieulafoy lesion (33%).

Conclusion

2.8% of patients presenting with UGIB developed rebleeding within 30 days of index presentation. Risk of re-bleeding with peptic ulcer disease was very low. High rebleeding rates were observed in patients with variceal bleeding.

Culprit lesion aetiology for rebleeding

Initial culprit lesion aetiology	Number of patients (%)	Endotherapy	Rebleed <30-days
Ulcer	69 (29.5)	19	0
Erosions	13 (5.5)	0	0
Varices	43 (18.4)	30	6
Angioectasia	7 (3.0)	5	0
Portal Hypertensive Gastropathy	5 (2.1)	1	0
Mallory-Weiss tear	15 (6.4)	5	1
Dieulafoy	6 (2.6)	5	2
Tumour	15 (6.4)	3	0
Oesophagitis	17 (7.3)	0	0
Other	8 (3.4)	6	0
Nil	36 (15.4)	0	1
Total	234	74	10

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Causes of 30-day Mortality in patients presenting to emergency with Upper Gastrointestinal Bleeding

Kimberley Ryan[1], Jacob Christensen[2], Mehul Lamba[1], Anthony FT Brown[3], Florian Grimpen[1]

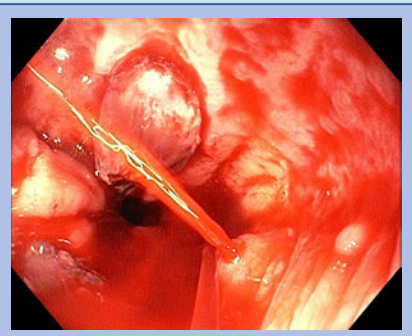
[1] RBWH Dept of Gastroenterology & Hepatology, [2]RBWH Emergency & Trauma Centre

Background / Aims

Upper gastrointestinal bleeding (UGIB) is a common presentation to emergency departments which often necessitates admission and urgent endoscopy. Australian studies have reported 30-day mortality rate around 3% in those with a Glasgow-Blatchford-Score (GBS) ≥ 3, and as high as 10% in patients with variceal bleeding(1).

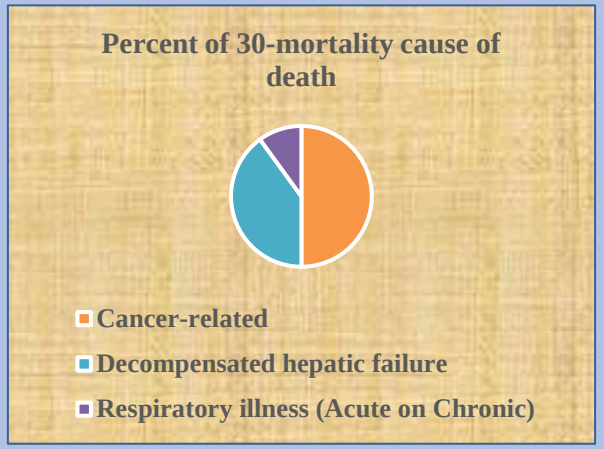
Methods:

Consecutive patients presenting to the RBWH emergency & trauma centre with overt UGIB, over a two-year period (July 2016 -June 2017 and July 2018 – June 2019) were included. The RBWH ETC has an ED annual census of over 77,000 and the gastroenterology unit performs over 4,000 upper endoscopies per year and provides a 24/7 on-call service. Demographic, clinical, laboratory and endoscopic data were available for all patients. Detailed electronic notes including death certificates were assessed to adjudicate causes of death. Descriptive statistics were used to summarise the data.



Results

358 patients presented to the ETC with overt UGIB. Median age was 55 years (IQR 40-72) and 61.2% were male. Melaena, haematemesis and haematochezia as presenting symptoms were present in 56.5%, 68%, and 5.8% cases. Median GBS was 7 (IQR 2-11), and median Charlson-Comorbidity-Index (CCI) was 3 (IQR 0-5). Seventy-four patients (20.6%) (median GBS 1, IQR 0-2) were discharged home from Emergency department. Inpatient gastroscopy was performed in 234 patients (82.4% of admitted patients), and endoscopic treatment was required in 74 patients (31.6% of all gastroscopies). 10 patients (2.8%, 95%CI 1.5%-5.1%) died within 30 days of presentation with UGIB. Variceal bleeding carried a 30-day mortality rate of 8.9% (95% CI 3.4% - 22.6%). Of the 10 patients who died within 30 days, 6 had an endoscopy as an inpatient. Causes of UGIB found at gastroscopy included: oesophageal varices (2) and gastrointestinal tumour (3). No cause was found in 1 case. In comparison to patients who survived 30 days after presentation, patients with 30-day mortality had higher GBS score (median GBS 3 and 12, p <0.001) and had higher burden of comorbidities (median CCI 3 and 5, p=0.01). **Causes of death included hepatic decompensation (4), advanced malignancy (5), exacerbation of chronic obstructive pulmonary disease (1).**



Conclusion

40% of patients who died within 30 days died secondary to decompensated liver disease. Patients with long-standing and severe comorbidities may present with UGIB, and early mortality is generally attributed to comorbidity.

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Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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Education Centre, RBWH

CLIN-0057

Retrospective Review of Neurodevelopmental Outcomes following Therapeutic Hypothermia for Hypoxic Ischaemic Encephalopathy in a Tertiary Nursery

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[1]Grantley Stable Neonatal Unit, RBWH

Purpose

To determine the 2- and 4-year neurodevelopmental outcomes in a cohort of infants following therapeutic hypothermia for hypoxic ischaemic encephalopathy (HIE) at a tertiary neonatal unit in Brisbane.

Methods

Retrospective analysis of neurodevelopmental outcomes of infants with a diagnosis of HIE at birth who underwent therapeutic hypothermia.

Data was collated into a spreadsheet and outcomes were compared to reference scores.

2-Year Follow Up

Cognitive, language, motor, social-emotional and adaptive behaviour scores were assessed with the Bayley Scales of Infant and Toddler Development, Third Edition (BSITD-III) at 2-year follow up.

4-Year Follow Up

The Weschler Preschool and Primary Scale of Intelligence, Fourth Edition (WPPSI-IV) was used to assess verbal comprehension, fluid reasoning, visual spatial, working memory and processing speed at 4-year follow up.

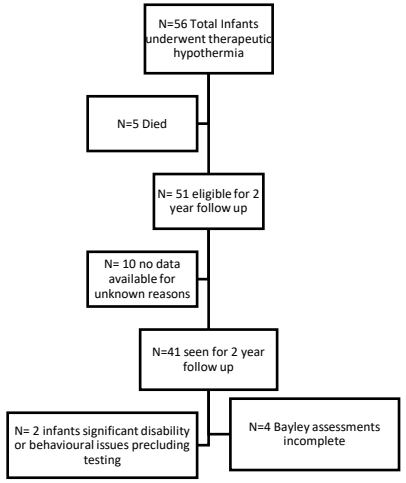

Figure 1 – Participants Eligible for 2-year follow up (BSITD-III).

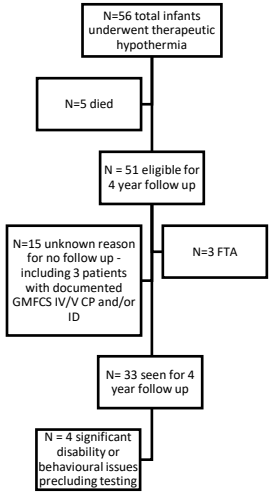

Figure 2– Participants eligible for 4-year follow up (WPPSI-IV)

BSITD-III Domain - 2-Year Follow Up

N=41 (80.4%)	Median (IQR)	Mean (SD)	Clinical Interpretation
Social Emotional Score N=37 (72.5%)	100 (15)	99 (16.4)	Average
Adaptive Behaviour Score N=38 (74.5%)	98 (19.5)	93.8 (21.5)	Average
Language Score N=39 (76.5%)	91 (22.5)	90.4 (19)	Average
Cognitive Score N=40 (78.4%)	100 (15)	94.6 (15.6)*	Average
Motor Score N= 36 (70.6%)	97 (22)	93.2 (19.3)*	Average

WPPSI-IV Domain – 4-Year Follow Up

N=33 (64.7%)	Median (IQR)	Mean (SD)	Clinical Interpretation
Verbal Comp Score N=29 (56.9%)	94 (24)	98 (15.6))	Average
Visual Spatial Score N= 29 (56.9%)	97 (27)	96.4 (16.7)	Average
Fluid Reasoning Score N= 29 (56.9%)	98 (16)	97.1 (11.2)	Average
Working Memory Score N= 29 (56.9%)	100 (9)	100.3 (12.1)	Average
Processing Speed Score N= 28 (54.9%)	103 (9)	96.32 (21.1)*	Average
Full Scale Score N= 29 (56.9%)	100 (24)	99.3 (15.2)	Average

Revised Scores

Scores for children with documented severe disability precluding completion of psychometric testing were adjusted by attributing a score -3 SDs below the mean.
Revised median [IQR] scores fell in the 'low average' range for the BSITD-III Language subscale (89 [21]) and the WPPSI-IV Fluid Reasoning subscale (89 [16]).

Conclusions

This was a retrospective analysis, and an age matched control group was not available for this cohort, therefore results should be interpreted with caution.

Conclusions

Infants who received therapeutic hypothermia for HIE had scores on psychometric testing in the 'average' or 'low average' range across all domains at 2- and 4-year follow up.

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Connections and Community
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Population pharmacokinetics of piperacillin-tazobactam in patients undergoing pelvic exenteration surgery

Xin Liu[1], Dwane Jackson[2], Victoria Eley[2], Angela Tognolini[2], Chandra Sumi[1], Suzanne Parker[1], Steve Wallis[1], Jason Roberts[1,3,4]

[1]UQCCR; [2]RBWH Department of Anaesthesia; [3]RBWH Pharmacy Department; [4]RBWH ICU Department

Purpose

- To characterise the PK of piperacillin (Pip) and tazobactam (Taz) in patients undergoing pelvic exenteration surgery.
- To optimize dosing regimen for these patients.

Methods

- PipTaz dosed at 4g/0.5g prior to skin incision by intravenous infusion (0.5h).
- Eighteen blood samples collected pre-dose and until 16 h post-dose.
- Pip and Taz plasma concentration determined by a validated UHPLC-MS/MS method.
- Population PK analysis performed using Monolix 2021R1.
- The PTA estimated by simulation of bolus and prolonged infusions for MIC of 8 and 16 mg/L with target set at 50% $fT_{>MIC}$ or 100% $fT_{>MIC}$.

Results

Table 1. Patient characteristics

Gender	3/10 (M/F)
Age	49.5 (32-64)
BW (kg)	79 (59-104)
BMI	26.8 (19.1-36)
sCr (μmol/L)	64.5 (41-109)
eGFR (mL/min)	112 (51-119)
AST (U/L)	18.5 (12-25)
ALT (U/L)	17.5 (11-70)
ALP (U/L)	71 (61-112)
Albumin (g/L)	42.5 (28-47)

Table 2. Estimated PK parameters of Pip and Taz.

Parameter	Mean		CV (%)		Shrinkage (%)	
	Pip	Taz	Pip	Taz	Pip	Taz
Cl (h/L)	10.4	9.76	8.86	3.36	-12.5	-23.3
V1 (L)	9.37	5.90	12.2	47.1	18.8	4.80
Q (L/h)	11.2	27.4	40.6	42.8	7.31	0.912
V2 (L)	6.25	11.8	34.6	-	1.33	-

Pip: $Cl_i = 10.4 \times (BW_i/76.8)^{1.15} \times (eGFR_i/94.2)^{0.7}$ $V1_i = 9.80 \times (BW_i/76.8)^{1.14}$

Taz: $Cl_i = 9.76 \times (BW_i/76.8)^{1.13} \times (eGFR_i/94.2)^{0.69}$ $V1_i = 5.90 \times (BW_i/76.8)^{2.83}$

Table3. PTA for simulated dosing regimen of piperacillin

Dosing regimen	50% $fT_{>MIC}$		100% $fT_{>MIC}$	
	MIC=8 mg/L	MIC = 16 mg/L	MIC=8 mg/L	MIC = 16 mg/L
0.5-hour, q8h	76.2%	36.1%	5.2%	0.1%
4-hour, q8h	100%	99.4%	31.9%	4.4%
0.5-hour, q6h	98.6%	71%	34.3%	6.7%
4-hour, q6h	100%	100%	91.0%	53.3%

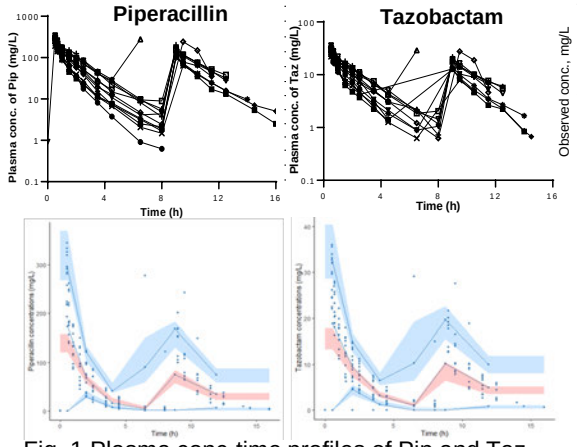

Fig. 1 Plasma conc-time profiles of Pip and Taz in 10 patients and VPC

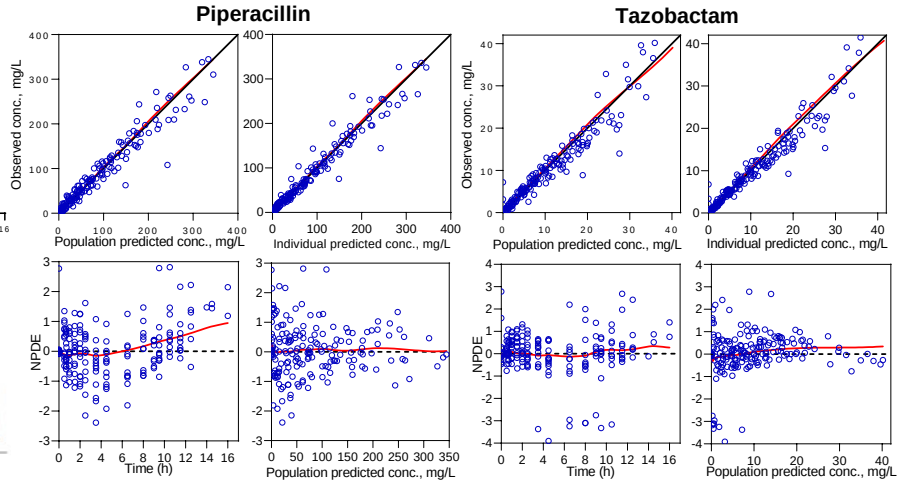

Fig. 2 GOF plots. Obs vs. popPre (top left); obs. vs indPre (top right); NPDE vs time (bottom left); NPDE vs popPre (bottom right).

Conclusion

- PopPK model was developed and validated for Pip/Taz in patients undergoing pelvic exenteration surgery.
- eGFR significantly affect clearance of both Pip and Taz.
- Based on simulated PTA, the optimal dosing regimen in these patients were Pip/Taz 4g/0.5g every 6 h infused over 4h against bacteria with MICs of up to 8 mg/L.

Connections and Community

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Angiographic IR embolisation of traumatic splenic injuries: a tertiary trauma centre's experience

Jenna Edey[1], Daniel MacManus[1], Arani Halder[1,2,3]

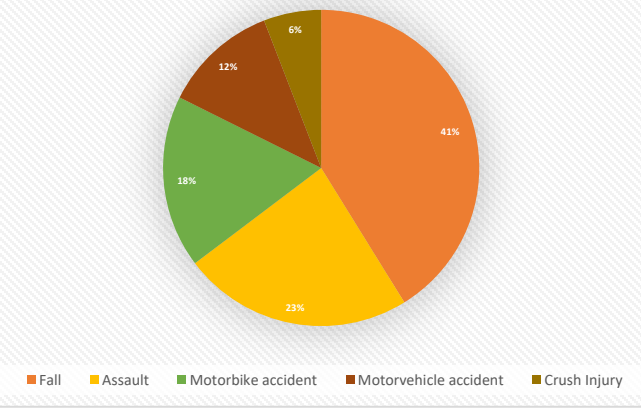
[1]Royal Brisbane and Women's Hospital, Herston, [2]Bond University Faculty of Health Sciences and Medicine, Robina, [3]Queensland X-Ray

Background

Splenic injuries are one of the most frequently seen trauma-related injuries and can be classified as blunt or penetrating[1]. Non-operative management of blunt splenic injuries has become a widely-implemented standard of care. This has been facilitated in part by introduction of angioembolisation.[2] The decision regarding conservative management, embolisation or surgery depends on factors including haemodynamic stability of the patient, splenic computed tomography (CT) injury grade, patient age and concurrent injuries.[3,4]

Traumatic splenic injuries are categorised in clinical practice using the American Association for the Surgery of Trauma (AAST) splenic trauma classification[3], which grades injuries as I-V depending on extent of injury, depth and nature of haematoma or laceration identified on CT scan.[1,5] For traumatic splenic injuries, splenic artery embolisation is often implemented if angiographic findings of active bleeding or presence of vascular injuries such as pseudoaneurysm and arteriovenous fistula are identified.[3,6] Two commonly used embolisation approaches are distal and proximal splenic artery embolisation[7].

Figure 1: Mechanism of splenic Injury



Purpose

The purpose of this review is to retrospectively assess the approaches and management of traumatic splenic injuries over a twelve-month period at a major tertiary institution in Australia.

Material and methods

The departmental database was searched to identify all patients who had undergone splenic embolisation between January 2021 and December 2021. Selective retrospective chart reviews were performed using hospital electronic medical records. Information collected included patient demographics, severity of splenic injury, mechanism of injury, method of embolisation and complications. Data analysis was performed using descriptive statistics and Microsoft Excel.

Results

Twenty-two splenic embolisation procedures were undertaken at our tertiary trauma institution over the twelve-month period between January 2021 to December 2021. 82% of splenic embolisations occurred in the setting of blunt splenic trauma. Mechanisms of injury included falls (41%), assault (24%), motorbike accident (18%), motor vehicle accident (12%) and crush injury (6%). 18% of injuries were AAST grade 5 and 59% were AAST grade 4. The remaining 23% were below AAST grade 4 but proceeded to embolisation given haemodynamic status or active bleed on CT. Embolisation methods included coiling (94%) and gelfoam particle embolisation (6%). 41% of cases utilised distal embolization, whilst 47% underwent proximal embolisation and 12% underwent both proximal and distal embolisation. The majority of cases were uncomplicated, however reported complications included coil detachment on deployment (1 case), repeat embolisation (1 case) and progression to splenectomy (1 case).

Conclusion

We retrospectively analysed all blunt trauma-related splenic embolisations performed in our tertiary trauma institution over a one-year period. Angioembolisation remains a safe and effective treatment modality in the setting of traumatic blunt splenic injury. Our outcomes and approaches to traumatic splenic embolisation remains comparable with the available literature. Further analysis and research is required to determine the safety and efficacy of proximal and distal embolisation techniques

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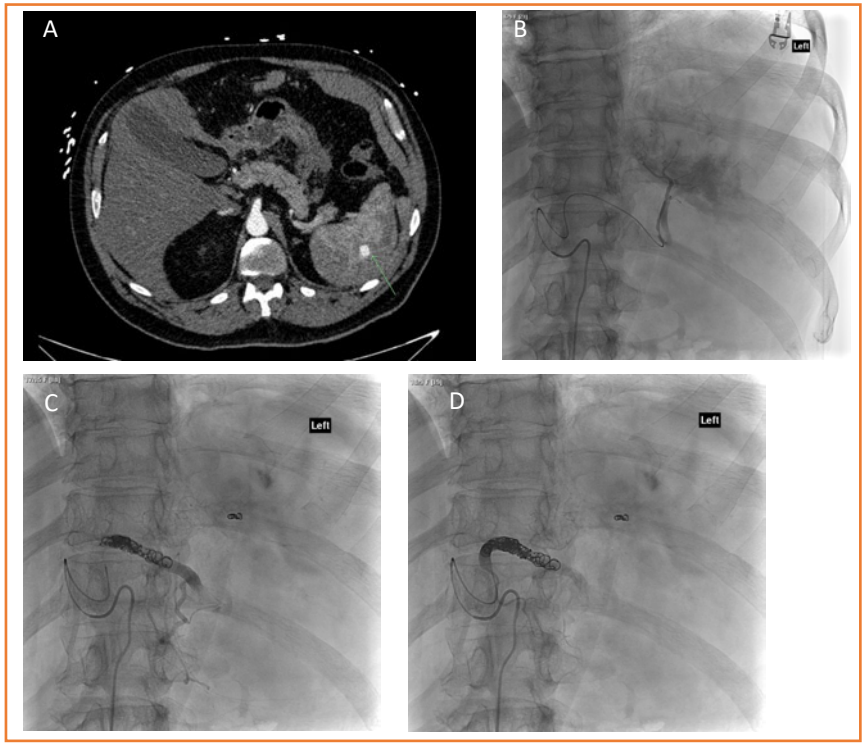
Figure 2: Key images from splenic embolisation case



A: axial slice of CT abdomen showing splenic parenchymal extravasation with large volume hemoperitoneum in keeping with AAST grade 5 injury of spleen
B: fluoroscopic angiography showing a largely devascularised spleen with multiple small pseudoaneurysms
C: coil embolisation performed distally within the spleen and proximally in the main splenic artery with minor contrast flow still present in the main splenic artery
D: further coils deployed in the main splenic artery to completely occlude the vessel lumen

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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ID #CLIN-0047

Exploring clinical factors for rebleeding in patients presenting to the emergency department with upper gastrointestinal bleeding

Kimberley Ryan[1], Jacob Christensen[2], Mehul Lamba[1], Anthony FT Brown[3], Florian Grimpen[1]

[1] RBWH Dept of Gastroenterology & Hepatology, [2]RBWH Emergency & Trauma Centre

Background / Aims

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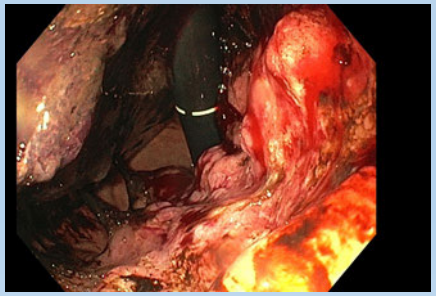
Methods:

Consecutive patients presenting to the ED with overt GI bleeding, over a two-year period were included. Primary outcome measure was 30-day rebleeding rate. Rebleeding was defined as either a representation to ED with an episode of overt UGIB and a haemoglobin (Hb) drop > 20gm/dL since last taken at discharge from index bleed, and those representing with UGIB and a Hb drop <20gm/dL who received an endoscopy and endotherapy for the rebleeding. Descriptive statistics were used to summarise the data.



Results

358 patients presented to ED with overt UGIB. Median age was 55 years (IQR 40-72) and 61.2% were male. Median Glasgow Blatchford score was 7 (IQR 2-11), and median Charlson comorbidity index was 3 (IQR 0-5). Gastroscopy was performed in 234 patients (65.3%) and 31.8% of these required endoscopic therapy. Following discharge, 10 patients (2.8%) developed rebleeding. Median GBS for patients with rebleeding was high at 11 (IQR 7-13) at index presentation. These patients required a median of 3 units of packed red blood cell transfusion (range 0-11). Repeat gastroscopy was performed in 9/10 patients. Pathology associated with rebleeding are described in the Table. All episodes of rebleeding were due to the initial culprit lesion, except a single Dieulafoy which was not seen at the index endoscopy. This included variceal bleeding or post-banding ulcers (6), Dieulafoy lesions (2) and a Mallory-Weiss tear (1). Highest risk of rebleeding was observed in patients with variceal bleeding (14.0%) and with a Dieulafoy lesion (33%).

Conclusion

2.8% of patients presenting with UGIB developed rebleeding within 30 days of index presentation. Risk of re-bleeding with peptic ulcer disease was very low. High rebleeding rates were observed in patients with variceal bleeding.

Culprit lesion aetiology for rebleeding

Initial culprit lesion aetiology	Number of patients (%)	Endotherapy	Rebleed <30-days
Ulcer	69 (29.5)	19	0
Erosions	13 (5.5)	0	0
Varices	43 (18.4)	30	6
Angioectasia	7 (3.0)	5	0
Portal Hypertensive Gastropathy	5 (2.1)	1	0
Mallory-Weiss tear	15 (6.4)	5	1
Dieulafoy	6 (2.6)	5	2
Tumour	15 (6.4)	3	0
Oesophagitis	17 (7.3)	0	0
Other	8 (3.4)	6	0
Nil	36 (15.4)	0	1
Total	234	74	10

Connections and Community
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Outcomes after implementation of an interdisciplinary model of care for the management of repeated foreign body ingestion in patients with Emotionally Unstable Personality Disorder

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INTRODUCTION

- Patients with Emotionally Unstable Personality Disorder (EUPD) who present with repeated intentional foreign body ingestion (RIFBI) have poor health outcomes and high healthcare resource utilisation[1-2].
- Long hospital stays can further reinforce maladaptive behaviour of intentional ingestion and result in a perpetuating cycle of self-harm behaviours, which increases the risks of both actual and iatrogenic harm to the patient[1-2].
- In 2016, our institution developed a novel interdisciplinary acute management plan (AMP) model of care with the goal of improving health outcomes for patients with EUPD and RIFBI.
- The objective of the service evaluation was to assess the effectiveness and safety of the AMP model of care.

METHODS

- A retrospective, observational service evaluation of management of RIFBI at a principal referral hospital in Brisbane, Australia over a 10-year period (2011-2021).

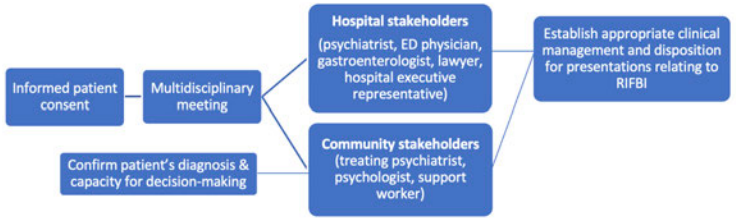
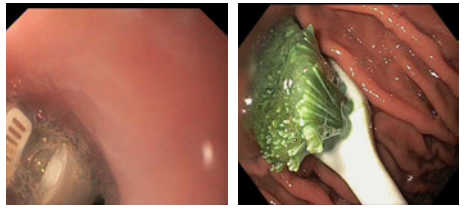


Figure 1. Pathway to formulating individualised AMPs. The AMP is uploaded to the patient electronic record and distributed to the relevant services involved in the patient's care.

- The AMP informs clinical management and disposition for future RIFBI-related ED presentations. It allows the opportunity to proceed directly to endoscopy (possibly even the next day) without in-patient admission, routine psychiatry review, or one-on-one observations.

METHODS (continued)

- Electronic medical record data for ED presentations to all public hospitals in Queensland, Australia and in-patient admissions at our institution were collected and summarised by descriptive statistics.



RESULTS

Total of eight patients included (100% female; median (IQR) age of 29 (24-31) years)

The total number of RIFBI-related ED presentations during the study period was 428 (248 before, 180 after)

- Of these, 265 presentations were at our institution, resulting in 199 in-patient admissions and 167 endoscopic procedures

Main outcomes following the AMP model of care:

- An overall decrease in ED presentations by 27%
- Patient were increasingly managed through elective procedures and out-patient encounters
- A reduction in in-patient LOS by 23%, equivalent to a saving of 11.6 days per year
- Little change in the percentage of ED presentations resulting in endoscopy following AMP (83% vs 85%, respectively)
    - Of these, there was a 75% increase in in-hours endoscopies alongside a modest 13% reduction of out-of-hours endoscopies
- Considerable reductions in involuntary admissions (59%) and healthcare staff utilisation, with fewer psychiatry consultations (34%) and one-on-one nursing requirements (37%)
- No adverse outcomes as a result of delaying endoscopy after AMP model of care

ED presentations	Units	Before AMP	After AMP	Difference	% Difference
State-wide ED presentations (n=428)					
State-wide ED presentations	n	248	180	-68	-27
State-wide ED presentations (excluded local hospital)	n	124	39	-85	-69
Local hospital ED presentations (n=265)					
ED presentations	n	124	141	17	14
ED length-of-stay	days	1590	1980	390	25
Management type					
Emergent procedure	n	54	55	1	2
Elective procedure	n	24	38	14	58
In-patient expectant	n	20	15	-5	-25
Out-patient expectant	n	21	29	8	38
Discharge against medical advice	n	5	4	-1	20
Local in-patient admissions	**Units**	**Before AMP**	**After AMP**	**Difference**	**% Difference**
Admissions	n	94	105	11	12
In-patient length-of-stay	days	250	192	-58	-23
Endoscopies	n	78	89	11	14
In-hours endoscopies	n	24	42	18	75
Oesophageal	n	8	17	9	11.3
Non-oesophageal	n	16	25	9	56
Out-of-hours endoscopies	n	54	47	-7	-13
Oesophageal	n	36	24	-12	-33
Non-oesophageal	n	18	23	5	28
Involuntary (MHA)	n	41	17	-24	-59
Resource utilisation					
Psychiatry consultation	n	56	37	-19	-34
One-on-one nursing	n	73	46	-27	-37
Security (one-on-one observation + assistance)	n	28	33	5	18

AMP: Acute management plan. MHA: Mental Health Act.

CONCLUSIONS

Implementation of a novel interdisciplinary care plan for patients with EUPD and RIFBI can provide a clinically significant service level reduction in overall ED presentations, in-patient LOS and utilisation of in-patient healthcare resources, without increasing complications.

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1. Reisner AD, Bornovalova MA, Gordish L et al. Ingestion of foreign objects as a means of nonlethal self-injury. *Personality Disorders*. 2013;4(2):182-9.
2. National Health and Medical Research Council. 2012 Clinical practice guideline for the management of borderline personality disorder. Canberra: NHMRC, 2013.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0024

Urological Infections Requiring Stent Insertion at the Royal Brisbane and Women's Hospital

Joshua Sia[1,2], Sumudu Britton[2], Matthew Roberts[3]

[1]University of Queensland [2]Infectious Diseases Dept RBWH [3]Urology Dept RBWH

Background

The use of ureteric stents is of particular benefit in the setting of ureteric obstruction resulting in undrained infection. Ureteric stents are often complicated by adherent bacteria and the formation of biofilms. This retrospective study aims to examine the infectious indications, microbiology, and antibiotic use of ureteric stent insertions at RBWH in order to guide future practice.

Methods

Following ethics approval, Operating Room Management Information System (ORMIS) data was used to collect a list on all ureteric stent procedures performed in RBWH conducted over January – April 2021. Using medical record search, information was collected on the urine microbiology prior to procedure, indication for stent insertion, procedure, antibiotic management, and urine microbiology prior to follow up procedure.

Results

A total of 105 patients received a ureteric stent procedure. Of these 20% of procedures were conducted in the setting of a urological infection (21/105) with the most common indication being an infected ureteric stone 71.4% (15/21).

All 21 patients received antibiotics post their ureteric stent procedure. 17/21 patients had a further follow-up procedure in the form of stent removal or exchange with the remaining 4 passing away prior to removal. Of these 88.2% (15/17) of patients had growth in their urine culture prior to their follow-up procedure.

Most common Organisms:

1. Escherichia coli 42.3% (9/21)
2. Proteus mirabilis 23.8% (5/21)
3. Klebsiella Pneumoniae 9.5% (2/21)

Conclusions

- Ureteric stent insertion in the setting of a urological Infection is common.
- Antibiotic use post procedure in the setting of infection was found to be universal in this study.
- There were very high rates of persistent bacteriuria at follow up procedure despite universal antibiotic use.
- Further study into antibiotic usage in this setting may be an area for antimicrobial stewardship.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

CLIN-0031

Nutritional outcomes in patients undergoing transoral robotic surgery for head and neck cancers compared to conventional open surgery. A systematic review.

Kimberley Anakapu MDietSt, Michael Wilson MDietSt, Merran Findlay PhD, Teresa Brown PhD, & Judy Bauer PhD

RATIONALE

Head and neck cancer (HNC) is associated with nutrition related complications due to the involvement of mouth and throat structures. Current management of HNC is multimodal including chemoradiation therapy (CRT), and surgical resection. Traditional, non-robotic, open surgical approaches such as mandibulotomy are invasive and any post-operative structural changes and/or swelling can reduce functional capacity towards eating and drinking. Regardless of surgical modality, nutritional support by a specialist dietitian is recommended throughout the care trajectory in patients with HNC.

Trans-oral robotic surgery (TORS) is an emerging surgical modality (Figure 1) that is less invasive and may lead to more favourable nutrition outcomes, however there are currently no published systematic reviews that focus on nutritional outcomes after TORS, compared to conventional, open surgery approaches.

AIM & METHODS

To systematically examine literature regarding nutritional outcomes in patients with HNC receiving TORS, compared to open surgery.

Databases: PUBMED, CINAHL, and Web of Science; No date restrictions.

Eligibility criteria: All study types except reviews or meta-analysis; adult human and non-cadaveric studies (>18 years); minimum follow up 6 months; English only; peer reviewed.

Population: Any stage, form or type of HNC, sample size n>10.

Intervention: TORS (adjuvant CRT accepted). Comparator: Open surgery (adjuvant CRT accepted).

Risk of Bias: Assessed using Risk of Bias in Non-randomised Studies-1 (ROBINS-1) tool.

Evaluation of evidence: Grading of Recommendations, Assessment, Development and Evaluation (GRADE).

RESULTS

- Four hundred and ninety-four (494) studies identified through database searching and twenty-seven (27) through other sources.
- Eight (8) studies included in the final systematic review (total n=608).
- Four studies for oropharyngeal cancer, one study each: tongue base and supraglottal cancer; tonsillar cancer; epiglottic, aryepiglottic or ventricular fold cancer; and hypopharyngeal cancer.

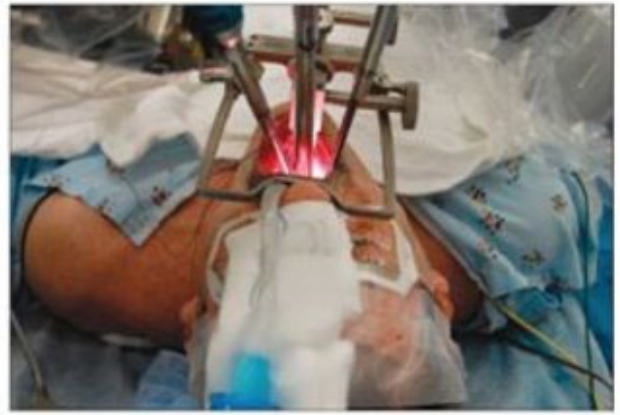

Figure 1: Intraoperative view of TORS[1]

1. Dean NR, Rosenthal EL, Carroll WR, Kostrzewa JP, Jones VL, Desmond RA, et al. Robotic-Assisted Surgery for Primary or Recurrent Oropharyngeal Carcinoma. Archives of Otolaryngology–Head & Neck Surgery. 2010;136(4):380-4. doi: 10.1001/archoto.2010.40.

TABLE 1: GRADE EVALUATION OF EVIDENCE AND SUMMARY OF FINDINGS

Outcome	Finding	Certainty of Evidence
Short term (<6months) use of enteral feeding (n=431)	• TORS probably leads to reduced short-term use and shorter duration of enteral feeding. • TORS probably reduces long term use of enteral feeding at 6 and 12 months. • Non-robotic trans-oral surgery leads to similar results as TORS in tonsillar cancer, in both short and long term.	Moderate ⊕⊕⊕◯
Long term (≥ 6 months) use of enteral feeding (n=525)		Moderate ⊕⊕⊕◯
Patient reported swallowing function (n=140)	• It remains uncertain whether TORS improves long term patient reported swallowing function, compared to open surgery. • Invasive mandibulotomy type approaches specifically may lead to worse nutritional outcomes than TORS. Further studies with direct measures of swallow function are needed.	Very low ⊕◯◯◯
Time to full swallowing ability postoperatively (n=147)	• TORS may lead to shorter average time to full swallowing ability compares to open surgery.	Low ⊕⊕◯◯
Time to oral feeding postoperatively (n=93)	• Findings remain uncertain. Concerns regarding quality and directness of evidence for this outcome.	Very low ⊕◯◯◯

CONCLUSIONS & RECOMMENDATIONS

- Overall TORS *may* lead to improved nutrition outcomes and non-robotic transoral approaches may confer similar benefits. However, there are currently limited robustly designed studies that adequately assess nutritional outcomes in patients with head and neck cancer receiving TORS.
- Further studies are needed to better understand nutritional needs and guide nutritional support for patients undergoing surgery for HNC. Such studies should use validated tools to assess patient nutrition status, such as subject global assessment (SGA) or patient generated subjective global assessment (PG-SGA), including weight trajectory, nutrition impact symptoms and nutritional intake.
- Regardless of any improvement in nutritional outcomes after TORS, specialised dietetics support is invariably important in the management of patients with HNC, throughout the care trajectory.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0054

PRELIMINARY FEASIBILITY ANALYSES FOR IMMUNOSUPPRESSION MEDICATIONS IN TRANPLANTS (IMET) STUDY

MONICA NG[1], ANDREW JONES[2], ANDREW MALLETT[3]

[1] Kidney Health Service, RBWH [2] Queensland Cyber Infrastructure Foundation [3] Department of Renal Medicine, Townsville University Hospital

Background

- Immunosuppression regimens for kidney transplant change substantially post-discharge[1]
- Studies investigating effects of immunosuppression regimens on transplant outcomes have used discharge medications to categorise treatment group

Aim

- To determine the feasibility of assessing the effect of different immunosuppression regimens on kidney graft failure secondary to glomerular disease (GD) recurrence using registry data

Methods

- All patients who received a kidney transplant between 1985-2020 were extracted from the ANZDATA registry
- Power calculations completed using the sample size and outcome rates in the dataset to determine relative risk between the groups at a significance level of 0.05.

Methods (continued)

- Immunosuppression regimens were assessed:
  - At discharge
  - Immediately prior to disease recurrence
  - Longest duration prior to disease recurrence
  - Longest duration prior to graft failure/death

Results (continued)

- 3615 kidney transplants performed for GD

Table 1: Immunosuppression medications of all kidney transplants 1985-2020

Time	Steroid		CNI			Anti-proliferative		
	Y	N	TAC	CYA	N/A	AZA	MMF/ MSA	N/A
Initial	25102	2084	13269	12114	1788	5673	19021	2485
Before recurrence	250	77	93	197	37	127	158	42
Longest duration before disease recurrence	222	105	98	224	4	152	163	11
Longest duration before graft failure/death	7301	4671	4062	7556	309	5504	5964	470

Results (continued)

- Graft failure rates - 1y: 6.1%, 2y: 8.2%, 5y: 13.5%
- Assuming combined sample size of 3200, graft failure due to disease recurrence of 3.4%, significance cut off of 0.05; a log-rank test would be able to detect relative risk between groups of 0.50 with a power 0.90

Discussion

- Immunosuppression medications changed significantly at 1 year and 5 years compared to discharge
- Similar to other studies[1]

Conclusion

- Even with conservative estimates for sample size, it is feasible to assess the effect of different immunosuppression regimens on graft failure due to disease recurrence in people with GD.

Ref: [1]NDT 2006, 21(8): 2256–2262

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0032

Winner – Professor Lawrie Powell AC Early Career Research Award

Rethinking cancer prevention for Culturally and Linguistically Diverse (CALD) migrant populations living in Queensland, Australia: A retrospective cohort study

Authors: Brighid Scanlon, David Wyld, Sam Toloo, Natasha Roberts and Jo Durham

Purpose:

- International evidence suggests **migrants experience significant inequities** across the cancer care continuum
- In Australia, these inequities are often explained by **behavioural risk factors**, such as smoking and alcohol consumption, and Australian research has suggested that disease prevention are **"low priorities"** for CALD populations
- However, Australian research was yet to quantify or compare **engagement with cancer prevention strategies** for CALD migrant and Australian born populations

Methods:

- A **retrospective cohort study** was conducted utilising the electronic medical records at a major, quaternary hospital
- Individuals diagnosed with a **solid tumour malignancy** in the year 2016 and were **followed for a total of five years**
- Data were analysed to **compare prevention and detection indicators** via bivariate and multivariate logistic regression

Results:

- A total of **523 individuals were followed**, 78% were Australian born and 22% were in the CALD migrant cohort
- **CALD migrants** had **37% lower odds** of having a **smoking history** (OR=0.63, CI 0.40-0.97)
- **CALD migrants' odds of 'never drinking'** were **3.4 times higher** than those born in Australia (CI 1.473-7.905)
- Australian born participants' odds of having their breast cancer detected via screening was **6.5 times higher than CALD migrants** (CI 2.429-17.359).
- **CALD migrants** made up **a larger proportion** of **cancers associated with infectious agents**, such as Gastric (6% vs 1%) and Cervical (5% vs 3%)

Conclusions:

- Findings from this study **affirm CALD migrants' low participation in screening** services but **refute** the assertion **that CALD migrants are less engaged in positive health practices** which enable cancer prevention.
- Future research should **examine the social, environmental, and institutional determinants** of cancer inequities and move beyond individualistic, behavioural explanations

Variable	OR	95% CI	P value
Smoking history			
CALD migrant ('Yes')	0.625	0.401-0.972	0.037
Alcohol consumption			
CALD migrant ('Never drink')	3.413	1.473-7.905	0.004
Breast cancer screening			
CALD migrant ('Yes')	0.154	0.058-0.412	<0.001
CALD (Australian born) ('Yes')	6.493	2.429-17.359	<0.001

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

CLIN-0027

COVID-19 vaccine hesitancy, acceptance, and informational needs among an Australian oncology population: a cross-sectional survey

Authors: Scanlon, B[1,2]. Matthews, R[1]. Wyld, D[1,2,3]. Firman, P[1,3]. Nakagaki, M[1,3]. Durham, J[2]. Kennedy, G[1,3]. Moran, P[1]. Smith, M[1,2]. Gavin, NC[1,2,3].
Affiliations: 1. Royal Brisbane and Women's Hospital 2. Queensland University of Technology 3. University of Queensland

Introduction:

- People with cancer are at **higher risk of morbidity and mortality** from COVID-19
- The 2021 vaccination rollout was compounded by delays, safety concerns and widespread misinformation, resulting in **increased vaccine hesitancy**
- Available information was **generic in nature** and not tailored to the needs of cancer populations

Aims:

- **A cross-sectional survey** was conducted to explore COVID-19 **vaccine hesitancy, acceptance, and unmet informational needs** among a cancer population

Methodology:

- A cross-sectional survey was conducted at the Royal Brisbane and Women's hospital, between **10th May and 31st July 2021**
- The survey assessed health beliefs, experiences of the COVID-19 pandemic, COVID-19 vaccine hesitancy and informational needs

Results:

- Women and those aged under 60 were significantly overrepresented in those **not planning to receive the vaccine**
- Men, people experiencing anxiety during the pandemic and those who felt they had received adequate information were **more likely to receive the vaccine**
- **Only 58%** of participants **"agreed"** that the vaccines were safe
- **82%** of respondents stated they **would receive the vaccine** if recommended by their oncologist

Conclusions:

- Although the majority of participants did plan on receiving the vaccine, **high levels of hesitancy remain**
- Cancer patients have **unique concerns and informational needs** regarding the COVID-19 vaccines
- There is a need **for tailored and effective communication** that capitalises on existing relationships of **trust between patients and clinicians**

Themes of Cancer-specific information requested:

1. **Interactions with cancer treatments**
2. **Those with a history of blood clotting**
3. **Those undergoing bone marrow transplantation**

"Is it acceptable to have Pfizer whilst having chemotherapy?"

"As a cancer patient with a history of blood clots… what vaccine should I be having?"

"getting vaccinated post bone marrow transplant"

Griffith University Queensland, Australia · Menzies Health Institute Queensland · QIMR Berghofer Medical Research Institute The Future of Health · pathology queensland · QUT · The University Of Queensland Australia Create Change · Herston Health Precinct · RBWH Foundation · Metro North Health · Queensland Government

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5 – 8 September 2022
Education Centre, RBWH

CLIN-0005

Do different needleless connectors make a difference?

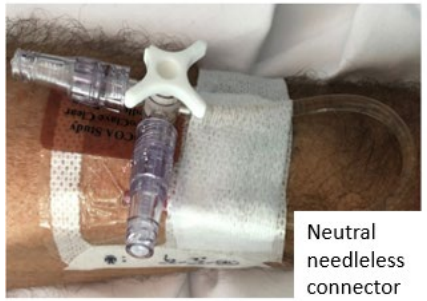
A pilot randomised controlled trial comparing neutral and negative pressure needleless connectors

N Marsh[1,2,3,4], E Larsen[1,2], C O'Brien[1], H Peach[1], S Keogh[1,4], G Mihala[2], K Davies[1,6], A McCarthy[4], J Flynn[5], C Rickard[3,4]

[1]Nursing and Midwifery Research Centre, RBWH; [2]Griffith University; [3]University of Queensland; [4]Queensland University of Technology; [5]University of Southern Queensland; 6. HeIDI, MNHS

Purpose:

Needleless connectors (NCs) link peripheral intravenous catheters (PIVCs) with syringes and administration sets. There are multiple types of NCs with different structural and fluid displacement properties. Negative pressure NCs create a negative displacement, allowing a small amount of blood to move (reflux) into the catheter on disconnection, and neutral pressure NCs have been designed to limit blood reflux. It is unclear the impact fluid displacement has on catheter occlusion and infection as this has yet to be examined in a randomised control trial (RCT). The aim of this trial was to test the feasibility of a study protocol comparing the efficacy of neutral- and negative-pressure NCs.



Neutral needleless connector

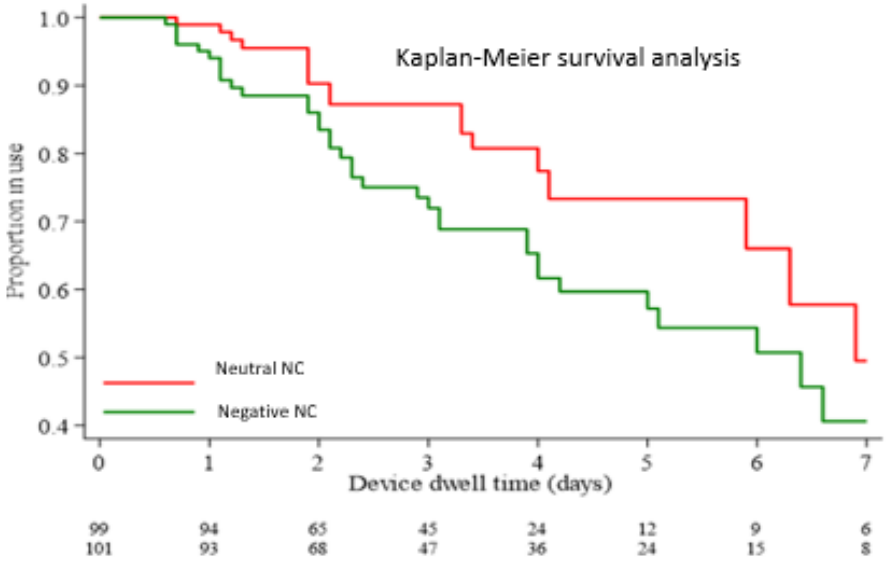
Negative needleless connector

Methods:

A single-centre, parallel group, pilot RCT comparing neutral- (intervention) and negative-pressure (control) NCs in the medical/surgical wards of the RBWH. The primary feasibility outcomes were measured against predetermined criteria (e.g., eligibility, attrition). The primary efficacy outcome was all-cause PIVC failure analysed as time to event data.

Results:

In total, 201 (100 control; 101 intervention) participants were enrolled between March and September 2020. All feasibility criteria were met except eligibility, which was lower (78%) than the 80% criterion. All-cause PIVC failure was significantly higher in the intervention group (39%) compared to control (19%). This equated to an adjusted hazard ratio of 1.92 (95% confidence interval 1.10–3.37). There were no catheter-related bloodstream infections in either group.



Conclusion:

Preliminary findings suggest neutral NC are associated with an increased risk of PIVC failure. With minor modifications to participant eligibility screening, a larger multicentre RCT is feasible.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5 – 8 September 2022
Education Centre, RBWH
ID #CLIN-0014

Does higher self-efficacy lead to higher diet quality in adults with Chronic Kidney Disease?

Erynn McAuley[1,2], Dr Helen MacLaughlin[1,2], Assoc. Prof Mary Hannan-Jones[1,2] & Dr Lynda Ross[1,2]
1. School of Exercise and Nutrition Sciences, Queensland University of Technology, Kelvin Grove, Queensland, Australia
2. Dietetics and Foodservices, Royal Brisbane and Women's Hospital, Herston, Queensland, Australia

Background

- Chronic kidney disease (CKD) affects 1 in 10 adults worldwide and is a growing health problem.

- Adherence to high quality dietary patterns is associated with lower risk of disease progression and all-cause mortality in CKD.
- Self-efficacy is recognised as a factor that may lead to better dietary adherence.
- The association between diet quality and self-efficacy is unknown.

Aim

To explore the diet quality and self-efficacy in adults with CKD stage 3-5.

Methods

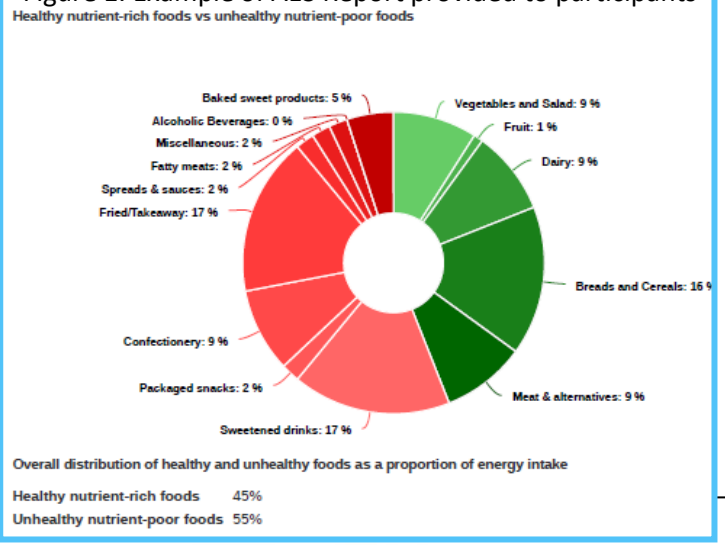
Population

- Adults with CKD stages 3 – 5 who attended outpatient kidney clinics at three large tertiary hospitals in Southeast Queensland

Data collection

- Participants completed a survey online or on the phone and 2 x 24 hour dietary recalls.
- Survey consisted of:
  - 12 Demographic questions
  - Self-Efficacy for Managing Chronic Disease 6-item scale (SEMCD-6)
  - 120-item Australian Eating Survey (AES) [Figure 1]

Figure 1. Example of AES Report provided to participants



Diet quality was measured by:

- Australian Recommended Food Score (ARFS)
- Alternative-Mediterranean Diet Score (aMED)

Statistics

- Descriptive statistics were used to examine population characteristics.
- Associations between self-efficacy and diet quality were tested using multiple linear regression analysis through univariate generalized linear modelling.
  - Regression analysis was adjusted for age, education and diabetes.
- Data were analysed using SPSS Statistics software, v28.0.1

Results

- The majority of participants were male, aged 74 years with CKD stage 3 [Table 1].
- Non-core foods (shades of red in Figure 2) made up 36% of participant's mean total energy intake.
- Overall, mean diet quality was low, while mean self-efficacy was high [Figure 3 & 4]

Table 1. Participant Characteristics (n=64)

	mean (SD)
Female, (%)	40
Age, years	74 (10)
eGFR (mL/min/1.73m^2)	31 (12)
BMI (kg/m^2)	30 (7)
No. of comorbidities	5 (2)
Graduated high school (%)	46
Previous CKD dietary education (%)	48
Following dietary restriction e.g. K$^+$ (%)	29

Figure 2. Mean proportion of foods contributing to total energy intake

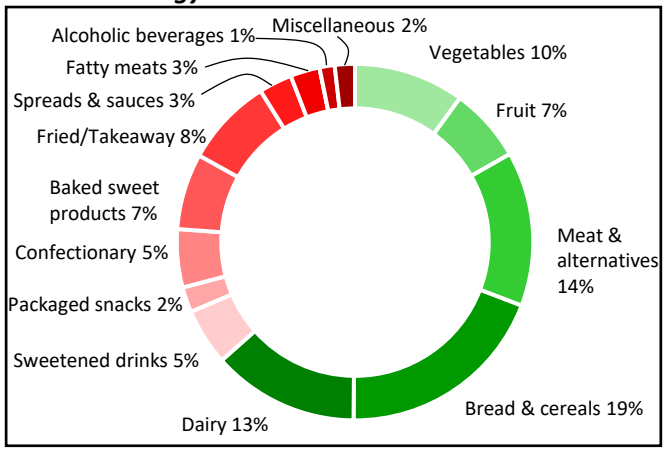


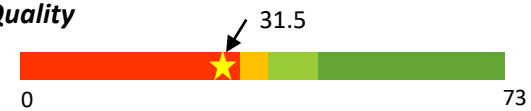
Figure 3. Mean Self-Efficacy

SEMCD-6 (0-10): 7.2±2.2

SEMCD-6 scoring
Lower scores = poor self-efficacy
Higher scores = good self-efficacy

Figure 4. Mean Diet Quality

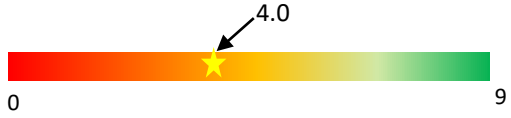
ARFS = 31.5±8.8



ARFS Ranking

- < 33 Needs work
- 33-38 Getting there
- 39-46 Excellent
- > 47 Outstanding

aMED = 4.0±2.1



aMED scoring
Lower scores = poor diet quality
Higher scores = good diet quality

Table 3. Linear regression model for SEMCD and ARFS

Variables	Effect size [a]	95% CI	*p*
ARFS	0.04	-0.01, 0.10	0.11
Age	0.04	-0.02, 0.09	0.16
T2DM			
No	1.18	0.19, 2.18	0.02
Yes	0[a]		
Education			
Didn't finish high school	-0.47	-1.47, 0.52	0.35
Finished high school	0[b]		

Table 4. Linear regression model for SEMCD and aMED

Variables	Effect size [a]	95% CI	p
aMED	0.42	0.18, 0.65	<0.01
Age	0.02	-0.03, 0.07	0.39
T2DM			
No	1.11	0.18, 2.0	0.02
Yes	0[a]		
Education			
Didn't finish high school	-0.27	-1.19, 0.66	0.57
Finished high school	0[b]		

a: effect size = B, b: Set to zero because this parameter is redundant

Diet-Quality and Self-efficacy

- Evidence demonstrates that for every one point increase in aMED scores, SEMCD-6 score increases by 0.42 (Table 4)
- There is not association between self-efficacy and ARFS (Table 3).
- Adults with CKD and diabetes have lower self-efficacy than those without diabetes (Table 3&4).

Conclusions

- Adults with CKD on average have a higher self-efficacy and poorer diet quality.
- Strategies targeting the reduction of non-core foods should be a focus of nutrition interventions aimed at improving to a diet quality.
- Studies investigating whether diet quality can be improved with self-efficacy interventions are warranted.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID # CLIN-0028

NOT ANOTHER FORM!

Evaluation of the Intravitreal Administration Chart (IVAC) Form & whether it improved clarity and completeness of documented intravitreal injection treatment plan by ophthalmologists.

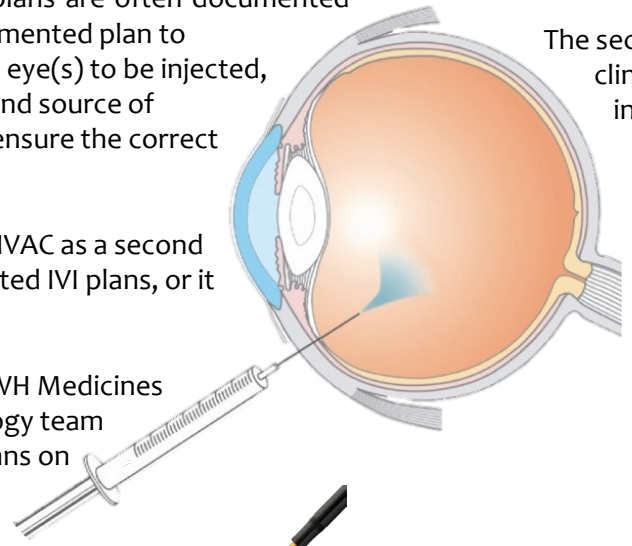
Naythen Hoang (Ophthalmology Pharmacist, Royal Brisbane & Women's Hospital)

Background

In the RBWH ophthalmology clinic, intravitreal injection (IVI) plans are often documented incompletely in the outpatient progress note (OPN). For a documented plan to be considered complete, the order must specify the drug name, eye(s) to be injected, route, frequency, and indication. Due to incompleteness, a second source of documentation is required to clarify the treatment plan and to ensure the correct drug, frequency, and eye(s) is injected.

Booking forms (BF) were used prior to the development of the IVAC as a second source, however anecdotally, it also had incompletely documented IVI plans, or it was omitted completely.

The new IVAC form was developed in consultation with the RBWH Medicines Advisory Committee (MAC), RBWH Forms, and the ophthalmology team with the intent to replace the BF to improve the clarity of IVI plans on OPNs.



Aim

The aim of the IVAC is to improve the clarity and completeness of a documented IVI plan on an OPN and to ensure patient safety.

Method

This was a retrospective audit before (1/1/21-9/7/21) and after (10/7/21-1/1/22) the implementation of the IVAC form. Using the pharmacy dispensing software, iPharmacy, a total of 351 patients who had a Lucentis IVI dispensed for them during the study period were included. All patients who had a Lucentis dispensed outside of this period were excluded. In addition, a survey was disseminated to the RBWH ophthalmology clinical staff to determine the acceptability of the IVAC. All patients who had a Lucentis dispensed outside of this period were excluded. There were a total 134 OPNs reviewed pre-implementation and a total of 157 OPNs reviewed post-implementation.

The second part of this study consisted of an anonymous survey sent out to the ophthalmology clinical staff for their feedback on the BF and IVAC. The survey had a combination of poler-interrogative and Likert-scale questions.

Results

Documented IVI plans on OPNs *(total 351)*	
Complete	**Incomplete**
60 (17%)	291 (83%)

Accompanying Second Source *(total 351)*	
BF *(Before)* Total 134	**IVAC** *(After)* Total 157
58 (43%)	151 (96%)

Survey Results *(total responses = 20)*		
Preference	BF	IVAC
	2 (10%)	18 (90%)

Conclusion

The IVAC form had great uptake by ophthalmologists, improving the clarity and completeness of IVI plan documented, consequently improving patient safety by reducing the number of drug ordering and administering errors.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

ID #CLIN-0049

Clinical utility of urea to creatinine ratio in identifying bleeding source and need for endoscopic therapy in patients presenting with acute upper gastrointestinal bleeding

Tiwari N, Miklavc T, Lamba M, Ryan K, Grimpen F

RBWH Dept of Gastroenterology & Hepatology

BACKGROUND

- Elevated blood urea nitrate (BUN) is a useful predictor of acute upper gastrointestinal bleeding (AUGIB), but is difficult to interpret in acute or chronic kidney disease
- A pilot study demonstrated a raised urea to creatinine ratio (UCR) can be superior to BUN alone in identifying patients with AUGIB[1]
- At present, UCR is not commonly measured in Australia in the assessment of AUGIB

AIM

- To evaluate whether UCR correlates with identification of culprit lesions and the need for endotherapy in AUGIB

METHODS

- Retrospective electronic review of all patients presenting with AUGIB to RBWH, who were admitted and received an inpatient gastroscopy over a 2-year period (July 2016 to June 2017 and July 2018 to June 2019). Demographic, clinical, endoscopic data were analysed
- UCR (urea[mmol/L] / creatinine [umol/L] * 1000) was measured <12 hours before endoscopy, and accuracy in identifying lesions and intra-luminal blood, and need for endotherapy was evaluated using nonparametric tests

RESULTS

- 248 patients fulfilled the criteria and were included in analysis.
- Mean age was 61 years; 65 % (n= 161) were male.
- Mean UCR was 111 (SD ± 64)
- 89% (n=219) had the culprit lesion identified at endoscopy
- 48 % (n=104) required endotherapy

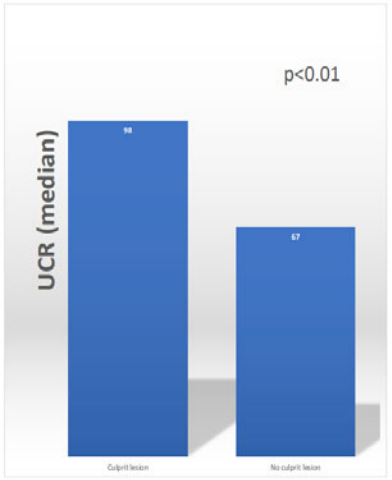


Figure 2a. Median UCR for culprit lesion vs no culprit lesion

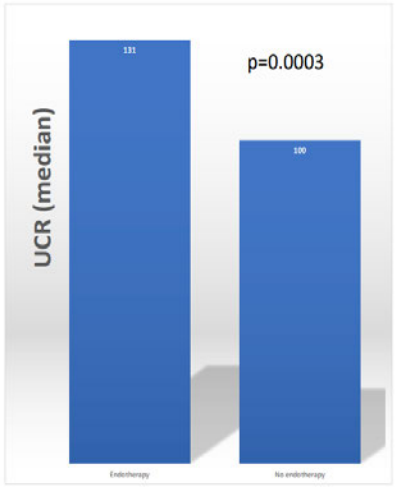


Figure 2b. Median UCR for endotherapy vs no endotherapy

MAIN OUTCOMES

- Median UCR was higher in patients with culprit lesion vs. no culprit lesion (98 vs 67, p<0.01)
- Median UCR was higher in patients requiring endotherapy vs. no endotherapy (131 vs 100, p= 0.0003)
- Median UCR was higher in patients with intra-luminal blood vs. no blood (123 vs 86, p=0.005)
- Median UCR may have been higher in patients with variceal bleeding vs. non-variceal bleeding, however, not significantly so (102 vs 90, p=0.96)

CONCLUSIONS

- In AUGIB, UCR may be a predictor for an identifiable lesion, intra-luminal blood, and the need for endoscopic therapy, and may be useful to guide clinicians in deciding who should undergo urgent gastroscopy to localise and treat a bleeding source
- There may be a potential benefit to incorporate UCR with other risk stratification scores that evaluate need for endoscopic intervention in AUGIB

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Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
ID #CLIN-0035

Improving Perioperative Patient Education Resources: A Patient's Perspective

Cory Williams[1,2], Chloe Tannagan[1], Jed Duff[1,2], Anna Doubrovsky[2]

1. *Royal Brisbane and Women's Hospital (RBWH)*
2. *Queensland University of Technology (QUT)*

Purpose

Surgical cancellations and operative delays often relate to patient non-compliance with pre-operative instructions[1]. The cause of non-compliance is multifactorial, with suggested reasons including patient's inability to understanding or remember essential preoperative information, due to the stressful nature of undergoing surgery[1,2]. These cancellations and delays have considerable consequences on patients physically and emotionally, and impact operating room efficiency leading to financial loss[3].

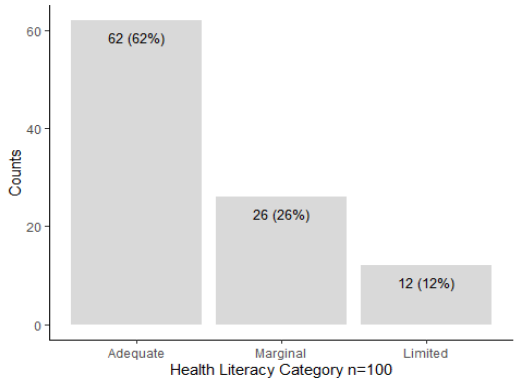
Effective educational resources can advocate for self-management of care, reduce psychological distress, promote awareness and increase clinical care effectiveness[4]. Although resource content is important, intervention efficacy is impacted by display aspects and reader health literacy levels[4].

This study investigated the self-reported health literacy level, preferred education methods and efficacy of the current paper-based pre-operative preparation educational resource, of a RBWH elective surgery patient cohort.

Methodology

A survey instrument was developed to investigate self-reported patient health literacy, preferred education methods and efficacy of the current paper-based pre-operative preparation educational resource.

The survey instrument utilised elements of the 'BRIEF Health Literacy screening tool', 'Learning Style Questionnaire' and 'Consumer Information Rating Form' [5,6,7].



(FIGURE 1: HEALTH LITERACY CALCULATION SUMMARY)

Registered nurses from the RBWH Surgical Day Care Unit, engaged with patients to initiate participation and provided support when required. A waiting room survey was conducted to obtain N=100 completed surveys from patients admitted on their day of elective surgery.

Results

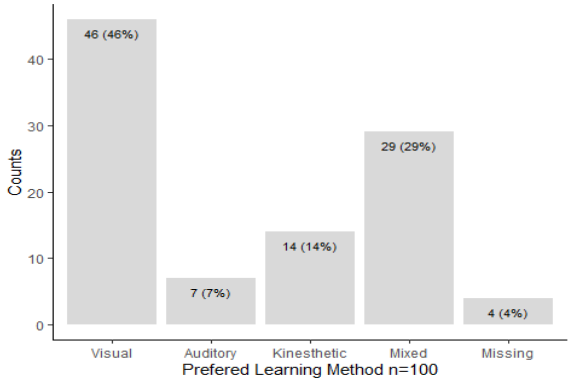
The findings were categorised into three major themes: health literacy (Fig. 1), learning styles and preferred methods of learning (Fig. 2); and whether the provision of an educational document was effective during their preparation for surgery.

Health literacy results revealed 38% (N=38) of participants reported limited or marginal health literacy. Visual learners (N=46) were the most prevalent form of learning style. Most participants who received the educational resource reported that utilisation aided surgery preparation. Of participants who did not receive the resource, 75% (N=20) reported provision of the resource would have benefited preparation.

Conclusion

Patients believe the provision of education resources is an effective method for assisting self-management of surgery preparation. Effective resource development must consider and acknowledge health literacy levels and preferred learning styles of the local cohort targeted.

Patients reported the greatest surgical preparation challenge was understanding their preparation instructions. This reflected the large finding of patients reporting limited or marginal health literacy.



(FIGURE 2: LEARNING METHOD PREFERENCES

Take Home Messages

- Local cohort health literacy levels and preferred learning styles should be considered in education resource development
- RBWH surgical patients reported mostly as visual learners and 38% reported marginal or limited health literacy
- Digital education provision should be further explored

These patients will require repeated instruction provision, materials including illustrations or videos and low literacy materials[5]. Visual learners also retain information best when visual objects like graphs, charts or pictures are used[6].

Patients reported preoperative resource provision was via booklet or leaflets (71%) and digital (16%). Interestingly, 46% of patients reported they would prefer digital provision of education, second only to face-to-face education. Demographic data revealed 92% of patient have access to a smartphone and 64% feel confident in smartphone usage, whilst 50% used the internet to search for additional education sources. It is clear digital education provision should be further explored.

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Pilot investigation of the effects of a purposely developed anti-inflammatory dietary pattern on disease activity, symptoms and microbiota profile in adults with inflammatory bowel disease

The 'IBD MAID' Study

IBD MAID (modified anti-inflammatory) **diet**

Food additives to avoid

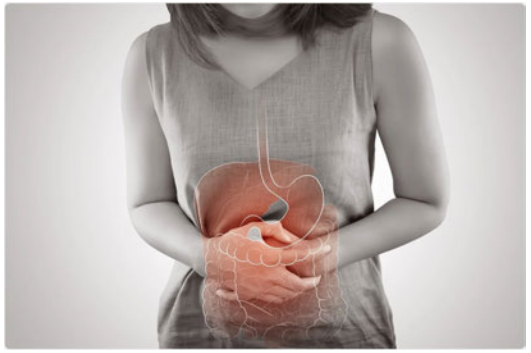
- Artificial sweeteners
- Emulsifiers/carrageenan gum/maltodextrin
- Nitrates/nitrites

RCT

Vs

General healthy eating

IN



Adults with inflammatory bowel disease (IBD)
n = 52

ID CLIN-0010

Results

- No significant change in disease activity between groups (IBD MAID vs healthy eating).
- 8 weeks of IBD MAID = significant improvements in symptoms, quality of life (QOL) & faecal calprotectin (marker of intestinal inflammation) ($P < 0.02$).
- 8 weeks of healthy eating = significant improvements in QOL ($P < 0.05$).

↓ Food additive score = greater ↓ in faecal calprotectin ($P<0.01$), ↑ QOL ($P = 0.01$) and ↓ symptoms ($P<0.02$).

↑ Mediterranean diet adherence score = ↓ in faecal calprotectin ($P < 0.02$).

Healthcare Innovations
How practice has changed

HERSTON HEALTH PRECINCT SYMPOSIUM 2021

6 - 10 September 2021
Education Centre
RBWH

ID #CLIN-0025

Weight-based dosing of Ciclosporin A in obese patients undergoing haematopoietic stem cell transplantation: Serum levels and clinical outcomes

Midori Nakagaki[1], Jessica McIlwain[1], Fang Min Foo[2], Yatika Jivan[3], Glen A Kennedy[3]
1. RBWH Pharmacy 2. University of QLD, School of Pharmacy 3. RBWH Cancer Care Services

Background

- Cyclosporin A (CSA) is initiated as weight-based loading and maintenance doses in allogeneic haematopoietic stem cell transplant (HSCT) patients.
- It is not clear whether total body weight, ideal body weight or adjusted body weight should be used to calculate initial CSA doses in obese patients.

Aims

Investigate the appropriateness of using total body weight when calculating CSA doses in obese patients by;

- Comparing pre-engraftment CSA levels between obese and non-obese patients.
- Evaluating clinical outcomes - incidence of acute kidney injury (AKI) and acute graft-versus-host disease (aGVHD).

Methods

- Single centre retrospective study.
- Included adult patients who received matched allogeneic HSCT following fludarabine - melphalan (FluMel) or cyclophosphamide - total body irradiation (CyTBI) between 2017 and 2020.
- Excluded patients who received alternative conditioning or immunosuppressant regimens, if CSA was dosed using an adjusted body weight, or if they received a strong CYP3A4/5 inhibitor or inducer.
- Patients were classified as obese if total body weight was > 120% of ideal body weight.
- Primary endpoint: initial CSA trough level.
- Secondary endpoints: pre-engraftment CSA levels, incidence and grades of AKI (as per KDIGO Guidelines), incidence and grades of aGVHD (as per CIBMTR manual).

Results

Patients who received FluMel or CyTBI allo-HSCT 2017-2020 (n = 298)

Strong CYP3A4/5 inhibitor or inducer (n= 24)
CSA dosed using adjusted body weight (n=10)
Modified immunosuppressant regimen (n=1)

Included patients (n=263)

Non-obese (n=145)

Female: 56 (39%)
Median age: 57yrs
Mean Ht: 172.8cm
Mean Wt: 71.5kg
Flu-Mel: 106 (73%)
Mean baseline Cr: 71

Obese (n=118)

Female: 50 (42%)
Median age: 54yrs
Mean Ht: 172.5cm
Mean Wt: 93.3kg
Flu-Mel: 82 (70%)
Mean baseline Cr: 73

Target CSA Level 120-300mcg/L

	Non-Obese (n=145)	Obese (n=118)	
Mean initial CSA level (mcg/L)	187	237	*p*=0.001
Mean CSA level #1-3 (mcg/L)	182	224	*p*=0.0001
Mean CSA level pre-engraftment (mcg/L)	189	220	*p*=0.0001
No. with initial CSA level > 300mcg/L	9 (6%)	18(15%)	*p*=0.028
No. with CSA level #1-3 > 300mcg/L	16 (11%)	31(26%)	*p*=0.0023
Total AKI	36 (25%)	36(31%)	*p*=0.33
Mean (Max Cr / Baseline Cr)	1.357	1.449	*p*=0.187
Total aGVHD (all grades)	73 (50%)	77(65%)	*p*=0.02

Conclusions

- When initial CSA doses are calculated based on total body weight, higher CSA levels are observed in obese patients.
- Despite higher CSA levels, obese patients had significantly higher incidence of aGVHD, suggesting that obesity may be a risk factor for aGVHD.
- Higher CSA levels do not appear to impact clinical outcome.
- Using total body weight to calculate initial CSA dose in obese patients appears to be safe, but may required increased monitoring.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0003

People at a persistent pain service can walk it, but some struggle to talk about it: 6-minute walk test reliability and detectable difference.

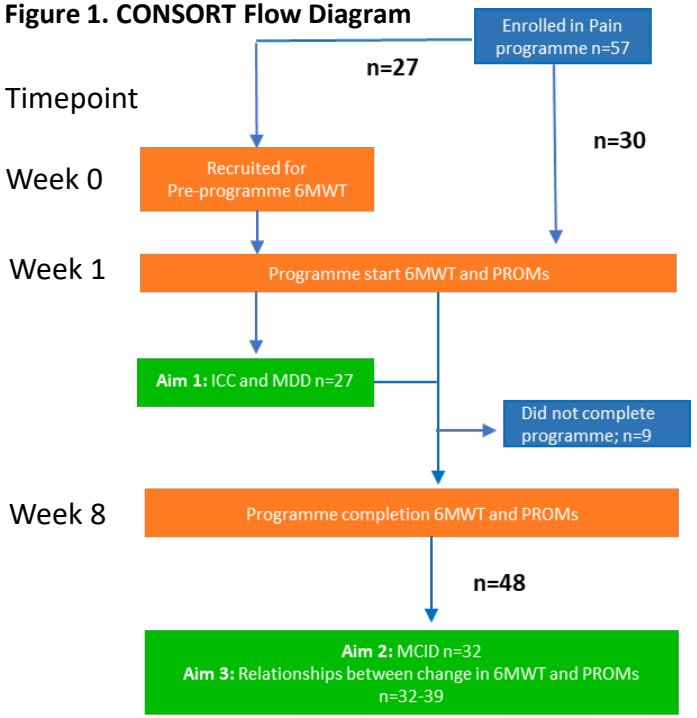
Megan Murdoch[1,2], Peter Window PhD[1], Caroline Morton[1, 2], Riley O'Donohue PhD[2], Emma Ballard PhD[4], Andrew Claus PhD[2,3]

[1] Physiotherapy Department, RBWH. [2]Tess Cramond Pain and Research Centre, RBWH [3] The University of Queensland, School of Health & Rehabilitation Sciences. [4] QIMR Berghofer Medical Research Institute.

Objectives: The six-minute walk test (6MWT) is a functional outcome measure. This study is the first to investigate the test-retest reliability, minimal detectable difference (MDD), and minimal clinically important difference (MCID) for people attending a persistent pain service.

Methods: A cross-sectional repeated measures design was used with people having >9 months of pain attending an eight-week outpatient persistent pain programme, see Figure 1.
The MCID was examined by dichotomising people into "improvers", or "non-improvers" based upon the global rating of change for physical ability score (GRC), then the relationship with change in 6MWT distance was investigated.

Figure 1. CONSORT Flow Diagram



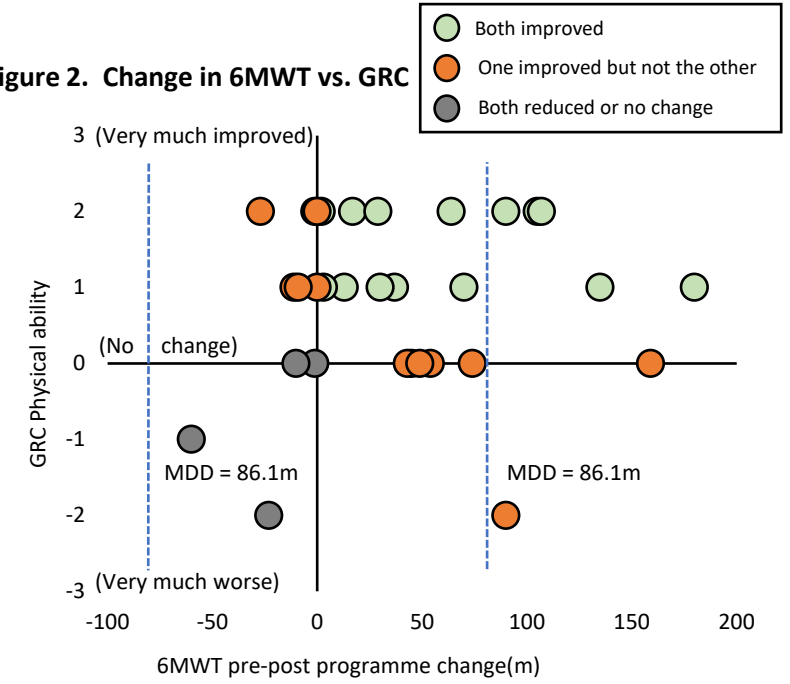
Results:

The mean(SD) 6MWT distance was 389.4(93.6)m at programme start, and 427.8(83.0)m at completion.

The **test-retest reliability was good** (intraclass correlation coefficient =0.89) and the **MDD =86.1m**.

The MCID could not be calculated as no relationship was found between change in 6MWT distance and GRC (r=0.132, p=0.472), see Figure 2.

Figure 2. Change in 6MWT vs. GRC



Conclusions: Amongst this cohort, change in physical ability may or may not be reflected by self-reported change. Objective tests of physical ability are recommended for people attending pain services, and validated tests should align with intervention aims.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-006

Psychopathology and Eating Behaviour in People with Type 2 Diabetes Referred for Bariatric Surgery

Clare Pekin, Dr Mala McHale, Dr Matthew Seymour, Dr George Hopkins, Dr David Mitchell, Dr Esben Strodl, Professor Gerard Byrne

Acknowledgments: RBWH PhD Scholarship

Background

The pre-surgical predictors and underlying mechanisms contributing to insufficient weight loss, early weight regain and poor diabetes control in people undergoing bariatric surgery are complex and poorly understood [1].

Some evidence suggests that psychopathology may provide an explanation as to why some patients experience sub-optimal results [2].

The relationship between psychopathology and type 2 diabetes mellitus (T2DM) is well established, with a bidirectional relationship supported [3].

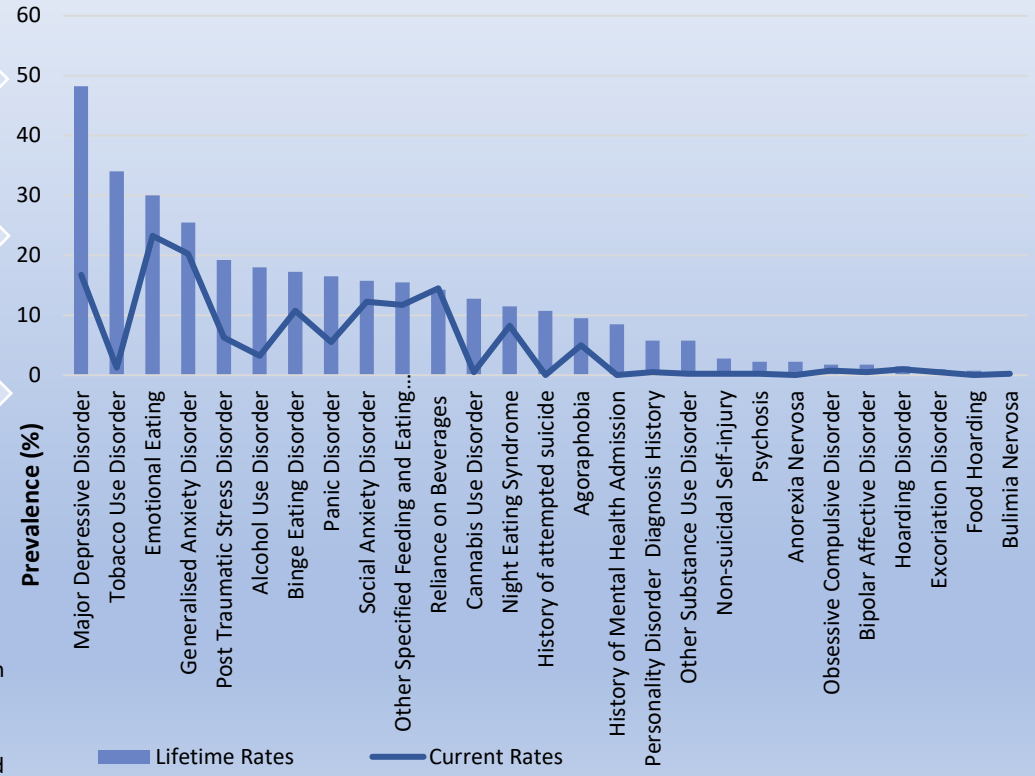
Less attention has been paid to vulnerable subgroups of surgical patients such as people with T2DM who might be at elevated risk.

Aim. This study aimed to investigate the rates of psychopathology and disordered eating in pre-surgical candidates with T2DM.

Methods. Participants included 401 consecutive patients from a state-wide bariatric surgery service for people with T2DM. The mean age of the participants was 51.14 years ± 9.48 (range 18-65 years) with a mean body mass index (BMI) of 46.23 ± 7.2 (range 30.5 – 69.3 kg/m2).

Measures: Diagnostic Interview. Participants underwent semi-structured clinical interviews using an adapted version of the Structured Clinical Interview for DSM-5 (SCID-5). Dutch Eating Behaviour Questionnaire (DEBQ). Eating patterns were measured by the DEBQ [4].

Figure 1. Reported Rates of Psychopathology



Eating Pattern	Current Sample	All in Reference Group	Sample of People with Obesity[4]
Restrained Eating	2.64 ± 0.76	2.21 ± 0.92**	2.66 ± 0.86
Emotional Eating	2.45 ± 0.98	1.62 ± 0.6) **	2.11 ± 0.73**
External Eating	2.91 ± 0.74	2.66 ± 0.54**	2.71 ± 0.58*
Clearly Labelled Emotions	2.35 ± 1.01	1.76 ± 0.68**	1.97 ± 0.76**
Diffuse Emotions	2.68 ± 1.18	2.28 ± 0.82**	2.42 ± 0.85*

Table 1. Eating Patterns. Note. [4] is the sample used to develop the original DEBQ scale (120 participants: 80 female). Independent samples *t* tests were used. * Significant at $p < .05$ level. ** Significant at $p < .001$.

Results and Conclusion

Preliminary findings indicate psychopathology, especially depression, anxiety and emotional eating (both in response to clearly labelled emotions and diffuse emotional states) are commonly endorsed in this cohort. There were no significant differences between cultural groups, or age on any measured psychopathology.

Preliminary findings suggest people with T2DM seeking bariatric surgery may be vulnerable to psychopathology and disordered eating with implications for early identification and intervention.

Future Directions

Utilising longitudinal designs, future research may provide important insights into how psychopathology and disordered eating relate to post-bariatric surgical outcomes for people with T2DM.

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Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0009

Evaluation of a Group Cognitive Behavioural Therapy Intervention for Comorbid Insomnia

Clare Pekin, Dr Mala McHale, Simon Kilner, Scott Ruddell, Trish McLean[1]; Dr Hervey Lau[2]

[1] Psychology Department, RBWH; [2] Department of Thoracic Medicine, RBWH

Why should we care about Treating Comorbid Insomnia?

Insomnia is defined as chronic difficulty in initiating sleep onset, sleep maintenance or early awakening (1).

Insomnia is a common comorbidity in people with chronic pain (2), with poor quality sleep being a driver of pain severity (3).

Therefore, pain management guidelines recommend identification and intervention for insomnia (3).

The prevalence of comorbid insomnia in patient populations also highlights a need for accessible delivery models, with group-based treatment being one option.

Group CBT-I

Cognitive-Behavioural Therapy (CBT-I) is a well-established intervention for insomnia (4) with recent systematic review and meta-analysis providing support for CBT-I in patients with comorbid insomnia and chronic pain (5).

Empirical support exists for the group-based delivery of CBT-I in adults (6).

However, there is a lack of evidence exploring group-based CBT-I programs in clinical settings for people with comorbid insomnia and chronic pain.

The question of how well the research on CBT-I efficacy translates to clinical settings has been highlighted as a gap in the existing literature (7).

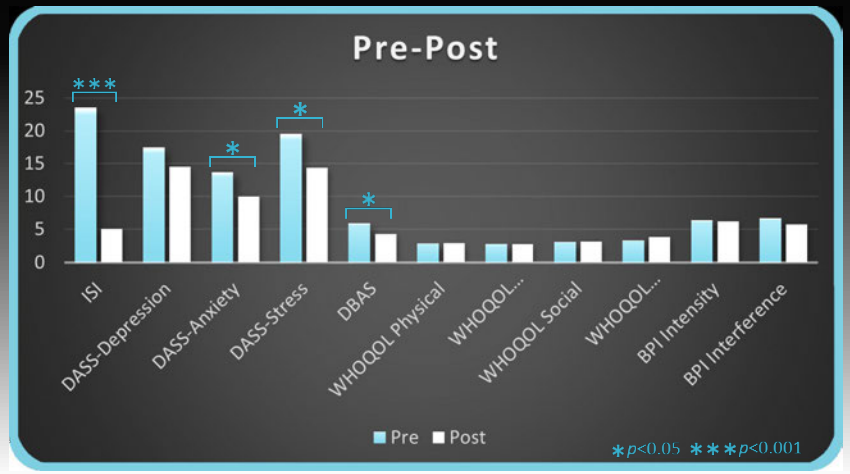
Aim

To evaluate the efficacy of a group-based treatment for comorbid insomnia in a tertiary hospital setting.

Method

Participants were a sample of 157 tertiary hospital patients who were consecutively referred to a seven-session CBT-I Group program between 2005 and 2021. Pre and post intervention self-report measures were completed:

Insomnia Severity Index (ISI). Assesses insomnia symptoms, and perceived insomnia severity.
Dysfunctional Beliefs and Attitudes Scale (DBAS-16). A measure of sleep-related cognitions.
Depression Anxiety and Stress Scale (DASS-21). provides three negative emotional subscales.
WHO Quality of Life Scale (WHOQOL-BREF). A brief measure of four QOL domains.
Brief Pain Inventory (BPI). A measure of pain intensity and pain interference.



Results

Repeated measures ANOVAs showed significant effects on insomnia severity, severity of sleep-related cognition dysfunction, anxiety and stress from pre to post intervention.

Of note, 15 out of 16 dysfunctional sleep beliefs showed significant improvements, with *"Medication is probably the only solution to sleeplessness"* showing the largest effect size (*d=0.91)*.

"I believe that insomnia is essentially a result of a chemical imbalance" remained the same but was also endorsed the least at pre-intervention.

A one-factor model was revealed when the ISI was subjected to factor analysis, similar to a recent study in medical settings (8).

Of note, the group-based intervention did not reveal a significant change in depression severity.

Conclusions

Group CBT-I significantly reduced severity of insomnia and symptoms of anxiety, stress and severity of dysfunctional sleep-related cognitions.

Future Research Questions

Are there patient characteristics that benefit from group versus individual CBT-I?

Would a shorter duration treatment program demonstrate efficacy?

Would longitudinal follow up measures show that sleep cognition improvements are sustained or diminished?

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Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0012

Preoperative anxiety: an overlooked problem among surgical patients

Salihah Asiri [a,b,c], Jed Duff [b,c,d], Michelle Guilhermino [e,f]

[a] School of Nursing , Umm Al-Qura University, Saudi Arabia, [b] School of Nursing, Queensland University of Technology, [c] Australian College of Perioperative Nurses, [d] Royal Brisbane and Women's Hospital, [e] School of Nursing and Midwifery, University of Newcastle, [f] John Hunter Hospital

01 Introduction

- Surgery is a stressful situation that triggers anxiety in most patients preoperatively.
- Preoperative anxiety can lead to postoperative complications such as pain, delayed wound healing, infection, and longer hospitalisations[1].
- Preoperative anxiety is often overlooked in clinical practice.
- There is a prevalence of preoperative anxiety of up to 80 % worldwide, but no studies have been conducted in Australia[2].

02 Objective

To examine the prevalence of preoperative anxiety in elective surgical patients in an Australian metropolitan hospital.

03 Method

A prospective study was conducted at RBWH, between November 2021 and June 2022.

The Amsterdam preoperative anxiety and information scale (APAIS) was used to measure anxiety levels. Age, sex, and type of surgery were also collected.

04 Results

- **308** patients (58 % women) were enrolled.
- **32.4** % of patients had high preoperative anxiety.
- The mean (± SD) of the APAIS score was **8.69** ± 4.08(out of 20).
- **Older patients** were significantly less likely to experience anxiety, with a reduction in anxiety of 2% for each additional year above 18 years.
- **Women** experience clinically relevant anxiety three times more than men.
- Patients were **more anxious about the surgery** than the anaesthesia, with scores 5.04 ± 2.48 and 3.65 ± 2.07 (out of 10), respectively.
- **Surgery type was not** identified as a significant predictor of high preoperative anxiety.

05 Conclusion

A third of surgical patients experience preoperative anxiety, resulting in serious postoperative complications such as pain, delayed wound healing, and infection. Since this problem has been overlooked and untreated, special attention is needed.

This research was supported by a grant from Australian College of Perioperative Nurses and research fund from Saudi Arabia Culture Mission

References:

1.Grieve, R. J. (2002). Day surgery preoperative anxiety reduction and coping strategies. *British Journal of Nursing, 11*(10), 670-678.

2.Abate, S. M., Chekol, Y. A., & Basu, B. (2020). Global prevalence and determinants of preoperative anxiety among surgical patients: A systematic review and meta-analysis. *International Journal of Surgery Open, 25*, 6-16.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0030

Winner – Dr Stephen Morrison Award for Best Clinical Research

Evaluation of a novel step training mobile app intervention in cardiopulmonary rehabilitation: A pilot prospective cohort study

Emilie Amiss and *Michelle Cottrell* – *Department of Physiotherapy, Royal Brisbane and Women's Hospital*

Step training can reduce falls in older adults by 52%[1]

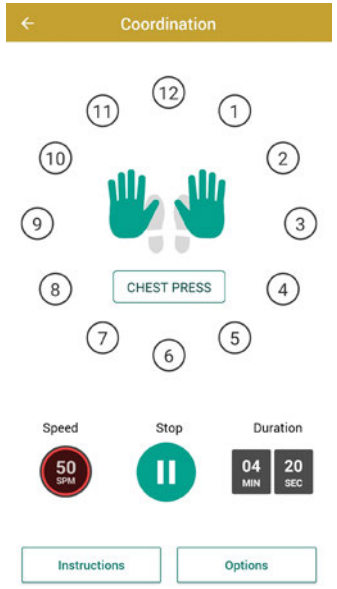
Aims To determine whether 12 weeks of mobile app based step training improves stepping and physical performance and evaluate app usability and acceptability.

Methods 26 cardiopulmonary rehabilitation participants completed **12 weeks of step training** using the mobile app *Clock Yourself*. Participants used *Clock Yourself* at home and during cardiopulmonary rehabilitation sessions, prescribed for 15-20 mins, 3 times per week.

Alternative clock - Symbols

How to Clock Yourself

1. Imagine a **clock face** on the ground
2. Stand in the centre
3. Follow the app's audio cues to **step** one foot to the corresponding number and back
4. Increase the speed, add arm movements or try alternative clocks for an extra challenge!



Clock Yourself screenshot

Results

- Median of 18.29 mins/wk *Clock Yourself* practice
- **Statistically significant** ($p < 0.01$) improvement in CSRT-M, SPPB, gait speed, dual task gait speed, TUG and TUGcog
- *Clock Yourself* was **usable** (median SUS 82.5/100) and **acceptable** (median AFRIS 38/42)

Conclusions Twelve weeks of mobile app-based step training improved volitional stepping and physical performance and was considered usable and acceptable by participants.

CSRT-M = Choice Stepping Reaction Time Manual, SPPB = Short Physical Performance Battery, TUG = Timed Up and Go, TUGCog = Timed Up and Go with Cognitive dual task, SUS = Systems Usability Scale, AFRIS = Attitudes to Falls Related Interventions Scale

1. Okubo Y, Schoene D and Lord SR. Step training improves reaction time, gait and balance and reduces falls in older people: a systematic review and meta-analysis. *British journal of sports medicine*. 2017; 51: 586-93.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0020

CHOOSING NON-SURGICAL MULTIDISCIPLINARY MANAGEMENT OF KNEE OSTEOARTHRITIS IN TERTIARY CARE WISELY: PROSPECTIVE VALIDATION OF A CLINICAL PREDICTION RULE

PETER WINDOW[1], MAREE RAYMER[1], STEVEN MCPHAIL[2], BILL VICENZINO[3], SHAUN O'LEARY[1,3]

1. Physiotherapy Department RBWH 2. Australian Centre for Health Services Innovation (AusHSI), QUT 3. School of Health and Rehabilitation Sciences UQ

AIM:

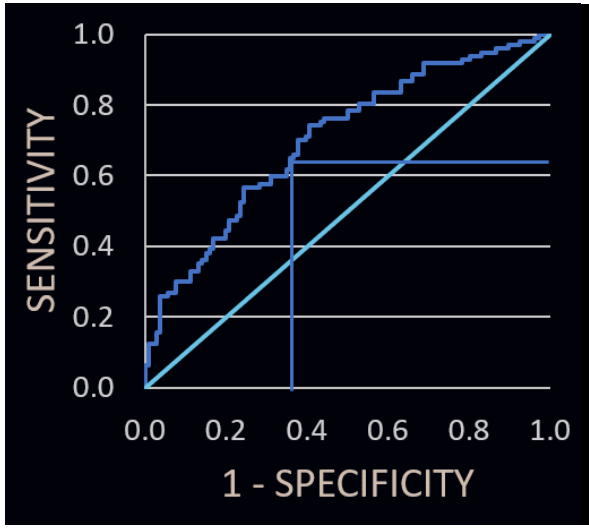
To evaluate the validity of a clinical prediction rule (CPR) nomogram to identify patients unlikely to respond to non-surgical management of Knee Osteoarthritis in Orthopaedic Physiotherapy Screening Clinics.

METHODS:

Participants (n=242) completed baseline CPR measures (Table 1) before a trial of patient-centred multidisciplinary non-surgical management, and the CPR nomogram scored (range 0-32.5). Global Rating of Change scores were collected six months later and dichotomised as responder (score +2 'a little better' to +7 'a very great deal better') or non-responder (score -7 'a very great deal worse' to +1 'almost the same, hardly any better at all').

RESULTS:

Follow up responses were obtained from 210 participants (87% response rate). Preliminary analysis of the CPR demonstrated moderate diagnostic accuracy with an Area Under the Curve (AUC) of 0.70 (Figure 1). A nomogram cut-off score of 13.5 (positive test (≥13.5) = non-responder) provided optimal combined sensitivity/specificity.



AUC: 0.70
Sensitivity: 0.65
Specificity: 0.64

Positive Likelihood ratio: 1.81
Negative likelihood ratio: 0.55

CLINICAL PREDICTION RULE MEASURES

- KOOS Function score (Odds Ratio 0.67 per 10/100 point increase)
- Frontal knee angle (Odds Ratio 1.35 per 5° increase in varus angle)
- Medial knee radiological degeneration (Odds Ratio 3.11 severe compared to mild)
- Patient-expected benefit (Odds Ratio 0.74 per 1/10 point score increase)

CONCLUSION:

- Demonstrated capacity to identify patients unlikely to respond to non-surgical management
- Future work to determine optimal cut-off points and feasibility of implementation

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID # CLIN-0062

Bioanalysis of amikacin in different types of human blood sample and microsample using ultra-high performance liquid chromatography- tandem mass spectrometry

Hayoung Won[1], Steven C Wallis[1], Jenny Peek[2], Andrew Burke[1,2], Suzanne L. Parker[1]

[1] UQ Centre for Clinical Research (UQCCR), [2]Infectious Diseases, TPCH

Introduction: Amikacin is a broad-spectrum aminoglycoside antibiotic frequently used to treat serious bacterial infections, including: tuberculosis, non-tuberculous mycobacteria, meningitis, pneumonia and sepsis. A bioanalytical method was developed and partially validated to support investigations into the use of innovative blood sampling tools (microsampling, <0.05 mL of blood collection) to measure amikacin concentrations, including liquid whole blood (LWB), plasma, plasma ultrafiltrate, dried blood spots (DBS) of 10 µL, DBS collected using a hemaPEN® of 2.74 µL, and volumetric absorptive microsamples (VAMS) of 10 µL blood volume.

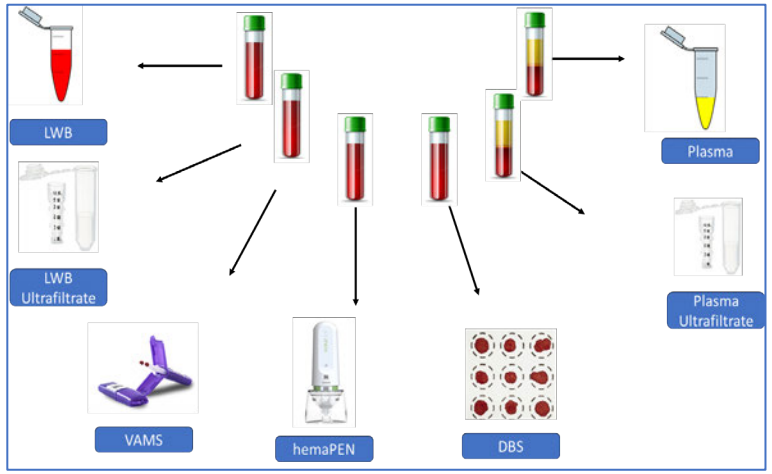


Figure 1. Different types of human blood sample and microsample. LWB-liquid whole blood, VAMS – volumetric absorptive microsamples, DBS – dried blood spots

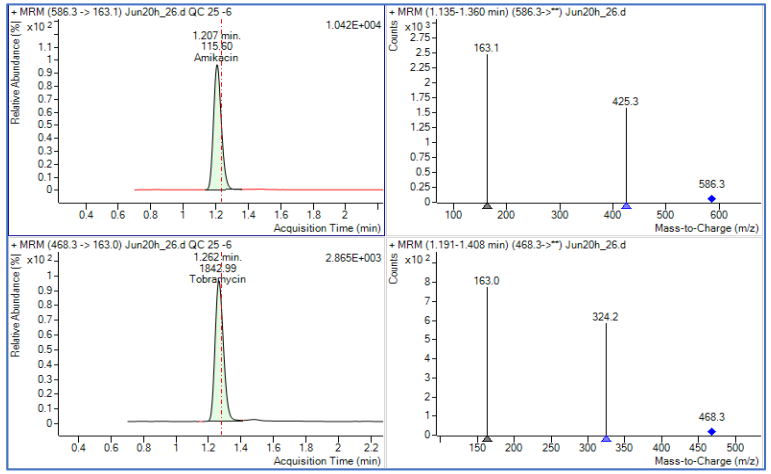


Figure 2. Chromatograms and mass-spectra of amikacin and tobramycin (internal standard)

Method: All blood samples were processed by protein precipitation method using 10% trichloroacetic acid (TCA) which contained an internal standard (tobramycin 5 µg/mL). LWB, DBS and VAMS samples were pre-treated with 2% $ZnSO_4$ solution to induce haemolysis. Amikacin was measured by ultra-high performance liquid chromatography- tandem mass spectrometry.

Result: The established assay method was linear over a clinically-relevant concentration range of amikacin, from 0.2 to 100 µg/mL for plasma and LWB and 2 to 100 µg/mL for DBS, VAMS and hemaPEN®. The intra-batch and inter-batch accuracy and precision were within 5% for plasma and LWB and 10% for DBS, VAMS and hemaPEN® when measured at three different concentrations.

Conclusion: The successful development and validation testing of this assay methodology has enabled the analysis of samples from an antimycobacterial clinical pharmacokinetic study. This valuable data will be used to determine if microsampling can improve the opportunities of pharmacokinetic studies with less invasive sampling method, especially in neonates and children.

Acknowledgments: UQCCR Mass Spectrometry Facility for instrumentation. NHMRC MRFF (APP1152249) for funding.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
CLIN-0040

Vancomycin therapeutic drug monitoring and acute kidney injury in haematology and bone marrow transplant patients

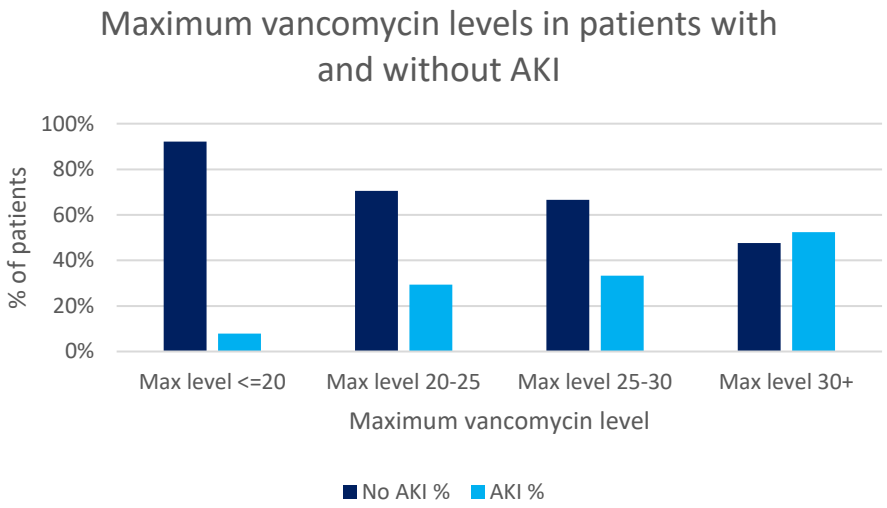
Shannon Pallett[1], Sheba Alex[2], Elango Subramoniapillai[3], Midori Nakagaki[1]

1. Pharmacy Department, RBWH 2. School of Pharmacy, Queensland University of Technology 3. Haematology, RBWH

Background: Vancomycin is often used in haematology and bone marrow transplant (BMT) patients, and often associated with renal impairment.

Aim: To investigate vancomycin use and vancomycin-related AKI within haematology and BMT patients.

Methods: This was a retrospective audit for 2021. All haematology and BMT on Ward 5C with available vancomycin levels were included. Patient demographics, treatment type, indication for vancomycin, vancomycin doses and trough levels, duration of treatment, other nephrotoxic agents, baseline creatinine and creatinine during treatment.



AKI and duration in empiric vs targeted therapy

	Empiric: 82% (n=120)	Targeted: 18% (n=27)
AKI	10% (n=12)	22% (n=6)
Median Duration (days)	7	9

Results: 120 patients (147 encounters) were included. Of these, 27 patients (22.5%) had an AKI during vancomycin treatment, of whom 5 (19%) were within the therapeutic range. Dose adjustment prior to the next vancomycin dose occurred after 73% of supratherapeutic levels. 120 of 147 encounters (82%) used vancomycin empirically. They had less AKI than targeted treatment (10% vs 22%) and a slightly shorter duration of treatment (median duration 7 vs 9 days).

Conclusions:

- In Haematology and BMT patients, vancomycin-related AKI is common and can occur within/ near therapeutic levels
- Prompt dose adjustment and review of treatment duration may required.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

CLIN-0033

Right Upper Quadrant Pain presentations and the contributing factors to inpatient imaging and surgical intervention.

Eu K & Williamson F.

Introduction:

Right upper quadrant pain (RUQ) is the second highest cause of acute gastrointestinal admissions in Australia.[1-2]
The initial focus is on the diagnostic process to identify those patients which have biliary pathology as this may may require definitive surgical management.
Ultrasound is frequently used in the diagnostic process which has a significant downstream effect on resources utilisation & patient flow within the Emergency Department.

Objectives:

1. Identify factors that lead to inpatient admission in patients who present with RUQ pain to the Royal Brisbane & Women's' Hospital (RBWH) Emergency Trauma Centre (ETC)
2. Explore opportunities for early surgical referral pathways

Methods:

Retrospective review of 483 patients with RUQ pain who presented to RBWH ETC between 1st July to 31st December 2021 with Emergency Department Information System (EDIS) diagnosis:

- Abdominal pain (upper region)
- Cholecystitis
- Biliary colic
- Pancreatitis
- Cholangitis
- Cholelithiasis

Patients excluded if:

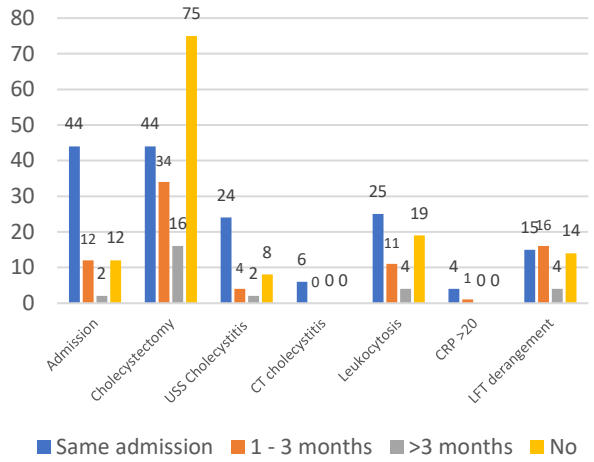
- Transfer to private facilities
- Interhospital transfers
- DAMA
- Presenting with completed imaging
- Non-biliary pathology

Factors analysed: Investigations (white cell count, liver function tests (LFT), lipase, C reactive protein, imaging results), patient disposition & surgical outcomes.

Table 1: Results

Investigations	Disposition	Trajectory
- 111 USS performed - 38/111 demonstrated cholecystitis <u>Clinical Findings:</u> - Murphy's positive: 32% had cholecystitis - Murphy's negative: 24% had cholecystitis - Murphy's not documented: 20% had cholecystitis <u>Laboratory Results:</u> - 40.5% had leukocytosis - 37% had LFT derangement - 2.7% had a CRP that was >20	- 70 admitted from ETC - 99 (58.6%) of cohort discharged home once symptoms (mainly pain) managed. - 30 discharged patients had USS +/- surgical referral pending with GP <u>Short Stay Unit (SSU) Admission</u> - 50 USS performed: 12 cholecystitis, 22 admitted. - Average length of stay in ETC was 804 minutes	- 70 admitted patients - 63% underwent primary cholecystectomy - 20% delayed operative management. Of these: - 17% within 1 – 3 months - 3% > 3 months - 17% none to date <u>Cholecystitis demonstrated:</u> - 52% USS - 13% CT 99 discharged patients: operative management - 22% in 1 – 3 months - 14% in >3 months - 64% none to date

Graph 1: Surgical Trajectory + factors



Results:

- 169 patients included for analysis.
- Table 1 shows 20 – 32% of USS showed cholecystitis regardless of clinical examination findings.
- 99 (58.6%) patients were discharged from ETC, 30 referred for outpatient imaging & GP review. 47 of these patients had USS, with 2 showing cholecystitis.
- Graph 2 shows that for those receiving primary and delayed operative management 1 – 3 months, the proportion of leukocytosis and LFT derangement was similar.

Conclusion/clinical applications

- No individual factor strongly correlated with ultrasound findings of cholecystitis
- Positive radiological findings & clinical presentation heavily influence admission more so than biochemical derangement.
- Initial ETC workup remains critical to referral pathway
- Findings limited by clinical documentation
- Targeted education in clinical examination improve resource utilization and patient flow

References

1. Barreto, S. G., & Windsor, J. A. (2018). Surgical diseases of the pancreas and biliary tree. Springer.
2. Baiu I, Hawn MT. Gallstones and Biliary Colic. *JAMA*. 2018;320(15):1612. doi:10.1001/jama.2018.11868

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0009

Qualitative evaluation of a novel security role to reduce occupational violence in inpatient settings

J Duff[1-2], K Woollett[1], L Olsson[3], J Griffiths[3], A Carter[1],

[1]Royal Brisbane & Women's Hospital; [2]Queensland University of Technology; [3]Queensland Occupational Violence Strategy Unit

Background

Occupational violence against healthcare workers is a global problem with significant social, economic, and psychological impacts on the workforce and community. The use of security personnel is a common prevention and management strategy. Yet, there is no research exploring the models used or studying the impact on healthcare staff, patients, and visitors.

Aim

This study aimed to qualitatively evaluate the Ambassador program—a novel security role to reduce occupational violence in inpatient settings.

Method

The study was conducted in three surgical wards of Royal Brisbane and Women's Hospital. Semi-structured in-depth interviews were conducted with 17 people (10 nurses, 2 consumers, 3 protective service staff, and 2 stakeholders). Interview transcripts were reviewed to identify themes and patterns within the experiences and perceptions of the participants.

Findings

Insights were themed into four categories:

Role Ambassadors focus on proactive engagement of patients and visitors to prevent violent and aggressive behaviours. They partner with staff to identify potential issues and employ behaviour strategies to de-escalate or redirect persons of concern.

Context Staff, patients, families, healthcare managers, and leaders see occupational violence as a priority issue. The increased occupational violence toward healthcare staff has heightened awareness of the issue among the government, unions, and the broader community.

Individuals An Ambassador has the time to connect with patients, families and visitors. As part of the care team, they provide valuable information to support patient and family centre care. Because of the collegial relationship and co-location on the ward, staff seek assistance earlier, and potential incidents are averted.

Implementation Successful implementation requires collaboration between the clinical and security services. A small agile project team with the authority to make decisions is recommended. Extensive consultation with stakeholders is needed to gain buy-in.

Conclusion

Participants universally praised the Ambassador program and its implementation. This study provides many insights into the successful implementation. Facilities considering adopting the program should assess their local needs and context to develop an individualised change plan.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH

CLIN-0026

Midlines catheters versus peripherally inserted catheters for peripherally compatible intravenous therapies
A pilot randomised controlled trial

Marsh N[1-3], Larsen E[1-3], O'Brien C[1], Groom P[1], Kleidon T[1-4], McCarthy K[3], Rickard CM[1,2,3]
[1]Royal Brisbane & Women's Hospital; [2]Griffith University; [3]University of Queensland; [4]Queensland Children's Hospital

Purpose:

Different types of intravenous (IV) devices are available to acute care facilities for the short to moderate term delivery of peripherally compatible therapies (≤14 days). This includes the midline catheter (MC) which is 8-20cms long and resides in the peripheral circulation of the upper arm, offering an alternative to peripherally inserted central catheters (PICCs). However, uptake of MCs has been limited. Our aim was to assess feasibility and generate clinical data comparing MCs with PICCs.

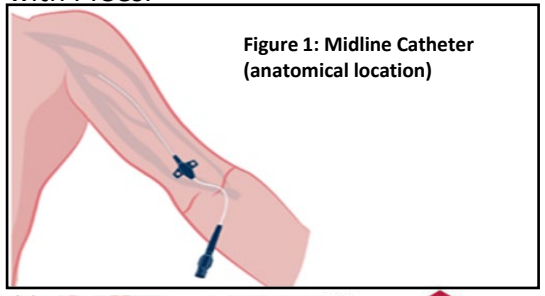


Figure 1: Midline Catheter (anatomical location)

Methods:

A two-arm parallel group pilot-RCT, comparing MCs with PICCs, at the RBWH between September 2020 and January 2021. Eligible patients were ≥18 years; able to provide informed consent; referred for a PICC; receiving peripherally-compatible IV therapy for ≤14 days; and deemed appropriate for either device by medical team. The primary outcome was study feasibility, measured against rates of eligibility (>75%), consent (>90%), attrition (<5%); protocol adherence (>90%) and missing data (<5%). The primary clinical outcome was all-cause device failure.

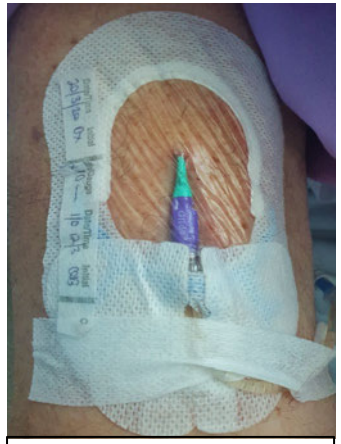


Figure 2: Midline Catheter (insitu, dressed)

Results:

In total, n=25 patients were recruited. The median patient age was 59-62 years; most patients were overweight/obese, with ≥2 co-morbidities. *Primary outcomes:* The eligibility and protocol adherence criteria were not met; of 159 screened patients, only 25 (16%) were eligible, and three patients did not receive their allocated intervention post-randomisation (88% adherence). All-cause failure was higher with MCs (n=2; 20%) than PICCs (n=1; 8.3%).

Table 1. Device outcomes

	PICC N=12	Midline N=10
Primary outcome		
All-cause failure	1 (8.3%)	2 (20%)
Secondary outcome		
Dwell-time (median, IQR)	274.5 hours (170.4 to 348.2)	192.7 hours (119.8 to 236.6)
Multiple insertion attempts	1 (8.3%)	1 (10%)
Failure types (median, IQR)		
pain	0 (0%)	1 (10%)
Infiltration/extravasation	0 (0%)	1 (10%)
Thrombosis (suspected or confirmed)	1 (8.3%)	0 (0%)
Bloodstream infection	0 (0%)	0 (0%)

Conclusion:

Our study found that a fully powered RCT testing MCs compared with PICCs is not feasible. We recommend a robust process evaluation before the introduction of MCs into clinical practice.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
CLIN-0004

Precision dosing software to optimize antimicrobial dosing: a systematic search and follow-up survey of available programs

Ming G. Chai [1,2], Nynke G.L. Jager [3], Reiner M. van Hest [4], Jeffrey Lipman [1,5,6,7], Jason A. Roberts [1,2,5,7,8], Menino O. Cotta [1]

1 Centre for Clinical Research, Faculty of Medicine, The University of Queensland, Brisbane, QLD, Australia. 2 Pharmacy Department, Royal Brisbane and Women's Hospital, Brisbane, QLD, Australia. 3 Department of Pharmacy, Radboud University Medical Centre and Radboud Institute for Health Sciences, Nijmegen, the Netherlands. 4 Department of Hospital Pharmacy – Clinical Pharmacology Unit, Amsterdam UMC, University of Amsterdam, Amsterdam, the Netherlands. 5 Department of Intensive Care Medicine, Royal Brisbane and Women's Hospital, Brisbane, QLD Australia. 6 Jamieson Trauma Institute, Royal Brisbane and Women's Hospital, Brisbane, QLD Australia. 7 Division of Anaesthesiology Critical Care Emergency and Pain Medicine, Nimes University Hospital, University of Montpellier, Nimes, France. 8 Herston Infectious Diseases Institute (HeIDI), Metro North Health, Brisbane, QLD, Australia.

Background

Precision dosing programs are promising tools for optimising antimicrobial dosing. Selecting the ideal program for local application may be challenging due to the large variety of available programs with differing characteristics.

Aim

To systematically identify available precision dosing software programs to optimize antimicrobial dosing and describe the characteristics of each program.

Method

A systematic search strategy was used to identify candidate software programs described in the literature in Embase and PubMed. A detailed survey was then developed to identify the characteristics of each program and the ability to provide beta-lactam dosing support given our local interest at Metro North with therapeutic drug monitoring (TDM) of this drug class. Other information including details on the underlying methodology driving dosing software recommendations, interface characteristics, data on software efficacy, costs and regulatory affairs was also collected. All software developers from identified programs were invited to participate in the survey.

Results

The systematic search identified 18 programs (see Table). Fifteen developers (83%) responded to the survey and 11 were found to provide beta-lactam dosing. All programs (except ALADDIN) are still supported by the software developer. No software developer was able to provide data on the comparative efficacy of their program over competitor programs.

Conclusion

There was significant variability in the available antimicrobial profiles and characteristics among dosing software programs. Given there is a lack of data supporting superiority of one program over another, clinicians should use these findings to select the program whose features will best satisfy their local requirements. Specifically for the Metro North, programs that provide beta-lactam profiles may enhance the efficacy of local beta-lactam therapeutic drug monitoring services.

Precision dosing software program	Available via website	Generates empiric dosing recommendations	Generates optimised dosing recommendations using TDM results	Provide beta-lactam support	Registered as a medical device	Software methodology used to generate dosing recommendations	Cost per Annum (in 2021)
APK	*http://www.rxkinetics.com/apk.html*	Yes	Yes	Yes	No	Bayesian statistics and linear regression	USD $150 per person or USD $390 per site
ALADDIN	*https://www.asainc.net.au/aladdin*	No	Yes	No	No	Linear regression	Free
Antibiotic Kinetics	*http://www.rxkinetics.com/abpk.html*	Yes	Yes	Yes	No	Same as APK	USD $150 per person or USD $390 per site
BestDose*	*http://www.lapk.org/bestdose.php*	Yes	Yes	Yes	No	Bayesian statistics and non-parametric analysis	Free
CADDy	*https://www.thecaddy.de/caddy/caddy/*	Yes	No	Yes	No	Linear regression	Free
DoseMe	*https://doseme-rx.com/*	Yes	Yes	Yes	Class 1 CE and TGA	Bayesian statistics	Unknown
DosOpt	*https://biit.cs.ut.ee/DosOpt/*	Yes	Yes	No	No	Bayesian statistics	Free
ID-ODS	http://www.optimum-dosing-strategies.org/	Yes	Yes	Yes	No	Bayesian statistics	Free
InsightRX	*https://insight-rx.com/*	Yes	Yes	Yes		Linear regression, Bayesian statistics, non-parametric analysis, machine learning artificial intelligence (AI), least squares regression, non-compartmental analysis	Variable depending on number of users and features requested
JPKD	*http://pkpd.kmu.edu.tw/jpkd/*	No	Yes	No	No	Bayesian statistics	Free
MwPharm++	*http://www.mediware.cz/en/mwpharm*	Yes	Yes	Yes	CE	Bayesian statistics	EUR 850 annual licensing fee (not including set up fee)
NextDose	*www.nextdose.org*	Yes	Yes	No	No	Bayesian statistics	Free
PK-PD Compass#	www.pkpdcompass.com	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
PrecisePk	*https://precisepk.com/*	Yes	Yes	Yes	CE	Linear regression, Bayesian statistics and machine learning AI	Individual: USD $99/month– per device Institution: USD $595/month – 20 devices) Enterprise: USD $995/month – 200 devices
TDM for R	*http://pkpd.kmu.edu.tw/tdm/*	No	Yes	No	No	Bayesian statistics	Free
TDMx	http://www.tdmx.eu/	Yes	Yes	Yes	No	Bayesian statistics	Free
Tucuxi	http://www.tucuxi.ch/	Yes	Yes	Yes	No	Bayesian statistics	Free
Virtual Twin#	*https://www.certara.com/blog/using-virtual-twin-technology-to-predict-drug-exposure-in-individual-patients-2/*	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

Table 1: Summary of identified precision dosing software programs. Additional information for each program is available from PMID: 35429656 DOI: 10.1016/j.cmi.2022.03.041
*Software developer declined to participate in survey or #did not respond. Data were collected from developer website where available.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

CLIN-0007

Improving time to target antimicrobial exposures among critically ill children and adults through the use of precision software guided dosing

Ming G. Chai[1,2], Adam D. Irwin[1,3], Menino Osbert Cotta[1], Brett McWhinney[4], Jacobus Ungerer[4], Jeffrey Lipman[1,5,6,7], Jason A. Roberts[1,2,5,7,8]

1 Centre for Clinical Research, Faculty of Medicine, The University of Queensland, Brisbane, QLD, Australia. 2 Pharmacy Department, Royal Brisbane and Women's Hospital, Brisbane, QLD, Australia. 3 Infection Management and Prevention Service, Queensland Children's Hospital, Brisbane, QLD, Australia. 4 Department of Chemical Pathology, Pathology Queensland, Brisbane, QLD, Australia. 5 Department of Intensive Care Medicine, Royal Brisbane and Women's Hospital, Brisbane, QLD Australia. 6 Jamieson Trauma Institute, Royal Brisbane and Women's Hospital, Brisbane, QLD Australia. 7 Division of Anaesthesiology Critical Care Emergency and Pain Medicine, Nimes University Hospital, University of Montpellier, Nimes, France. 8 Herston Infectious Diseases Institute (HeIDI), Metro North Health, Brisbane, QLD, Australia.

Background

Critically ill patients with sepsis are predisposed to subtherapeutic exposures of antibiotics due to the physiological changes and invasive interventions common in this patient group. Precision dosing software may assist clinicians with identifying optimal dosing strategies that increase the likelihood of achieving target antimicrobial exposures.

Aim

To determine if precision dosing software can be used to reduce the time taken to achieve target antibiotic exposures in critically ill patients.

Method

A multicentre (3 adult and 1 paediatric ICU), before-and-after study was conducted in patients with sepsis treated with the following antibiotics: piperacillin-tazobactam, meropenem, flucloxacillin, cefotaxime, ceftazidime or vancomycin.

Target exposures were defined as trough concentrations above the minimum inhibitory concentration of suspected pathogens or >15mg/L (for vancomycin). In both periods, patients received empiric antibiotic doses according to the treating team.

The Bayesian dosing software, ID-ODS, was used in the 'after' period to generate dosing recommendations (see Figure 1 as an example) in patients that failed to achieve target exposures within 24-hours of commencing therapy.

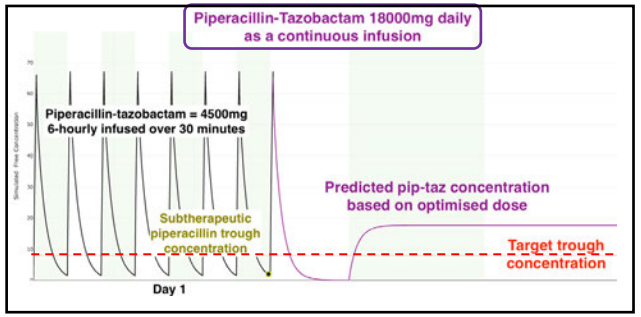


Figure 1: Example output of ID-ODS. The empiric dose is producing a subtherapeutic trough concentration. The target trough is exceeded when the optimized dose is administered.

Results

41 antibiotic courses (36 patients) in the 'before' and 20 antibiotic courses (18 patients) in the 'after' period did not achieve target exposures. ID-ODS guided dosing was associated with a shorter time to target exposure (42 hours [32.4 to 51.6] vs 91 hours [86.1 to 95.9]).

In the 'after' period, all software recommendations (n=20) were accepted by the treating team. Of these, 17 (85%) achieved target exposures after one dose change and one patient achieved target after two dose changes. The remaining patients were discharged from the ICU before a second dose change could be made.

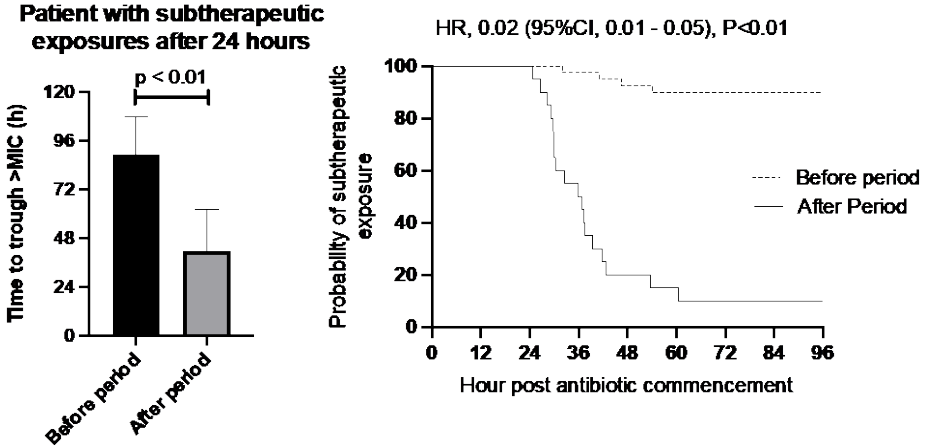


Figure 1: Time taken to achieve target exposure (left) and Kaplan-Meier plot for estimates of subtherapeutic concentrations in patients who do not achieve target concentrations within 24 hours (right).

Conclusion

In ICU patients who have failed to achieve target antibiotic exposures within the first 24 hours of therapy, use of dosing software can help reduce the time taken to achieve target antibiotic exposures. Further work is required to confirm if there are any patient centred benefits associated with using dosing software in critically ill patients.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH

CLIN-0021

To lay flat for one hour or two after a lumbar puncture? That is the question. Preliminary results of a pilot randomised control trial in a haematology oncology population.

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BACKGROUND

Haematology oncology patients may require lumbar punctures (LPs) for both diagnostic and therapeutic purposes. An often reported and potentially debilitating side effect associated with this procedure is post-dural puncture headache (PDPH).[1,2] PDPH manifests within five (5) days of the LP procedure and may be distinguished from other headaches with patients reporting a worsening of symptoms on being upright and improvement on lying flat.[3] PDPH may also be associated with neck stiffness, photophobia, reported hearing changes, nausea and vomiting.[1,3] The cause of PDPH has been attributed to the slow leak of cerebrospinal fluid (CSF) following LP.[4] Additional factors contributing to PDPH are needle gauge and angle of insertion, patient position at time of LP procedure, female gender, low body mass index (BMI), being aged between 21 and 50 years of age, patient positioning at time of LP procedure and previous history of PDPH. [1,2,3,4,5] It has been hypothesised that length of time lying flat following an LP may influence the presentation and severity of PDPH.[6] There is a paucity of data relating to PDPH in the haematology oncology population and it is intended this study will provide evidence in support of conducting a full randomised control trial (RCT) to examine this question.

AIM

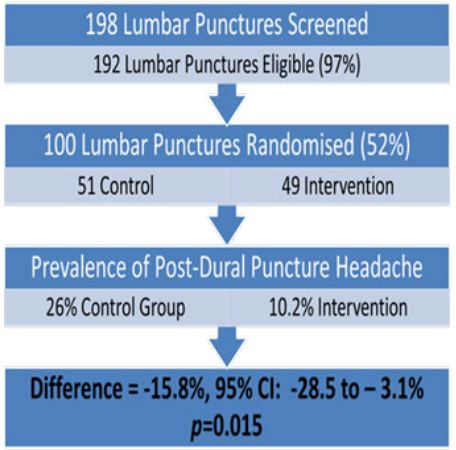
The aim of this pilot RCT was to provide an evidence base for the length of time individuals need to lie flat after diagnostic and therapeutic LPs in a haematology oncology cohort. The primary outcome was feasibility of a powered RCT with pre-established criteria for eligibility, recruitment, protocol adherence and retention. The secondary outcome was PDPH incidence and severity with data collected post-LP and at 48-hours.

METHOD

A single centre, parallel-group, pragmatic pilot RCT was conducted in the outpatients setting of the cancer care services department of a large tertiary/quaternary hospital on the east coast of Australia. Adult haematology oncology participants were assigned to lay flat for two hours (control) or one hour (intervention). Blaney et al, 1995, in their study, *Effect of body position on ventricular CSF methotrexate concentration following intralumbar administration,*[7] demonstrated greater CSF drug concentration in the ventricles of the brain in non-human primate subjects maintaining a prone position for one hour following intralumbar drug administration.

There is no standard guideline on sample size calculation for a pilot RCT.[8] It was intended 110 subjects (55 per group) be recruited. Randomisation was concealed until study entry with a 1:1 ratio between groups with randomly varied block sizes. Inclusion criteria invited haematology oncology outpatients requiring LP for either diagnostic and/or therapeutic purposes. Exclusion criteria was limited to language or cognitive barrier to consent; pregnancy or being under 18 years of age.

Outcomes data for this pilot RCT was collected by registered nurses (RN) through the implementation of the LP nursing assessment tool. Data collection occurred pre- and post-procedure, with follow-up telephone assessment performed approximately 48-hours post-LP procedure. Participants received education on post-LP care and management of PDPH symptoms and were given a discharge information sheet.



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All group comparisons were performed on an intention-to-treat basis. Descriptive statistics were reported for feasibility and clinical outcomes. The unit of analysis was the LP, therefore participants could be enrolled in the study multiple times and potentially randomised to either group. Thus, in all instances, clustered robust standard errors were used to adjust for non-independence. Due to the nature of the study, it was not possible to blind participants and research investigators.

Feasibility outcomes were analysed using descriptive statistics.[9] Analysis of feasibility was based on the following measures: i) Recruitment: ≥ 80% Of eligible patients agree to enrol; ii) Retention and attrition: < 15% Of participants are lost to follow-up or withdraw from study; iii) Protocol adherence: ≥ 80% Of participants receive their allocated treatment throughout their study participation; iv) Missing data: <10% Of data are missed during study data collection; v) Satisfaction and acceptability: To patients, carers and healthcare staff levels; and vi) Sample size estimates: For future equivalence trial.

RESULTS

Feasibility outcomes were met, except for recruitment (≥90%). Limitations imposed through availability of the research nurse and advent of the COVID-19 pandemic, final numbers recruited were 100 subjects (51 Control and 49 Intervention). In total, 198 LPs were screened, 192 (97%) were eligible, and of these 100/192 (52%) were randomised; 51 to the control and 49 to the intervention. A quarter (47/192) of the LP's were missed as the research nurse was not available to recruit, with refusals to participate being 45 of 192 LPs (23%). On examining adherence to protocol, it was shown a total of 14 LPs laid flat for < 1 hour (3/51; 6% in control and 11/49, 23% in the intervention). Retention at 48 hours was similar for the control (98%) and intervention (100%) groups. Prevalence of PDPH at 48-hours was higher in the control group (26% versus 10.2%, difference = -15.8%, 95% CI: -28.5 to -3.1%, p=0.015) with a median severity rating of 3/10 (IQR=25).

DISCUSSION

Analysis of feasibility showed five of the six measures were met. Missing data was encountered with data collection immediately post-procedure at >10%. However, missing data for 48-hour post procedure data collection was ≤2%. These differences indicate there is requisite need for having a full-time dedicated research nurse. This pilot RCT demonstrates that a powered study is feasible and support previous RCTs examining PDPH in other patient populations that lying flat for one (1) hour does not increase the risk of PDPH.[1,2] Further research is needed to change practice in the area of haematology oncology.

CONCLUSION

Preliminary results suggest that lying flat for one hour post LP does not increase PDPH incidence or severity. Feasibility of conducting a powered RCT was demonstrated.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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Education Centre, RBWH

CLIN-0023

Priming intravenous tubing with monoclonal antibodies reduces chair time in the outpatient setting: preliminary results from a randomised controlled trial

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1. Cancer Care Services RBWH, 2. Queensland University of Technology

Background: Monoclonal Antibodies (MABs) have revolutionized treatment against cancer, attacking specific cancer cell features. Continuous delivery of intravenous (IV) monoclonal antibody therapy via vascular access devices is made possible by an IV administration set, which comprises of plastic tubing, connecting the infusion bag to the patient (as well as the infusion bag itself, drip chamber and any additional components, such as extension tubing).

Purpose: There is a limited evidence-base around priming practices in the haematology-oncology setting. Furthermore, there are safety concerns around priming intravenous (IV) tubing with monoclonal antibodies (MABs), however this practice could reduce chair time.

Methods: For this single centred randomised controlled trial, Patients prescribed single-agent Daratumumab, Obinutuzumab, Pembrolizumab or Nivolumab infusions were consecutively randomised to either standard priming with saline/glucose versus priming lines with 16mL MAB (SEE Figure A). When an administration set is not primed with the monoclonal antibody, patients will only receive diluent for a period before being exposed to the monoclonal antibody, leading to increased time in the treatment chair and, impacting on patient flow through the outpatient setting. Primary outcome was chair time utilization. Secondary outcomes included incidence and severity of MAB-reactions. A sample size of 128 episodes of care was calculated to detect a medium effect size of 0.5 (Cohen's d) with 80% power and alpha of 0.05.

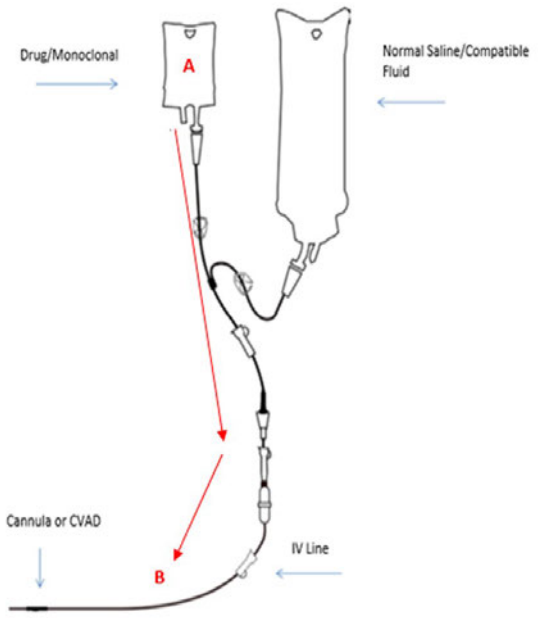

FIGURE A. Intervention

Results: From July 2021 to January 2022, 52 patients were recruited equating to 128 episodes of care (32 episodes of care to each MAB which are infused over various time frames ranging from 30 minutes to 3 hours). There was a 3% reduction in chair time between control and intervention groups for Daratumumab, representing a 7-minute difference between groups which was not statistically significant (p=0.523). A greater reduction in chair time was seen for Obinutuzumab, with a 16-minute reduction in the control group, equating to a 6% change (p=0.032). Pembrolizumab and Nivolumab both had a 7-minute reduction between control and intervention groups (p<0.001), this accounted for a larger percentage of change between control and intervention groups, 16% and 15%, respectively. No difference in MAB-infusion reactions were noted between groups.

Conclusion: The results of this study demonstrate that priming the IV tubing with MABs reduces chair time for patients without increasing adverse events. More chair time could be reduced if this priming practice was implemented with other IV MABs, chemotherapy and blood products.

Implications for research: This review concludes that further research and RCTs are required to determine whether priming intravenous administration tubing will reduce chair time in patients receiving any intravenous medication, supportive therapies or chemotherapy.

Funding: This study was funded by a Metro North Cancer Care Services Research Project Grant.

Acknowledgements: The research team would like to thank all patients who participated in this research.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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ID #CLIN-0052

Maximising Exclusive Mother's Own Milk Feeding in Premature Infants

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Background:

Maximising mother's own milk (MOM) supply has benefits for both mothers and their premature infants' long-term outcomes. A recent review of the preterm infants born less than 32 weeks gestational age (GA) at the Royal Brisbane & Women's Hospital (RBWH) in 2019, revealed only 40% were feeding with MOM exclusively at hospital discharge. This project summarises outcomes pre and post the implementation of a quality improvement bundle to improve rates of exclusive MOM use.

Methods:

A quality improvement bundle comprising staff education (medical, nursing, midwifery), parent education, checklists, dedicated ward rounds and increased lactation consultant support, was implemented throughout the units between November 2020 to April 2021. Audits measuring rates of exclusive MOM as the first feed, and use at discharge, days to full feeds, hours of ventilation, CPAP and parenteral nutrition use were compared before and after bundle implementation.

Maximising Mother's Own Milk (MoM):
Expressing checklist for RBWH *staff use only*

Mother's own milk is the best nutrition for her baby's neurodevelopment. The first 1 to 72 hours after birth, up to day 14 is a critical time to ensure long term milk production. Even if mothers do not wish to breastfeed, they may still like to optimise their baby's development by providing EBM whilst in the nursery.

Please check the mother's progress each day she visits by asking the questions over the page, and then complete the checklist on **Day 1 (within 12 hours of birth), Day 3, Day 5, Day 7, Day 10 and Day 14** making note of the percentage of mother's milk the baby is receiving.
Document your conversations in the baby's progress notes.

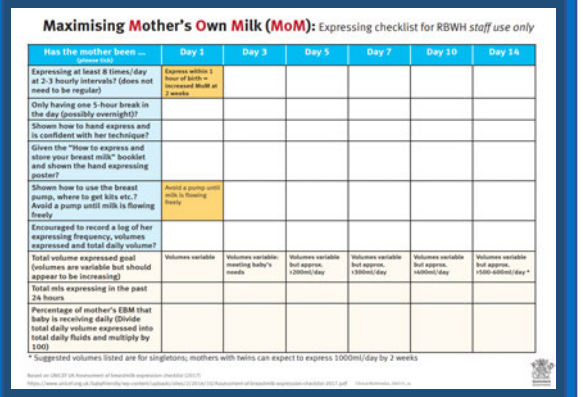
Key points to emphasise:

- Commence expressing **early**, within the first hour of birth
- Express **frequently**, at least 8 times in 24 hours, with one break of no longer than 5 hours (**frequency** is more important than volume)
- Hand express colostrum in the early days after birth
- **Combine hand expressing and pumping** once the milk is flowing more freely
- If using a pump, ensure the pump shield is correctly positioned and is not painful and the vacuum pressure is at a comfortable level
- Encourage mums to try double pumping and **breast compressions** when pumping
- Encourage **skin-to-skin contact** as this increases the release of oxytocin and helps with milk flow
- Encourage mums to express in a quiet place, perhaps look at a photo/video of baby or smell a cloth the baby has rested upon while expressing
- Encourage mum to **record her expressing progress in a "log"** (in a notebook, "GSNU Expressing Log" or an expressing app)
- **Avoid telling mothers to achieve a set daily volume,** as this may cause anxiety
- **Reassure mums** that the volumes will slowly increase in the first two weeks

Early detection and correction of problems will help the mother maintain confidence in her ability to produce milk for her baby.

Seek lactation support if mothers are not expressing the suggested volumes after the birth (see over), or sooner if the mother is concerned.

Based on UNICEF UK Assessment of breastmilk expression checklist (2017)
https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2016/10/Assessment-of-breastmilk-expression-checklist-2017.pdf



Maximising Mother's Own Milk (MoM): Expressing checklist for RBWH *staff use only*

Has the mother been ... (please tick)	Day 1	Day 3	Day 5	Day 7	Day 10	Day 14
Expressing at least 8 times/day at 2-3 hourly intervals? (does not need to be regular)	Express within 1 hour of birth + increased MoM at 2 weeks					
Only having one 5-hour break in the day (possibly overnight)?						
Shown how to hand express and is confident with her technique?						
Given the "How to express and store your breast milk" booklet and shown the hand expressing poster?						
Shown how to use the breast pump, where to get kits etc.? Avoid a pump until milk is flowing freely	Avoid a pump until milk is flowing freely					
Encouraged to record a log of her expressing frequency, volumes expressed and total daily volume?						
Total volume expressed goal (volumes are variable but should appear to be increasing)	Volumes variable	Volumes variable, meeting baby's needs	Volumes variable but approx. >200ml/day	Volumes variable but approx. >300ml/day	Volumes variable but approx. >400ml/day	Volumes variable but approx. >500-600ml/day *
Total mls expressing in the past 24 hours						
Percentage of mother's EBM that baby is receiving daily (Divide total daily volume expressed into total daily fluids and multiply by 100)						

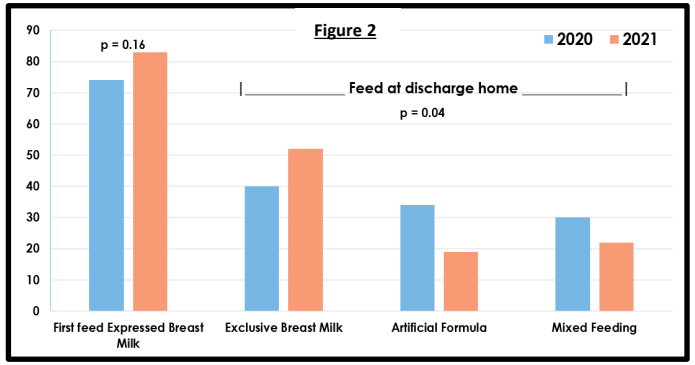
* Suggested volumes listed are for singletons; mothers with twins can expect to express 1000ml/day by 2 weeks

Based on UNICEF UK Assessment of breastmilk expression checklist (2017)
https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2016/10/Assessment-of-breastmilk-expression-checklist-2017.pdf

Figure 1: Maximising Mother's Own Milk bedside checklist used in the multimodal implementation quality improvement bundle

Results:

Comparing pre and post infant cohorts, (<32 weeks at birth, admitted in GSNU between January 2020 to June 2020 and April 2021 to September 2021) there was no difference in gestational age, birthweight, days on CPAP, parenteral nutrition, days to full feeds or rates of chronic neonatal lung disease (Table 1). A comparison of the first feed given and feeds at discharge were compared for both groups (Figure 2). Use of mother's own expressed breastmilk (EBM) as the first feed, rather than pasteurised donor human milk (PDHM), increased from 78% to 86% (p=0.16). Exclusive MOM feeds at discharge increased from 39% to 56%, formula feeding decreased from 33 to 20% and mixed feeding decreased from 28% to 24% (p=0.04).



	Pre bundle (104)	Post bundle (n=93)	P value
Mean Gestational age at birth (weeks)	28 ± 2.5	28 ± 2.2	0.97
Mean Birthweight (g)	1161 ± 400	1110 ± 378	0.35
Median CPAP (hrs)	784 (89-1146)	762 (218-1102)	0.65
Median Parenteral nutrition (hrs)	161 (0-279)	136 (0-238)	0.48
Mean Days to full feeds	11 ± 6.6	10 ± 4.8	0.29
Rates of CNLD	41 (57%)	31 (43%)	0.10

Table 1: **Demographics of the 2 cohorts, pre and post bundle implementation.**

Figure 2: **Rates of EBM as first feed, and feeds at discharge (exclusive breast milk, artificial formula and mixed feeding.**

Conclusion:

Implementation throughout the neonatal unit, birth suite and postnatal wards, of a multidisciplinary multimodal quality improvement bundle, significantly improved rates of exclusive mother's own milk use at discharge, for extremely and very preterm infants.

Griffith University Queensland, Australia · MENZIES HEALTH INSTITUTE QUEENSLAND · QIMR Berghofer Medical Research Institute THE FUTURE OF HEALTH · pathology queensland · QUT · The University Of Queensland AUSTRALIA CREATE CHANGE · HERSTON HEALTH PRECINCT · RBWH Foundation · Metro North Health · Queensland Government

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

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ID # CLIN-0022

Health-related quality of life and experience measures to assess patients' experiences of peripheral intravenous catheters: a secondary data analysis

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Purpose:

Peripheral intravenous catheters (PIVCs) are essential for successful administration of intravenous treatments. However, insertion failure and PIVC complications are common and can negatively impact patients' health-outcomes and experiences. The aim of our study was to identify whether general health-related quality of life- and experience- measures are appropriate for PIVCs.

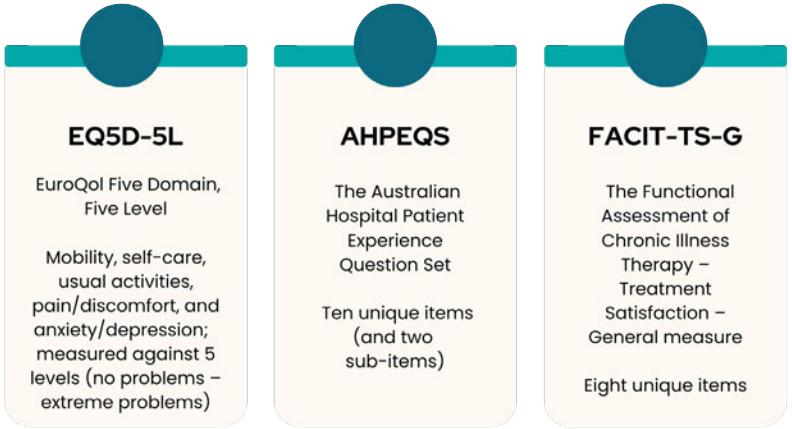

Figure 1. Outcome and Experience Instruments

Methods:

A secondary analysis of data from a multi-site randomised controlled trial conducted at the RBWH and Princess Alexandra Hospital. Instruments investigated included the EuroQual Five Dimension - Five Level (EQ5D-5L) scale; the Functional Assessment of Chronic Illness Therapy – Treatment Satisfaction – General measure (FACIT-TS-G, eight items) and Australian Hospital Patient Experience Question Set (AHPEQS, 12 items) (Figure 1). Responses were compared against two clinical outcomes of interest: (1)all-cause device failure, and (2)multiple insertion attempts. Classic descriptives were used to assess (i)ceiling and floor effects; regression analyses to examine (ii) validity (discrimination); and standardised response mean, and effect size (ES) to establish (iii) responsiveness (EQ5D-5L, only).

Results:

In total, 685 patients completed the EQ5D-5L at time of PIVC insertion, and 526 completed a follow-up EQ5D-5L at PIVC removal; patients each completed a supplementary instrument (n=264, FACIT-TS-G; n=262, AHPEQS). Two FACIT items and one AHPEQS item demonstrated ceiling effect (>80% selecting highest option). Instruments overall demonstrated poor discrimination, however, several *individual* items in the three instruments demonstrated significant correlation with all-cause device failure only (e.g., AHPEQS, '*unexpected harm*') (Figure 2). EQ5D-5L demonstrated trivial (ES <.20) responsiveness (change over time).

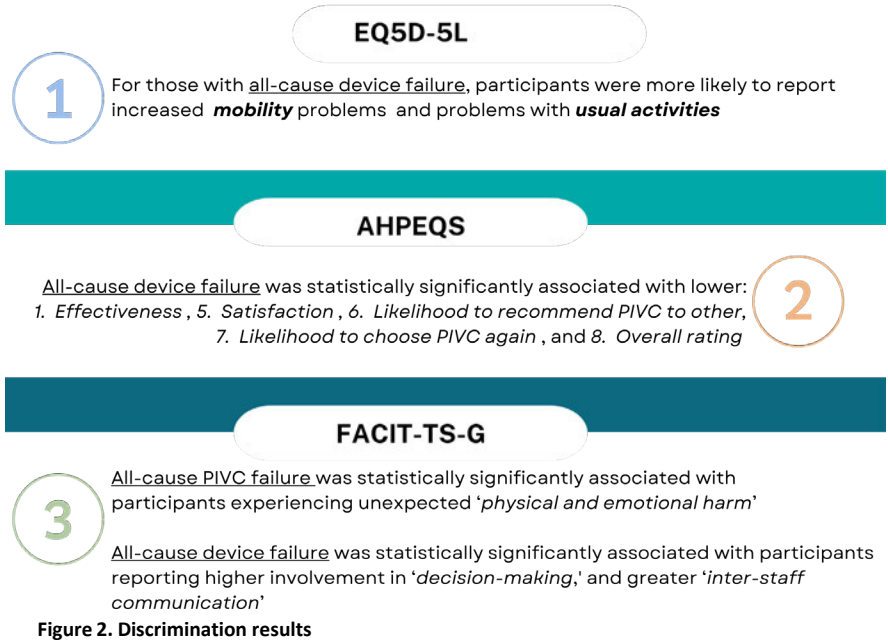

Figure 2. Discrimination results

Conclusions:

Generic health-related quality of life- and experience- measures are unsuitable for use in the context of patients with PIVCs. Purpose-built instruments are needed to identify opportunities for improvement, and benchmark standards of care.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

CLIN-0039

Are we doing more harm than good? An audit of missed clozapine doses

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Background:

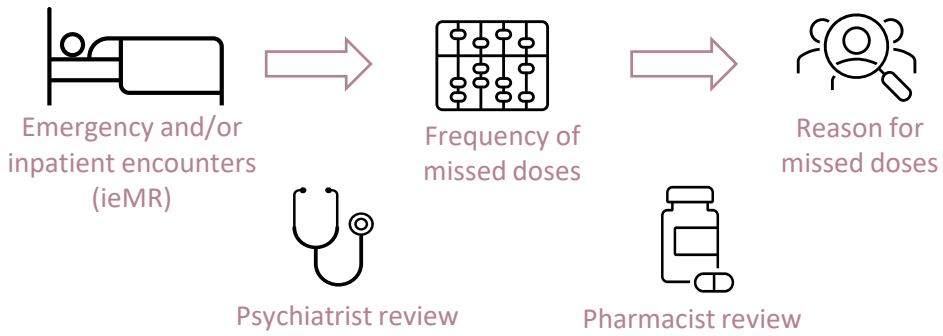
Clozapine is the most effective antipsychotic for treatment-resistant schizophrenia.[1] Hospital admissions may increase the likelihood of clozapine doses being missed and the subsequent need for clozapine re-titration; the risk of relapse and rebound psychosis is increased when clozapine is abruptly ceased.

Purpose:

Investigate the **frequency** and **reason** for **missed clozapine doses** during hospital admission.

Methods:

We conducted a 6-month, retrospective clinical chart audit for all patients on clozapine who were admitted to the Princess Alexandra Hospital. A 'missed dose' was defined as a dose not given *or* a dose that is ≥8 hours late.



Results:

A total of 125 patient encounters (=50 individual patients) were audited.

77 missed doses → **34 unintentionally missed doses**

12 occurred in ED, **11** occurred on a non-MH ward & **11** occurred on a MH ward

Key: ED = emergency department; MH = mental health

Psychiatrist Review

7 missed doses occurred **despite** the patient being reviewed by a psychiatrist <6 hours of admission
3 doses were missed as they were not administered
2 missed doses were due to a charting error

Pharmacist Review

28% of patients missed a dose when their pharmacist history was ≥12 hours *after* admission
7% of patients missed a dose when their pharmacist history was <12 hours *after* admission
ZERO patients missed a dose AFTER they received a pharmacist history

Conclusion:

Patients are at risk of missing clozapine doses upon admitted to hospital and the charting of clozapine should be prioritised upon admission to prevent missed doses; earlier pharmacist reviews can prevent unnecessary breaks in therapy.

1. Siskind D, McCartney L, Goldschlager R, et al. Clozapine v. first- and second-generation antipsychotics in treatment-refractory schizophrenia: systematic review and meta-analysis. *Br J Psychiatry.* 2016;209(5):385-392.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
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CLIN-0038

MICRONUTRIENT DEFICIENCY PREVALENCE IN LONG-TERM ENTERALLY FED PATIENTS: A SYSTEMATIC REVIEW

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[1]Dept of Dietetics and Foodservices, Royal Brisbane and Women's Hospital; [2]School of Human Movement and Nutrition Sciences, University of Queensland [3]School of Exercise and Nutrition Sciences, Queensland University of Technology

Background: Varying rates of micronutrient deficiency developing during enteral nutrition (EN) have been reported in the literature. A systematic review was undertaken to determine the prevalence of micronutrient deficiency in patients receiving long-term EN.

Methods: Electronic databases (CINAHL, Embase, PubMed, Web of Science) were searched to June 2021 for publications describing micronutrient status in adults or children (>5yrs) receiving EN for >2 months in their usual residence. Compliance with inclusion criteria (Covidence®), data extraction of predefined data points, assessment of bias (Academy of Dietetics Quality Checklist) and certainty of evidence (GRADE) were assessed independently by two authors. The review was prospectively registered with PROSPERO (CRD42021261113).

Results: Thirty-one studies (n=744) met inclusion criteria. Deficiency data is described the table. Causes of deficiency included receiving feed products formulated with inadequate nutrients, low volume EN provision due to low energy requirements, and nutritional decline before EN commencement. Potential confounding factors such as inflammation, underlying disease or impact of nutrient-medication interactions were rarely considered in the studies. The certainty of evidence is very low, and the level of bias high.

Conclusions: Clinicians should be aware of the potential for micronutrient deficiency in long-term EN-fed patients.

	Number of studies reporting deficiency	Number of patients deficient*	Median deficiency prevalence (range)*	Deficiency symptoms reported
Copper	14 of 18	6 of 90	5.4% (0-100%)	Anaemia, neutropenia, pancytopenia, sensory changes, ataxia
Zinc	11 of 15	233 of 376	55.5% (0-84%)	Alopecia, scaly erosive skin patches, diarrhoea
Selenium	5 of 9	43 of 114	35.1% (0-100%)	ECG abnormalities
Serum Iron	6 of 10	141 of 242	43% (3-100%)	-
Vitamin A	4 of 7	47 of 127	15.65% 0-78%	-
Beta-carotene	3 of 4	48 of 48	100%	-
Vitamin D	7 of 8	41 of 131	24% (0-100%)	-
Vitamin E	2 of 7	10 of 82	10.5% (0-16%)	-
Vitamin K	1 of 1	19 of 19	100%	-

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
CLIN-0036

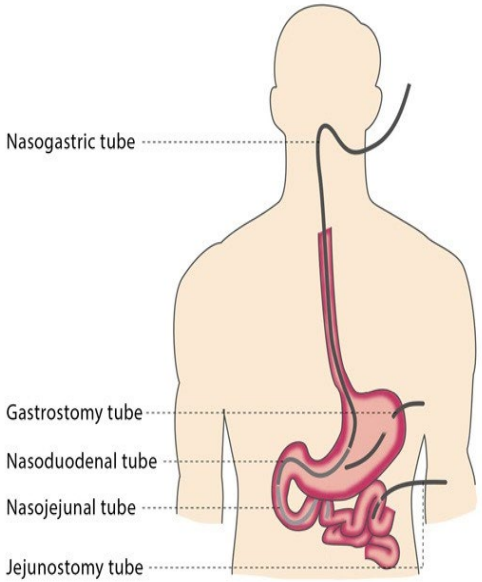
MICRONUTRIENT DEFICIENCY PREVALENCE IN LONG-TERM JEJUNALLY FED PATIENTS: A SYSTEMATIC REVIEW

EJ Osland[1,2], K Polichronis[1,3], R Madkour[1,3], A Watt[1], C Blake[1]

[1]Dept of Dietetics and Foodservices, Royal Brisbane and Women's Hospital; [2]School of Human Movement and Nutrition Sciences, University of Queensland [3]School of Exercise and Nutrition Sciences, Queensland University of Technology

Background: Enteral nutrition (EN) is most commonly provided into the stomach, but in some cases may be required to fed into the small bowel (most commonly the jejunum). The micronutrient status of those receiving long-term EN is poorly characterised, and jejunally fed patients may be at increased risk of deficiency due to nutrition being introduced beyond key absorption sites along the gastrointestinal tract. As part of a larger systematic review, the impact of route of EN provision (gastric vs jejunal) on the development of micronutrient deficiencies was investigated.

Methods: Electronic databases (CINAHL, Embase, PubMed, Web of Science) were searched to June 2021 for publications describing micronutrient status in adults or children (>5yrs) receiving EN for >2 months in their usual residence. Compliance with inclusion criteria (Covidence®), data extraction of predefined data points, assessment of bias (Academy of Dietetics Quality Checklist) and certainty of evidence (GRADE) were assessed independently by two authors. The review was registered with PROSPERO (CRD42021261113).



Enteral feeding routes

Image source: https://www.cirse.org/patients/ir-procedures/jejunostomy/

Results: Of the 31 studies (n=744) meeting inclusion criteria, eight reported outcomes of patients receiving long-term jejunal feeding (n=46). Two prospective cross-sectional studies reported direct comparisons of gastric versus jejunal feeding: Vitamin B12 and copper were statistically significantly lower in jejunally fed patients at 12 and 24 months, respectively. Selenium followed similar trends but did not reach statistical significance. No differences in vitamin B6, folate, zinc or iron levels were reported between the different feeding routes. Six case reports described copper deficiency developing despite the provision of nutritionally adequate amounts of copper being provided in the feed EN product. The certainty of evidence is very low, and a moderate to high level of bias is present.

Conclusions: Patients receiving long-term jejunal feeds as a sole source of nutrition may be at risk of copper deficiency. This risk may extend to other micronutrients that rely on gastric or proximal small bowel sites for absorption, however there is a paucity of evidence. This is a topic underrepresented in the literature and further research and clinical surveillance is required.

Discovery and Innovation Research

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
ID DISC-0018 #

Peripheral intravenous catheter material and design to reduce device failure: A systematic review and meta-analysis

Robyn Matthews, RBWH; Nicole Gavin, RBWH; Nicole Marsh, RBWH; Louise Marquart-Wilson, UQ; Samantha Keogh, QUT

Purpose:

- Current failure rates of peripheral vascular access are unacceptably high (40-50%) and can contribute to poor patient experiences and outcomes. Reducing PIVC failure and optimising vessel health preservation is a high priority for nurses.
- This systematic review aimed to determine the effect different peripheral intravenous catheter (PIVC) material and design have on incidence of PIVC failure from summary and analysis of published research.

Methods:

- A systematic search for eligible studies was conducted between January 2010 to September 2021 using CINAHL, PubMed, EMBASE and Cochrane Central Register of Controlled Trials databases. MeSH and textual terms were used such as those related to “peripheral intravenous catheter”, “catheter-related infections” or “equipment failure” and Boolean logic (AND, OR).
- Screening was completed and data extraction and quality assessment was carried out independently by two authors (RM, NG). The primary outcome was PIVC failure by any cause.

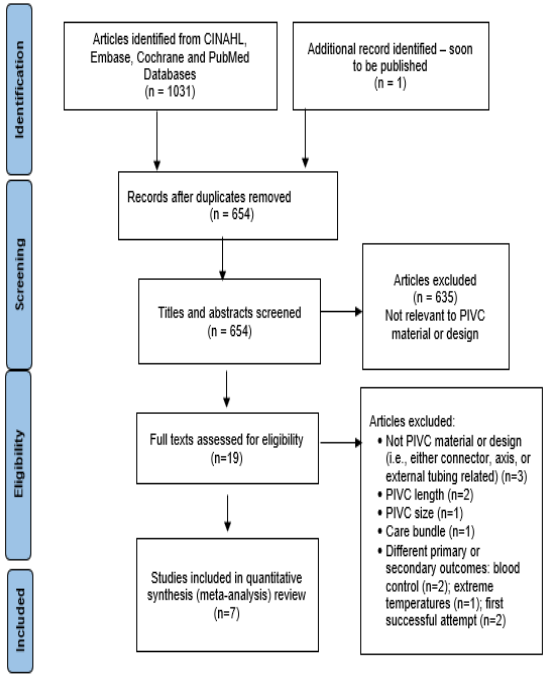


Figure 1 Prism flow diagram for the study selection

Results:

- In meta-analysis of the seven RCTs, significant results were identified on the impact of catheter material and design on PIVC failure which favoured the intervention arms (vialon material, integrated set, closed system and winged design) over standard care (teflon, non-integrated set, open system and non-winged design) (RR 0.71, 95% CI 0.56 to 0.89), however there was strong heterogeneity (I^2=81%).
- The effect of the closed system on PIVC failure was found to be significant (RR 0.85, 95% CI 0.73 to 0.99), with low heterogeneity (I^2=23%). No significant differences were found when evaluating the impact of catheter material and design on PIVC complications (phlebitis, dislodgement, infiltration, occlusion and infection).

15% less risk of PIVC failure with closed system

Conclusion:

- This review identified that catheter material and design impact PIVC outcome however conclusive recommendations are limited due to quality of studies. More research is required to enhance nurses’ understanding of medical devices and practices that impact vessel health preservation.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

DISC-0024

5–8 September 2022
Education Centre, RBWH

Transthyretin binds soluble endoglin: a possible role for transthyretin in preeclampsia?

Melanie J. Young[1], Ming Tang[2], Huika Li[1], Donald S.A. McLeod[3], Michael C. d'Emden[3], and Kerry Richard[1,2,3]. 1. CIML, Pathology Queensland 2. QUT 3. Endocrinology and Diabetes, RBWH

BACKGROUND

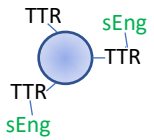
Preeclampsia is a life-threatening pregnancy condition. Poor placentation results in the release of cellular contents into the maternal circulation, including soluble endoglin (sEng), leading to vascular dysfunction. Transthyretin (TTR), a protein responsible for the transport of thyroid hormone, is also dysregulated in preeclampsia

AIM

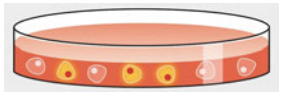
To determine whether fully functional transthyretin binds to sEng and facilitates the removal of sEng from the mother's circulation.

METHODS

Molecular dynamic simulations



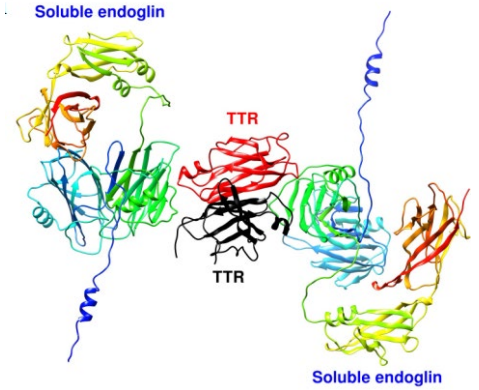
Binding Assay with CNBr Sepharose beads



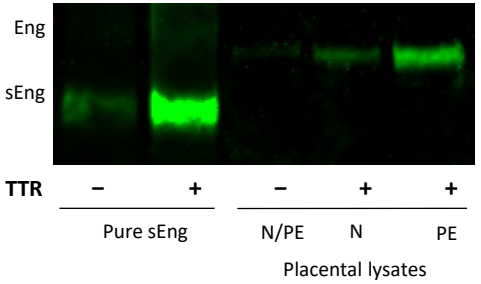
Uptake experiments with HepG2 cells

RESULTS

Molecular dynamic simulation predicts a TTR dimer binds to two separate sEng monomers.

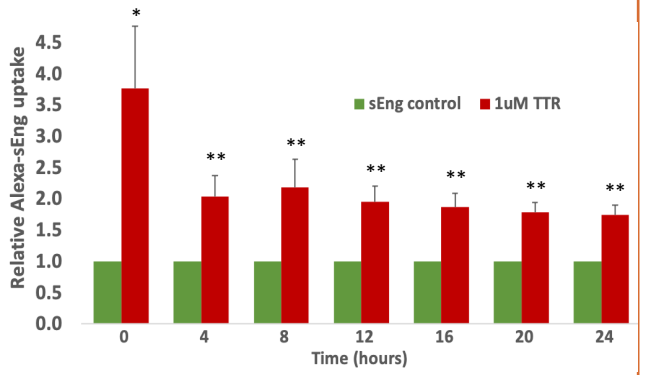


Recombinant sEng and Endoglin from placental lysates bind to TTR immoblised on CNBr Sepharose beads.



N – normal, PE – Pre-eclamptic

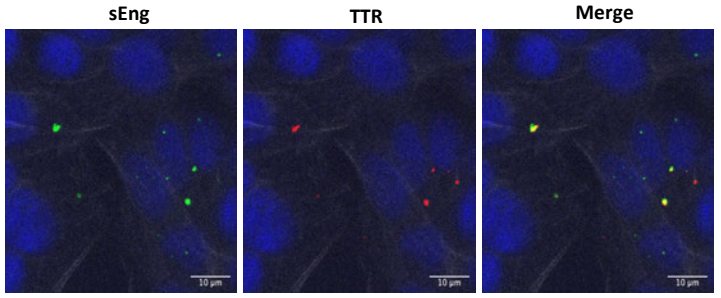
Uptake of Alexa-sEng in HepG2 hepatocytes is significantly increased in the presence of TTR.



n=5, p<0.05, **p<0.01*

Confocal microscopy demonstrates sEng and TTR are colocalised in HepG2 cells.

Green - Alexa-sEng, Red - TTR, Blue - DAPI and Grey - Phalloidin



CONCLUSION

TTR binds to both endoglin and sEng and increases removal of sEng from the extracellular environment by hepatocytes. Functional TTR may play a protective role against the pathogenesis of preeclampsia.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0013

IS IT TIME TO MOVE AWAY FROM MALNUTRITION? A NOVEL CLINICAL AUDIT EXPLORING OVERNUTRITION IN REHABILITATION PATIENTS

25%

of patients experienced overnutrition*

80%

of patients consumed ≥6 discretionary items/day

(e.g. soft drink, cake, chocolate)

By Hannah Olufson[1], Simone McCoy[1], Jennifer Ellick[1], Adrienne Young[2,3]

1: Dietetics & Food Services, STARS; 2: Dietetics & Food Services, RBWH; 3: Centre for Health Services Research, UQ.

Acknowledgements to: The STARS Dietetics & Food Service staff who advocated for the exploration of this problem, as well as Olivia Wright and Jordan Savirak from UQ for their assistance.

Background:

- Inpatient nutrition care systems have traditionally focused on malnutrition, as per the priorities of acute care dietetics.
- However, should this still be the primary focus of dietetics and food services in rehabilitation?
- This study aimed to test the use of a **novel clinical audit,** designed to **explore the nutritional needs/behaviours of rehabilitation patients**, including **how many patients experienced overnutrition** during their admission.

Method:

- **Retrospective data collection,** as per predefined protocol and eligibility criteria.
- **IeMR**: demographics, anthropometric data and information regarding comorbidities.
- **Intake dashboard**: average daily energy intake, diet code/s and intake of discretionary items.

*** Proposed overnutrition definition: Consumption of ≥1000kJ/day (admission average) above weight-based energy targets + weight gain of ≥1kg at discharge**

Findings:

- **53 patients were eligible** from 2 x general rehabilitation wards.

Focus	Key findings
Overnutrition prevalence	13/53 of patients (25%) experienced overnutrition
Discretionary item intake	43/53 (80%) consumed on average ≥6 discretionary items/day
Comorbidities	38/53 (70%) had ≥1 potentially lifestyle/dietary influenced comorbidity

This raised the question: **Do malnutrition focused nutrition care and food service systems meet the needs of patients in rehabilitation?**

Future plans:

- **Local education sessions**
- **Further problem exploration**
- **Food service changes**

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0019

"It's just really important for us all to be on the same page"

Exploring staff perceptions of factors that influence mobility documentation

Sally Yin[1], Prue McRae[2,3], Julie Adsett[1,3], Alison Mudge[2,3]

[1]Physiotherapy Department, RBWH, [2]Eat Walk Engage Program, RBWH, [3]Internal Medicine Research Unit, RBWH

THE AIM:

To explore and describe clinician perceptions of factors that influence communication and documentation of inpatient mobility.

THE METHOD:

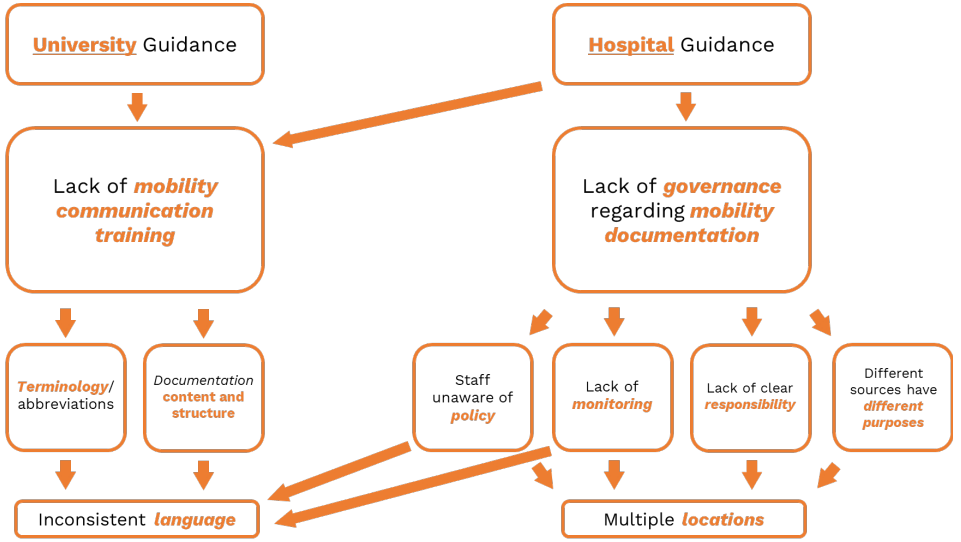
17 Semi-structured Interviews with:

- Nursing Staff
- Allied Health
- Medical Staff

Questions were based on ***Consolidated Framework for Implementation Research***

Deductive analysis of responses

THE RESULTS:



THE SOLUTIONS:

- **Source of truth**
- **Policy**
- **Education**
- **Common language**

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
ID# DISC-0003

The impact of diet, micronutrient supplementation and gestational weight gain on clinical outcomes in pregnancy after bariatric surgery: A systematic review

Taylor Guthrie[1,2], Clare Dix[3], Helen Truby[3], Sailesh Kumar[2,4], Susan de Jersey[1,2]

1- Dietetics and Foodservices, RBWH. 2- Faculty of Medicine, University of Queensland, 3- School of Human Movement and Nutrition Sciences, University of Queensland 4 – Mater Research Institute, University of Queensland

Introduction

- Bariatric surgery produces substantial weight loss by altering dietary intake and gut absorption. As rates of bariatric surgery increase, and the majority of surgery recipients are women of childbearing age, pregnancy after bariatric surgery is becoming more common.
- Pregnancy after bariatric surgery has been associated with increased risk of micronutrient deficiency, preterm birth, small for gestational age and growth restricted neonates.

Aim: To evaluate the impact of **maternal diet, micronutrient supplementation and gestational weight gain** on key pregnancy and neonatal outcomes in women with previous bariatric surgery: maternal micronutrient deficiencies, gestational diabetes, hypertension, pre-eclampsia, preterm birth, small or large neonates and neonatal mortality.

Diet, micronutrient status and weight gain are key determinants of pregnancy and neonatal outcomes which are profoundly altered after bariatric surgery.

Methods

- A search was conducted in PubMed, CINAHL, EMBASE and ProQuest in July 2022.
- Publications reporting on either dietary intake (any measure), micronutrient supplementation with compliance, or gestational weight gain in relation to the outcomes of interest were eligible for inclusion.
- Included publications underwent critical appraisal using the Academy of Nutrition and Dietetics Quality Criteria Checklist and the NHMRC evidence hierarchy. Screening, data extraction and critical appraisal were performed in duplicate.

Results

The search returned 394 articles, with 23 meeting inclusion criteria.

- 8 reported dietary intake and/or micronutrient supplementation
- 19 reported gestational weight gain

Figure 1: Critical appraisal using the Quality Criteria

● Neutral rating ● Negative rating

- Included studies received a neutral or negative rating and were grade II (7/23) and III (16/23).
- Many studies (57%) omitted information about participant characteristics (ie parity, smoking status), statistical methods and used inconsistent outcome measures (ie definition of micronutrient deficiency) which compromises the reliability of included studies.

Diet and micronutrient supplementation

- Studies primarily reported impact on micronutrient deficiency. Although high rates of deficiency was reported, no protective factors were reported. Limited description of dietary intake measures, variations in diagnosis of deficiency and measurement of supplement adherence makes comparison challenging.

Table 1: Adherence to gestational weight gain recommendations	
Insufficient weight gain	18-73%
Adequate weight gain	17-67%
Excessive weight gain	7-48%

Gestational weight gain

- Included studies reported significant variation in proportion of women meeting weight gain recommendations (Table 1).
- The risk of preterm birth and small for gestational age neonates for women with insufficient weight gain were conflicting. No relationship with other pregnancy or perinatal outcomes were reported.

Discussion

- This study found insufficient evidence to understand how maternal nutrition impacts pregnancy and perinatal outcomes following bariatric surgery.
- This is likely due to methodological limitations as predisposing factors to complications, like smoking status, were unaccounted for in many of the included studies.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

DISC-0022

Is Cardiovascular risk going undetected in Mental Health?

By Ruby Cole, Minnie Park & Karthik Gurunathan

Background

- Patients with severe mental illness (SMI) are at higher risk of morbidity and mortality from cardiovascular (CV) events
- Australian Absolute Cardiovascular Disease calculator (ACC) is validated for ages 45-74
- 75% of Australians with SMI have first episode by age 25
- 59% of RBWH MH patients fall outside age range
- Is CV risk going undetected in this large excluded cohort?

What is an alternative?

PRIMROSE is a CV risk calculator validated in the UK specifically for SMI patients, with no blood test requirements, and no age limits. It also has an option to consider applying a social deprivation index according to postcode

Aim

- Calculate and compare CV risk for mental health in- patients using ACC and PRIMROSE
- Assess if PRIMROSE increases CV risk detection compared to ACC
- Evaluate potential benefit and applicability of PRIMROSE

Method

- Retrospective audit over a 2-month period of mental health inpatients taking at least one regular antipsychotic to calculate CV risk with both ACC and PRIMROSE.
- Postcode functionality was not used.

Results:

Of 215 consumers, CV risk could be calculated in 47% using ACC and 63% with PRIMROSE. Average risk scores were 7.59% for ACC and 2.21% for PRIMROSE. An additional 34 (16%) consumers were able to have their CV risk calculated when using PRIMROSE, however all those consumers yielded low risks. The average score for patients outside ACC age-range was 2.09% using PRIMROSE.

Discussion

PRIMROSE allows more patients to be assessed but does not increase risk detection. Current processes of using ACC can therefore be assumed to be adequately capturing the high-risk population.

What next?

Developing a similar tool for Australian population considering geographical location such as metropolitan, regional, remote areas, and also indigenous and socio-economic status maybe useful.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0006

Novel Virtual Reality Hand Tracking Technology to improve engagement and satisfaction in upper limb rehabilitation

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Andrea.McKittrick@health.qld.gov.au

Introduction

Immersive Virtual Reality Rehabilitation (VRR) has many benefits including increased motivation and transfer of skills to real life activities of daily living which fits with core principles of occupational therapy practice [1]. In 2019 Oculus™ released hand tracking technology which did not require the use of hand controllers, this research team explored this technology and identified that it would be beneficial for individuals with upper limb impairments/injuries who have difficulty holding traditional virtual reality (VR) hand controllers [2].

Methods

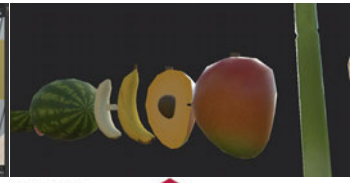
This study was a prospective cohort study across two sites- an acute care setting and a sub-acute setting. Ethical approval was granted EC00172 (HREC/2021/QRBW/76983)

Development of VRR game:

The design and development of VRR game involved occupational therapists, engineers and an artist co-designing a VRR environment using the Unity game engine.

Two environmental designs were considered and the smoothie bar was chosen as meal preparation was deemed to be a more universal activity.

Handy Juice Bar was developed.



Evaluation of the game

Participants: Individuals attending occupational therapy for upper limb rehabilitation at RBWH or STARS. *Inclusion criteria* : aged 18-85 years, activity tolerance for 20 minutes of upper-limb movement while standing or sitting, existing right, left or bilateral upper limb impairment and sufficient cognitive function and communication to follow instructions to participate in the session. *Exclusion criteria*: unhealed facial burns, history of dizziness, nausea, epilepsy or seizures which may be triggered by the virtual reality headset. Individuals with large framed glasses which did not fit inside the virtual reality headset, upper-limb amputations and severe binocular vision abnormalities, blindness or individuals with significant visual perceptual deficits.

Results

n = 20

Mean age 49.5 years

55% had not used VR prior

Conditions: Orthopaedic, neurological, plastics and trauma

Limb affected: n=6 right upper limb, n=3 left upper limb and n=11 bilateral upper limbs

95% of participants reported that the VR was fun and engaging to do. 75% of participants thought VR would be helpful to add to their current upper limb rehabilitation programme.5% reported that the VR experience was boring. 80% of participants reported that their hand movements were correctly represented within the VR environment. 100 % were satisfied with the virtual setting chosen by their occupational therapist. The feedback was mixed regarding the difficultly level of grasping objects in the VR environment with 50% reporting it was easy and similar to grasping real life objects.

Discussion

Disruption to upper limb movement and function impacts how individuals engage in self-care, productivity and leisure. The impacts can be both physical and psychological and can last for various lengths of time depending on the condition, injury or illness. As occupational therapy is a client centred profession, clinicians strive to use rehabilitation interventions which are realistic and purposeful to the individuals receiving therapy. VR is part of daily life with many individuals using this in their own homes, as a result the graphics and features have become more realistic, increasing the opportunity to use VR for rehabilitation. The activity chosen for this VR research project was a universal activity which would be applicable to a broad range of individuals attending occupational therapy.

The ability to tailor the virtual reality rehabilitation session to one or both upper limbs is core to client centred practice. Many participants found the VR headsets to be comfortable and easy to use including the hands free tracking capacity. The hands free tracking capacity was unique to this study as other studies report the hand controllers to be problematic.

Conclusion

VRR games developed in collaboration with clinicians, designers and engineers have potential to be used as an adjunct intervention to engage participants in upper limb rehabilitation.

References

SCAN ME

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID# DISC-0010

Staff psychosocial support needs when working with patients accessing a termination of pregnancy

Background:

The Termination of Pregnancy Act 2018 decriminalized abortion in Queensland and as a result, hospitals are receiving increasing referrals for termination of pregnancy (TOP). Research shows that health workers experience challenges impacting their wellbeing when providing TOP care. Supporting staff wellbeing is critical to ensuring the sustainability of the services and to maintain patient centred care.

Purpose:

Explore the psychosocial support needs of staff providing TOP care at RBWH, review if support options already available are being accessed by staff and what their preferred support options were if they needed additional support.

Method:

- Online survey distributed to staff providing TOP care at RBWH.
- Respondents (N=72) nursing (81.94%), medical (5.56%) allied health staff (12.5%). Most had >5 years' experience in their field.
- Results were summarised using descriptive statistics. Open-ended questions were analysed qualitatively.

Results:

- 79% work in the area by choice, but 82% needed additional support after working with TOP.
- Need for support increased when the TOP was for social reasons or for later gestation pregnancies.
- Colleagues (68.06%), informal debrief (55.56%) and family/friends (54.17%) were the most accessed supports. A range of barriers prevented staff from accessing other supports.
- Key challenges and areas for improvement:

Clinical Management
- Balancing maternity care vs TOP
- Staff/patient ratio & frequency of allocation

Education & Orientation
- Lack of education dedicated to TOP

Workplace culture
- Expected to "just get on with it"
- Working with conscientious objectors

Debriefing & Emotional Support
- Staff need to know what support is available
- Access to ad hoc support during a challenging shift
- Debriefing tailored to personal needs

Conclusion:

This study highlights the need for a **better internal support framework for staff**, including **increased education and orientation** to termination of pregnancy care, access to **informal and on the job debriefing for staff**, and the development of a **trauma informed response** to management of staff providing termination of pregnancy care.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
DISC-0021

TAKING PROFILING OF SINGLE URINARY EXTRACELLULAR VESICLES INTO THE CLINIC – PROOF OF CONCEPT

AKA: Development Of A Spectral Flow Cytometry Approach For Diagnostic Profiling Of Single Urinary Extracellular Vesicles

MONICA NG[1,2], KURT GIULIANI[1,2], XIANGJU WANG[1,2], ANDREW KASSIANOS[1,2], HEALY HEALY[1,2]

[1] Kidney Health Service, RBWH [2] Conjoint Internal Medicine Laboratory, Chemical Pathology

Background

- Urinary extracellular vesicles (uEVs) contain molecules with biological effector and communications functions in health and disease.
- Translating their information into clinical practice has been hampered by the labour intensity of current methods, i.e. proteomics and transcriptomics.

Aim

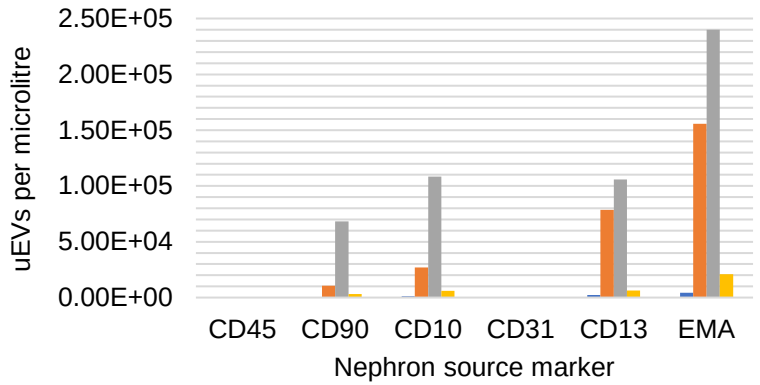
- To develop a high-throughput workflow for purifying and profiling single uEVs using spectral flow cytometry

Methods

- 50ml urine from four healthy adults (n=4) centrifuged at 650xg for 10mins to remove cells.
- Supernatants treated with protease inhibitors followed by centrifugation at 2000xg for 20mins
- uEVs concentrated to 500µl using centrifugation at 3500xg for 40mins in Amicon Filter unit
- Supernatant centrifuged at 20,000xG for 30mins
- Quantitation completed using 400nm beads

Methods (continued)

- Antibodies against markers of kidney cell of origin:
  - Podocytes: podocin
  - Mesangial cells: CD90
  - Leukocytes: CD45
  - Endothelial cells: CD41
  - Proximal tubule epithelial cells: CD10, CD13
  - Loop of henle: THP
  - Distal tubule epithelial cells: MUC1
- FCMpass used to calculate uEV size



Results

- Mean uEV concentration 4.86 x 10^5 particles/µl
- uEVs diameter 250nm to 770nm (mean: 354nm)
- Concentration uEVs expressing markers of kidney cell of origin from each donor (Figure 1)

Discussion

- Sequential centrifugation effectively purifies + concentrates microvesicles (200nm-1000nm)
- Flow cytometry distinguishes cell of origin of uEVs based on surface markers
- uEVs from healthy individuals are predominantly from the tubular compartment

Conclusion

- We aim to continue developing this diagnostic platform for translation to kidney disease patients

Figure 1 (left): Concentration of uEVs expressing different kidney cell markers from each donor. Blue: donor 1, orange: donor 2, grey: donor 3, yellow: donor 4

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID # DISC-0030

Capillary ultrastructure in preterm and term piglets

Victoria P. Hinkley[1], Shaun L. Sandow[1,2], Ian M.R. Wright[1,3], Paul B. Colditz[1,4], Barbara E. Lingwood[1,4], Yvonne A. Eiby[1]

1. Perinatal Research Centre & UQCCR, The University of Queensland. 2. Biomedical Science, University of the Sunshine Coast. 3. College of Medicine and Dentistry, James Cook University. 4. Neonatology, RBWH.

Background and Aims

Preterm neonates have leaky capillaries resulting in rapid loss of plasma from the circulation after birth. This may result in hypovolemia, low brain oxygenation and hence brain injury. There is no known information on the structural underpinnings of this capillary leak. Our aim is to assess capillary ultrastructure in an established piglet model.

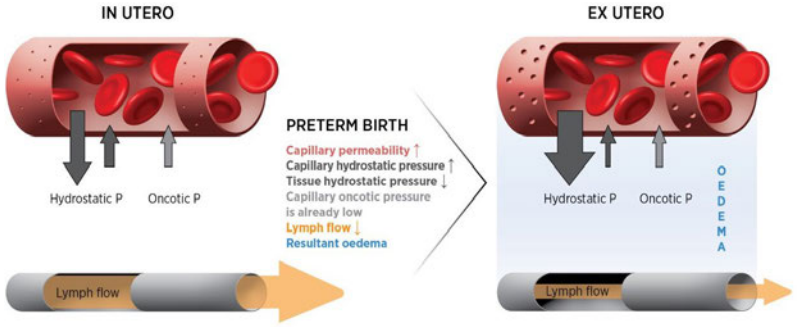


Figure 1. Factors that may drive excessive plasma loss at the capillary in preterm neonates.

Methods and Preliminary Results

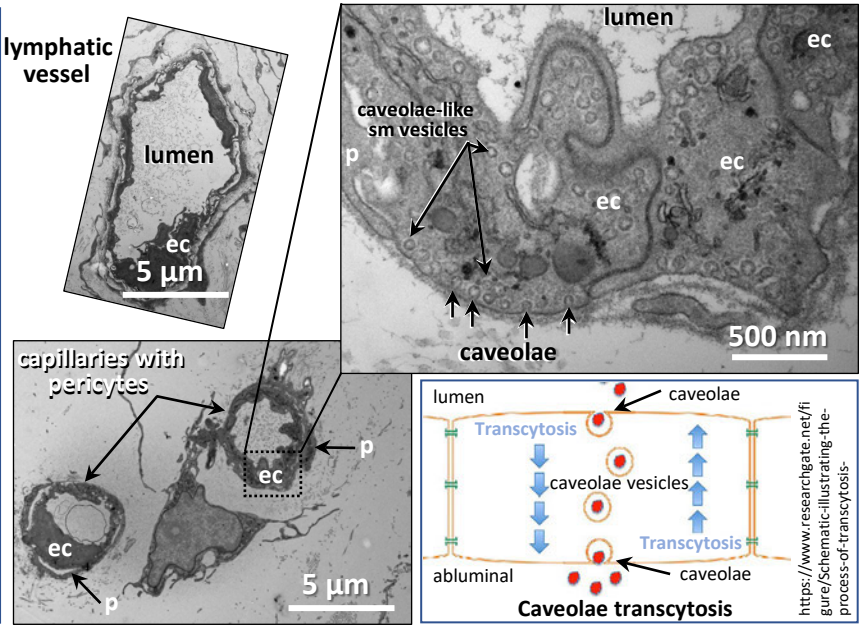
Sub-cutaneous tissue was collected and fixed for electron microscopy (EM) from preterm (~28wk gestation) and term piglets (at birth and 12h old).

Absent in both groups were:

- **endothelial fenestrations** (gaps/pores between endothelial cells (ec), examined through serial EM sections)

Present in both groups were:

- **endothelial caveolae** (omega-shaped cell membrane invaginations), and caveolae-like submembranous (sm) vesicles, of variable densities.
- **pericytes** (p; peripheral capillary cells).
- **lymphatic vessels.**



Conclusion + Future Directions

Absence of capillary endothelial fenestrations shows these structures *cannot* be responsible for plasma loss in this tissue. Presence of *variable* densities of caveolae + caveolae-vesicles is a potential mechanism for vesicle-mediated fluid movement. Present studies focus on identifying the transport mechanism/s underlying plasma loss.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0031

Soluble guanylate cyclase activators improve vascular function and placental ischaemia-induced hypertension

Bhavisha A. Bakrania[1,2], Frank T. Spradley[3], Bijalben R. Patel[2], Adam B. Travis[2], Peter Sandner[4] and Joey P. Granger[2]

[1]Perinatal Research Centre and UQCCR, University of Queensland. [2]Department of Physiology, [3]Department of Surgery, University of Mississippi Medical Centre. [4]Drug Discovery, Bayer AG, Germany.

Background

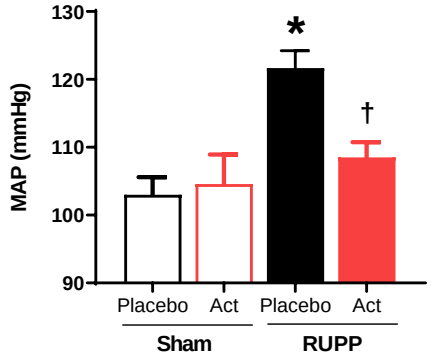
Preeclampsia (PE) is a hypertensive disorder prevalent in 3-8% of pregnancies. Despite being the ***leading cause of maternal death, there is no effective treatment for PE***. Pathogenic factors of placental origin increase production of the potent vasoconstrictor, endothelin-1 and severely deplete bioavailability of nitric oxide. This reduces soluble guanylate cyclase (sGC) activity and vasodilatory signalling.

sGC activators are a novel class of drug increase sGC signalling independent of nitric oxide. The Reduced Uterine Perfusion Pressure (RUPP) model of preeclampsia resulting from placental ischemia that recapitulates many of the characteristics of PE, including hypertension and endothelial dysfunction.

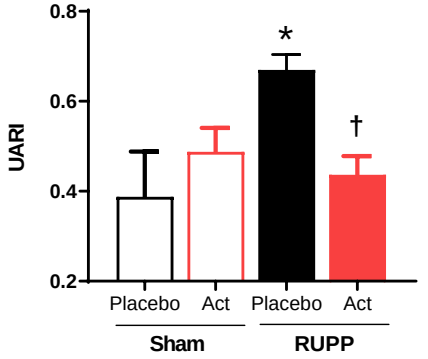
We hypothesise that sGC activators reduce hypertension and improve endothelial function in the RUPP model of preeclampsia

Results

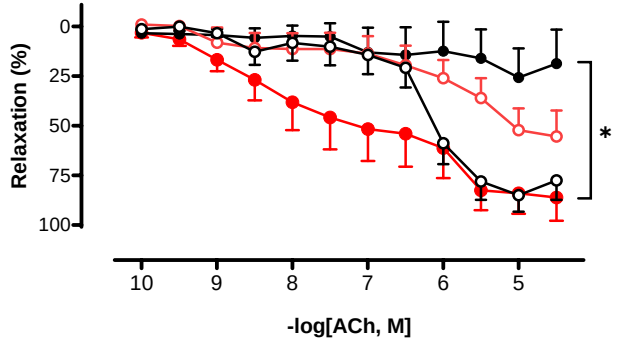
sGC activator treatment significantly improves mean arterial pressure (MAP) in RUPP rats



sGC activator treatment significantly improves uterine artery resistance index (UARI) in RUPP rats



sGC activator treatment significantly improves endothelial dependent relaxation (ACh; acetylcholine) in preconstricted uterine arteries from RUPP rats



Methods

RUPP surgery was performed on rats on gestational (GD) 14. Control groups were placed on placebo diets, and treatment groups were placed on sGC Activator supplemented diet. Blood pressure was measured on GD19, and uterine arteries were collected to measure endothelial function. Data was analysed using one-way ANOVA. Data are mean±SEM.

Conclusions

sGC activator treatment reduces blood pressure and uterine artery resistance in an animal model of preeclampsia by improving endothelial function.

sGC activators represent a promising treatment option for preeclampsia that should be investigated further.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
DISC-0016

On Demand Snacks Reducing Costs and Waste in a Rehabilitation Setting

Alice Pashley[1], Jennifer Ellick[1,2], Danielle Cave[1], Olivia Wright[1]
1 School of Human Movement and Nutrition Sciences, The University of Queensland
2 Dietetics and Foodservices, Surgical, Treatment and Rehabilitation Services

Purpose

- The Surgical, Treatment and Rehabilitation Service (STARS) provides a 'tea trolley' snack service to subacute patients 3 times per day.
- The Room Service on-demand foodservice system has been shown to improve patient intake and satisfaction and reduce waste and costs in acute hospitals.
- This study aimed to implement and evaluate an 'On-Demand' snack service.

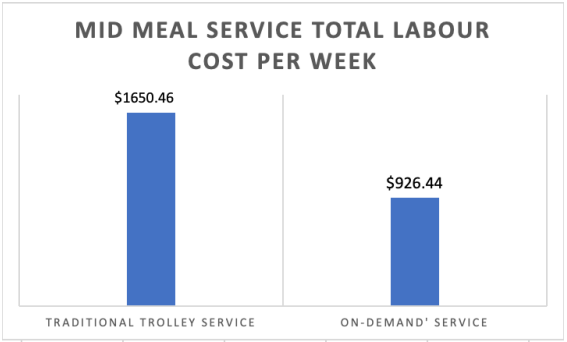
Methods

In 2021 a room service 'On-Demand' snack service was implemented on two general rehabilitation wards at STARS. Pre and post data evaluated staff satisfaction, patient satisfaction, intake, waste, and cost (labour and food).

Results

Staff were satisfied, overall, with both systems.

Patient satisfaction ratings of the original 'tea trolley' system was marginally higher than the on-demand snacks system (90% versus 81.5% rated as satisfied/neutral, respectively).



Foodservice labour reduced by an average of 3.87 hours per week (8.83 vs 4.96 hours; $P < 0.0001$). This led to a 44% reduction in labour costs with the on-demand service.

Table of Pre- and Post-implementation Intake, Waste, and Cost

	3-weeks Pre-Implementation N (%)	3-week post implementation N (%)	8-month post implementation N (%)
No. of patients	83	76	91
Ordered	3181	3490	4108
-Consumed	-2440 (76.7%)	-2760 (79.1%)*	-3209 (78.1%)
-Wasted	-741 (23.3%)	-730 (20.9%)*	-899 (21.9%)
-Cost of ordered	$778	$746	$1132
-Cost of consumed	-$599 (77.0%)	-$617 (82.7%)*	-$956 (84.5%)*
-Cost of waste	-$179 (23.0%)	-$129 (17.3%)*	-$176 (15.5%)*

*Statistically significant from baseline ($P < 0.05$)

Intake increased at both post evaluation time points; however, this was only significant 3-weeks post implementation. Cost of waste significantly reduced at both post implementation time points ($179 [23.0%] vs $129 [17.3%] vs $176 [15.5%]; $P < 0.05$).

Conclusion

Implementing 'On-Demand' snacks in the general inpatient rehabilitation setting did not change staff or patient satisfaction; however, food service staff labour costs were reduced, and intake was improved.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0015

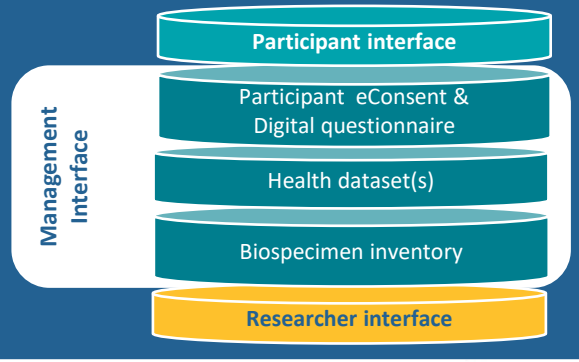
QoVAX Program: Queensland statewide digitally-integrated biobank and linked data repository to track COVID-19 vaccine and health outcomes

R Gregory, I Wong, B Choy, J Hung, K Seibel, A Zournazi, D Gillis, P Bourke, E Ballard, J Pearson, N Waddell, T Kenna, M Kimlin, KF O'Grady, D Bunker, K McNeil, JM Davies

Background

In collaboration with health service agencies and academia, the Queensland COVID-19 Vaccine (QoVAX) Program is undertaking three studies (ACTRN12621001543875; ACTRN12621001524886; ACTRN12622000020785) to track elicited immune responses and health outcomes in real-world Australian community contexts. Using integrated epidemiological, immunological and genomics approaches the Program correlate levels of vaccine immunity with protection against COVID-19 infection and short and long-term health outcomes. The Program has also built a digitally-integrated biobank and linked data repository, which is available for further COVID-19 related research.

QoVAX Research Infrastructure



Progress

120,000
Biospecimens: Serum, saliva, PBMC
3 -80^{0}C Freezers
3 Liquid nitrogen dewars

Linked Data Repository
>4,000,000
Linked data points
-> 500 whole genomes

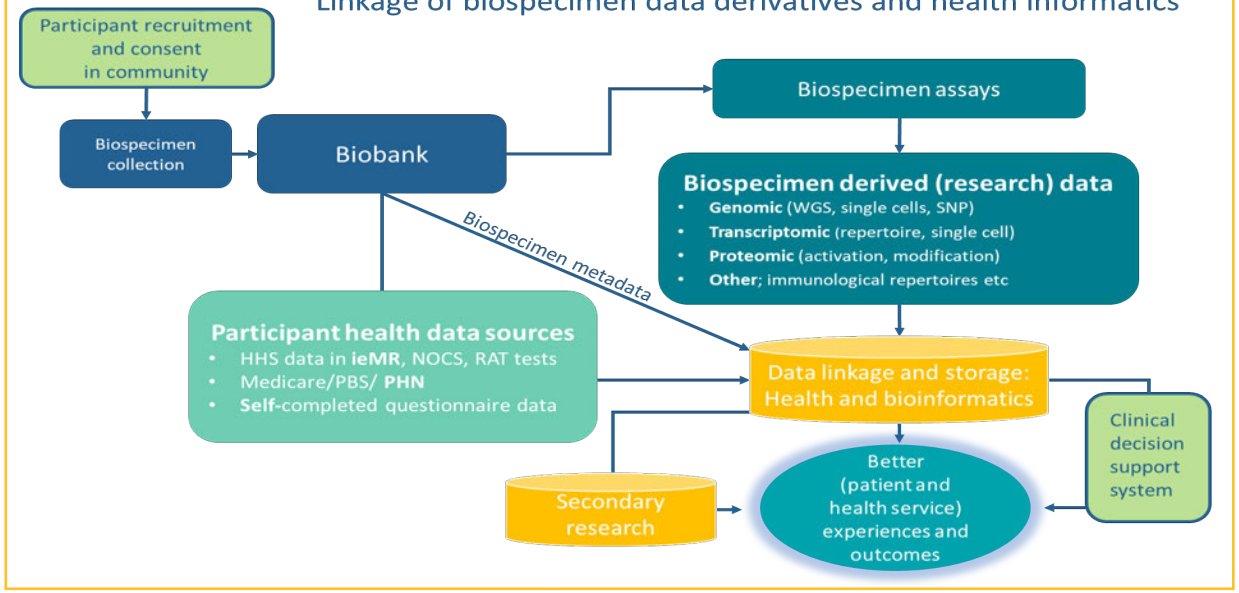
8,000+ participants

>75% Queensland postcodes covered

2.1% First Nations participants

Scan for QoVAX Program updates or to find out more

Linkage of biospecimen data derivatives and health informatics



Outcomes

The QoVAX Program:

- is supported by 20 collaborative partners, private and public pathology services, health agencies, and universities across Queensland
- delivers the three core pillars for the Queensland Precision Health Agenda
- provides a core statewide research infrastructure to underpin related secondary and additional translational research in Queensland
- enables further access to data and samples for ethics approved COVID-19 related research, according to informed individual consent
- uses FAIR –Findable, Accessible, Interoperable, Reusable– principles

Griffith University Queensland, Australia · Menzies Health Institute Queensland · QIMR Berghofer Medical Research Institute THE FUTURE OF HEALTH · pathology queensland · QUT · The University Of Queensland AUSTRALIA CREATE CHANGE · HERSTON HEALTH PRECINCT · RBWH Foundation · Metro North Health · Queensland Government

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0026

Characterisation of neuronal and glia cells in the hippocampus of preterm fetal growth restricted newborns

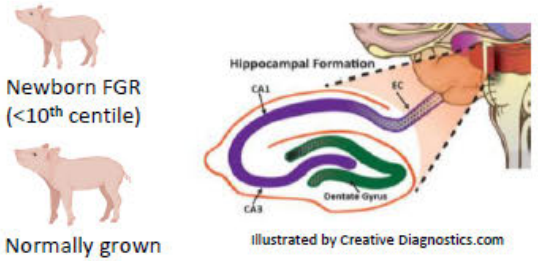
Beecher K[1], Chand KK[1], Musco H[1], Eiby Y, Colditz PB[1,2], Wixey JA[1]

[1]UQ Centre for Clinical Research, Faculty of Medicine, UQ [2]Perinatal Research Centre, RBWH

BACKGROUND

Fetal growth restriction (FGR) commonly caused by placental insufficiency has detrimental effects on the newborn brain. Adverse long-term neurological outcomes result in a significant proportion of FGR infants. Large-scale follow-up studies show children and adolescents born FGR have learning difficulties and memory impairments, all indicative of possible disruption of key developmental processes in the hippocampus. With no treatment options currently available, understanding cellular temporal and regional changes in the hippocampus in the FGR newborn could assist with identifying therapeutic interventions to reduce long-term adverse neurological outcomes.

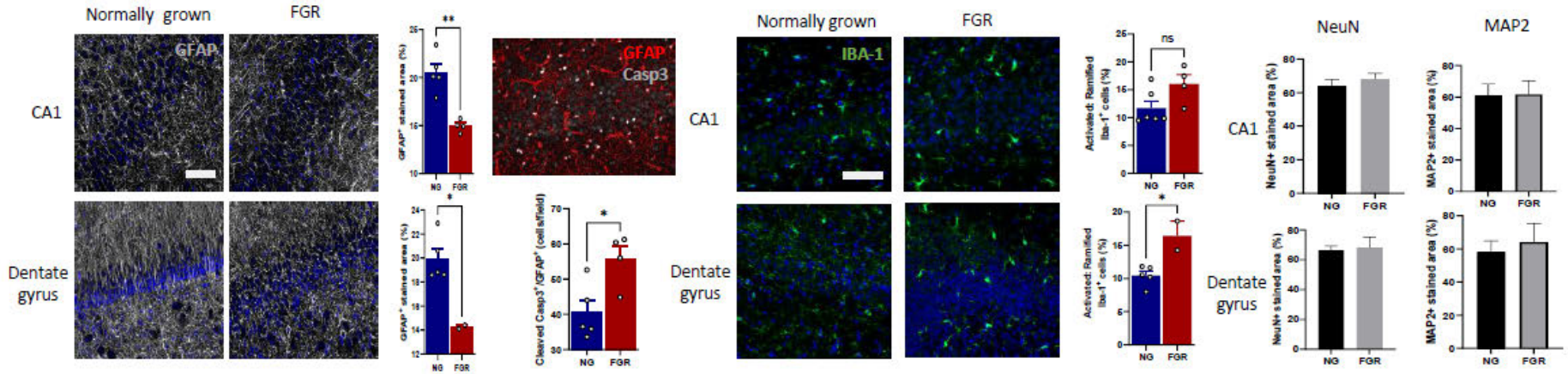
METHODS



Growth restriction occurs spontaneously in the piglet. Newborn FGR (<10th centile) and normally grown piglets are delivered via caesarean at preterm (gestational day 98/115). Cellular changes in the hippocampus were examined using immunohistochemistry for glia and neurons, known to be vulnerable to FGR in other brain regions.

RESULTS

Alterations in glial activation in the hippocampus of FGR piglets were evident in preterm piglets between FGR and normally grown (control). No neuronal changes were evident at this time point.



CONCLUSION

Although we have not observed any neuronal changes at this time point, we propose these early changes in glial activation may contribute to the reported persistent neuronal impairment at later time points. As the developing brain exhibits plasticity and the potential for regeneration following injury, we should focus on understanding which cellular populations are vulnerable to FGR conditions that are driving adverse neurodevelopmental outcomes.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
DISC-0025

Characterisation of white matter disruption in the growth restricted newborn

Lillian Macfarlane[1], Kirat Chand[1], Kate Beecher[1], Hannah Musco[1], Peytn Stokes-Marshall[1], Yvonne Eiby[1], Paul Colditz[1,2], Julie Wixey[1]

[1]UQ Centre for Clinical Research, Faculty of Medicine, the University of Queensland, Brisbane, Australia
[2]Perinatal Research Centre, Royal Brisbane and Women's Hospital, Brisbane, Australia

Introduction

Fetal growth restriction (FGR) is commonly caused by placental insufficiency, resulting in disruption to oxygen and nutrient supply to the fetus during essential neurodevelopmental periods. Poor long-term neurodevelopmental outcomes such as cerebral palsy and learning deficits are a consequence of FGR. MRI studies have shown white matter injury in FGR neonates is associated with the risk of developing cerebral palsy. Therefore, these adverse outcomes may be due to the disruption of white matter. FGR animal studies have observed gross histological changes to white matter in parietal regions in the postnatal period. However, cellular changes contributing to these gross morphological alterations observed in white matter are not well understood. The current study will undertake a detailed analysis using multiple cellular markers of oligodendrocyte lineages to characterise white matter development over multiple time points in a pre-clinical model of FGR.

Methods

The newborn FGR pig will be used as a preclinical model for FGR.
Litter matched FGR and normally grown piglets will be used to examine cellular changes in the frontal region across multiple timepoints:

- GA98/115; 26 weeks human equivalent
- Term, caesarean (P0)
- Term, spontaneous birth (P1)
- Term, spontaneous birth, survived until day 4 (P4)

Key cellular markers of white matter development will be observed using immunofluorescent labelling (Table 1)

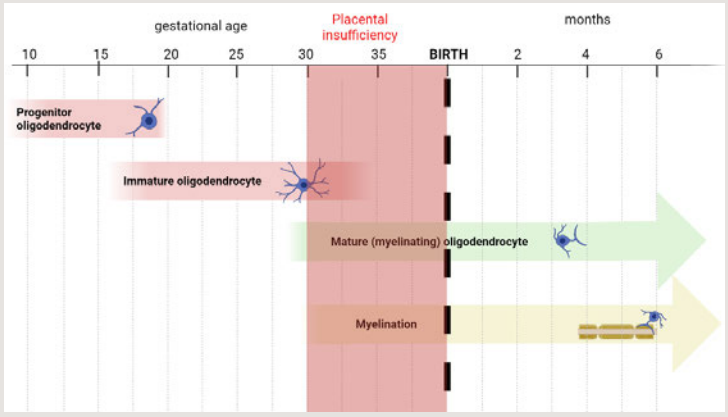


Figure 1: FGR disruption to myelination development in humans. Onset of placental insufficiency coincides with oligodendrocyte maturation timepoints, consequently impairing the rapid production of myelin during this period.

Cell feature of interest	Primary Antibody
White matter microstructure	Neurofilament (NF)
Pan-oligodendrocyte marker	Oligodendrocyte marker 2 (Olig2)
Pre-myelinating oligodendrocytes	2',3'-cyclic nucleotide-3'-phosphodiesterase (CNPase)
Mature myelinating oligodendrocytes	Myelin binding protein (MBP)
Cellular apoptosis	Cleaved caspase-3 (Casp-3)
Cellular proliferation	Ki67

Table 1: Antibodies used as cellular markers of white matter development

Expected Outcomes

Reduced immature and mature oligodendrocytes, alongside loss of myelination in preterm, through to term FGR newborns

- Oligodendrocytes highly vulnerable to oxidative stress during their differentiation process (Figure 1)
- Onset of placental insufficiency occurs alongside differentiation, maturation and myelination function of oligodendrocytes (Figure 1)

Preliminary Results

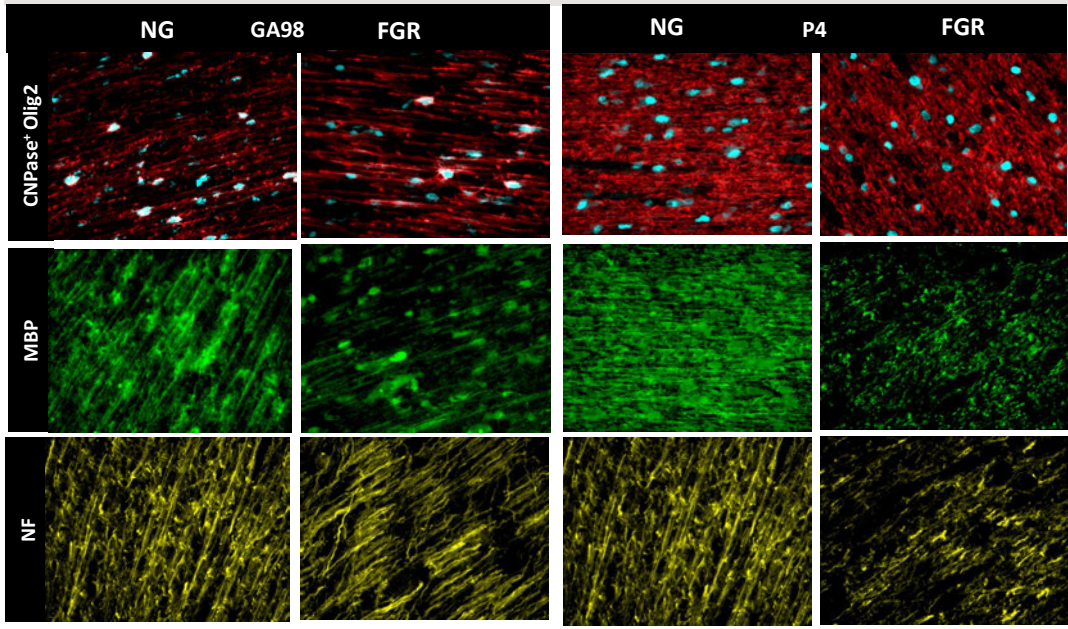


Figure 3: Representative immunofluorescent labelling of intragyral white matter in normal growth (NG) and fetal growth restricted (FGR) piglet brain at gestational age 98 (GA98) and postnatal day 4 (P4). Immunofluorescent markers as per Table 1.

Significance

- FGR is a poorly diagnosed condition with neurodevelopmental consequences persisting well into adult life resulting in high burden on the health system and families
- Findings will contribute to
  - Characterisation of white matter injury in FGR which may assist in development of therapeutic interventions
  - Timing of administration of therapeutic interventions that will be most effective in mitigating poor neurodevelopmental outcomes

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
ID # DISC-0028

LC-MS/MS method to measure levofloxacin concentrations in human plasma, liquid whole blood, and volumetric absorptive microsamples (VAMS)

Chandra Datta Sumi[1], Andrew Burke[1,2], Saurabh Pandey[1], Jason A. Roberts[1,3,4], Jeffrey Lipman[1,3,5], Steven C. Wallis[1], Suzanne L. Parker[1]*

[1]UQ Centre for Clinical Research (UQCCR). [2]Intensive Care, TPCH. [3]Intensive Care, RBWH [4]Pharmacy, RBWH. [5]Jamieson Trauma Institute, RBWH

Objectives: Levofloxacin is a key antibiotic used in the treatment of multi-drug tuberculosis. This research aimed to develop methodology suitable for measuring levofloxacin concentrations in biological samples to support the collection of samples for a clinical pharmacokinetic study in Vietnam, including the use of innovative low-burden microsamples.

Methods: LC-MS/MS methodology was designed for the analysis of plasma, whole blood and volumetric adsorptive microsample devices (VAMS). Plasma, whole blood and VAMS samples (10 µL) were spiked with internal standard, ciprofloxacin, and extracted by simple acetonitrile protein precipitation; red blood cells were haemolysed by adding 0.1 M zinc sulphate solution. Chromatography stationary phase was a Kinetex C8 (100 × 2.1 mm, 1.7 µm) analytical column and mobile phase was a gradient of 0.2% formic acid in water (v/v) and 0.2% formic acid in acetonitrile (v/v). The electrospray ionization source was operated in positive-ion mode for the multiple reaction monitoring of levofloxacin and ciprofloxacin.

Results: Calibration was linear over the concentration range of 0.1 – 50 mg/L levofloxacin in plasma, liquid whole blood and VAMS. Intra- and inter-assay imprecision in plasma, liquid whole blood, and VAMS was within 9.3, 12.4, and 6.7%, respectively, and accuracy was within 106, 111 and 109%, respectively. The method met the requirements of method validation for linearity, lower limit of quantification and matrix effects.

Conclusions: This validated levofloxacin method including micro sampling was successfully applied to a clinical pharmacokinetic study conducted in four provinces of Vietnam of household contacts of patients with multi-drug resistant tuberculosis.

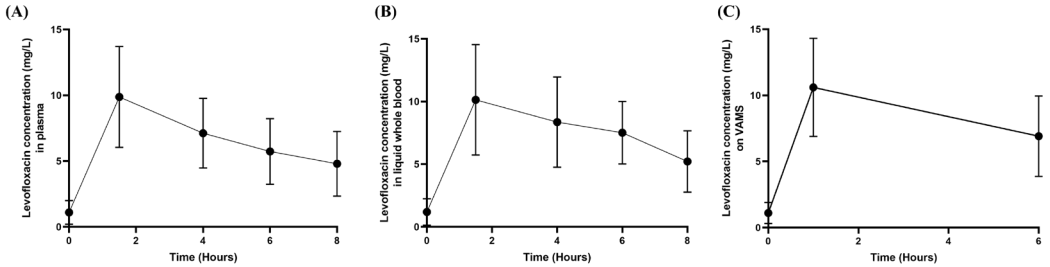


Figure 2: The mean concentration-time profile of levofloxacin in (A) plasma, (B) liquid whole blood, and (VAMS) from a pharmacokinetic study of Vietnamese patients (n = 3) with multi-drug resistant tuberculosis (error bars are standard deviation).

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

DISC-0002

Sensitivity of virtual non-contrast dual-energy CT urogram for detection of urinary calculi: a systematic review and meta-analysis

Katherine McCoombe[1,2] , Karen Dobeli[1,2], Steven Meikle[2], Stacey Llewellyn[3], Peter Kench[2]

1. Royal Brisbane and Women's Hospital Department of Medical Imaging, Herston, Queensland, Australia, 2. Faculty of Medicine and Health, University of Sydney, Camperdown, New South Wales, Australia, 3. QIMR Berghofer Medical Research Institute, Herston, Queensland, Australia

Background: Computer Tomography (CT) urogram is the gold standard imaging test for microscopic haematuria [1] but it has drawbacks for the patient including high radiation dose and long examination time. A recent advancement in CT technology, dual energy CT (DECT) has the potential to improve patient safety and scan efficiency for CT urography through its ability to generate virtual non contrast images from a post contrast scan (Figure 1). However, compelling evidence to support its routine use in clinical practice is scarce.

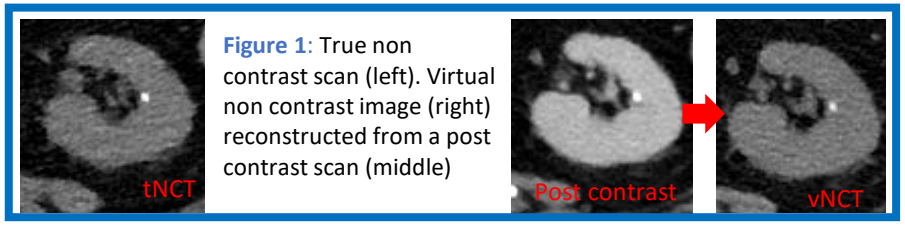


Figure 1: True non contrast scan (left). Virtual non contrast image (right) reconstructed from a post contrast scan (middle)

Objective: The aim of this systematic review and meta-analysis was to determine the sensitivity of virtual non contrast (vNCT), generated from a post contrast CT urogram scan, compared to true non-contrast CT (tNCT) for the detection of urinary calculi.

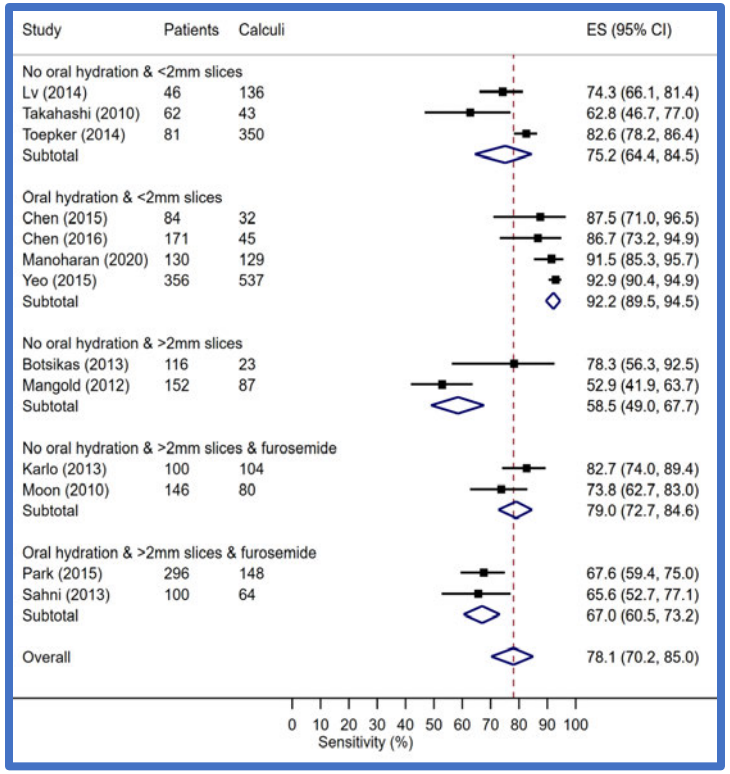


Figure 2: Forest plot of sensitivity for vNCT for the diagnosis of urinary calculi

Methods: A search of multiple databases was performed using predetermined search terms. Inclusion criteria were applied, and bias risk was assessed by two independent reviewers using the QUADAS tool. Collated estimates of sensitivity were generated, and sources of heterogeneity were identified and subsequently explored through subgroup analysis.

Results: Pooled sensitivity for urinary calculi on vNCT was 78.1% (95% CI: 70.2 to 85.0%), however heterogeneity between studies was high (I^2 = 92.0%). Pooled sensitivity for detection of urinary calculi on vNCT for studies that used oral hydration and <2mm slice thickness was 92.2% (95% CI: 89.5 to 94.5%) with no evidence of heterogeneity between studies (I^2 = 14.3%) (Figure 2).

Conclusion: vNCT demonstrated a moderate pooled sensitivity compared to tNCT for the detection of urinary calculi in split bolus CT Urogram protocols. Subgroup analysis suggests higher sensitivity when employing oral hydration and <2 mm slice thickness or increment.

References:
1. Nolte-Ernsting C, Cowan N (2006) Understanding multislice CT urography techniques: many roads lead to Rome. European Radiology 16:2670-2686
2. Manoharan D, Sharma S, Das CJ, Kumar R, Kumar P (2020) Split bolus dual-energy CT urography after urine dilution: a one-stop shop for detection and characterisation of urolithiasis. Clinical Radiology 75:611-643

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0020

Winner – Professor William Egerton Award for Best Discovery and Innovation Research

The impact of transition from a non-digital to digital prescribing on medication safety

Teyl Engstrom[1], Elizabeth McCourt[1,2], Martin Canning[3], Katharine Dekker[2], Panteha Voussoughi[2], Oliver Bennett[2], Angela North[2], Jason Pole[1], Peter Donovan[2], Clair Sullivan[1]

1) Centre for Health Services Research, The University of Queensland, 2) Clinical Pharmacology, Royal Brisbane and Women's Hospital, 3) Pharmacy Department, The Prince Charles Hospital

PURPOSE

To determine the impact of transition from a non-digital hospital (RBWH) to a digital hospital (STARS) on self-reported medication safety incidents and prescribing errors on two geriatric and rehabilitation wards.

METHODS

The study utilised a interrupted time-series design and took place across two geriatric and rehabilitation wards as they transitioned from RBWH to STARS. Two methods were used to assess impacts on medication safety. The first was an examination of self-reported medication safety incidents through RiskMan from 1/3/2018-31/01/2022. The second was a retrospective chart audit of medications prescribed on the study wards pre (1/10/2020-6/2/2021) and post transition (1/10/2021-31/1/2022). The audit collected data on all prescribing errors that occurred during the study period, each error was classified as either procedural, dosing, or therapeutic. A panel of clinical experts reviewed each error to determine the severity of any potential harm due to the error.

RESULTS: CHART REVIEW

	PRE	POST
Orders reviewed	5136	3706
Prescribing errors	4183	891

RESULTS: RISKMAN

	PRE	POST
Incidents	419	75
Errors	476	90

Orders with one or more error:

	PRE	POST	
Any error	2676 (52.8%)	582 (15.7%)	p<0.001
Dosing error	1640 (32.3%)	517 (14%)	p<0.001
Procedural error	1630 (32.1%)	49 (1.3%)	p<0.001
Therapeutic error	32 (0.6%)	28 (0.7%)	p=0.478

Average errors per month

12.5 → 7.5

p<0.001

CONCLUSION

Transition to a digital hospital was associated with reductions in reported medication incidents and prescribing errors.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID #DISC-0027

Achieving Gender Equality in STEMM Hospital and Health Service Research

ARC LP (190100216)

Improving gender equality in Science, Technology, Engineering, Mathematics, and Medicine (STEMM) is a critical policy concern for science research governing agencies around the world. In Australia, STEMM-related policies have been advocated as key priorities in corporate plans to advance women's careers in health and medical research. **However, Australia lacks any systematic evidence about gender equality dynamics of clinical research within the hospital and health service environments**.

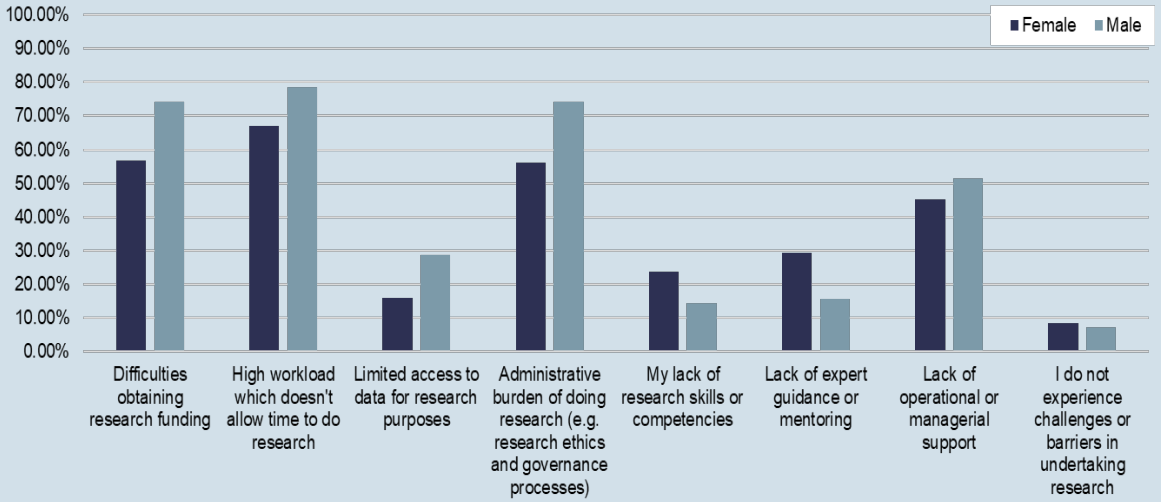
In partnership with Metro North Health and Qld Health, this project **examines gender equality in health services research across Metro North Health.**

The project adopts a mixed method research design comprising three components: 1) organisation-wide survey; 2) analysis of secondary organisational data; and 3) embedded, multi-site organisational qualitative case studies.

Organisation-wide survey, phase 1 preliminary findings: Understanding experiences of doing research in Metro North Health

- **268** valid responses from active researchers.
- **67.5%** female respondents.
- **44.8%** health practitioners; **25.4%** medical workers; **22.8%** nursing; and **5.6%** administrative roles.

Gender differences in challenges to research careers



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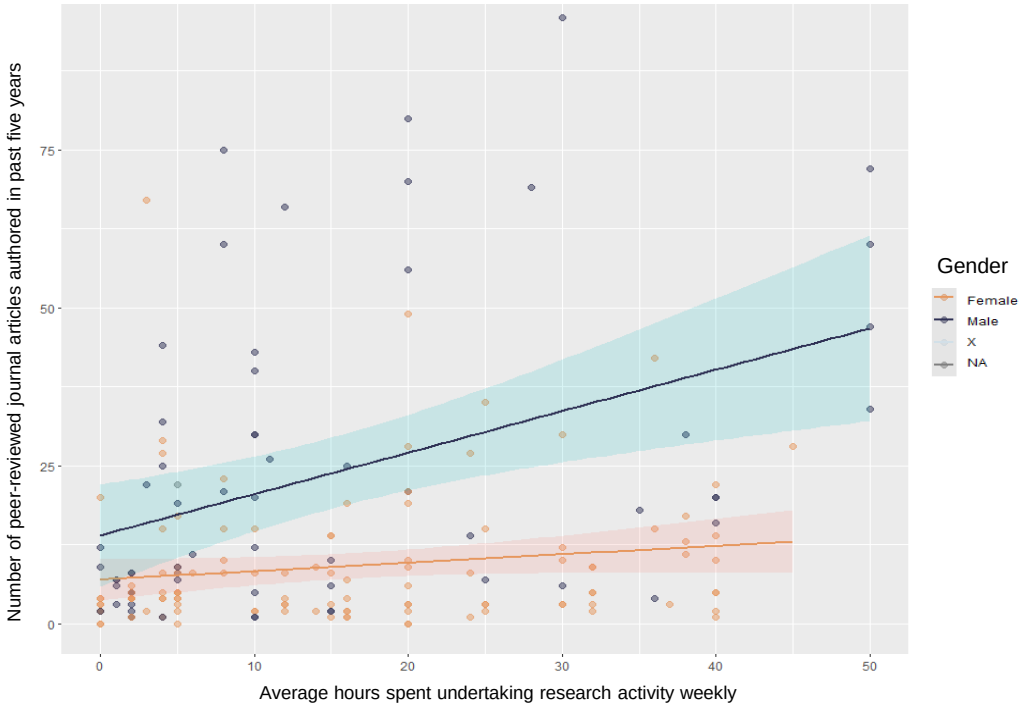
Achieving Gender Equality in STEMM Hospital and Health Service Research

Relationship between hours spent undertaking research and journal publication (gender comparison)



Men typically author more publications, and the relationship between the number of hours spent on research activities and number of publications produced is stronger for men than women.

Overall barriers to research in open-ended responses

Time

- Difficulties prioritising research due to clinical work.
- Inflexible schedules.
- Balancing work-family time responsibilities.

Opportunities

- Lack of appropriate supervision and mentorship.
- Difficulties obtaining funding, grants, or financial support.
- Unclear career structure for researchers.

Administrative

- Ethics and governance processes.
- Levels and types of research support.

"I feel supported in terms of opportunities to apply for funding. However, there is a serious lack of time available to conduct research. Even with grants to support research personnel, there is a significant time commitment to supervise and oversee projects" – Health Practitioner.

Have your say!

Look out for opportunities to participate in **interviews** to shed light on the nuances of research experiences in Metro North Health.

For more information, please contact CI Prof. Janet Davies janet.davies2@health.qld.gov.au

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

DISC-0024

Hypoxia and inflammation drives progression of chronic kidney disease (CKD).

Kurt Giuliani[1,2,3], Rebecca Johnston[4], Purba Nag[1,2], Anca Grivei[1,2], Monica Ng[1,2,3], Kenneth Ho[1,2], Xiangju Wang[1,2], Jacobus Ungerer[2], Nicola Waddell[4], Josephine Forbes[3,5], Helen Healy[1,2,3] & Andrew Kassianos[1,2,3]

[1]Kidney Health Service, RBWH; [2]Conjoint Internal Medicine Laboratory (CIML), Chemical Pathology, Pathology Queensland; [3]Faculty of Medicine, University of Queensland; [4]Statistical Genomics Group, QIMR Berghofer Medical Research Institute; [5]Mater Research Institute, TRI

1 Introduction

CKD has no cure

1 in 10 Australians have detectable CKD[1]

Hypoxia is a key driver of tubulointerstitial fibrosis/CKD

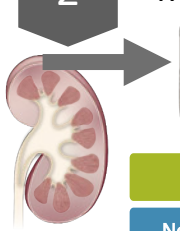
Interleukin (IL)-1β is present in active CKD progression.[2]

Fibrosis is associated with IL-1β in the kidney.[3]

However, the synergistic effect of hypoxia and IL-1β on CKD progression remains unknown

1 AIHW: Chronic Kidney Disease Compendium (2019)
2 Anders JASN (2016) 27; 2564-2575
3 Lemos JASN (2018) 29; 1690-1705

2 Methodology



Human Primary Kidney Cells - Proximal Tubule Epithelial Cells (PTEC)

X 4 Donors

Normoxia		Hypoxia	
Vehicle	IL-1β	Vehicle	IL-1β

RNA sequencing & Validation

3 2039 differentially expressed genes (DEGs) unique to hypoxia+IL-1β treated PTEC

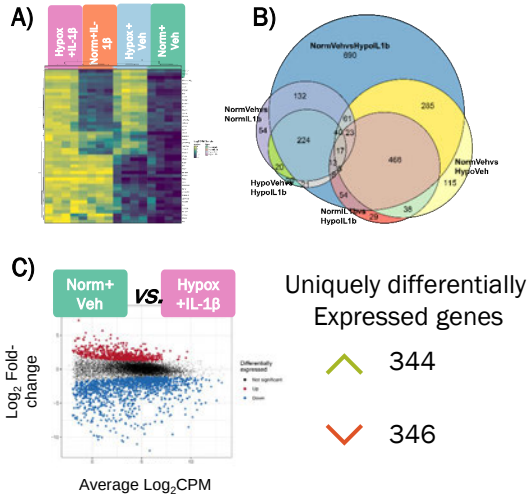


Figure 1: Analysis of RNA sequence data.
(A) Hierarchical clustering analysis of top 100 genes aligns with treatment groups. **(B)** Euler diagram of differentially expressed genes displaying genes common and uniquely expressed across all contrasts. **(C)** MA plot showing all differentially expressed genes (DEGs) between Normoxia + Vehicle *vs.* Hypoxia + IL-1β treated PTEC and the number of uniquely upregulated or down-regulated genes expressed in this contrast.

4 Pro-fibrotic pathways are upregulated in Hypoxia + IL-1β treated PTEC

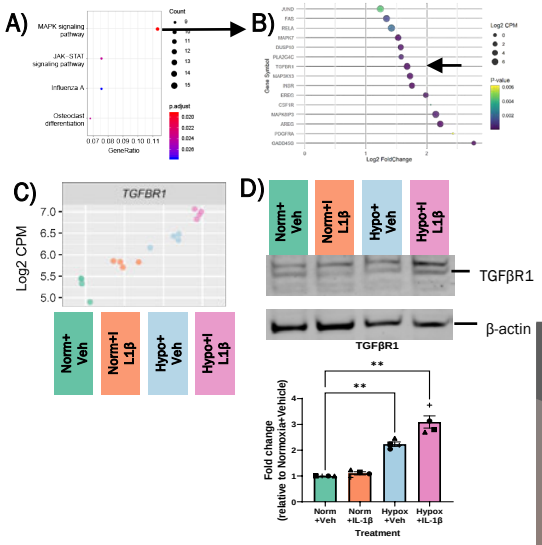


Figure 2: Pathway analysis and validation of RNA sequencing data.
(A) Kyoto Encyclopedia of Genes and Genome (KEGG) pathway analysis of uniquely upregulated differentially expressed genes in the Normoxia + Vehicle *vs.* Hypoxia + IL-1β treated PTEC. **(B)** Plot of MAPK signalling pathway relative expression (Log_2 Fold Change) and p-value, indicated by colour shading. **(C)** RNAseq counts per million (CPM) expression of *TGFBR1* expression in all samples. **(D, *upper*)** Representative western blot of TGFβR1 expression and **(D, *lower*)** quantified TGFβR1 protein expression (n = 4, ** p < 0.01).

5 Fibrotic clinical kidney specimens show increased PTEC expression of transforming growth factor (TGF)-β Receptor 1

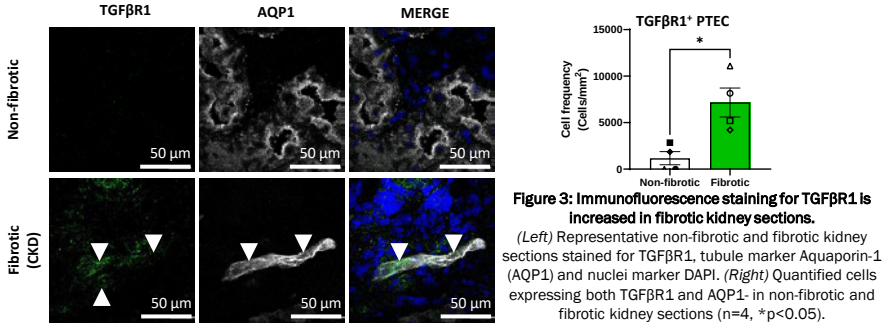
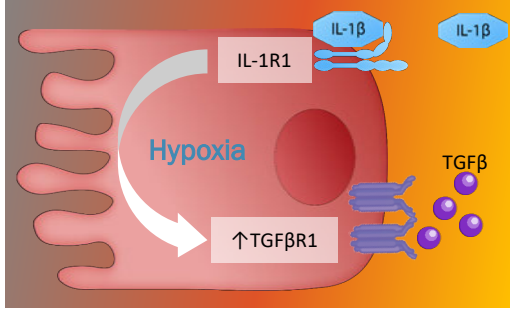


Figure 3: Immunofluorescence staining for TGFβR1 is increased in fibrotic kidney sections.
(Left) Representative non-fibrotic and fibrotic kidney sections stained for TGFβR1, tubule marker Aquaporin-1 (AQP1) and nuclei marker DAPI. *(Right)* Quantified cells expressing both TGFβR1 and AQP1- in non-fibrotic and fibrotic kidney sections (n=4, *p<0.05).

6 Hypoxia+IL-1β drives CKD via enhanced TGF-β signalling



7 Future Work

Clinical targeting of hypoxia+IL-1β signalling in CKD:

1) Therapeutic targeting of the upstream immunological source of IL-1β.
2) Diagnostic targeting of pro-fibrotic PTEC as early biomarkers of CKD progression.

For further information, please contact A/Prof Helen Healy (Helen.Healy@health.qld.gov.au) or Kurt Giuliani (kurt.giuliani@health.qld.gov.au).

Kidney Research Foundation

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Healthcare Innovations
How practice has changed

HERSTON HEALTH PRECINCT SYMPOSIUM 2021

6 - 10 September 2021
Education Centre
RBWH

ID DISC-0007

Medication Administration Evaluation and Feedback Tool (MAEFT): Stepped Wedge Cluster Randomised Trial

Karen Davies[1 2 3], Karen Hay[5], Karen Whitfield[3], Karen Chippindall[6], Peter Donovan[2 3], Samantha Keogh[2 4], Ian Coombes[2 3].

[1]Herston Infectious Diseases Institute Metro North Health, [2]Royal Brisbane and Women's Hospital, [3]University of Queensland, [4]Queensland University of Technology, [5]QIMR Berghofer Medical Research Institute, [6]Redcliffe Hospital.

Purpose

To evaluate the impact of the Medication Administration Evaluation Feedback Tool (MAEFT), a validated 22 criteria best practice checklist, on nursing adherence to medication administration guidelines, and to test the feasibility of the recruitment and data collection processes, and acceptability to participants.

Methods

A sequential, incomplete, stepped-wedge, cluster randomised trial with three phases: pre-intervention, intervention; follow-up intervention. With six wards across two hospitals and fifteen nurses recruited in each ward (total n=90). Intervention consisted of utilising the MAEFT for nurses to self-assess their performance before being observed administering medications and provided formative feedback on their performance. Participant acceptability was measured with a 10-question survey. The Consolidated Standards of Reporting Trials (CONSORT) statement and extension for SW-CRT were used. Ethics approval was obtained.

Results

MAEFT was used on 256/270 (94%) occasions involving 90 nurses, with 77 (86%) complete observational datasets. Nurses completed 155/180 (86%) self-assessments, with 82 (91%) at intervention, 73 (81%) at follow-up and 68 (76%) with paired assessments at both time-points.

Pre-intervention, nurses adhered to best practice guidelines 88% of the time (IQR: 83-93), compared with 94% (89-100) ($p<0.001$) with the intervention, and 95% (93-100) ($p<0.001$) with the follow-up intervention. For self-assessment, participants believed they adhered to guidelines 92% of the time (85-98) with the intervention and 97% (87-100) at follow-up ($p=0.001$). Participants found the process a positive experience.

Conclusions

The study shows that using the MAEFT across different clinical settings with different nurses demonstrates a statistically significant improvement in compliance with best practice guidelines for medication administration, compared to prior to the intervention. The study design demonstrated feasibility of recruitment, participant retention and acceptability.

MAEFT

2 Sections	22 Checks
- Clinical	- 11 Clinicals
- Procedural	- 11 Procedural

- Self Assessment Scale
- Yes/No/NA Evaluation
- If no, why – provide comment

Table 1.

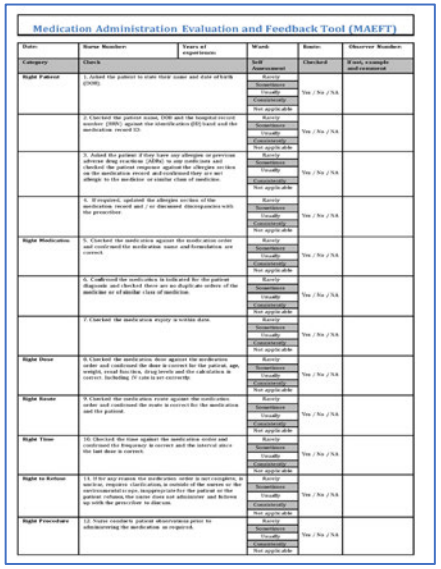

Table 2. % scores for observer-assessment and self-assessment

		Percentage score		
Observer assessment	Timepoint	Median (IQR)	Range	p-value*
(n=77)	1	88 (83-93)	47-100	
	2	94 (89-100)	67-100	<0.001[a]
	3	95 (93-100)	83-100	<0.001[b]
	Overall	93 (87-100)	47-100	0.011[c]
Self assessment				
(n=68)	2	92 (85-98)	55-100	0.001 [c]
	3	97 (87-100)	61-100	
	Overall	95 (90-95)	66-100	

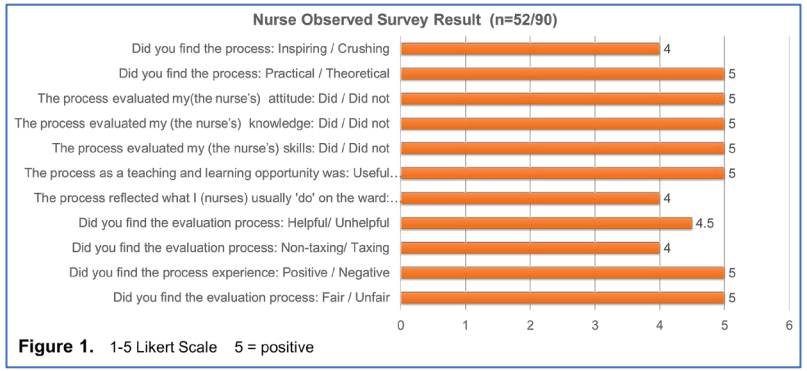

Figure 1. 1-5 Likert Scale 5 = positive

Herston Infectious Diseases Institute (HeIDI)

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Conflicts of interest :
The author has no conflicts of interest. Funding was received by Metro North Hospital Health Service (MNHHS) Collaborative Grants with QIMR Berghofer Medical Research Institute.

Ethics Approval: HREC/2020/QRBW/61198

Healthcare Innovations
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HERSTON HEALTH PRECINCT SYMPOSIUM 2021

6 - 10 September 2021
Education Centre
RBWH

ID DISC-0008

Australia and New Zealand Medication Administration Practice Assessment Survey

Karen Davies[1 2 3], Peter Donovan[2 3], Ian Coombes[2 3], Karen Whitfield[2 3], Samantha Keogh[2 4], Catriona Booker[2 3 4 5 6]

[1]Herston Infectious Diseases Institute Metro North Health, [2]Royal Brisbane and Women's Hospital, [3]University of Queensland, [4]Queensland University of Technology, [5]Australian Catholic University, [6]Griffith University.

Purpose

To survey Health Round Table (HRT) hospitals in Australia and New Zealand on what processes they currently conduct to assess nurses' adherence to medication administration guidelines.

Methods

A multi-centre cross-sectional ANZ survey in accordance with "A Consensus-Based Checklist for Reporting of Survey Studies (CROSS)" guidelines. Designed using two rounds of Delphi technique with 18/24 HRT Medication Safety Program multidisciplinary subject matter experts, including nurses, pharmacists and medical officers. Survey application was Microsoft Forms. It was piloted twice in August 2021. The final survey included two sections: Six demographic questions and 11 survey questions. The survey link was sent by email with a cover letter for informed consent. An ethics exemption was obtained EX/2021/QRBW/78833.

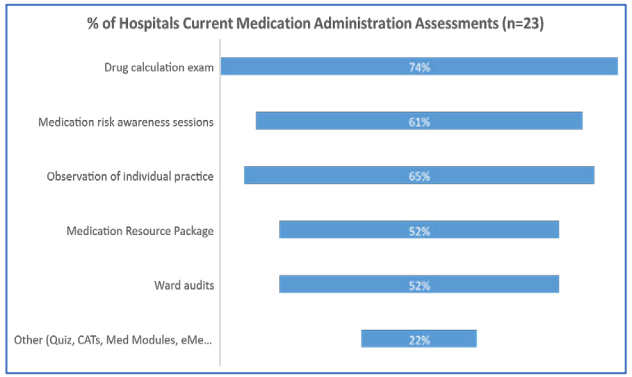
Results

Response rate included 12 jurisdictions/states across ANZ (n=23/43) 53%. Respondent profession was 83% Nursing and Midwifery. All hospitals used multiple types of medication assessment, mostly conducted across the entire organisation. 65% conducted, as part of professional development and review in response to a medication error; with 22% only in response to an error. 78% conducted assessment on commencement to the organisation, only 30% conduct assessments on a regular annual basis. Individual face-to-face assessment was the preferred method (65%). Only 35% proposed an annual assessment. Only 30% had a valid tool for assessment. 65% said they would use a valid tool if available.

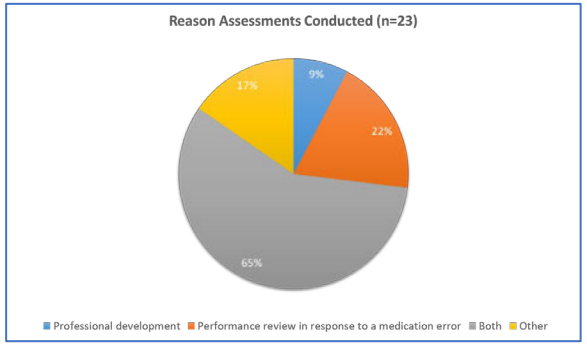
Conclusions

Although most hospitals used multiple types of medication assessment few conducted regular ongoing review with a smaller proportion proposing a change to ongoing review. A cultural change is required if we are to become proactive in providing all nurses an ongoing opportunity to improve medication administration practice and to reduce preventable medication-related harm.

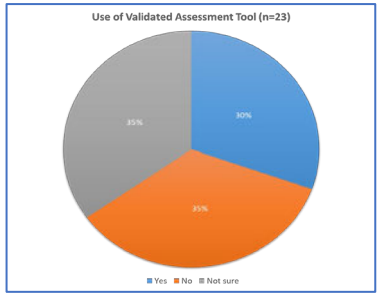
What medication administration practice assessments are currently taking place in your organisation?



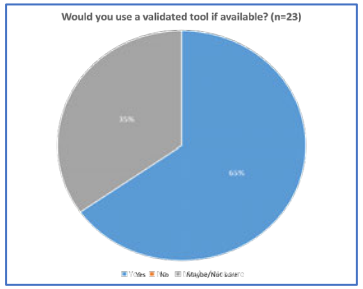
Are these medication administration practice assessments conducted as part of professional development or only as a performance review in response to a medication error?



Do you currently have a validated tool to conduct nurses' medication administration practice assessments?



If a validated medication administration evaluation and feedback tool was available would your organisation be interested in using it?



DISC-0009

Taking IV Safety Software off the shelf: developing drug libraries to improve medication safety

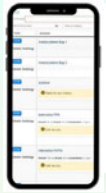
Mika Varitimos, Prof Ian Coombes, Dr Karen Davies, Vanessa Tarlinton, Emma O'Brien

Purpose

To prevent medication harm through a 10-year update of RBWH IV Safety Software (IVSS)

Areas included
- General wards
- Cardiology
- Intensive Care Unit
- Neonatal Intensive Care Unit

Background
- Clinical incidents including propofol excess dosing errors
- Decreased staff trust in drug libraries
- Use of work arounds and decreased compliance with library use



New IVSS app

Method

1. **Review of medication incident reports**
2. **Profiles added or deleted**
   - Dispensing records, distributions & imprest holdings reviewed
   - Feedback from nursing, medical & pharmacist staff obtained
3. **On pump and on paper checking**
   - Iterative cycles of multidisciplinary testing and review undertaken
4. **Education delivered**
   - Online IVSS app developed
   - Dosing charts for IVSS disseminated
   - Nursing inservices conducted
5. **Compliance audit & incident review**
   - Pre- vs post-upload compliance investigated
   - Incident reports reviewed by Medication Safety Team

Results

Improved compliance with profile use
- 81.2% pre-update
- 93.9% post-update
- p=0.003

Decreased incorrect IV rate errors
- 46 incidents pre-update
- 33 incidents post-update
- In 6-months pre- vs post-update

Decreased wrong administration technique errors
- 45 incidents pre-update
- 33 incidents post-update
- In 6-months pre- vs post-update

Decreased incorrect strength or concentration errors
- 10 incidents pre-update
- 8 incidents post-update
- In 6-months pre- vs post-update

Conclusions

Evidence-based IVSS update implemented
- Multi-stakeholder involvement required
- In complex tertiary hospital setting

Reduced dose-related errors

Improved compliance with IVSS use

Medication-related harm prevented

DISC-0017

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

Piloting the Way to Safer Home Oral Antibiotic Administration: Evaluation of a Complex OutPatient Antibiotic Therapy (CoPAT) Program

Kim Ta[1], Tia Stuart[2], Sam Tapp[2], Michael Holt[3], Andrew Hale[1], Kate McCarthy[2]

1. RBWH Pharmacy Department, 2. RBWH Infectious Diseases Department 3. RBWH Thoracic Medicine Department

BACKGROUND

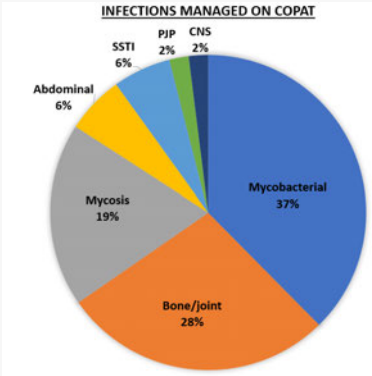
- Traditionally, long-term antibiotic therapy for significant infection has been given intravenously (IV).
- Current evidence supports substitution of highly bioavailable oral antibiotic (HBOA) therapy for most of the IV course.
- Literature suggests up to 26% of patients may develop a severe adverse event (SAE) on such therapies leading to morbidity and hospital admissions.
- Currently no formalised monitoring system for patients receiving long HBOA courses and with early recognition and intervention, these SAE are potentially avoidable.
- We developed a Complex outpatient antibiotic therapy (CoPAT) service which uses structured monitoring to detect and manage SAE in patients receiving more than 1 week of HBOA therapy in community.

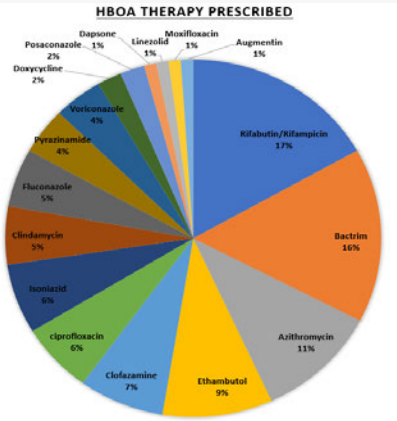
METHOD

A service evaluation study assessed the feasibility and impact of a CoPAT service. Patients were enrolled if they had received greater than one week of HBOA.
A prospective cohort of patients on CoPAT from between 1st November 2021 and 31st May 2022 was analysed.

RESULTS

- Fifty-three patients were enrolled.
- Mean CoPAT duration was 13.5 weeks.
- Mycobacterial (37%) and bone and Joint infections (28%) were the most common infections.





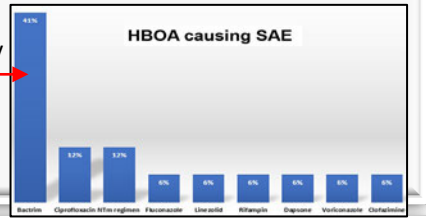
- Commonly prescribed HBOA were Rifampicin/rifabutin (17%), Bactrim (16%) and Azithromycin (11%).
- Of 32 patients discharged from service, 63% completed CoPAT as planned.
- In 42% of patients, HBOA therapy substituted for IV therapy for serious infections such as bone and joint and abdominal infections.

RESULTS

- A third of patients (N=16, 30%) experienced at least one severe adverse event (SAE), 50% of these required hospital admission while 50% were safely managed in community.

Classification of SAE	N (% of 23)
Gastrointestinal: Severe nause and vomiting, diarrhoea	5 (22)
Haemotologic: neutropenia (with systemic Sx); severe anemia (<80mg/L); methaemaglobinaemia	4 (17)
Respiratory: New 02 requirement	3 (13)
Immunologic: drug reaction with systemic features (urticaria, angioedema)	3 (13)
Systemic: Unwell with neutrophilia and elevated CRP	2 (9)
Renal: AKI	2 (9)
Neurological: syncopal episodes, peripheral neuropathy	2 (9)
Musculoskeletal: tendonitis	1 (4)
Endocrine metabolic: severe hyperkalaemia	1 (4)

- CoPAT was the primary healthcare contact for 70% of patients with a SAE, an average of 5 days (range 1-21) after symptom onset.
- Bactrim was most frequently implicated in SAE (41%).



CONCLUSION

CoPAT allowed for earlier identification and management of SAE, facilitating achievement of therapeutic goals, reduced hospital admissions and overall care costs. This is a unique model of care in Australia.

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HERSTON HEALTH PRECINCT SYMPOSIUM 2021

6 - 10 September 2021
Education Centre
RBWH

DISC-0029

Tensile strength of extracorporeal membrane oxygenation (ECMO) cannula exposed to an alcohol-based solution. Can alcohol-based solutions be safely used at ECMO cannulation sites to improve infection outcomes?

A Corley[1,2,3], N McGuinness[3], I Pearse[3], JF Fraser[3], N Bartnikowski[3]

[1]Nursing & Midwifery Research Centre, RBWH; [2]Griffith University; [3]Critical Care Research Group, The Prince Charles Hospital

Purpose: Extracorporeal membrane oxygenation (ECMO) cannula-related blood stream infection (CRBSI) is difficult to detect, under-diagnosed and estimated at four times the rate of other indwelling lines[1]. Despite strong evidence and recommendations, only one third of Australian ECMO centres use alcohol-based solutions at cannula insertion sites for fear of damaging the polyurethane ECMO cannula (Figure 1).

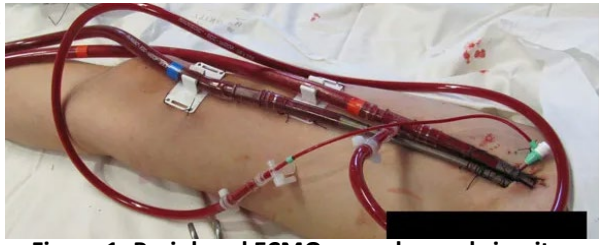


Figure 1: Peripheral ECMO cannulae and circuit

Methods: In a benchtop study, ECMO cannula sections were exposed to 2% chlorhexidine gluconate (CHG) in 70% alcohol, via daily cleansing to mimic decontamination of insertion sites during dressing, and compared with untreated cannulae using an Instron 5567 Testing System.
Tensile strength was compared to determine: Yield point (Newtons [N]; the point at which the polyurethane was irrevocably deformed; and Elastic modulus (Gigapascals [GPa]; resistance to being deformed).

Results: Tensile strength was significantly reduced at 3 & 7 days after daily cleansing with 2% CHG in 70% alcohol compared to untreated cannula (Figure 2).

The force required to deform the untreated cannula was 56.3 N (SD 0.1) compared with 46.9 N (SD 5.2) for cannula cleansed daily for 7 days (p=0.04).

To put this into clinical context, the force required to dislodge ECMO cannulae secured with an occlusive dressing is 17N/1.7kg or with dressing and sutures is 34N/3.4kg. Therefore, the force required to deform cannulae exposed to 2% CHG in 70% alcohol greatly exceeds the force needed to dislodge cannulae from the insertion site, suggesting observed decreases in cannula strength are within safe parameters for clinical practice.

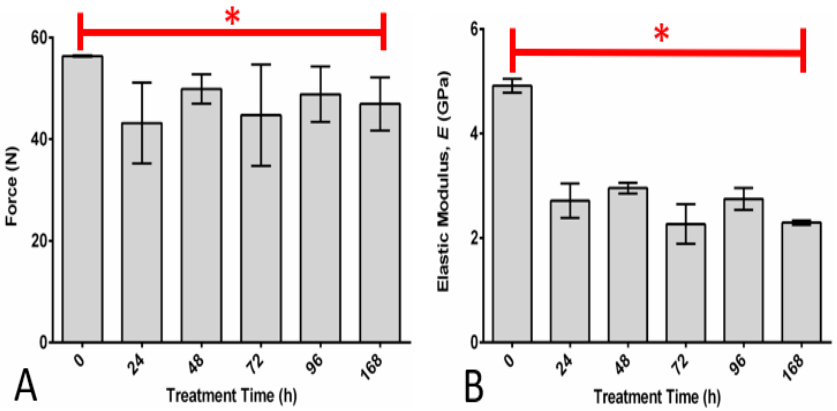


Figure 2. A, Force required to deform; B, Resistance to being deformed

CONCLUSION AND CLINICAL RECOMMENDATIONS: 2% CHG in 70% alcohol reduces tensile strength in ECMO cannula however any reduction far exceeds the pull-out force necessary to dislodge ECMO cannula secured with sutures+/-dressings. Therefore, dislodgement would occur prior to cannula breakage if force were applied and, as such, any weakening should not present a barrier to the use of alcohol-based solutions for skin preparation and dressing change of ECMO cannulation sites.
We conclude that overall risk from CRBSI in critically-ill patients receiving ECMO far outweighs changes in cannula properties from an alcohol-based solution.

References: 1. Schmidt M et al. CID 2012:55. 2. Bull et al. PLOS One 2019:doi.org/10.1371/journal.pone.0227248.

Translational Research

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID #TRAN-0001

Evaluation of the stability of temocillin in elastomeric infusion devices used for Outpatient Parenteral Antimicrobial Therapy (OPAT) in accordance with the requirements of the UK NHS Yellow Cover Document

Fekade B. Sime[1], Steven C. Wallis[1], Conor Jamieson[2], Tim Hills[3], Mark Gilchrist[4], Mark Santillo[5], R. Andrew Seaton[6], Felicity Drummond[7], Jason A. Roberts[1] on behalf of the BSAC OPAT Initiative.

[1]The University of Queensland Centre for Clinical Research, Brisbane, Australia; [2]NHS England and Improvement, Birmingham, UK; formerly at Pharmacy Department, Sandwell and West Birmingham NHS Trust, UK; [3]Pharmacy Department and OPAT Service, Nottingham University Hospitals, Nottingham, UK; [4]Department of Pharmacy/Infection, Imperial College Healthcare NHS Trust, London, UK; [5]Torbay & South Devon NHS Foundation Trust, Torquay, UK; [6]Department of Infectious Diseases, Queen Elizabeth University Hospital, Glasgow, UK; [7]British Society for Antimicrobial Chemotherapy, Birmingham, UK

Introduction

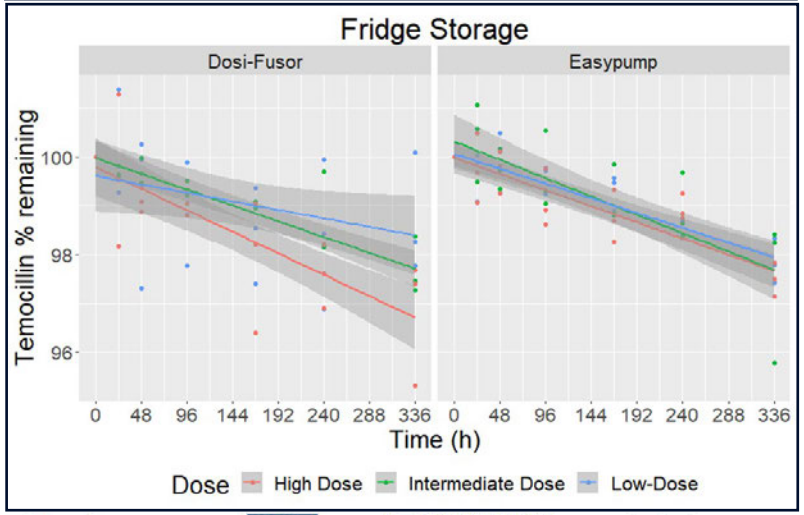
- Temocillin has a potential as a carbapenem sparing agent and is attractive for OPAT
- For maximum convenience for OPAT, access to pre-filled elastomeric devices with adequate shelf life is desirable
- Buffering some penicillins has been shown to improve stability and shelf life
- This study aimed to assess the stability of temocillin reconstituted with 0.3% citrate buffer at clinically relevant concentration in two elastomeric devices

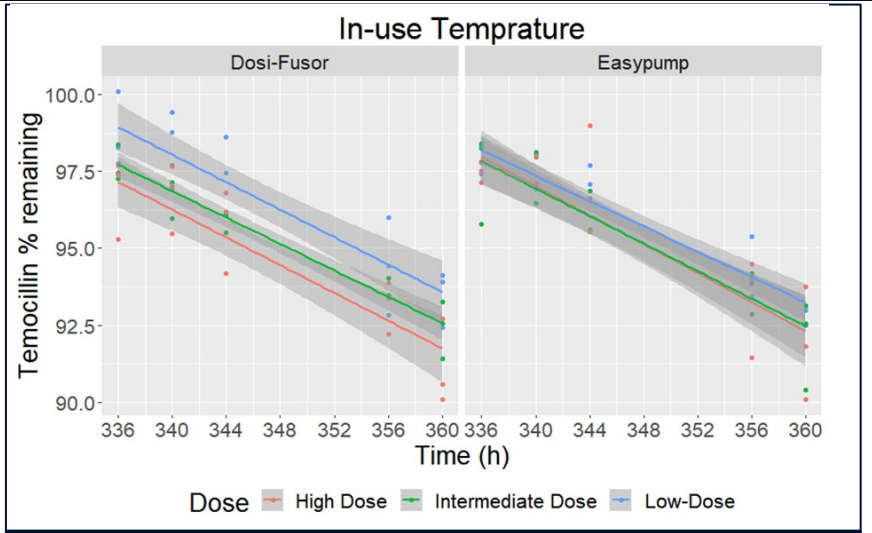
Methods

- UK NHS YCD protocol
- Temocillin in 0.3% citrate buffered saline pH 7 at 500mg, 4000mg and 6000mg/240 mL
- Two devices : Easypump®II and Dosi-Fusor®
- Stored in at 2-8 °C for 14 days followed by at 32 °C for 24 hours (simulated in-use condition)

Results

- Stable during fridge storage for 14 days (>97% of original concentration,)
- At 32 °C, <5% degradation up to 12 h except for high dose in Dosi-Fusor (10 hr).
- At 32 °C, <10% degradation up to 24 h





Conclusions

- Temocillin is stable for an extended period of fridge storage and 12 h in use period at 32 °C meeting YCD requirement
- Twice daily dosing (12 hour infusion) if <5% degradation is the regulatory requirement and once daily 24 hour infusion in jurisdiction that allow ,10% degradation over 24 hours.

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
TRAN-0027

Circulating tumour DNA as a prognostic biomarker in head and neck squamous cell carcinoma

Xiaomin Huang[1], Pascal HG Duijf[2], Paul Leo[2], Sarju Vasani[3], Lizbeth Kenny AO[4], Chamindie Punyadeera[1,5]

1. GRIDD, Griffith University; 2. QUT/TRI; 3. Department of Otolaryngology, RBWH; 4. Cancer Care Services, RBWH; 5. MIHQ, Griffith University

INTRODUCTION

- Head and neck cancer (HNC) ranks 7th most common cancer worldwide[1], and over 90% of HNCs originated from squamous cell carcinoma (HNSCC).
- Major risk factors for HNSCC are tobacco[2], alcohol, HPV infection etc.
- The 5-year overall survival is just around 60%[3].
- Except for viral-based HNSCC (HPV-related oropharyngeal carcinoma or EBV-related nasopharyngeal carcinoma[4]), there are no clinically validated biomarkers for early detection, prognosis or disease monitoring.
- HNSCC is highly heterogenous but tissue biopsy cannot totally reveal tumour heterogeneity.
- Liquid biopsy refers to the use of cancer-derived biomarkers that circulate in the body fluid, which includes circulating tumour DNA (ctDNA), circulating tumour cells, and exosomes.
- ctDNA is short fragments of nuclear acid that come from the solid tumour. It provides a non-invasive way to monitor tumours in a real-time pattern by depicting the tumour's genomic profiles.
- Hypothesis: ctDNA can be used as a biomarker to early predict recurrence and/or monitor treatment response in HNSCC.

METHODS

- Patients' plasma was double spined before taking out the supernatant for -80° storage.
- Three column-based cfDNA isolating kits were used to compare the yield (ng/ml of plasma). They were QIAamp Circulating Nucleic Acid Kit (cat#55114), NORGEN cell-free circulating DNA purification midi kit (cat#55600), and NORGEN cfc-DNA advanced purification kit (cat#68000)
- Baseline cfDNA from 40 HNSCC patients were isolated by using the QIAamp kit.

RESULTS

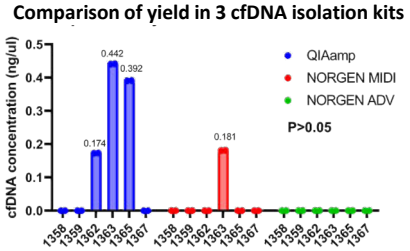


Figure 1. Comparison of yield in 3 cfDNA isolation kits. 2ml of plasma was used to isolate cfDNA from 6 HNSCC patients. Concentrations (ng/µl) of cfDNA were measured by Qubit.

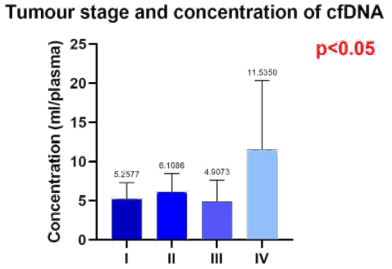


Figure 2. Tumour stages and cfDNA concentrations (ng/ml of plasma). cfDNA from 40 HNSCC patients were isolated by QIAamp kit. Baseline concentrations and tumour stages were analyzed by one-way ANOVA.

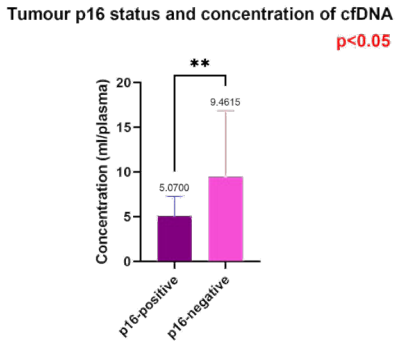


Figure 3. Tumour p16 status and cfDNA concentrations. Baseline concentrations of cfDNA and tumour p16 status were analyzed by t-test.

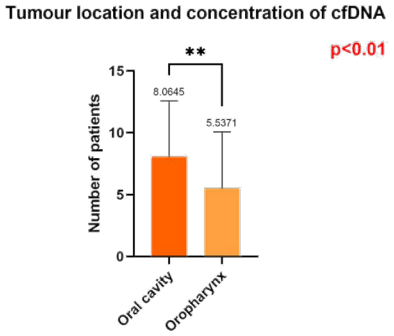


Figure 4. Tumour location and cfDNA concentrations. Baseline concentrations of cfDNA and tumour locations were analyzed by Mann Whitney test.

CONCLUSIONS

- The detection rates of QIAamp Kit, NORGEN MIDI Kit and NORGEN ADV Kit were 50%, 16.7% and 0% respectively.
- QIAamp Circulating Nucleic Acid Kit produced the highest yield of cfDNA.
- Stage IV tumour has a higher concentration of cfDNA.
- P16 negative tumour has a higher concentration of cfDNA.
- Tumour in the oral cavity has a higher concentration of cfDNA.
- ctDNA shows promising value in becoming a biomarker in HNSCC.

FUTURE WORK

- To detect the mutational profiles of ctDNA. Especially mutations in cancer driver genes.
- To develop a ctDNA gene panel that will have predictive value in the early detection of recurrence in HNSCC.

REFERENCES

[1] Sung et al. CA Cancer J Clin, 2021
[2] Blot, et al. Cancer Res, 1988
[3] Cadoni et al, Acta Otorhinolaryngol Ital, 2017
[4] Young et al. Chin J Cancer, 2014

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0012

Winner – Professor Jeffrey Lipman Award for Best Translational Research Into Practice

Can we (successfully) add food to a nasogastric refeeding protocol for patients with eating disorders?

Kate Morgan, Clare Cutmore, Kylie Matthews-Rensch; Nutrition and Foodservices, RBWH

Background and Aims:

The QLD eating disorder nasogastric refeeding protocol includes a prolonged period (>7 days) of nil by mouth (NBM) status

Previous research identified that the re-introduction of food after 7 days was difficult for patients

This mixed-methods research aimed to assess the safety and feasibility of 'mini meals.'

Methods:

Patients admitted for the protocol received mini meals from day 5

Data were collected from July 2020 to March 2021: Demographics, mini meal consumption, opt outs and clinical incident data

Within 72 hours of discharge, patients were sent a survey via SMS. The survey included 5 questions regarding their experience.

Observations results:

102 patients were admitted, with 60 appropriate to participate

Majority were female (95%), aged 25±9 years, with anorexia nervosa (75%).

Based on food charts, only 11 participants ate nothing.
There were no clinical incidents.

Survey results:

Twenty-six patients completed the survey (52 eligible).

Majority (81%, n=21/26) reported that mini meals helped them return to eating.

Half (54%, n=14/26) agreed that mini meals improved their inpatients experience. Eleven participants desired more menu choice.

Conclusions and Future Directions:

Adding food to an eating disorder protocol is safe, improves patient experience and assists them in returning to eating. Some items on the menu may require reconsideration to enable increased consumption.

Further evidence is needed on the best time to reintroduce an oral diet and its impact on recovery.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

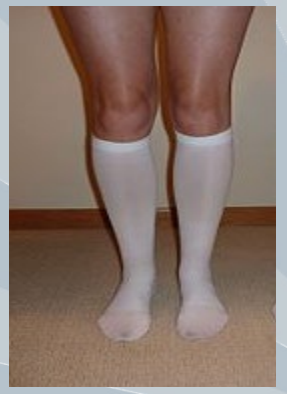
5–8 September 2022
Education Centre, RBWH

ID # TRAN-0011

Graduated compression stockings for Orthopaedic patients: a meta-analysis

Marsh,N[1,2,3], Woodhouse,B [1]

[1] Royal Brisbane and Women's Hospital, [2]University of Queensland, [3]Griffith University

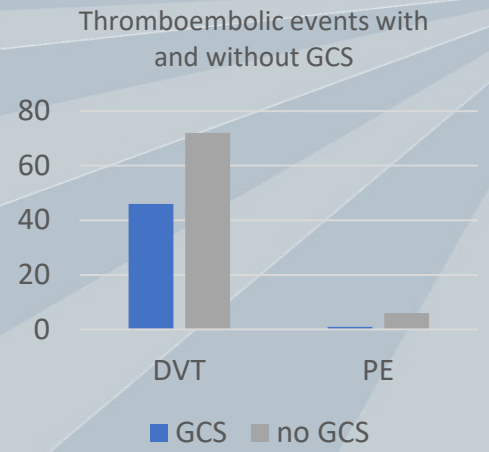


Purpose: Orthopaedic patients are at a greater risk of thromboembolic events than other surgical patients, due to the longer surgery time and immobility. Graduated compression stockings (GCS) are the mainstay of thromboprophylaxis in Orthopaedics. "Do I have to wear them" is a frequently asked question, therefore, this review aims to assess the benefit they provide to Orthopaedic patients.

Methods: Electronic databases, including the Cochrane Central Register of Controlled Trials (CENTRAL), Ovid MEDLINE and PubMed were searched on 3rd June 2021. Randomised control trials comparing the effect of GCS to standard care, with outcome measures of deep vein thrombosis (DVT), pulmonary embolism (PE) and length of stay (LOS) in acute Orthopaedic patients were included. Two review authors independently assessed trials for eligibility, extracted data, and completed methodological quality assessment of included studies using the Cochrane 'Risk of bias' tool.

Results: A total of four trials *(n=1128)* were included in this review. There was a significantly lower *(p=0.01)* occurrence of DVT *(n=46/557)* in the intervention group with GCS compared to the control group *(n=72/571) (odds ratio (OR) 0.60; 95% confidence interval (CI), 0.04, 0.90).* PE's, occurred more frequently in the control group *(n=6/571)* compared to the GCS group *(n=1/557) (OR 0.29; 95%CI, 0.06, 1.42)*, however these results were not statistically significant *(p=0.13)*. Length of stay was unable to be included in meta-analysis as it was only measured in one study. This study reported an 18 hour shorter LOS in the GCS group (intervention).

Conclusion: This review found statistically significant evidence that wearing GCS is associated with a lower number of DVT's in Orthopaedic patients. However, there was insufficient evidence to support the benefit of GCS reducing rates of PE or LOS. The age of the trials (1978-2009) makes the data potentially outdated, more research is required to confirm the benefit of GCS in a contemporary Orthopaedic setting.



Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
ID #TRAN-0005

Holding your breath for a better outcome

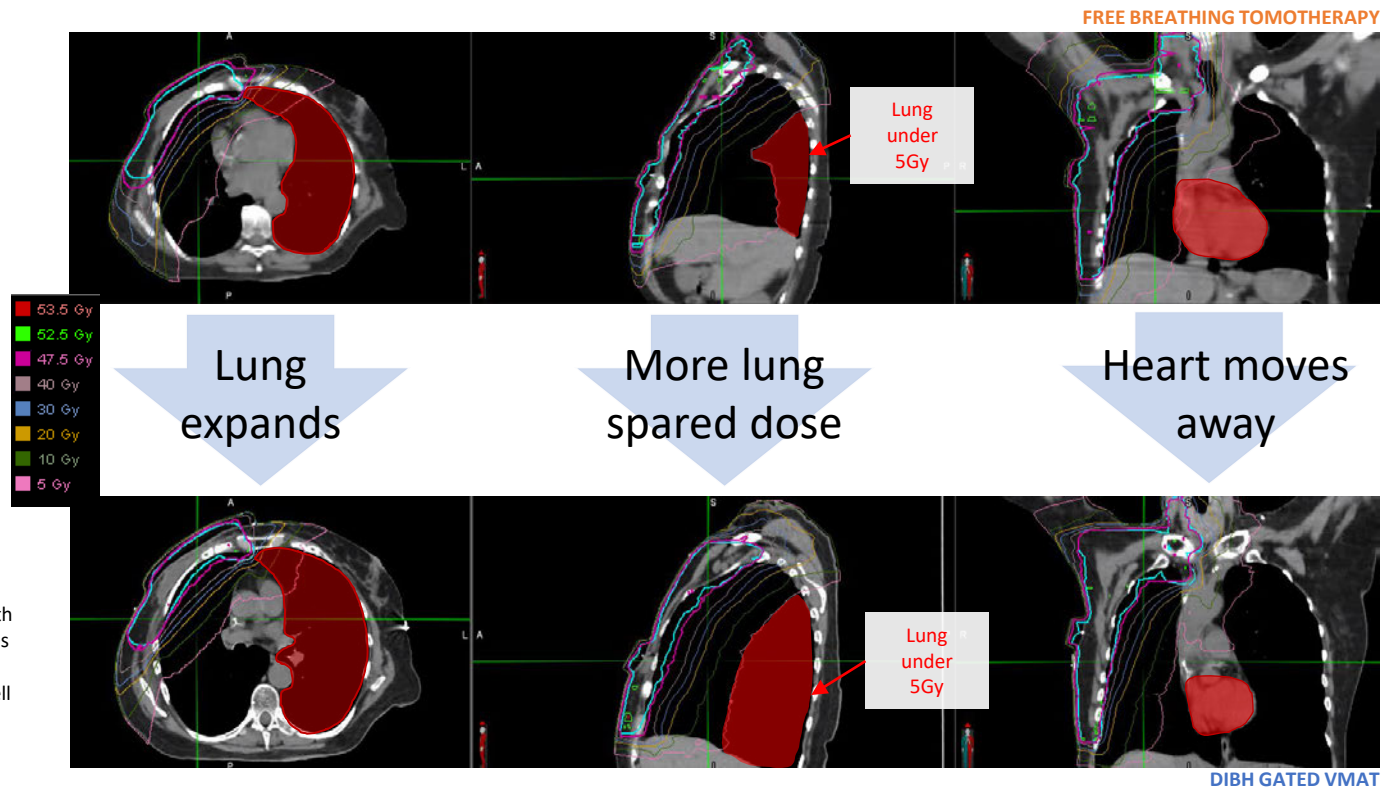
Implementing gated DIBH VMAT treatment for Breast and Node Radiation Therapy

Purpose

Radiation treatment of breast cancer patients with involved nodes can be complex. This has previously prevented these patients from being treated in deep inspiration breath hold (DIBH), a technique that minimises intrafraction movement and potentially enables a reduction in the amount of radiation dose received to the heart and lungs. Utilising volumetric modulated arc therapy (VMAT) in combination with treatment gating, a technique was developed and implemented to allow these patients to successfully be treated in DIBH.

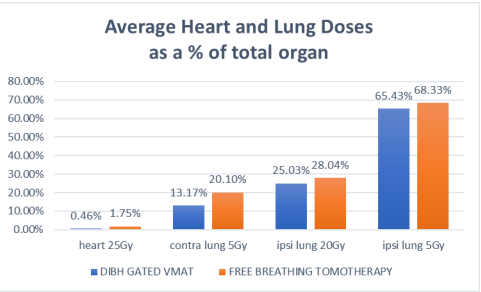
Methods

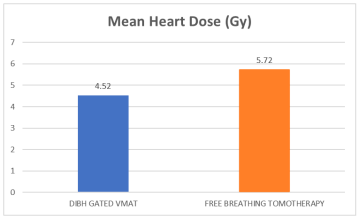
After review of current literature, a technique was developed by Radiation Therapy staff to enable the planning of breast and involved nodes patients with VMAT whilst using DIBH. This technique needed to be robust enough that reasonable changes in patient shape would not significantly impact the delivered radiation dose. A virtual bolus was utilised to enable optimization of the radiation dose outside of the original patient contour to allow for breast expansion. The technique also needed to be deliverable over a suitable number of 25 second breath holds. This was achieved by limiting the technique to 4 partial arcs with each arc deliverable in 2 breath holds. The patient uses visual coaching aides to achieve and maintain a stable breath hold allowing an increase in lung volume as well as a repositioning of the heart away from delivered radiation.



Results

Since the availability of this technique, 56 patients have received treatment using breath hold VMAT. There was a reduction in the average heart and lung doses when compared with the average doses of the patients treated with free-breathing Tomotherapy. The average treatment time of 27.5 minutes is comparable to the free-breathing treatment time of approximately 24.3 minutes.





Conclusion

Implementing deep inspiration breath hold gated VMAT for patients with breast and involved nodes has allowed patients the option to be treated with an efficient, evidence-based technique that potentially reduces the amount of radiation dose received by the heart and lungs when compared to free-breathing Tomotherapy.

Kate Stewart, Brodie Millsom, Alice Grigg, Dr Michelle Grogan
Cancer Care Services- RBWH

Griffith University Queensland, Australia · Menzies Health Institute Queensland · QIMR Berghofer Medical Research Institute THE FUTURE OF HEALTH · pathology queensland · QUT · The University Of Queensland AUSTRALIA CREATE CHANGE · HERSTON HEALTH PRECINCT · RBWH Foundation · Metro North Health · Queensland Government

Connections and Community
HERSTON HEALTH PRECINCT SYMPOSIUM 2022
5–8 September 2022
Education Centre, RBWH
TRAN-0008

Exploring the barriers and enablers to best practise of physiotherapy clinical educators in a metropolitan teaching hospital using an implementation science approach

Joanna Hargreaves[a], Peter Window[a,b], Simone Leslie[a], Michelle Cottrell[a,b], Ashlee Snoswell[a], Shaun O'Leary[a,b]

Aim

This study aimed to

(1) evaluate physiotherapy clinical education (CE) at a metropolitan teaching hospital,

(2) explore barriers and enablers to best practise using the Consolidated Framework for Implementation Research (CFIR).

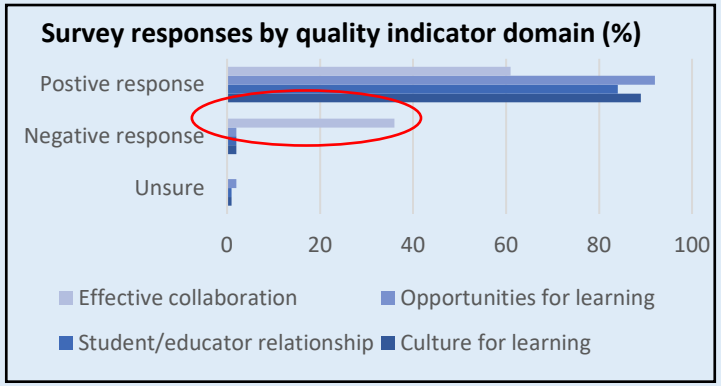
Method

Current practise was evaluated using the CPQS-E survey [1]. Survey findings informed focus group and interviews with stakeholders (university, educators, management) to explore barriers and enablers. Themes were mapped using the CFIR framework.

Results

(1) Two deficits in current practise were identified:

- limited engagement in CE training
- limited collaboration with university partners.



(2) Three themes were identified:

- CE training focusses on assessment.

> We're expecting educators…some of them have no idea what an educator [is] or how to educate… Our [workshops] provide the way … to use a tool to assess.
>
> UNI4/ CFIR iv

- The clinical educator role is perceived as of low value.

> The department needs to see CE as being not only something that people who work in here have to do because it's our duty. But as being something that's really important.
>
> CE7/CFIR iii

- Opportunities exist to develop supports for clinical educators.

> In terms of [attending a CE] conference …no. Because I don't know who a guru is in clin ed. I don't know if clin ed has that?
>
> CE6/CFIR iii

Conclusion

This study is the first to explore quality of clinical placements in a specific setting using an implementation framework. Findings informed a multi-pronged implementation strategy, focusing on increasing the perceived value of the educator role, engaging educators in training in skills as educators, and strengthening collaboration with universities.

Acknowledgements

This project was funded through a CAHRLI AHTRIP Start-up Grant, and the RBWH Physiotherapy Department Research Fund.

References

[1] Hargreaves, J., Kirwan, K., & Thomas, P. (2016). *Development of a clinical educator survey tool for determining clinical placement quality: Validity and reliability of the CPQS-E tool (Clinical Placement Quality Survey – Educator).*

[a] Physiotherapy Department, RBWH
[b] SHRS, UQ

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0007

Using the COPM to measure return to occupations post burn injuries

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Andrea.McKittrick@health.qld.gov.au

Introduction

Occupational Therapy practice in burn care is guided the "Burn Trauma Rehabilitation: Allied Health Practice Guidelines' [1]. The Canadian Occupational Performance Measure (COPM) is an evidence-based outcome measure designed to measure consumers self-perception of performance of activities of daily living over time [2]. A feasibility study undertaken at RBWH [3] in 2019 resulted in the COPM being implemented into clinical practice. The aim of this study was to identify if consumers achieved their goals of returning to activities post burn injury and to establish the most appropriate time point for re-measurement using the COPM.

Method

This was a prospective longitudinal study design which involved repeated measures of at least one construct over time to study change. Ethical Approval: HREC EC00172 (EX/2021/QRBW/75928). *Inclusion Criteria:* Admission to the burns inpatient ward for > 24 hours, Aged 18 years and older, Individuals who had capacity to provide consent Language was not a barrier; interpreters were used when required, Continuing to receive burns specific OT interventions at time of recruitment. *Exclusion Criteria:* Discharged from the burns service, Individuals with cognitive impairment with no capacity to consent.

Results

n = 37

Mean TBSA = 18.23%

Range of body areas injured

Mean time -initial injury to first COPM measurement = 27.3 days

Mean time - initial measurement to re-measurement = 229.14 days

Key occupational performance problems

Participants experienced occupational performance problems across all domains of self-care, productivity, and leisure

Activity	Number of participants
Self-care: Walking	8
Productivity: Driving car	14
Work	14
Caring for children	6
Leisure: Gardening	6

Changes in total performance scores over time

The results demonstrate that 86.5% of participants reported a higher performance score at the time of COPM re measurement. The mean improvement score was 7.19 indicating that participants were able to better perform those activities that they had identified as meaningful prior to discharge from the acute ward setting.

Changes in total satisfaction scores over time

Two participants indicated no change in satisfaction with their performance of activities over time. 86.5% of participants reported an increase in satisfaction with their performance of activities at the time of re-measurement. The mean change in total satisfaction scores was 9.2 indicating improvement over time. All participants were less than two years post burn injury at the time of re measurement, indicating that improvements in performance and satisfaction are occurring while scar maturation is ongoing.

Discussion

Recovery from a burn injury can occur over a period of months to years. The mean time frame for re-measurement in this study (229.14 days) supports the longevity of recovery in the burn's population. Both personal and environmental factors can present as challenges when collecting outcomes post injury. Most of the participants experienced improvements in performance of activities of daily living at the time of re measurement. This may be attributed to wound healing, increased strength, increased activity tolerance and increased endurance with burn rehabilitation. Satisfaction and performance rates were highest at approximately 1 year post burn injury. A limitation of this study is that it occurred at a single state-wide burn's facility in Australia.

Conclusion

It is recommended that when using the COPM in burns care, re-measurement be completed at one year from initial burn injury. The findings from this study have been translated into routine collection of outcome measures at RBWH.

References

SCAN ME

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0030

A Value Based Multidisciplinary Inpatient Influenza Vaccination Initiative

Nicola Farrell – Senior Pharmacist - Surgical Treatment & Rehabilitation Service

Background

Current practice for influenza vaccination of inpatients is highly variable. A lack of standardisation risks patients not receiving a vaccine or suboptimal vaccine selection with poor compliance to mandatory documentation.

Unnecessary costs will be incurred if subsidised (free of charge) National Immunisation Programme (NIP) vaccines are not utilised.

In May 2022, influenza cases were on the rise and the covid-19 pandemic had outstretched our resources. Only one influenza vaccine had been administered at our 125-bed rehabilitation public hospital unit. This needed to change.

Purpose

To implement a standardised process to increase the uptake of NIP influenza vaccination and minimise costs.

Method

1. Development of an 'Influenza Vaccination For Long Stay Inpatients Procedure" for incorporation into business as usual (BAU).
2. Digital (iEMR) pre-immunisation screen & consent document build.
3. Stakeholder consultation and multidisciplinary education
4. Implementation
5. Audit of patient's receiving influenza vaccination, May to July 2022.
   - Analyse of variables using descriptive statistics
   - Qualitative feedback review
6. Report to executive

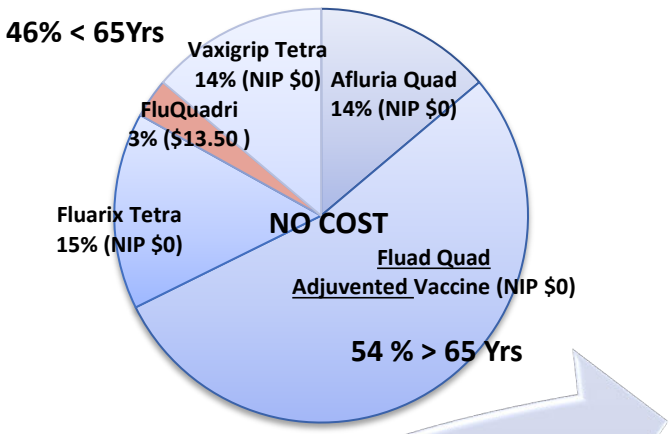
Results

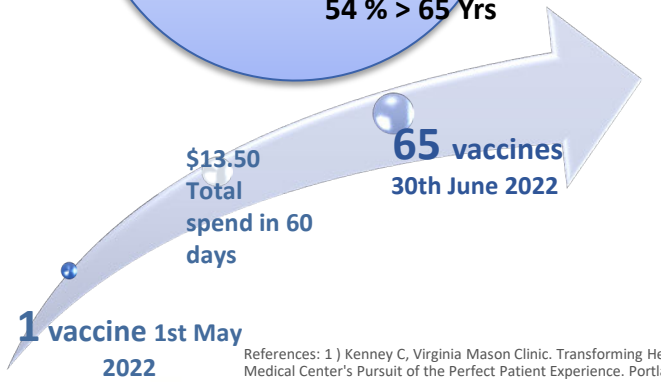
0%
Adverse Events

100%
AIR Entry Completion

100%
Optimised age appropriate vaccine prescribing

TYPE OF VACCINE ADMINISTERED





132%
Increase in vaccine uptake
28 (2021) vs 65 (May-July 2022)

98%
Documented Digital Consent

Discussion

The digital pre-immunisation screen & consent auto-text supports clinical decision making, reducing variation in vaccine prescribing. The use of digital documentation supports streamlined, efficient workflows and has a positive impact on reducing waste [1]

The multidisciplinary approach potentially contributed to time delays. Modifications to prompt completion of pre-immunisation screening within 24 hours of administration were made as fitness for vaccination may change beyond this time frame, particularly presence of fever.

Medicines Management Workflow	Time between activities (Median number of days)
Pre-immunisation Screen > Administration	2 Days (Range 0-18 days)
Administration > AIR Entry	1 Day (Range 0-4 days)

Hesitancy with administration was observed. Potential reasons included perceptions that administration was outside nursing scope of practice and a differing covid vaccination model.

Conclusion

This initiative resulted in the successful uptake of influenza vaccination with **ALL** patients receiving an optimal age-appropriate vaccine. Negligible costs were incurred due to the appropriate prescribing of NIP vaccines.

An influenza outbreak did not occur thus avoiding prolonged length of stays and adverse patient outcomes.

The pharmacy team were pivotal in driving low cost, value-based healthcare. This has been incorporated into future BAU.

References: 1) Kenney C, Virginia Mason Clinic. Transforming Health Care : Virginia Mason Medical Center's Pursuit of the Perfect Patient Experience. Portland: Productivity Press; 2010.)

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID #TRAN-0013

Partnering with consumers to optimise telehealth across Metro North Health: an experience-based co-design approach.

Michelle Cottrell[1], Kelsey Pateman[1], Emily Arthur[1], Peter Button[2], Anja Christoffersen[2], Clare Burns[1], Amber Jones[1,3], Adrienne Young[1], Gary Power[2], Christine Petrie[4], Linda Cuskelly[5], Kate Dickson[6], Peter Buttrum[1]

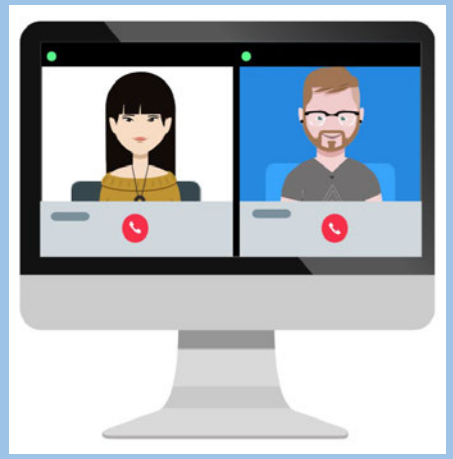
1. RBWH Allied Health Professions; 2. Consumer representative; 3. TPCH Allied Health; 4. MN Engage; 5. MN HEI; 6. RBWH Critical Care & Clinical Support Services

The issue:

Telehealth services are predominantly service- and clinician-driven. We used exploratory qualitative methods to understand what consumers require to improve awareness and advocacy for telehealth in their healthcare journey.

What we did:

Engaged with 33 consumers & >25 staff across 11 Metro North Health services. Consumers shared experiences of their telehealth appointment during in-depth interviews. Staff were interviewed about the process of offering telehealth. Results were synthesised into a workflow map, and consumer interview data were analysed using inductive and deductive methods.



This project received financial support from MN Healthcare Excellence & Innovation.

For further information, please contact michelle.cottrell@health.qld.gov.au

What we found:

Services use varied pathways and communication processes for telehealth appointments. Consumers described feeling prepared and informed before their appointment, but were not offered choice about whether an appointment was telehealth, nor offered an opportunity for family to attend. Consumers identified several benefits of telehealth and many described the care they received as "*as good as in-person*".

What's next:

Findings highlight several opportunities to improve person-centred care and digital health experiences. The co-design process will identify priority areas and strategies to enable consumer advocacy in how care is received.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0018

STRATEGIES TO IMPROVE HEALTH LITERACY IN PATIENTS RECEIVING CANCER TREATMENT: A SYSTEMATIC LITERATURE REVIEW

Authors: Alison Alexander and Brighid Scanlon; Cancer Care Services, Royal Brisbane and Women's Hospital

BACKGROUND:

- Australia is a diverse society and **low health literacy is common**
- Cancer diagnosis and treatment can be **complex and confusing**, as patients encounter many health professionals and complicated medical terminology
- A patients level of **health literacy** plays a significant role in understanding, navigating and making treatment decisions

AIMS:

To investigate strategies to improve Health Literacy of people receiving cancer treatment

METHODOLOGY:

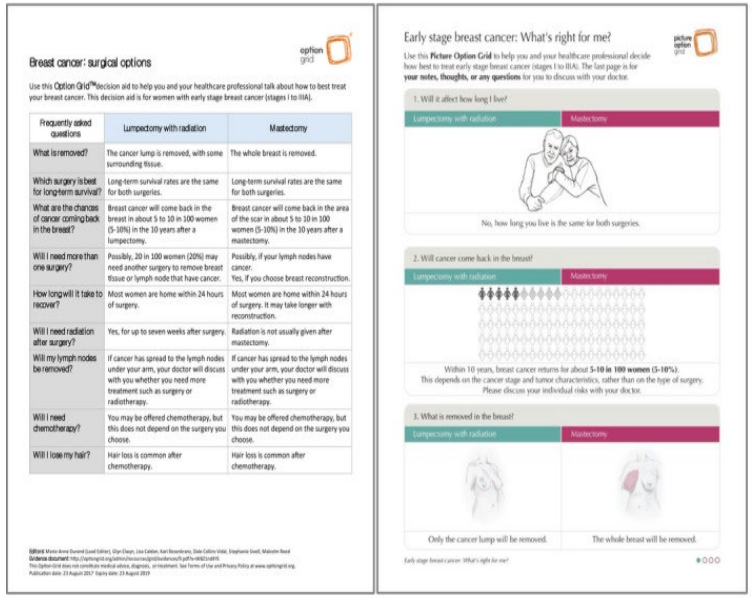
- Databases PubMed, CINAHL, EMBASE and Cochrane were searched systematically
- Articles were screened per the inclusion criteria; English language, adult patients with cancer diagnosis, and documenting a health literacy strategy

RESULTS:

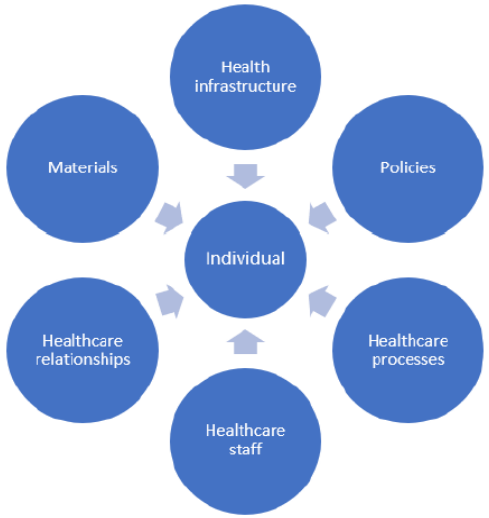
- Five studies met the inclusion criteria: Two randomised control trials and three qualitative studies

Strategies to improve health literacy included:

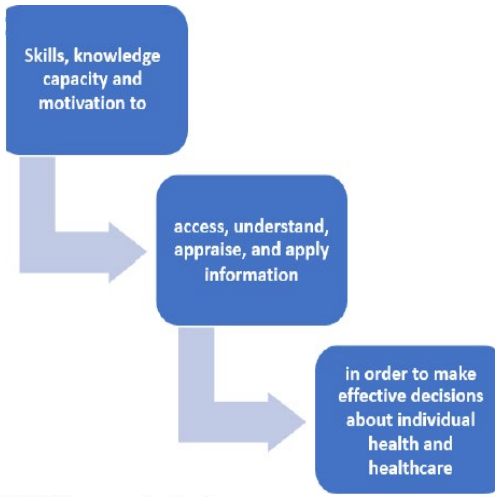
1. A Radiation Talking Book
2. An entertainment based patient decision-aid
3. Multimedia information tools and conversation aids- including picture and option grids



Health Literacy Environment



Individual Health Literacy



CONCLUSIONS AND IMPLICATIONS:

- The **use of pictures** to compliment written information was found to be the **most effective strategy** to communicate health information
- Pictures enable patients to visualise and create a **realistic idea of their treatment journey**
- Simple language diagrams allowed patients to **recognise their healthcare teams** and their roles
- Cancer care services should tailor their information to allow every person optimal treatment

Durand, M. A., Yen, R. W., O'Malley, A. J., Schubbe, D., Politi, M. C., Saunders, C. H., Dhage, S., Rosenkranz, K., Margenthaler, J., Tosteson, A., Crayton, E., Jackson, S., Bradley, A., Walling, L., Marx, C. M., Volk, R. J., Sepucha, K., Ozanne, E., Percac-Lima, S., Bergin, E., Elwyn, G. (2021)

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0020

Redesigning outpatient cancer care services to deliver care to COVID-19 positive haematology patients

Authors: Therese Hayes[1], Michael Smith[1,2], Paul Moran[1], Kieren Barker[1] and Fran Boyte[1]
Affiliations: 1. Royal Brisbane and Women's Hospital 2. Queensland University of Technology

Aims:

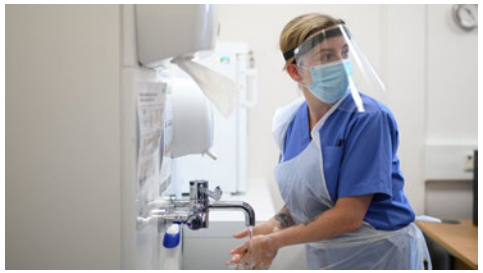
- Due to their immunosuppression, haematology patients are at high risk of **morbidity** and **mortality** from COVID-19
- Outpatient **services were redesigned** in order to **ensure continued access to contemporary therapies** for COVID-19 positive haematology, Bone Marrow Transplant and CAR-T patients
- A secondary aim was to **limit COVID-19 exposure** in the general cancer outpatient setting

Methods:

- Using a multidisciplinary approach, a **specialised cancer outpatient infusion clinic** was established
- Located in an **isolated outpatient area** in the infectious diseases ward of a large, tertiary hospital
- Staffed by **specialist cancer nurses**, this clinic enabled outpatient treatment for COVID-19 or maintaining **the continuity of planned cancer treatment**

Results:

- Between 1st January- 15th May 2022, **49 episodes of care were provided** for 34 individual patients
- 31 (91%) of those requiring care were haematology, bone marrow transplant or CAR-T patients
- Eight patients (24%) required greater than one episode of care whilst COVID-19 positive
- 16 episodes of care were for the **administration of Sotrovimab**
- 33 episodes of care were for **blood collections, chemotherapy, supportive therapies, or to facilitate a hospital admission**



(2)

(1)

Conclusions and implications:

- The **redesign** of cancer care outpatient services was **essential** to meet the **immediate and continued** care requirements of patients diagnosed with COVID-19
- This **avoided dangerous and protracted treatment delays** without compromising the safety of the general outpatient clinic
- This design is **flexible and readily adaptable** to the rapidly changing healthcare environment during the COVID-19 pandemic
- For optimal patient outcomes, **continuity of cancer care services must be prioritised** throughout the COVID-19 pandemic

1. What You Need to Know About Cancer and Infusion Therapy 2022 [Available from: https://www.verywellhealth.com/cancer-and-infusion-therapy-5198168.

2. Covid-19: 'Clear evidence' of PPE shortages across NI during pandemic: BBC News; 2022 [Available from: https://www.bbc.com/news/uk-northern-ireland-60561879.

Griffith University Queensland, Australia · Menzies Health Institute Queensland · QIMR Berghofer Medical Research Institute The Future of Health · pathology queensland · QUT · The University of Queensland Australia Create Change · Herston Health Precinct · RBWH Foundation · Metro North Health · Queensland Government

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0015

Foodservice systems and Mealtime Care in Rehabilitation: A Scoping Review

Alice Pashley [1, 2], Adrienne Young [2, 3], Olivia Wright[2]

1 STARS Research and Education 2 University of Queensland 3 RBWH Nutrition and Dietetics

AIMS

To describe current foodservice systems and mealtime care utilised in the rehabilitation setting. A secondary aim was to identify commonly used outcome measures in foodservice research in the rehabilitation setting.

METHODS

This scoping review was conducted according to Joanna Briggs Institute methodology for scoping reviews. PubMed, CINAHL, Scopus, Embase, PsycInfo and Cochrane were searched until January 2022. Included studies were conducted in the inpatient rehabilitation setting, adult population ≥18 years old and provided a description of at least one element of the foodservice system, food and menu, waste and/or eating environment.

RESULTS

Of 5882 articles screened, 37 articles were included, reporting 31 unique studies. Most rehabilitation units had cook-fresh production methods (50%), used decentralised bulk delivery methods (67%) had a communal dining room (67%) and had a 3-week menu cycle (71%).

Mealtime care was predominantly provided by nursing staff, however few studies reported on specific activities. Nutritional intake was a key outcome measure across included studies (43%), with only six papers reporting on rehabilitation outcomes.

Of the intervention studies (n=8), all were aimed at improving nutritional intake through menu or mealtime care modifications; none studied changes in rehabilitation outcomes.

CONCLUSION

This scoping review identified a considerable lack of reporting of foodservice and mealtime care systems used in rehabilitation settings in the available literature. Further investigation is required to understand what models of mealtime care are provided to patients, and to understand the impact of changes to foodservice and mealtime systems on patient outcomes.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

TRAN-0016

Queensland COVID-19 vaccine (QoVAX) Pilot Study: humoral immunity in SARS-CoV-2 naïve adults

KF O'Grady, R Gregory, D Hermith-Ramirez, AM Wailan, P Vardon, K Smith, S Ward, J Laver, J Keller, A Zournazi, J Hung, B Choy, D Gillis, P Bourke, E Ballard, T Kenna, M Kimlin, JM Davies

Purpose

COVID-19 resulted in rapid vaccine rollout worldwide to prevent SARS-CoV-2 infection and COVID-19. Queensland observed few cases before state borders opened on 13 December 2021, by when most adult residents were double-vaccinated. Here we describe humoral immune outcomes in vaccinated, SARS-CoV-2 naïve adults in Queensland.

Methods

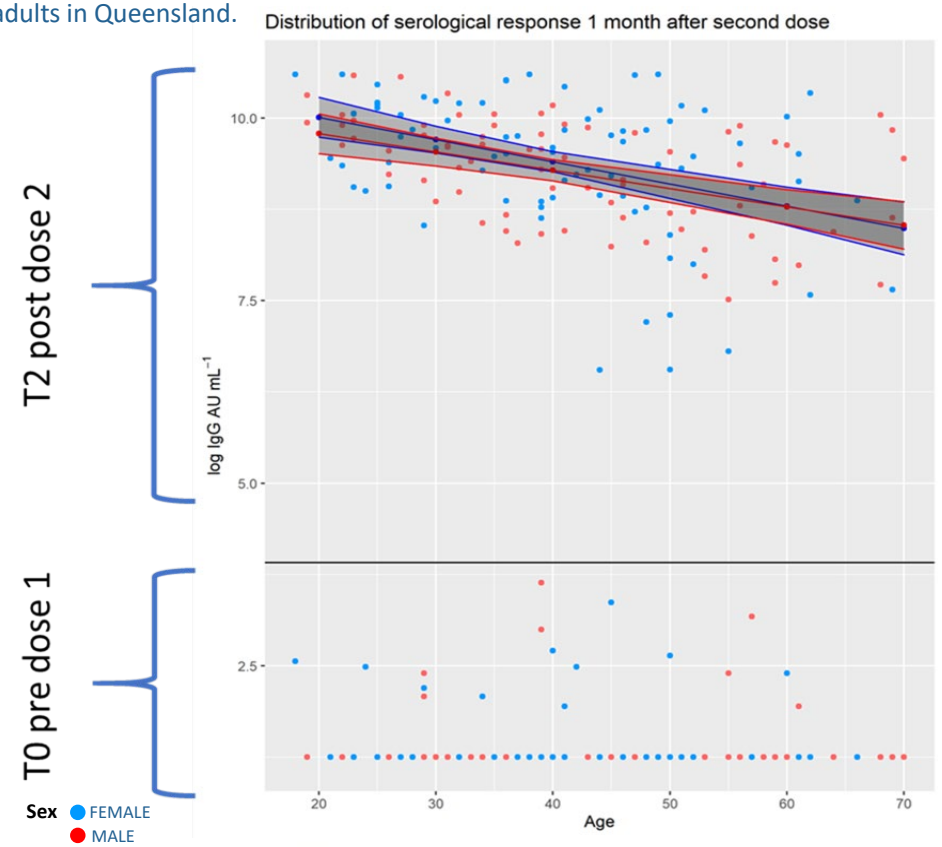
South-East Queensland adults were invited prior to dose-1 of a COVID-19 vaccine to participate in the QoVAX Pilot (ACTRN12621001543875). Following consent, participants completed digital questionnaires. Saliva and blood samples were collected at dose 1, dose 2, and one-month post dose 2, for differential blood cell counts, immunosenescence, and SARS-CoV-2 spike IgG.

Results

547 participants who received the BNT162b Pfizer COVID-19 vaccine consented; 45.9% were female, mean age (SD) was 34 years (12.0), and 13% reported chronic health problems. Prior to borders opening, 389 and 143 completed post-vaccine questionnaires and samples post dose 1 and 2, respectively. There was an inverse relationship between spike IgG levels post dose 2 and age. Baseline immunosenesence (CD3+CD8+CD28-CD57+), and CD27 negative B cells (CD19+CD27-) were associated with lower spike IgG post dose 2. To 30 June 2022, 93 SARS-CoV-2 positive PCR tests had been reported for 92 (17.0%) participants.

Conclusions

Age and multiple baseline lymphocyte characteristics influence COVID-19 vaccine humoral responses. Short and long-term health outcomes and associated determinants, including genomics and intracellular immunity are being further examined.



QoVAX Pilot participant characteristics at baseline by QoVAX Study as at 10-12-2021 (pre-border opening).

N = 547*

	No.	%
Recorded sex at birth		
Female	251	45.89
Male	285	52.10
Mean age in years (SD)	34.0 (12.02)	
First Nations		
Yes	11	2.01
No	536	97.99
Country of birth		
Australia	393	71.85
Other countries	143	26.14
Smoking		
Currently smoking	88	16.09
Ever smoked	100	18.28
Never smoked	336	61.43
Rather Not Say	11	2.01
Mean BMI (SD)	28.62 (8.28)	
Chronic condition		
Yes	69	12.61
No	458	83.73
Rather Not Say	8	1.46
Immunocompromise		
Yes	9	1.65
No	538	98.35
Prior/current diagnosis of COVID-19 at baseline		
Yes	0	0
No	528	96.53
Unsure	6	1.10

*numbers/percentages do not match total given missing data

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID # TRAN-0006

Genetic Testing Stewardship: Supporting clinicians in effective genetic test ordering

Lindsay Fowles[1], Aimée Dane[1], Sarah Smith[2], Sarah Steinke[1], Meg Jeppesen[2], Saras Menon[1], Kaye Hewson[1], Chiyan Lau[2], Chirag Patel[3]

[1] Genomic Institute, Metro North Health
[2] Pathology Queensland
[3] Genetic Health Queensland
Contact: Genetic_Stewardship@health.qld.gov.au; 3646 4580

Introduction: Genetic testing, which is often complex and high cost, is becoming more important in healthcare. Stewardship programs support more appropriate and cost-effective testing.

Method: Supported by LINK funding, the Genetic Testing Stewardship (GeTS) team reviewed genetic test requests from Metro North clinicians from Jan'22–Jun'22. Review was by a Senior Genetic Counsellor (GC) and Senior Scientist, with input from Genetic Pathologist (GP) and Clinical Geneticist (CG) if required.

Genetic testing stewardship improves **appropriate genetic test** ordering and **reduces costs**

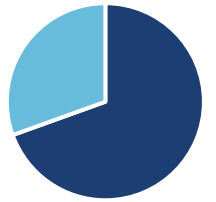
141 requests reviewed

- 22% modified
- 42% facilitated
- $17 000 saved
- 34% consent supported

THE GENOMIC INSTITUTE

pathology queensland

Team member(s) involved in test review



- GC only review (av 31 min/request)
- + GP/CG input (av 6-7 min/request)

Interventions:

- 22% tests – modified (more appropriate selected, duplicate stopped)
- 42% tests – facilitated (support for selection of test or lab, info to provide)
- 34% tests – supported best clinical practice for consent documentation

Economic review: Comparison of test savings versus staff time indicated an overall cost saving.

Outcome: More effective testing, which leads to better patient outcomes, was achieved with reduced costs.

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Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID # TRAN-00025

Prioritising enhancements across allied health telehealth services in a metropolitan hospital: Using a concept mapping approach.

Clare Burns[1,2], Michelle Cottrell[1,2], Amber Jones[1,2], Jasmine Foley[2], Ann Rahmann[1,3], Adrienne Young[1], Mark Cruickshank[1], Kelsey Pateman[1]

1. RBWH Allied Health Professions; 2. School of Health and Rehabilitation Sciences, The University of Queensland; 3. School of Allied Health, Australian Catholic University

Background:
A recent study examining RBWH Allied Health Professions (AHP) telehealth services identified opportunities for improvement from both staff and consumer perspectives

Aim:
Engage key stakeholders to identify and prioritise actionable goals to enhance and sustain AHP telehealth services

Methods:

Stage 1 PREPARATION

Group meetings with consumers (n=4), managers (n=9), clinicians (n=7), and administration staff (n=4) to discuss areas for telehealth service improvement

Stage 2 STATEMENT GENERATION

Focus groups with each AHP Department and consumer group to brainstorm potential solutions and generate discrete statements to address telehealth service issues.

Stage 3 STRUCTURING

Each participant sorted the statements into groups based on similarity and ranked each statement according to importance and changeability (scale = 0 (low) to 4 (high))

Stage 4 REPRESENTATION

Multidimensional scaling was conducted to examine statistical strength of results

Stage 5 INTERPRETATION

Hierarchical cluster analysis was undertaken, and results presented as:

- *Dendrogram*
- *Cluster rating map*
- *Pattern matching graph*
- *Go zone*

Results:

- 96 statements were generated by staff and consumers to enhance RBWH AHP telehealth services
- Statements were grouped into 13 clusters (Figure 1)
- All clusters were rated >50% for importance and changeability (Figure 2)
- Key prioritised areas for change were staff training, consumer advocacy and engagement, telehealth operations and workflow

Conclusion:

- Concept mapping generated a prioritised list of actions that is being used to enhance RBWH AHP telehealth services

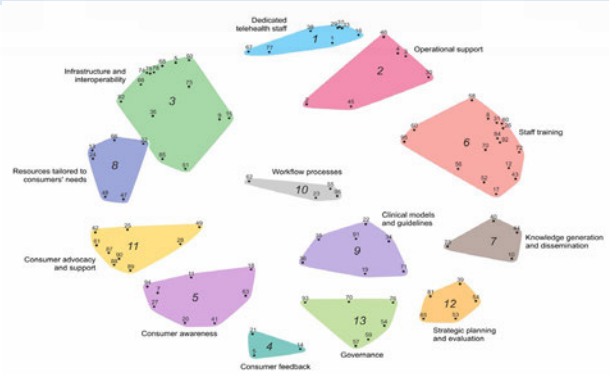

Figure 1. ***Cluster rating map*** – depicts relationships between statements in each of the 13 clusters (groups)

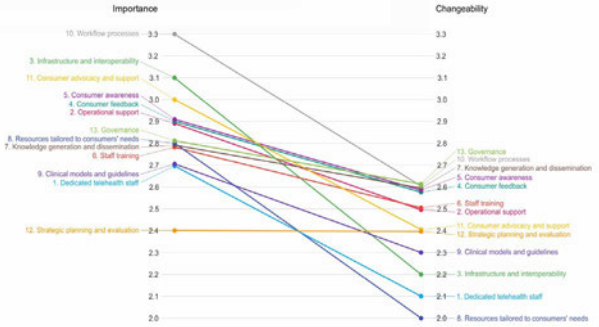

Figure 2: ***Pattern matching graph*** – displays mean rating of importance and changeability (0=low to 4=high) for statements in each cluster

Contact for further info:
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clare.burns@health.qld.gov.au

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5 – 8 September 2022
Education Centre, RBWH

TRAN-0026

Development of Head and Neck Cancer Patient-Derived Tumouroids for Personalized Anticancer Screening

B W M Thilini J Basnayake [1], Paul Leo [2], Sudha Rao [3], Sarju Vasani [4,5], Lizbeth Kenny [5], Nikolas K Haass [6], Chamindie Punyadeera [1,7]

1. Saliva and Liquid Biopsy Translational Laboratory, The School of Environment and Science, Griffith Institute for Drug Discovery (GRIDD), Griffith University, Brisbane, Australia, 2.School of Biomedical Sciences, Faculty of Health, Queensland University of Technology, Australia, 3. Gene Regulation and Translational Medicine Laboratory, QIMR Berghofer Medical Research Institute, Brisbane, QLD, Australia, 4. Department of Otolaryngology, Royal Brisbane Women's Hospital, Brisbane, Queensland, Australia, 5. The School of Medicine, University of Queensland, Royal Brisbane and Women's Hospital, Brisbane, QLD, Australia, 6.The University Queensland Diamantina Institute, The University of Queensland, Brisbane, Australia 7. Menzies Health Institute Queensland (MIHQ), Gold Coast, Griffith University, Queensland, Australia

Background

Human tumouroids have distinct features that make them an effective preclinical laboratory tool[1,4]. Head and Neck Squamous generation of laboratory drug screening Cell Carcinoma (HNSCC) patient-derived tumouroids allow models from patient tumour tissue, avoiding the requirement for prior modification or transformation (ie.: before understanding patient's genomic profile).

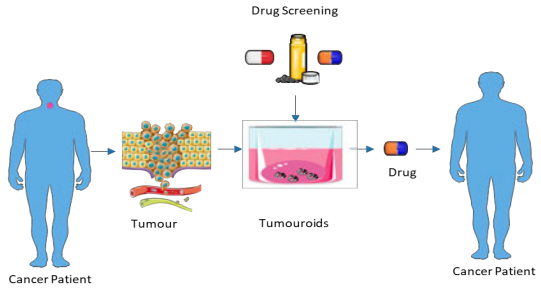


Figure 1: Schematic workflow for drug testing on tumouroids[2].

In this study, we present conceptual work-flow testing drug response of HNSCC tumouroids using a high-throughput drug assay. Tumoroid drug screening is an automated, highly reproducible, and reliable approach with the same goal of increasing efficiency as other common High-throughput screening[3,4].

Methods and Results: 1

Twenty-three HNSCC patient tumour samples were analysed to develop tumouroids. HNSCC tumouroids were established based on Hans Clevers method[1] with a success rate of 60.8%.

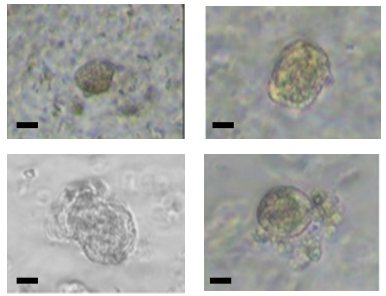


Figure 2: Growth of the tumouroids in Day 1, Day 3, Day 5 and Day 10 (Scale bar 100 µm).

Methods and Results: 2

Immunofluorescence staining was performed to characterise the tumouroids. These tumouroids express epithelial and mesenchymal markers in immunofluorescence allowing a better understanding of cellular behaviour, and cellular identity.

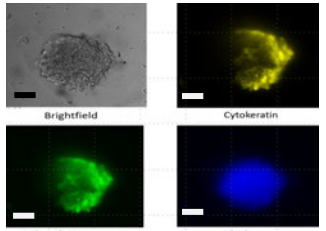


Figure 3: Immunofluorescence staining of a tumouroid with DAPI, Cell Surface Vimentin and Cytokeratin (Scale bar 100 µm).

Methods and Results: 3

3-D tumouroid cultures derived from tumour tissue from HNSCC patients are used for a high throughput drug screen. Calandrini and Drost method was used to perform the drug testing using 384 plate[3,4].

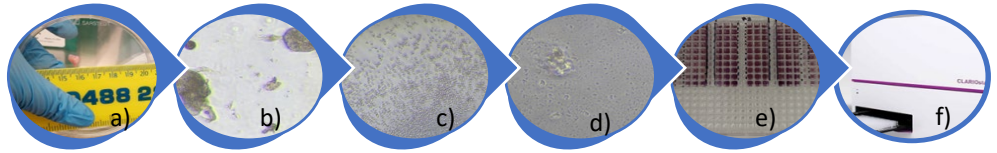


Figure 4: Conceptual work-flow: a) Treatment naive primary tumour sample b)Tumouroids c)Trypsinized into single cells d)Re-culture tumouroids in 384 plate e)Drug treatment and MTS assay f)Absorbance reading using a plate reader.

Conclusion

- The growth of HNSCC tumouroids can be scaled down to a 384-well format.
- Optimal cell density was 5000 cells per well and cultured for 5 days. Treatment time of 72 hrs.
- 384-well HNSCC tumouroids cell viability assay may serve as a useful novel tool to investigate and could be used as a tool for developing precise HNSCC treatments in future.

Reference

1. Driehuis E, Kolders S, Spelier S, Lõhmussaar K, Willems SM, Devriese LA, et al. Oral Mucosal Organoids as a Potential Platform for Personalized Cancer Therapy. Cancer Discov. 2019;9(7):852-71.
2. The Figure was partly generated using Servier Medical Art, provided by Servier, licensed under a Creative Commons Attribution 3.0 unported license
3. Calandrini C, Drost J. Normal and tumor-derived organoids as a drug screening platform for tumor-specific drug vulnerabilities. STAR protocols. 2022;3(1):101079.
4. Conradi L-C, Spitzner M, Metzger A-L, Kisly M, Middel P, Bohnenberger H, et al. Combined targeting of HER-2 and HER-3 represents a promising therapeutic strategy in colorectal cancer. BMC cancer. 2019;19(1):1-12.

Acknowledgement

Chamindie Punyadeera is currently receiving funding from Cancer Australia (APP1145657), National Health and Medical Research Council (APP 2002576 and APP 2012560), Garnett Passe and Rodney Williams Foundation, NIH R21 and the Medical Research Future Fund (MRFF) Rapid Applied Research Translation Program (Centre for Personalised Analysis of Cancers and RBWH Foundation.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID TRAN-0031

An *ex vivo* model of renal replacement therapy (RRT) to investigate clearance and adsorption of cyclosporine, tacrolimus, mycophenolate, methylprednisolone and hydrocortisone in continuous veno-venous haemofiltration (CVVH).

Chandra Datta Sumi[1], Dusan Marjanovic[1], Jayesh Dhanani[1,2], Cheryl Fourie[1,2], Bree-Yana McConnochie[2], Lucy Chumas[2], Brett McWhinney[3], Jason Roberts[1], Bryan Gregory[2,4], Fiona Coyer[2,4], Steven C Wallis[1]

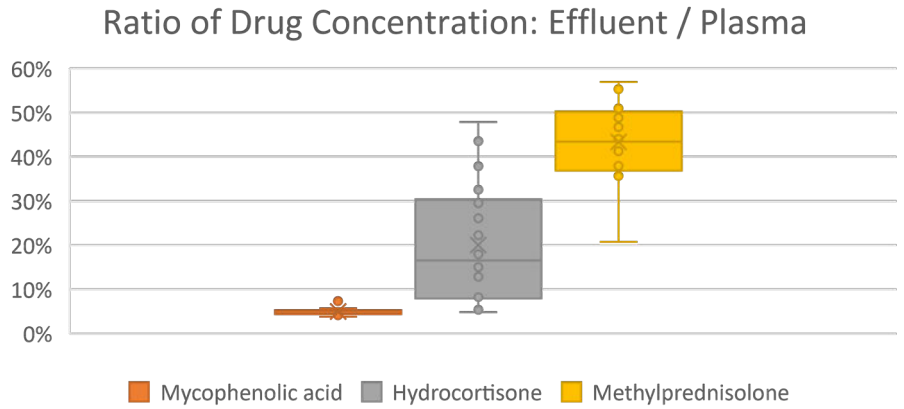
1) UQ Centre for Clinical Research (UQCCR), UQ; 2) Dept of Intensive Care Med, RBWH; 3) Chemical Pathology, Pathology Queensland; 4) School of Nursing, QUT

Introduction:

ICU patients may develop profound renal impairment which necessitates continuous renal replacement therapy. Such interventions have potential to affect the disposition of medications that can lead to therapeutic failure though enhanced extracorporeal clearance and/or adsorption to the circuit materials. A laboratory *ex vivo* model can be used to investigate how cyclosporine, tacrolimus, mycophenolate, methylprednisolone and hydrocortisone are affected by RRT without involvement of patients.

Methods:

Fresh human blood-crystalloid mixture (1 L) was spiked with the study drugs and circulated around a circuit with an ST150 filter on a Prismaflex RRT machine within the laboratories of UQCCR. Blood and effluent were sampled to investigate the extracorporeal drug clearance for a range of CVVH settings. Adsorption of drug to the circuit or filter material was investigated in other experiments. Drug concentrations were measured by Pathology Queensland.




Prismaflex


RBWH ICU and UQCCR staff

Results:

Cyclosporine and tacrolimus show negligible clearance (effluent/plasma concentration ratio <1%). RRT removed – with increasing efficiency – mycophenolic acid (mean ± SD effluent/plasma concentration ratio of 5% ± 1%), Cortisol (20% ± 14%) and methylprednisolone (43% ± 9%) over various settings.

Conclusion:

A multidisciplinary, multi-institute team from the RBWH campus have collaborated to investigate clearance and adsorption of immunosuppressive and steroid drugs in continuous renal replacement therapy.

Acknowledgement: Lifeblood for supply of blood products. RBWH Foundation for funding.

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID# TRAN-0024

POINT PREVALENCE OF OPIOIDS ON DISCHARGE AT THE ROYAL BRISBANE AND WOMAN'S HOSPITAL

Sahra Ashley[1], Nathan Hartshorn[2], Elizabeth McCourt[1], Peter Donovan[1], Champika Pattullo[1]

1) Clinical Pharmacology. Royal Brisbane and Women's Hospital, 2) School of Pharmacy, Queensland University of Technology

PURPOSE

To undertake a point prevalence study of **opioid prescribing on discharge** at RBWH to better guide opioid stewardship activities across multiple service lines.

METHOD

For a **one-week period** in May 2022 pharmacists collated all red discharge prescriptions at RBWH. The project team screened and triaged the triplicate prescriptions for opioids, tramadol, or tapentadol.

RESULTS

Over a one-week period **403 patient discharges** were captured and **531 prescriptions** were screened for opioids. Of the 403 discharges, 146 **(36%)** had an opioid present.

Patient information

Mean age: 45
Range: 19-86

12%

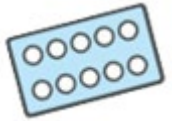
Patients >1 opioid on D/C

Prescription information

86%

Immediate release PO formulations

73% Oxycodone IR



9 out of 10 Oxycodone R_x ≤ 10 qty

CONCLUSION

This point prevalence study provided a snapshot of prescribing practices on discharge at RBWH. The next phase of this work will determine if those who were discharge on opioids had **appropriate discharge plans** for their pain management and to determine their **pain management in the 48hrs prior to discharge**.

The project team would like to acknowledge the work of the following departments for their assistance with this project:

- RBWH Administration, Nursing and Medical Clinical Units
- RBWH Pharmacy Department
- Opioid Stewardship Working Group

Connections and Community

HERSTON HEALTH PRECINCT SYMPOSIUM 2022

5–8 September 2022
Education Centre, RBWH

ID # TRAN-0017

Patient reported outcome and experience measures among patients with Central Venous Access Devices: A systematic review

Larsen E[1,2,3], Rickard CM[1,2,3], Marsh N[1,2,3,7], Fenn M[1,2], Paterson R[3], Ullman AJ[1,2,3], Chan RJ[6], Chopra V[1,8], Byrnes J[1]

[1]Griffith University; [2]Royal Brisbane and Women's Hospital; [3]University of Queensland; [4]Queensland Children's Hospital; [5]Western Sydney University; [6]Flinders University
[7]Queensland University of Technology; [8]University of Colorado

Purpose:

Patients receiving treatment for both acute and chronic health conditions are highly dependent upon Central Venous Access Devices (CVADs) for the administration of antimicrobials, chemotherapy, blood products, and parenteral nutrition. This systematic review aimed to identify and critique patient-reported outcome measure (PROM) and patient-reported experience measure (PREM) instruments related to CVADs.

Methods:

A systematic search of the literature was conducted (4 April 2022) using databases including MEDLINE, CINAHL, PubMed, Scopus, Embase, and the Cochrane Central Register of Controlled Trials. Studies were eligible if they assessed the use of a survey, questionnaire and other self-reporting instrument to quantitatively measure PROMs and PREMs related to CVADs. Data were synthesised narratively, with instruments items individually categorised into domains/themes (and sub-domains).

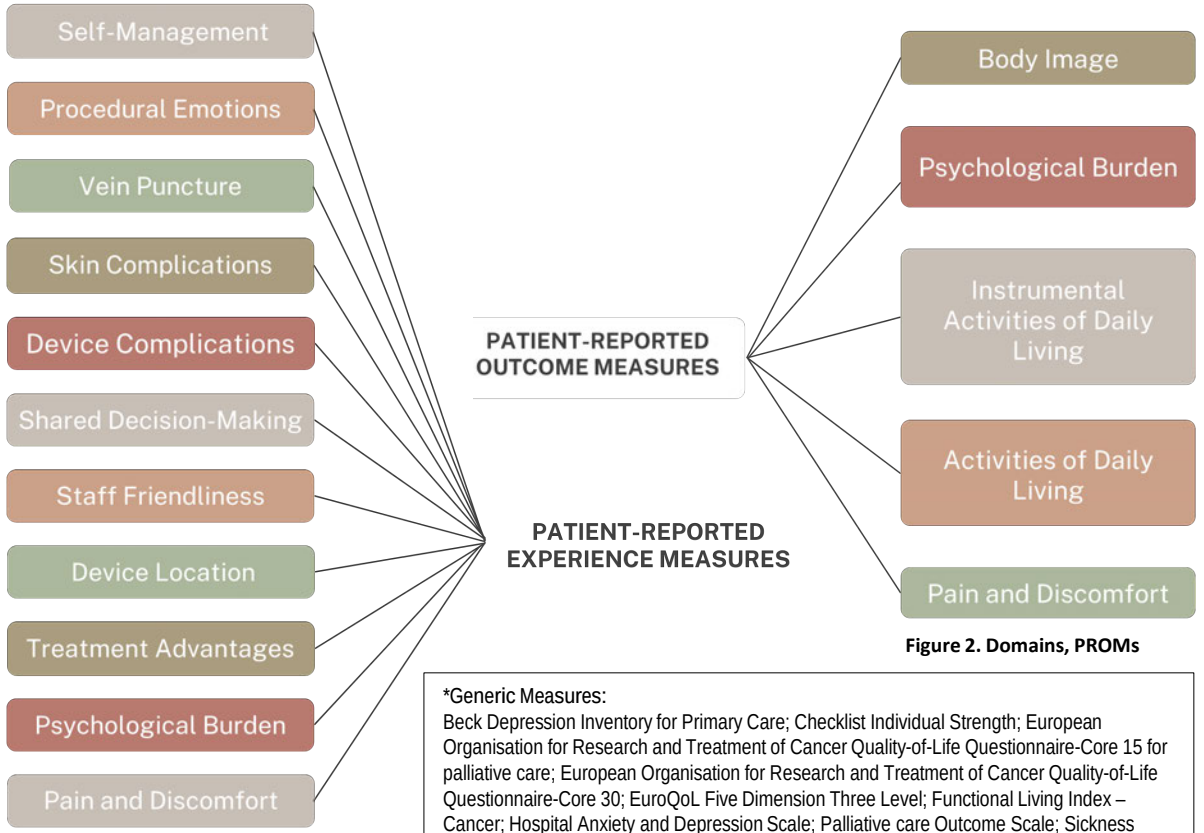


Figure 1. Domains, PREMs

Figure 2. Domains, PROMs

*Generic Measures:
Beck Depression Inventory for Primary Care; Checklist Individual Strength; European Organisation for Research and Treatment of Cancer Quality-of-Life Questionnaire-Core 15 for palliative care; European Organisation for Research and Treatment of Cancer Quality-of-Life Questionnaire-Core 30; EuroQoL Five Dimension Three Level; Functional Living Index – Cancer; Hospital Anxiety and Depression Scale; Palliative care Outcome Scale; Sickness Impact Profile 68; Quality of life Short Form 12; and Quality of life Short Form 36.

Results:

The search yielded 850 titles, of which 40 met the inclusion/exclusion criteria. Of these, 30 articles reported results of purpose-built (CVAD-specific) questionnaires; a further 6 reported results of generic (general disease) measures* used in the context of CVADs; and 4 included a combination of *both* purpose-built and generic measures. In total, 176 unique PREMs (from 31 studies), including 13 domains (e.g., '*Shared decision-making*'; and '*Education*') were identified (Figure 1). Similarly, 153 unique PROM items (across 26 studies) were extracted and encompassed five domains (e.g., '*Instrumental activities of daily living*'; and '*Pain and discomfort*') (Figure 2).

Conclusions:

A growing number of studies incorporate PROM and PREMs associated with CVAD placement and management. While this systematic review did not identify any particular PROM or PREM suitable for distribution to a larger population of patients with CVADs, it remains imperative that a quality, reliable tool is developed and validated.

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IMPLEMENTING BEST-PRACTICE PAIN MANAGEMENT INTO THE EMERGENCY DEPARTMENT. THE IMPAINED STUDY

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Patients presenting to the emergency department (ED) with acute pain often face long waits for analgesia and may not receive evidence-based pain interventions as part of their care.

Aims

1) To improve the proportion of patients with acute pain who receive analgesia within 30 minutes of arrival
2) To increase the administration of nurse-initiated analgesia (NIA) for patients with acute pain in the ED
3) To examine how the Ottawa Model of Research Use (OMRU) can be used to guide implementation

Design

A hybrid effectiveness-implementation design guided by the OMRU

Methods

Pre and post-implementation chart audits were conducted between June-November 2020 and June November 2021. In January-May 2021 surveys and working groups were used to assess the local practice context and inform implementation strategies.

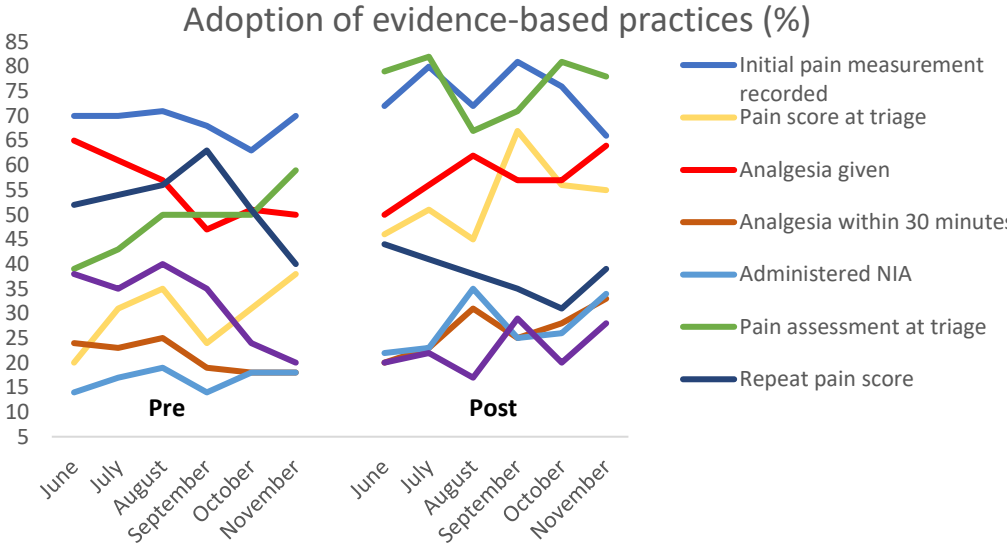
Outcomes

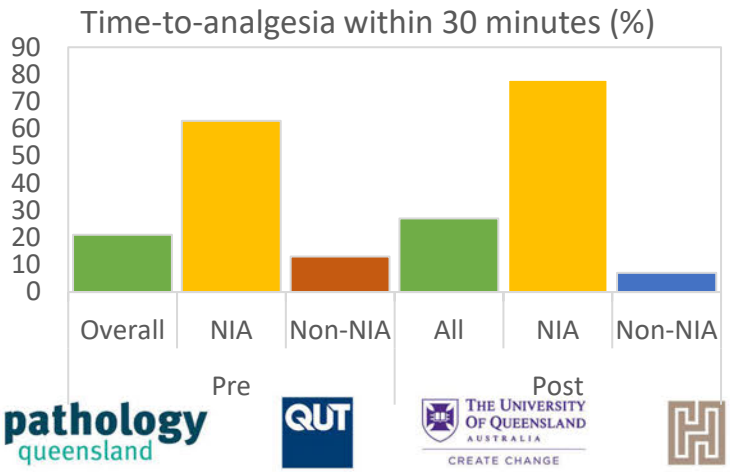
Outcomes included the proportion of patients who received analgesia within 30 minutes, and the proportion of patients who received NIA
Implementation outcomes were fidelity with the intervention, adoption of evidence-based pain practices, and sustainability.

Results

Pain treatment		Pre-Imp	Post-Imp	p value
Pain score recorded		411 (65)	470 (75)	p=0.017†
Pain score at triage		189 (30)	342 (56)	p<0.001†
Pain assessment at triage		303 (48)	469 (76)	p<0.001†
TtA within 30 minutes	Overall	127 (21)	163 (27)	p=0.032 †
	NIA	65 (63)	134 (78)	
	Non-NIA	62 (13)	29 (7)	
Time-to-analgesia median (IQR)	Overall	43 (71.25)	36.5 (84.5)	p=0.081 ‡
	NIA		8 (26)	
	Non-NIA		73.5 (89)	
Administered any analgesia		331 (55)	364 (59)	p=0.147†
Administered NIA		103 (17)	172 (27)	p<0.001†

Results n (%); † Chi-Square; ‡ Mann-Whitney U





Conclusion and recommendations

Implementation guided by the OMRU resulted in an increase in the proportion of patients achieving a time-to-analgesia within 30 minutes. NIA was heavily associated with a time-to-analgesia within 30 minutes. Adoption of evidence-based pain interventions into care of people with acute pain increased.
Further research is required to inform adoption of pain interventions later in the patients ED journey, and how implementation can be sustained in the ED environment.

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