

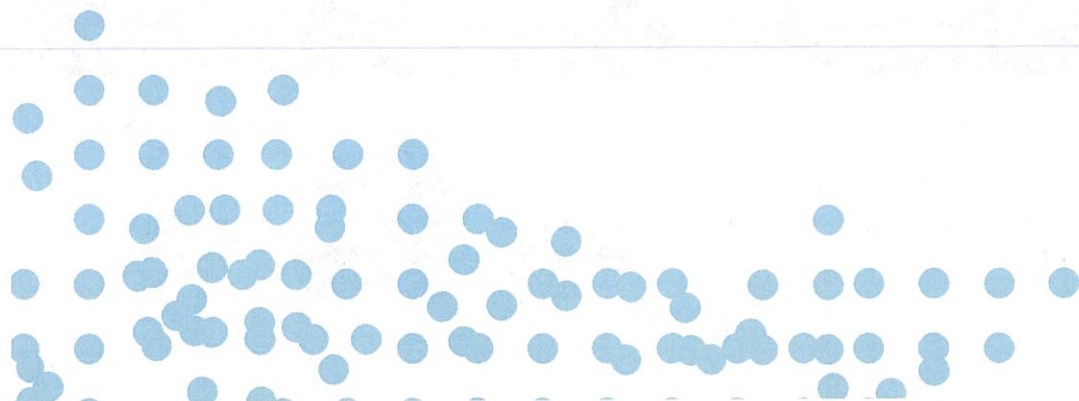
2024 TropiQ Research Symposium

Program

1 October 2024

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MESSAGE FROM THE CHAIR



Professor Andrew Mallett
Director of Clinical Research,
Townsville Hospital and Health Service

It is a great pleasure to welcome you all to the TropiQ Townsville Research Symposium on behalf of the Organising Committee and TropiQ, Townsville's Tropical Intelligence and Health Precinct. We are once again fortunate to welcome research submissions and presentations from outstanding researchers and research groups, and immense congratulations to all who have submitted the products of their work.

The Symposium program is this year fortunate to include plenary presentations by two eminent speakers:

- Professor Clair Sullivan is an internationally recognised practising and academic clinical informatician helping drive digital health transformation to deliver better health outcomes.
- Professor Paul Scuffham is a leading health economist in Australia. He specialises in modelling the costs and benefits of health care interventions, the valuation of health outcomes and methods to incorporate public preferences in health policy decision-making.

Thank you all once again for all of the effort and hardwork you undertake to perform research across TropiQ that delivers discovery, partnership, translation and improved outcomes for patients and the broader community. Please do enjoy this year's program as we learn more about the research work being undertaken locally and look towards the impact that we can generate in the years to come.

PROGRAM OVERVIEW

TIME	SPEAKER	
8:30-8:35		Professor Andrew Mallett, Master of Ceremonies Welcome to Country, Aunty Gracelyn Smallwood Introductions: Mr Kieran Keys, Chief Executive Officer, Townsville Hospital
8:45-9:30		Plenary – Professor Clair Sullivan "The Typing is on the wall" Presentation 35 mins; Questions 10 mins
SESSION ONE 9:30-10:30	Introduction of Oral Selected Presentations - Professor Andrew Mallett	
	Marina Bogiatzis	Moving ahead with the times: Cardiac nurses' and patients' perceptions of electronic medical records.
	Cynthia Xin Wen	Dual-energy CT surveillance for radiation dose reduction after endovascular aortic aneurysm repair: a systematic review and meta-analysis
	Vinay Gangathimmaiah	Drivers of low-value diagnostic tests in Emergency Medicine practice at Townsville University Hospital
	Nandini Kulasegaran	The microbial diversity and antimicrobial susceptibility underlying diabetic foot osteomyelitis in North Queensland - A retrospective study
	Julia Chequer de Souza	A clinical audit of adverse post-nephrectomy outcomes in renal cell carcinoma patients at Townsville University Hospital
Morning Tea		
SESSION TWO 11:00-12:30	Febrio Lunardo	How Much Data Do You Need? Automatic MRI Delineation of Multiple Pelvic Organs using A.I in a Limited Dataset Context
	Mark Mayall	Can ICD-10 Z codes be used as proxy measures for ACE categories? - a proof of concept
	Sam Teague	Design, Development and Evaluation of a Mindfulness-Based CBT Mobile App for Paternal Perinatal Mental Health: Results from a Randomised Controlled Trial
	Leigh W Ryan	A Step Ahead in Remote and Rural Queensland: A Novel Approach to High-Risk Foot Care in Hard-to-Reach Locations
	Ayra Kassam	Qualifying the severity of rheumatic heart disease and its management in the North Queensland catchment, 2018-2023; where can we improve?
	Felicity Dick	Implementation and Impact of a Dietetic Model of Care in the ICU: A Mixed-Methods Evaluation

Lunch		
SESSION THREE 1:30-2:20	Tilley Pain	Measuring the clinical impact of research growth in a public health service organisation
	Nathan Engstrom	Ventriculo-arterial (VA) coupling and fQRS as new selection criteria for primary prevention ICD implantation
	Deb Smith, Mim Crase	Hughenden Place-Based Health Planning
	Clinton Gibbs	Aeromedical Retrieval of People with Acute Behavioural Disturbance - ELEVATE Study
2:20-3:00	Shark Tank Translation Challenge (4 minute presentations)	
	1. Rebecca Tapiolas Physiotherapy Exercise Group for Postpartum Woman 2. Farah Aga Prevalence of Obstructive Sleep Apnoea in a Regional Psychiatric Rehabilitation Unit: A Cross Sectional Cohort Study 3. Alisha Dicton The Aphasia Friendly Menu: Bridging Communication Gaps in Patient Dining 4. Jade Jewell Shining a light on hospital mealtimes - how dietitians can provide better value care 5. Sarah Deacon Heads Up: A digital solution to helping patients manage the demands of head and neck cancer treatment 6. Ife Tokun Podiatry AHA led renal foot screening - a pilot	
3:00-3:30	Afternoon tea	
3:30-4:15	Plenary – Professor Paul Scuffham “Does investing in new technologies create better patient outcomes?” Presentation 35 mins; Questions 10 mins	
4:15-4:30	Award Presentations Shark Tank/Best Poster Award/ Best Presentation Award / Andrew Mallett TAAHC Mentorship Grant and Fellowship Award / Rae Thomas Symposium Close: Michelle Morton, Townsville Hospital and Health Board Deputy Chair	
Conclusion		
6:00	Research Gala Dinner: Bridgewater Restaurant, 2/2 Dibbs St, Townsville City	

PLENARY SPEAKER



Professor Clair Sullivan

Director Queensland Digital Health Centre (QDHeC)

**Conjoint Professor Centre for Health Services
Research, University of Queensland**

Professor Clair Sullivan is an internationally recognised practising and academic clinical informatician and is helping drive digital health transformation to deliver better health outcomes. She has generated over \$60M in funding and is ranked in the top 1% of medical informatics researchers globally.

Clair is Director of the University of Queensland's (UQ) Queensland Digital Health Centre (QDHeC), managing a globally significant program of digital health research. She is a Consultant Endocrinologist at Metro North Hospital and Health Service. Clair serves on several national advisory boards for digital health, including the Australian Digital Health Agency Clinical and Technical Advisory Committee, and chairs the RACP Digital Health Working group and the National Health Strategy Steering Committee. In addition, she is a Fellow of the Royal Australasian College of Physicians, the Australian College of Health Informatics and the Australasian Institute of Digital Health.

After achieving Honours in Medicine from UQ and a Research Doctorate in Medicine from the University of Leeds, Clair began her career as a specialist endocrinologist. She has worked clinically in the NHS UK and Australia.

In 2014, Clair began a parallel career in the emerging field of digital health and has held leadership roles in digital health practice and governance.

In 2024, Clair was appointed as the inaugural Professor of Digital Health at the University of Queensland.

Clair's work has been recognised with multiple honours including a national innovation award from the Australian Information Industry Association and a 2022 Telstra Brilliant Women in Digital Award.

PLENARY SPEAKER



Professor Paul Scuffham, PhD, FAAHMS
Chair in Health Economics – School of Medicine & Dentistry
Griffith University
Chair, Policy Advisory Committee, AAHMS

Professor Paul Scuffham is a leading health economist in Australia. He specialises in modelling the costs and benefits of health care interventions, the valuation of health outcomes and methods to incorporate public preferences in health policy decision-making. His research publications (>450 peer reviewed articles plus >100 reports to government) have been highly influential on policy. He serves on the editorial boards of five journals, and since 2013, is the Associate-Editor of Medical Decision Making.

Professor Scuffham is a Fellow and Board member of the prestigious Australian Academy of Health and Medical Sciences (AAHMS) and has been Chair of their Policy Advisory Committee.

SHARK TANK

Research Translation Challenge

The Shark Tank Research Translation Challenge provides the opportunity for THHS clinical teams to pitch their ideas for translational projects to a panel of judges.

On the day, judges will award grant funding totaling up to \$25K.

Translational health seeks to apply the findings from previous research to clinical practice to deliver improved health outcomes for individuals, communities, and the functioning of the health system.

Translational projects are those where there is good evidence to support clinical practice change – they may involve implementing a new practice not currently being done, and/ or, stopping or altering a current practice.

Winners announced and grant funding awarded on the day!

- Grant funding ranging from \$2K to \$10K will be offered at the discretion of the judging panel for up to 5 projects.
- Funding can be used to support professional development of staff, consumer engagement, specific expert input, or other approved uses.
- Project funding will commence November 2024 and be available for 18 months.

TAAHC Mentorship Program

- One team, selected by TAAHC, will be offered a grant of \$2K along with an 18-month tailored package of support and mentorship in research translation methods.

ORAL ABSTRACTS

Moving ahead with the times: Cardiac nurses' and patients' perceptions of electronic medical records

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Background

This study aimed to gain a deeper understanding of nurses' and patients' perceptions of the electronic medical record (EMR) and mobile workstations, and the impact of computers on the quality and safety of patient care.

Method

A multi-method qualitative study was undertaken in a northern Queensland Cardiac Centre. The first phase, non-participant observations of a convenience sample of 12 cardiac nurses' practices of using the EMR and mobile workstations, was followed by interviews with 10 nurses and 10 patients.

Results

All 1220 minutes of observations were conducted on weekdays; observation periods ranged from one to three hours' duration. During the times observed, nurses spent approximately one-third of their time using the computer. Nurses were observed to modify their practices to compensate for challenges within the EMR and workstations. Three themes emerged from the interview data: 'Keeping up with the times', 'Aligning technology with patient care', and 'Making it safe'. Nurses and patients related that accessibility of information in the EMR improved communication between health professionals, leading to life-saving experiences for patients.

Conclusions

Overall, nurses were more confident with and positive about the technology than found in a previous survey of their attitudes. Patients were confident that the EMR was effective and both groups indicated that digital healthcare is the way forward. Nurses could learn from colleagues who are adept at involving patients while documenting their care to provide patient-centred care. Fixed wall computers at each patient bay could overcome issues of clutter and manual handling of the mobile workstations.

Dual-energy CT surveillance for radiation dose reduction after endovascular aortic aneurysm repair: a systematic review and meta-analysis

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²Department of Vascular and Endovascular Surgery, Townsville University Hospital, Townsville

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Background

Patients who received endovascular repair of aortic aneurysm (EVAR/TEVAR) are recommended to undergo life-long surveillance with triphasic CT scan to prevent endoleak-related complications. These scans involve radiation exposure. Dual-energy CT (DECT) can reduce radiation by requiring fewer scan phases. This systematic review assesses the diagnostic accuracy of DECT for detecting endoleaks, and compare its radiation dose to conventional triphasic scan.

Method

The primary outcome was defined as diagnostic accuracy of DECT protocols for endoleak detection after EVAR/TEVAR, and reported as the aggregated means of sensitivity, specificity, and diagnostic odds ratio (DOR) $\pm$ 95% confidence interval (CI). Meta-analysis of diagnostic test accuracy was performed by developing a pooled univariate random-effects model using the DerSimonian-Laird method. Sub-analysis was performed to compare the diagnostic accuracy data between different DECT protocols including arterial, delayed and dual phases. Secondary outcome compared the radiation dose (in mSv) between DECT and the triphasic protocols, which was assessed using the Fisher's ANOVA test.

Results

Meta-analysis of 12 studies involving 974 scans revealed that the overall means of sensitivity, specificity and DOR of the DE protocols were 94.6%, 99.5%, and 346.4 (95% CI: 170.48, 703.78), respectively. No statistically significant difference in sensitivity and specificity was observed between the DE biphasic and monophasic protocols. The monophasic DE protocol delivered a dose reduction of 60% relative to the triphasic protocol.

Conclusions

DECT has comparable diagnostic accuracy to the triphasic scan for endoleak detection during follow-up after EVAR/TEVAR. It could be adopted due to its similar accuracy and lower radiation dose.

Drivers of low-value diagnostic tests in Emergency Medicine practice at Townsville University Hospital

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Background
Low-value diagnostic tests (LVDT) are ineffective, inefficient and cause patient harm. The aim of this study was to understand the drivers of LVDT in Emergency Medicine practice at Townsville University Hospital.

Methods

A qualitative descriptive study was conducted at Townsville University Hospital Department of Emergency Medicine. Purposive sampling was used to recruit participants until thematic saturation was attained. Participants included emergency clinicians who performed diagnostic tests. Semi-structured interviews were used to collect data between February 2023 and May 2023. Interviews were audio-recorded, transcribed verbatim and uploaded to NVivo. Data was thematically analysed through line-by-line and axial coding. Codes were assigned to categories, subthemes, and themes. Trustworthiness was ensured through reflexivity, data triangulation, thick description, audit trail and member checking.

Results

Twenty-four interviews were conducted with participants who had a breadth of Emergency Medicine experience: 19 Emergency Physicians and 5 Emergency Medicine trainees. LVDT were inherently understood and unanimously acknowledged by participants. Six drivers of LVDT emerged: Efficiency, Culture, Resources, Complexity, Consequences and Abilities. Participants experienced simultaneous influence of multiple drivers.

Conclusion

An interconnected web of drivers is influencing the performance of LVDT in Emergency Medicine practice at Townsville University Hospital. LVDT will persist in this setting in the presence of insufficient clinician abilities, inadequate resources, extreme complexity, powerful cultural influences, excessive concern about consequences, and the overwhelming need for efficiency. De-implementation of LVDT will require contemporaneous navigation of LVDT drivers elucidated in this study.

The microbial diversity and antimicrobial susceptibility underlying diabetic foot osteomyelitis in North Queensland - A retrospective study

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²The Townsville Hospital and Health Service, Townsville, Australia

Background

Diabetic foot osteomyelitis (DFO) is a risk factor for major amputations. Appropriate selection of empirical antibiotic agents relies on knowledge of the local microbial diversity of DFO. However, there is a paucity of literature establishing the microbial profile of DFO in North Queensland (NQ). Hence, this study will address this research gap, establish the incidence and clinical demographics of DFO in this region.

Method

This retrospective study analysed clinical records and microbiological data of patients from the High-Risk Foot clinic at the Townsville University Hospital between January 1st 2018 and December 31st 2022. The diagnosis of DFO was captured by International Classification of Diseases, Tenth Revision coding. Subsequently, the primary author verified the diagnosis of DFO via medical records and pathology results.

Results

The average annual incidence of DFO is 1.27 per 10,000. This study included 124 patients, who tend to be non-Indigenous males, aged 50-69 years old with poor glycaemic control (HbA1c>8.6%). *Staphylococcus aureus* was the most prevalent causative pathogen. All methicillin-resistant *S.aureus* isolates were susceptible to vancomycin and cotrimoxazole (n=11, 100%). However, *Pseudomonas aeruginosa* isolates showed decreased sensitivity to ciprofloxacin (n=2/11, 18.2%). In addition, older patients demonstrated a significantly higher prevalence of Gram-positive bacteria compared to younger cohorts (p< 0.005).

Conclusions

The microbiological profile of DFO in regional NQ is diverse. In accordance with national guidelines, our data suggests that vancomycin, cotrimoxazole and piperacillin/tazobactam are appropriate empirical agents. This study's findings will assist clinicians select empirical antibiotic therapy based on the local microbial profile of DFO.

A clinical audit of adverse post-nephrectomy outcomes in renal cell carcinoma patients at Townsville University Hospital

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Background

Renal cell carcinoma (RCC) is a common malignancy, and nephrectomy is the mainstay of treatment for non-metastatic disease. The choice of surgery depends on the risks of oncologic recurrence, kidney function decline, and perioperative complications. The aim of this study was to identify factors associated with adverse post-operative outcomes in RCC patients undergoing nephrectomy at Townsville University Hospital (TUH).

Method

This was a retrospective, quality assessment study of all adult patients undergoing either open or laparoscopic, partial (PN) or radical nephrectomy (RN) for suspected RCC at TUH, between January 1, 2016, and December 31, 2020. Patients were identified from the Queensland Health Admitted Data Collection, with a median follow-up time of 39 months post-operatively.

Results

A total of 60 patients were included, 71.7% underwent RN, and 63.3% with a laparoscopic approach. Adverse kidney function outcomes were identified in 76.7% of patients. In the first 30 days post-nephrectomy, the reduction in eGFR in the RN group was more than double that in the PN group ($p < 0.001$). The rise in average serum creatinine post-RN was more than six times that post-PN ($p = 0.001$). This discrepancy in kidney function persisted up to three years post-operatively. No significant differences in RCC recurrence, post-operative cardiovascular events, or mortality were observed between PN and RN ($p = 0.665$, $p = 1.000$, $p = 0.420$).

Conclusions

For patients undergoing nephrectomy for suspected non-metastatic RCC at TUH, the balance strongly favours PN, despite its underutilisation. Urology teams should weigh the factors favouring RN against the risks of nearly universal renal function decline in this group.

How Much Data Do You Need? Automatic MRI Delineation of Multiple Pelvic Organs using A.I in a Limited Dataset Context

Mr. Febrio Lunardo^{1,2}, Ms. Laura Baker³, A/Prof. Alex Tan^{4,5}, A/Prof. John Baines^{2,3}, Dr. Timothy Squire^{3,4}, A/Prof. Jason A Dowling¹, A/Prof. Mostafa Rahimi Azghadi², Dr. Ashley G Gillman¹

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Background

Artificial intelligence (A.I.) models thrive on large datasets, but medical data acquisition is costly. This study examines the trade-off between dataset size and performance of a well-known A.I delineation model, nnU-Net, in a limited dataset setting for pelvic multi-organ MR delineation.

Method

58 MR images from 12 participants treated on an Elekta Unity MR-Linac were acquired, with 4 participants (12 images) withheld for testing. A radiation oncologist delineated the prostate, seminal vesicles (SV), bladder and rectum in each image. Seven nnU-Net models were trained on progressively smaller subsets of dataset to simulate restricted dataset settings, and another set was trained without data augmentation to assess its impact. All models were evaluated via the Dice Similarity Coefficient.

Results

When trained with entire training dataset (46 images), the model achieved a mean Dice of 0.903 (Prostate), 0.851 (SV), 0.884 (Rectum) and 0.967 (Bladder). Although these results may not generalise to other scanners, they are comparable to other state-of-the-art models in the literature. Segmentation performance remained stable when the training sets was >12 images from 4 participants but dropped rapidly below this threshold. Data augmentation was especially influential in very small datasets.

Conclusions

This study demonstrated nnU-Net's effectiveness in pelvic multi-organ MR delineation with limited data. While our model may not generalise well to scanner or protocol changes, its low data requirement can be advantageous for in-house cases with a consistently narrow domain. For example, an in-house trained model may aid in treatment planning by providing an initial delineation for human refinement.

Can ICD-10 Z codes be used as proxy measures for ACE categories?

A proof of concept

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Published in *Advances in Mental Health*, <https://doi.org/10.1080/18387357.2023.2292676>

Background

The landmark study by Felitti showed adverse childhood experiences (ACEs) influence future health outcomes. This paper looks at the routine data collected in a Child and Youth Mental Health Service (CYMHS) related to contextual factors in the International Classification of Diseases (ICD-10 Z codes) and seeks to identify proxies for the ten original ACEs categories. In the absence of routinely collected ACE categories, these ICD-10 Z codes which could potentially act as ACE proxies would be helpful for clinical understanding and service delivery.

Method

ICD-10 Z codes collected routinely from 2108 individuals were analysed to identify Z codes which might serve as proxies for the ACE categories. To understand whether these Z codes were used appropriately during service delivery to indicate ACE categories, randomly selected files of patients having at least one of the above Z codes in their list of diagnoses were reviewed. Subsequently, the associations between several Z codes (serving as ACE proxies), demographic factors, and clinical outcome measures were explored.

Results

Significant differences were observed in terms of the mean ACE score of patients when sex, Indigenous status and certain diagnostic groups were considered. Similarly, when patient groups having exposure to different numbers of ACEs were compared, significant differences were observed in outcome scores (HoNOSCA and CGAS).

Conclusions

There is evidence that certain Z codes, can act as ACE proxies. This suggests a possible utility of this method in studying other associations and possibly helping to tailor future therapeutic interventions.

Design, Development and Evaluation of a Mindfulness-Based CBT Mobile App for Paternal Perinatal Mental Health: Results from a Randomised Controlled Trial

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²School of Psychology, SEED Lifecourse, Deakin University, Melbourne Australia

³Discipline of Information Technology, College of Science and Engineering, James Cook University, Townsville Australia

Background

Paternal perinatal mental health affects family outcomes, yet fathers are often overlooked in mental health services. This presentation outlines the design and evaluation of a mobile app-based mindfulness cognitive behaviour therapy intervention for paternal perinatal mental health.

Method

The Rover app was designed and developed using a user-centred design approach. The prototype app was evaluated for its usability and feasibility with 43 perinatal fathers and 10 mental health clinicians. A randomised controlled trial (RCT) was then conducted with 156 perinatal fathers experiencing moderate depression, anxiety, or stress symptoms comparing Rover against an active control app. Primary outcomes were depression (EPDS), anxiety, and stress (DASS21); secondary outcomes included social support, parenting self-efficacy, and couple relationship quality. Post-test analysis occurred at four weeks, with an eight-week follow-up.

Results

In the prototype evaluation, fathers and clinicians rated the app highly for functionality, clinical content, aesthetics, and digital therapeutic alliance. The RCT found no differences between groups for depression, anxiety, and stress symptoms, with both groups experiencing significant reductions in anxiety (intervention $d=-1.7$, control $d=-1.94$) and stress (intervention $d=-2.9$, control $d=-2.8$), and improved couple relationship quality. Rover users maintained improvements at 8-week follow-up.

Conclusions

This study contributes one of the first digital interventions for fathers' mental health and underscores the importance of including fathers in perinatal mental health research. The intervention was acceptable to fathers, but treatment adherence was low, indicating the need for more engaging content. App-based interventions show potential benefits for paternal mental health, but user engagement must be improved.

A Step Ahead in Remote and Rural Queensland: A Novel Approach to High-Risk Foot Care in Hard-to-Reach Locations

Leigh W Ryan

Background

The Northern Foot Hub was established to address the significant challenges faced by individuals with high-risk foot conditions in remote and rural Queensland. Limited access to specialized healthcare services often leads to delayed treatment, exacerbating complications and increasing the need for hospital transfers. This initiative aimed to bridge this gap by delivering comprehensive, multidisciplinary foot care directly to the community.

Methods

A multidisciplinary team comprising podiatrists, psychologists, dietitians, endocrinologists, vascular and infectious disease experts was formed to provide holistic care. The hub utilized telehealth consultations to ensure consistent and accessible care. Early intervention was prioritized to reduce the incidence of severe complications. Data on patient demographics, conditions treated, and outcomes were systematically collected and analysed to evaluate the program's effectiveness.

Results

Since inception, the Northern Foot Hub has managed over 300 patients, significantly improving clinical outcomes and patient satisfaction. The initiative has prevented numerous interhospital transfers, and reduced wait times for specialised services. The integration of telehealth services has proven to be a pivotal component, ensuring continuity of care, and expanding the hub's reach. Implications for Practice: The success of the Northern Foot Hub highlights the potential for multidisciplinary and telehealth-enabled approaches in improving access to specialized foot care in remote and rural areas. Healthcare providers can adopt similar models to enhance service delivery and improve patient outcomes in all regions. This initiative demonstrates the importance of tailored healthcare solutions addressing specific local needs and leverage technology to overcome geographical barriers.

Qualifying the severity of rheumatic heart disease and its management in the North Queensland catchment, 2018-2023; where can we improve?

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¹ College of Medicine and Dentistry, James Cook University, Townsville, Australia

² Department of Cardiology, Townsville University Hospital, Townsville, Australia

Background

The burden of Rheumatic Heart Disease (RHD), a condition mostly eradicated in the developed world, remains disproportionately high in Australia's Indigenous communities.¹ This study aimed to identify possible deficiencies within current provision of RHD healthcare in North Queensland, focussing on appropriate management and surgical outcomes of individuals with 'severe' disease.²

Method

This retrospective, observational study analysed data from 560 patients in North Queensland, across Townsville and Northwest Hospital and Health Services, between 2018 and 2023. Patients were identified using the Queensland RHD Registry. A subgroup analysis of 47 surgical cases was conducted to evaluate surgical outcomes and adherence to treatment protocols.

Results

Among the 560 patients, 80% were Indigenous Australians, predominantly female (70%) with a median age of 46 years. Severity grading showed that 48% had severe RHD, although only 45% of these patients underwent surgical intervention. Adherence to benzathine benzylpenicillin regimens was significantly lower in the surgical cohort (16% in 2023 versus 52%) than the general cohort. Although transthoracic echocardiogram (TTE) testing was frequent (average six tests per patient), 64% were overdue for testing. The study recorded a 16% mortality rate, highlighting that Indigenous patients were more likely to die than their Non-Indigenous counterparts (74% versus 26%).

Conclusions

Despite medical advancements, RHD remains a major health burden for Indigenous communities in North Queensland. The study highlights persistent challenges in managing severe RHD, including poor adherence to prophylactic treatments and inconsistent TTE testing. Standardizing care protocols and ensuring timely interventions are essential to improve outcomes for RHD patients in this demographic.

Implementation and Impact of a Dietetic Model of Care in the ICU: A Mixed-Methods Evaluation

Dick F¹

¹Townsville University Hospital, Townsville, Australia

Background

Townsville University Hospital (TUH) is one of only four public hospital ICUs across Australia without an allocated dietetics service. International guidelines strongly support embedded ICU dietetics expertise in improving patient clinical outcomes and staff experience. This project aimed to establish a dietetic model of care in ICU and measure its clinical impact and changes in ward nutrition culture over time.

Method

A co-design model of care was created with stakeholder engagement and adaptive implementation over two months. A convergent parallel mixed methods study design was utilised. Quantitative data was collected at baseline and following the implementation period using Metavision and ieMR chart audits. Clinical outcome metrics included recognition of malnutrition and time to dietetic assessment. Qualitative measures such as staff and patient perception of dietetics in ICU and role of nutrition were collected through semi-structured interviews, online surveys and field notes.

Results

Post implementation, time to dietetics input for malnourished patients reduced dramatically from 2 days after leaving ICU to day 5 during ICU admission. Malnutrition screening practices improved by 30%. Qualitative outcomes included improved communication, teamwork and nutrition awareness. Further analyses relating to ICU nutrition provision, influence on nutrition status and clinical outcomes, and ward culture change will be conducted.

Conclusion

Preliminary findings support the important role of a nutrition specialist in ICU with benefit observed for patient care metrics and ward culture. These findings reinforce the service as a valuable ongoing addition for TUH to provide world-class healthcare for North Queensland.

Measuring the clinical impact of research growth in a public health service organisation

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²James Cook University, Australia

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Background

Public health service clinicians are becoming increasingly research active. Many frameworks promote growth of research capacity and capability but measuring the impact of the research is challenging. Our service introduced a Research Capability Framework (RCF) to guide capacity building and an impact metric to measure research impact. The Evidence Brief (EB) was developed as a communication tool and later as a metric for clinical practice change. This study evaluated the RCF and the EB.

Method

Interviews and surveys were conducted with management and an Allied Health (AH) staff survey measured experience and knowledge of research methods. A case study design evaluated the EB. Four cases were investigated via document analysis and interviews.

Results

RCF interview themes were the rich potential for research within the clinical environment, the change in productivity due to research, the influence individuals have on research relationships, and role of managers and organisational processes hindering or promoting research. Strong research participation was noted, but knowledge of research methods varied considerably. EB evaluation results described the clinical practice change, the rationale and evidence for change, as well as the instigator and enablers for change.

Conclusion

The RCF describes the range of AH research but is not used to direct research capacity building. Different starting points and teams/discipline strengths indicate robust research participation suggesting it should be considered a metric for measuring capacity. The EB serves effectively as an impact metric for clinical practice change. Each EB represents a distinct unit of practice change stemming from research or quality improvement projects.

Ventriculo-arterial (VA) coupling and fQRS as new selection criteria for primary prevention ICD implantation

Presenting Author: Nathan Engstrom Grad Cert^{1,2}

Hayley L Letson PhD², Kevin Ng MBBS³, Geoffrey P Dobson²

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³Cardiology Clinic, Cairns Hospital, Cairns, Australia

Background

Heart failure (HF) patients are predisposed to develop ventricular arrhythmias and sudden cardiac death (SCD). For decades, left ventricular ejection fraction (LVEF<35%) has been a mainstay in identifying HF patients most likely to benefit from an implantable cardioverter defibrillator (ICD). However, LVEF is a poor predictor of SCD and ignores 50% of HF patients with mildly reduced and preserved LVEF.

Method

We reviewed the current guidelines and literature with the aim to identify new prognostic measurements and markers in HF patients that may be suitable for testing a new hypothesis using new risk stratification criteria.

Results

We found current guidelines for primary prophylaxis ICD therapy are inadequate. Instead of LVEF, which is not a good measure of LV contractility or hemodynamic characterization, we hypothesize ventriculo-arterial (VA) coupling measured using echocardiography, combined with an ECG marker, fragmented QRS (fQRS), will improve risk stratification and patient suitability for an ICD. Quantifying cardiac and aortic mechanics, and predicting active arrhythmogenic substrate, from varying fQRS morphologies, may help to further stratify ischaemic and non-ischaemic HF patients with different functional capacities and predisposition for lethal arrhythmias.

Conclusions

We hypothesize that HF patients with low physiological reserve may not benefit from ICD therapy, whereas patients with higher reserves and extensive arrhythmogenic substrate may benefit. Our hypothesis combining VA coupling with fQRS will be initially tested in an observational cohort study. This study has the potential to widen HF patient care (low/high LVEF) and advance personalized medicine for HF patients at high risk of SCD.

Hughenden Place-Based Health Planning

Deb Smith, Mim Crase

Smith D¹, Crase M¹, Johnston K¹, Whittaker M¹, Topp SM¹, Moodley N¹, Rouen C¹, Edelman A¹, Wilkes C¹, Larkins S¹

Affiliation

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Background

Place-based health planning seeks to strengthen service delivery by leveraging local insights and data on a community's environmental, cultural, social, and demographic features. Co-design techniques are central to the process helping to identify and prioritise needs and explore potential solutions improving feasibility and the likelihood of success. The four-year CRCNA-funded project, Integrating Health Care Planning in North Queensland, aimed to improve responsiveness of health services to the local needs of three north Queensland communities. This presentation focuses on a place-based planning collaboration with the Hughenden community.

Method

The co-design process involved local and regional stakeholders and self-nominated community members, progressing through four stages of identification, exploration, prioritisation and action planning utilising workshops, small group sessions, and individual meetings. The key output, a prioritised action plan, was implemented by local Project Support Officers. Evaluation of the co-design process and implemented actions was conducted using the Framework to Assess the Impact from Translational health research.

Results

Four impact domains were identified: knowledge (of services and processes); connections (among key service and community stakeholders); accountability (for community needs and priorities), and capacity strengthening in health systems planning. A narrative case study examining the material and relational aspects of the co-design process, and the health service and economic implications will be presented.

Conclusions

Building trusting relationships and fostering development of common ideas were made possible through participatory place-based health planning. The process identified locally appropriate solutions for improved health. Benefits included improvements in health service planning and enhanced community capacity and planning ownership.

Aeromedical Retrieval of People with Acute Behavioural Disturbance - ELEVATE Study

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Background

Mental illness in Australia is a significant public health concern. 28% of the Australian population (~7 million people) live in rural or remote areas with delayed access to mental health care. The distribution of mental health services in Queensland makes the aeromedical retrieval of people with acute behavioural disturbance (ABD) pivotal to timely specialist care. The aeromedical environment is restrictive, noisy and potentially confronting; suboptimal for people with ABD. Existing literature focuses on the safe and least restrictive approach to the sedation of people with ABD, with minimal research in the other aspects of transfer.

Aim

To explore the aeromedical retrieval of people with ABD in Queensland to optimise their management through expanding the current limited evidence base.

Method

Using a sequential transformative mixed methods design there will be three Phases:

Phase 1 (Quantitative):

A detailed epidemiological description of persons with ABD who were transported by aeromedical retrieval services.

Phase 2 (Qualitative):

Explore the challenges associated with the aeromedical retrieval of these patients, as experienced by personnel across the aeromedical retrieval network, rural and remote hospital clinicians, and other stakeholders.

Phase 3 (Quantitative):

Explore the specific challenges associated with aeromedical retrieval of people with ABD, guided by the results of Phase 1 and 2.

Outcomes

This project has the potential to optimise the aeromedical retrieval of people with ABD through establishment of more substantial evidence basis, and resultant changes to the approach to their care, and may impact patients, hospitals and staff, and the aeromedical service.

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Poster Presentations

POSTER Author Name	Title of the submission
Ms Annemarie Lawrence	Measuring patient perspective in public health service maternity care
Ofra Fried	Palliative Medicine in Australasia - The birth of a new specialty
Liyan Wang	Diabetes myonecrosis - a debilitating complication in an Indigenous young woman with long standing type 1 diabetes mellitus
Dr Tanya Mellett	SIGHT- Study of Imaging in Geriatric Head Trauma
Heather Stapleton / Madeline De Leon / Veronica Smith	Gaining insight into the Post Anaesthetic Care Unit (PACU) nurses perception of the numerical pain scale (0-10), and its efficacy in the PACU.
Sabine Finlay	Adverse Childhood Experiences, Allostatic load index and Later Mental Health Symptoms from the ALSPAC Longitudinal Birth Cohort
Dr Leigh-ann Onnis	Evaluated interventions for improving rural and remote health workforce sustainability: The Work4rrs Toolkit
Carolyn Heward	A Scoping Review of Military Culture, Military Identity and Mental Health Outcomes in Military Personnel
Amogh Bhardwaj	Incidence of Type 1 Diabetes at first presentation at the Townsville University Hospital - A Retrospective Study
Zhi Yi Lim	Influence of Family History and Pancreatic Autoantibodies on DKA Risk in New-Onset Type 1 Diabetes at the Townsville University Hospital -a retrospective study.
Vidula Garde	Psychological interventions for reducing non-cardiac Emergency Department Representations - A Pilot Randomized Controlled Trial
Amanda Krause	Radio: A social surrogate
Emma Chapman	How Much Is Too Much - Eye Irrigation in Chemical Burn Injuries
Kate Zhang	Does pre pregnancy counselling improve pregnancy outcomes in patients with Type 1 and Type 2 Diabetes: a nine-year (2015-2024) hospital audit.
Ines Zuchowski; Albert Kuruvila, Rebecca Lee	Integrating Social Work in General Practice Settings
Susan Wright	Push and Pull Factors for Junior Doctors Training and Working in North QLD Regional, Rural and Remote
Felicity Dick	Giving HOPE to patient mealtimes - an evaluation of implementation science in practice
Felicity Dick	Brighter Lives shining HOPE on hospital mealtimes - A volunteer adapted mealtime assistance program
Ayush Gautam	Gender Disparities and Mortality Predictors in Atrial Fibrillation Patients from North Queensland
Julia Chequer de Souza	Tachycardia-induced cardiomyopathy secondary to paroxysmal typical atrioventricular nodal re-entrant tachycardia in a post-partum patient
Tameem Quader	The Efficacy of Continuous Glucose Monitoring Based Machine Learning Algorithms in Predicting Hypoglycaemia in Patients with Type 1 Diabetes Mellitus: A Systematic Review and Meta-Analysis

POSTER Author Name	Title of the submission
Samantha Barber	An Exploratory Study: The Presence of Imposter Syndrome in New Graduate Allied Health Professionals and its Relationship to Location of Practice
Calogero Longhitano	The North Queensland Dietary Intervention Trial (NQDIT): A Randomized Controlled Clinical Trial investigating the effects of ketogenic metabolic therapy on psychiatric and metabolic outcomes in community patients with schizophrenia and bipolar disorder.
Harshal Deshmukh	Comprehensive Analysis of Psychological, Social, and Clinical Aspects of Polycystic Ovary Syndrome (PCOS) in Pregnancy: Insights from the Born in Bradford (BiB) Cohort Study
Courtney West	Contactless VITAL Sign monitoring to improve patient safety in Emergency Departments
Ife Tokun	Perceived barriers and facilitators to implementing instant total contact casting (iTCC) within a regional community health service.
Jenine Lawlor	Retrieval Services Queensland - Telehealth (RSQ-T): Bridging the gap for rural and remote Queensland Emergency Departments
Grace Magnani	Quality and safety of colonoscopy delivered by nurse practitioner endoscopists at the Townsville University Hospital (TUH) - a service evaluation
Kylie Ashley	Evaluation of the safety and quality of operator delivered conscious sedation colonoscopy by nurse practitioner endoscopists (NPE) at Townsville University Hospital (TUH)
Katherine Lovell	What makes the cut? Exploring food and drink preferences of patients after surgery.
Louisa M D'Arrietta	Dodo or Phoenix: The RISES Model: A New Approach to Promoting Health Professionals' Motivation to Engage in Research.
Fardin Ferdous	Outcomes in STEMI Patients: A North Queensland Experience
Oliver Hayes	Rate of Eplerenone Prescription in ST-Segment Elevated Myocardial Infarction Related Ischaemic Heart Failure with Reduced Ejection Fraction in the Regional Tertiary Centre of Townsville University Hospital
Vishwa Pakeerathan	Cardioprotective Medications and the Incidence of Cardiovascular Events in Patients Treated with Radiotherapy: A Systematic Review
Suzanne Munns	How well do spirometry reference equations predict "healthy" lung function?
Clinton Gibbs	Determining the research priorities for pre-hospital medicine in Queensland using a modified Delphi approach

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