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Tropical Australian Academic Health Centre

MED NORRTH Conference

(Northern Outcomes in Regional Research, Translation, and Health)

16 August 2025

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Australian College of Rural & Remote Medicine
WORLD LEADERS IN RURAL PRACTICE

Conference Program

7:45am	Registration Opens
Session 1 8:30am	Welcome & Introduction *Conference Opening Address by Professor Sarah Larkins, Dean College of Medicine and Dentistry* *Keynote address by Professor Clare Heal, Promotional Chair, Discipline of General Practice* *Gold Sponsor presentation - Miga* *Supporter Sponsor presentation - Australian College of Rural and Remote Medicine (ACRRM)*
Session 2 9:30am	Oral Presentations *Beyond the Pain: The Psychosocial Impacts of Adenomyosis in Australia.* Presenter: Sarah McDonnell, MBBS student *Effect of aerobic cycling on resistance-induced changes in heart rate variability.* Presenter: Tali Wunsh, MBBS Student *Diagnostic Validation of Seegene GI Helminth Allplex Assay in a High Endemicity Population.* Presenter: Anna Duan, MBBS Student *Suprathel® Epidermal Substitute in the Management of Paediatric Burn Wounds: A Scoping Review.* Presenter: Dr Aneesha Ghosh, Prevocational Medical Doctor *Evaluating Diabetes Care Processes, Comorbidity Burden, and CGM Utilisation in Regional Australia: Results from Central Queensland Hospital.* Presenter: Aatif Syed, MBBS Student *A systematic review and meta-analysis assessing the ability of histone deacetylase 6 inhibitors to reduce the pathological impacts of acute ischaemic stroke in rodent models.* Co-presenters: Oliver Ma and Timothy Noack, MBBS Students

10:30am	Morning Tea
Session 3 10:50am	Oral Presentations *Outcome of an elective Large-Volume Paracentesis Clinic on Hospital Readmission Rates for Patients with Decompensated Cirrhosis and Ascites*. Presenter: Dr Mirko Farruggia, Prevocational Medical Doctor *Accuracy of the HEAR score in predicting 30-day Major Adverse Cardiovascular Events in Emergency Department patients with suspected Acute Coronary Syndrome: Systematic review and Meta-analysis*. Presenter: Noemie Da Costa, MBBS Student *Aboriginal Bush Medicine as a Source of Anti-Inflammatory Agents: Insights from a Human Immune Cell Model*. Presenter: Fitsum Abay Weldenugus, MBBS Student *Sodium glucose co-transporter 2 inhibitor-associated euglycaemic diabetic ketoacidosis in the emergency peri-operative period: A systematic review* Presenter: Dennis Perez Castillo, MBBS Student *Reduction in IV Fluid Use Following Implementation of a Shortage-Response Protocol in Australian Capital Territory Eds*. Presenter: Marita Bolic, MBBS Student *Telehealth-assisted oncology care: identifying markers of quality and safety*. Presenter: Ellie Barbagallo, MBBS Student
Session 4 11:40am	Panel Discussion **Panel Topic:** "Research Journeys in Motion: Exploring Research from the Ground Up" **Panel Chair:** Associate Professor Joseph Moxon; Principal Research Fellow **Panellists:** Associate Professor Eamon Raith: *ICU Consultant, Mackay Base Hospital and Research Lead, Mackay Clinical School* Dr Vana Sabesan: *Consultant Paediatrician, Townsville University Hospital* Dr Chelsea Smith: *JCU PhD Candidate and GP Registrar* Reece Martis: *JCU MBBS (Honours) Student; 2025 JCUMSA President and recipient of the 2024 NQRTH Rural Research Honours Bursary*.

12:25pm	Lunch & Poster Presentations

Large central hepatic regenerative nodules in adults with Alagille syndrome: a limited case series – Dr Christopher James Shephard; Medical Registrar

Exercise-Induced Rhabdomyolysis Masquerading as Liver Injury – Dr Takuma Konno; Prevocational Medical Doctor

Diagnostic and Therapeutic Approach to Immune Thrombocytopenia: A Case Report – Dr Takuma Konno; Prevocational Medical Doctor

A Rare Case of Uvular Necrosis Following Routine Diagnostic Oesophagogastroduodenoscopy – Dr Takuma Konno; Prevocational Medical Doctor

The effectiveness of non-steroidal anti-inflammatory drugs (NSAIDs) for pain relief during outpatient intrauterine device (IUD) insertion: a systematic review – Marita Bolic; MBBS Student

From Barnyards to B-Cells: A review of the evidence linking Coxiella burnetii to haematological malignancy risk – Anna Duan; MBBS Student

The Impact of a Territory-Wide Protocol on First-Dose Antibiotic Route in the Canberra Hospital ED – Marita Bolic; MBBS Student

Interventions to Reduce Cardiovascular Risk Factors in Indigenous Peoples with Chronic Kidney Disease: A Scoping Review – Reece Martis; MBBS Student

Session 5 1:20pm	Oral Presentations

Biomarkers associated with frailty in cardiovascular surgery: a systematic review and meta-analysis.
Presenter: Dr Ellen Quinn, Prevocational Medical Doctor

PICC Line Tip Position and Reinsertion Rates in an ICU Setting: A 3-Year Retrospective Audit in Queensland.
Presenter: Jasdeep Sethi, MBBS Student

Atypical Pathogenic Effects of a Novel C. difficile Toxin.
Presenter: Kimberley Bourke, MBBS Student

Can Non-Neurosurgeons Operate on Traumatic Brain Injuries in Non-Metropolitan Areas? A Scoping Review.
Presenter: Dr Lauren Bosley, Prevocational Medical Doctor

	Opening a can of worms: A qualitative study on the feasibility and acceptability of One Health approaches to Soil-Transmitted Helminthiases (STHs) in rural Northern Australia. Presenter: Anna Duan, MBBS Student *"But aren't all medical students from rich families?" The financial impact of placement on medical students at an Australian regional medical school."* Presenter: Abbey Deguara, MBBS Student
Session 6 2:25pm	**Workshop:** *Types of research questions and how best to answer them* **Workshop Facilitator:** *Associate Professor Rae Thomas, Research Education Lead, Tropical Australian Academic Health Centre (TAAHC).*
Session 7 3:20pm	Oral Presentations *The Utilisation of Artificial Intelligence (AI) / Gen AI for Learning and Assessment Amongst Australian Medical Students: A Single Tertiary Institution Study in Northern Queensland* Presenter: Eunah Joo, MBBS Student *Risk perception of progressive multifocal leukoencephalopathy (PML) with natalizumab among patients with multiple sclerosis (MS) and neurologists: a systematic review.* Presenter: Lachlan Williams, MBBS Student *Resilience in Rural: A Longitudinal Evaluation of Medical Student Adaptability During Remote Clinical Rotations.* Presenter: Jordan Bayne, MBBS Student *Value-based use of blood cultures in Townsville University Hospital Emergency Department.* Presenter: Amy Weber, MBBS Student
3:55pm	Conference Wrap Up and Awards

Presenter Biographies

Conference Opening Address

Professor Sarah Larkins

Dean, College of Medicine and Dentistry

Dr Sarah Larkins is an experienced research leader, general practitioner and Dean, College of Medicine and Dentistry, James Cook University, comprising disciplines of Medicine, Dentistry, Pharmacy, Public Health and Tropical Medicine and Biomedicine and Molecular Cell Biology. As a clinician researcher, Sarah has particular skills and experience in health systems and workforce research and Aboriginal and Torres Strait Islander health research and is a recognised expert in social accountability in health professional education. Sarah is also Co-Director of the Anton Breinl Research Centre for Health Systems Strengthening. Sarah has over 180 published peer-reviewed journal articles and several book chapters, with an h-index of 37, more than 4500 citations and well over $98m in grant funding. She currently supervises 10 HDR students with 20 PhD completions. Sarah currently serves as the Convenor, Clinical Leadership Group for the NHMRC-recognised Tropical Australian Academic Health Centre and a member of the National Health and Medical Research Council Research Committee for this triennium.

Keynote Address

Professor Clare Heal

Promotional Chair, Discipline of General Practice

Dr Clare Heal is Professor (Promotional Chair) and Academic Lead of the Department of General Practice at James Cook University. She has worked for JCU since 2002, and has been employed at every academic grade from A (research officer) to E (full professor). She has supervised 35 medical student honours research projects to completion, and has published more than 150 peer reviewed academic publications. From 2022-2023 she was awarded a Fulbright Scholarship and completed a Masters in Epidemiology at Harvard University.

Panel Discussion

Panel Chair

Associate Professor Joesph Moxon

Principal Research Fellow

Associate Professor Joseph (Joe) Moxon is a Principal Research Fellow at James Cook University and former Associate Dean Research for the College of Medicine and Dentistry (2019–2025). Since completing his PhD at the University of Wales Aberystwyth in 2008, he has led pioneering research in vascular biology, with a focus on Peripheral Artery Disease (PAD), stroke, and abdominal aortic aneurysm. His work spans biomarker discovery, clinical trials, and health equity, particularly in underserved populations, and is supported by funding from national and philanthropic bodies. A/Prof Moxon has supervised numerous PhD, MSc, and Honours students, and was recognised with JCU's Advisory Panel Member of the Year Award in 2022. He contributes actively to national and international scientific committees, editorial boards, and peer review panels, and is committed to mentoring the next generation of clinician-researchers.

Panelist

Associate Professor Eamon Raith

ICU Consultant, Mackay Base Hospital and Research Lead, Mackay Clinical School

Associate Professor Eamon Raith is an intensive care medicine specialist and neurointensivist. He conducts translational critical care research in neurocritical care medicine (with a focus on critical care management of traumatic brain injury and aneurysmal subarachnoid haemorrhage), biophotonics and health security.

A/Prof Raith has a Bachelor of Medicine and Bachelor of Surgery from the University of Adelaide, a Master of Advanced Critical Care Practice from Monash University, a Master of Clinical Ultrasound from the University of Melbourne and a PhD in Medicine from the University of Adelaide. He is the Research Lead for Mackay Clinical School at James Cook University, and appointed as a Clinical Senior Lecturer at The University of Adelaide, Adjunct Senior Research Fellow at the Australian and New Zealand Intensive Care Research Centre (Monash University) and an Honorary Senior Fellow at the Critical Care Research Group & Institute for Molecular Bioscience at the University of Queensland. He is also appointed as a Clinical Senior Lecturer at University College London, and has previously held honorary appointments at the University of Oxford.

Panel Discussion

Panelist

Dr Vana Sabesan

Consultant Paediatrician, Townsville University Hospital

Dr Sabesan has been a General Paediatrician at Townsville Hospital since 2007, with special interests in regional paediatric oncology and nephrology. She currently serves as the Network Medical Director for the Queensland Basic Paediatric Training Network, where she oversees trainee selection into the Basic Paediatric Training Program (RACP) and leads initiatives to ensure equitable distribution of trainees across Queensland.

As Director of Paediatric Education at Townsville University Hospital, Dr Sabesan is responsible for managing the hospital's paediatric education program and providing support to both trainees and supervisors. She also contributes to several committees of the Royal Australasian College of Physicians and supervises multiple research projects undertaken by advanced trainees and medical students.

Dr Sabesan is committed to developing fair and transparent selection processes, and to building supportive programs that enhance the experience and wellbeing of both trainees and educators.

Panelist

Dr Chelsea Smith

JCU PhD Candidate and GP Registrar

Dr Chelsea Smith is an early career researcher who is currently enrolled as a PhD candidate at James Cook University (JCU) and working as a registrar with the Royal Australian College of General Practitioners. Graduating with First Class Honours and awarded the University Medal from JCU, Dr Smith has a special interest in bringing research to the primary healthcare setting where the opportunity for prevention is greatest at the patient's first point of contact with the healthcare system.

Panelist

Reece Martis

JCU MBBS (Honours) Student; 2025 JCUMSA President and recipient of the 2024 NQRTH Rural Research Honours Bursary

Reece Martis is a final year medical student at JCU with a passion for rural medicine and cardiology. As a recipient of the North Queensland Rural Training Hub (NQRTH) Rural Research Bursary as well as the Lynn Kratcha rural scholarship and the Amuthan Medical Research Grant, Reece is currently undertaking his honors project evaluating the cardiovascular impacts of the remote Indigenous Cape York Kidney Care team up in Weipa. As president of the JCU Medical Students' Society (JCUMSA) and former academic rep and deputy journal club officer, Reece is passionate about spreading his joy for research.

Workshop Facilitator

Associate Professor Rae Thomas

Research Education Lead, Tropical Australian Academic Health Centre (TAAHC)

Dr Rae Thomas is an Associate Professor in Evidence-Based Practice and commenced as the Research Education Lead for the Tropical Australian Academic Health Centre in April 2022 . She has taught hundreds of clinicians and researchers in evidence-based practice, research translation skills, conducted research mentoring, co-developed clinician-led research projects, conducted project consultation, and provided HDR and post-doctoral supervision

Her research has focused on reducing the gap between research evidence and clinical practice. Rae's passion is to improve evidence-based decision making in clinical practice and to use community engagement strategies to improve health systems and policy. Her program of research has included developing, implementing, and evaluating randomised controlled trials, exploring processes in health decision making, and translating evidence to practice and policy.

Tropical Australian Academic Health Centre

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Oral Presentations

Poster Presenters

Oral Presenters

Beyond the Pain: The Psychosocial Impacts of Adenomyosis in Australia
Presenter: Sarah McDonnell (1), MBBS student

List of co-authors:
Dr Tracey Ahern, RN, PhD, BNSc (Hons), BEd, GCert Ed (Academic Education), GCert Ed (Educational Leadership), Dr Madelyn Lindsay (Pardon) BPsych, PhD

1. College of Medicine and Dentistry, James Cook University

Background
Adenomyosis is a prevalent yet under-recognised uterine condition characterised by chronic pelvic pain, heavy menstrual bleeding, and significant psychosocial impacts. Affecting up to one-third of reproductive-aged women, it is frequently misdiagnosed or conflated with endometriosis. Research into the broader psychosocial consequences of adenomyosis—particularly in rural and remote Australia—remains limited, contributing to ongoing health inequities.

Aim
This cross-sectional study explores the psychosocial impacts of adenomyosis among Australian women, with a focus on geographic disparities, healthcare access, and lived experience. The primary research question is: What are the psychosocial impacts of adenomyosis on Australian women aged 18 and over? Sub-questions will examine regional differences between rural, regional, and metropolitan populations.

Methodology
An anonymous, national online survey will be distributed to Australian women aged 18+ with a clinical diagnosis of adenomyosis. Recruitment will occur via private gynaecology clinics, advocacy organisations, universities, and social media. The survey, based on the Endometriosis Impact Questionnaire (Jones et al., 2019), includes 48 Likert-scale items and open-ended questions addressing psychosocial wellbeing, diagnostic delay, and healthcare access. Ethics approval is in final stages.

Results
Quantitative data will be analysed using descriptive statistics, Chi-square tests, and ANOVA to assess regional differences. Qualitative responses will undergo thematic analysis.

Conclusion
This study seeks to amplify the voices of women, particularly in underserved rural areas, and inform culturally sensitive, community-driven models of reproductive healthcare that are equitable, accessible, and compassionate.

Effect of aerobic cycling on resistance-induced changes in heart rate variability

Presenter: Tali Wunsh (1), MBBS student

List of co-authors:
Anthony Leicht (2) (PhD)

1. College of Medicine and Dentistry, James Cook University, Townsville, QLD
2. Sport and Exercise Science, James Cook University, Townsville, QLD

Background
Acute resistance exercise is beneficial for health but can cause transient, adverse cardiovascular responses (e.g. greater arterial stiffness). Addition of aerobic exercise following resistance exercise may counterbalance these harmful responses via cardiac, autonomic nervous system (ANS) activity that remains to be determined.

Aim
To examine the effect of aerobic cycling, following a standard resistance bout, on cardiovascular function and cardiac ANS activity (i.e. heart rate variability, HRV).

Methods
Twenty active male (n=12) and female (n=8) adults completed a familiarisation session and, in a randomised order, two exercise sessions. Each session included 10-minutes of seated rest, a 35-minute resistance bout and a 90-minute recovery period. Recovery consisted of seated rest (Control) or 30-minutes of aerobic cycling at 70-75% maximum heart rate (HR) followed by 60-minutes of seated rest (Experimental). Five-minute recordings of HR and HRV were calculated each 10-minutes of the 60-minute recovery period. Significant ($p<0.05$) recovery differences were examined by 2-way repeated measures ANOVA (time x session) and pairwise post-hoc comparisons.

Results
During recovery, HR significantly decreased while HRV significantly increased for both sessions. Compared to the Control session, mean HR was lower (79.9 1.8 vs. 86.5 2.1 bpm) and total HRV (798 170 vs. 1292 247 ms2) and parasympathetic modulations (23.0 2.8 vs. 17.6 2.1 ms) greater for the Experimental session.

Conclusion
The addition of an acute bout of aerobic cycling following resistance exercise produced favourable HRV and parasympathetic modulations during recovery. Prescribing aerobic after resistance exercise (not seated rest) may enhance health while reducing the transient, adverse cardiovascular responses produced by resistance exercise.

Diagnostic Validation of Seegene GI Helminth Allplex Assay in a High Endemicity Population

Presenter: Anna Duan (1), MBBS student

List of co-authors:
Francesca Azzato (2,3), Eileen Hor (2), Jee Hinaut (2), Huan Zhao (1,4), Polydor Mutombo (7), Rodrigue Mintsa (8), Matthew Watts (5,6), Richard Bradbury (1,3)

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7. Consultant. Neglected Tropical Diseases/Health Security-Health Preparedness & Response, Southern Cross University
8. National Centre for Scientific and Technological Research of Gabon, Libreville, Gabon

Background
Although microscopy remains the gold standard for parasitology diagnostics, molecular tools such as multiplex PCR offer enhanced sensitivity and specificity, especially for detecting soil-transmitted helminths (STHs). The Allplex™ GI-Helminth (I) assay is a multiplex PCR platform that simultaneously detects eight intestinal helminths. This study evaluated the assay's performance using 222 fecal samples collected from Gabon, West Africa, an area with high STH prevalence, providing insights relevant to similar underserved settings, including remote regions of northern Australia where STHs remain underdiagnosed and underprioritized.

Methods
Samples were preserved in 70% ethanol, underwent formalin ethyl-acetate concentration (FEC) microscopy, and DNA was extracted using the Qiagen Powersoil kit before PCR analysis. Diagnostic performance was assessed using both microscopy and a composite reference standard (CRS) that incorporated PCR and microscopy findings.

Results
Compared to microscopy alone and CRS, the assay showed high sensitivity for Ascaris lumbricoides (97.6%, 98.3%), Trichuris trichiura (81.8%, 88.2%), hookworms (75.0%, 91.3%), and Strongyloides spp. (57.1%, 88.9%). Specificities versus microscopy were 78.4%, 68.3%, 87.9%, and 92.1%, respectively. Notably, many samples included Strongyloides fuelleborni, a species detected by the assay's Strongyloides primers.

Conclusion

These findings support the integration of helminth PCR into diagnostic workflows in endemic settings, including northern Australia. Although Strongyloides sensitivity appeared lower against FEC microscopy, this likely reflects microscopy's poor sensitivity rather than a limitation of the assay. Future evaluation using larval culture or serology may provide a more accurate benchmark.

Suprathel® Epidermal Substitute in the Management of Paediatric Burn Wounds: A Scoping Review

Presenter: Dr Aneesha Ghosh (1), Prevocational medical doctor

List of co-authors:
Dr. Brendan O' Connor, Consultant Paediatric Surgeon, BSc (Hons) MB BCh BAO (Hons) DOHNS DCH MRCSI MCh (Hons) MSc (Hons) FRCSI (Paed.Surg)

1. Townsville University Hospital

Background
Burn injuries among the paediatric population and are often associated with long-term trauma, especially if associated with delayed healing and resultant scarring. Scalds and contact burns are common, typically presenting as superficial to partial thickness burns. Advances in synthetic epidermal substitutes, such as Suprathel®, have shifted burn care management towards improved outcomes, including faster healing, reduced hospital stays, and enhanced patient comfort.

Aim
This scoping review aims to evaluate the therapeutic efficacy of synthetic skin substitute Suprathel®, in managing partial thickness burns in pediatric patients. The review focuses on outcomes such as pain reduction, frequency of dressing changes, re-epithelialization time, infection rates, scar quality, and patient experience.

Methods
A scoping review of published studies was conducted across PubMed, Google Scholar, and Cochrane databases. Eligible studies assessed the clinical and long-term outcomes of Suprathel® use in pediatric partial thickness burns, with or without comparison to alternative treatments. Data extraction and quality appraisal followed PRISMA guidelines.

Results
The reviewed studies consistently demonstrated Suprathel®’s effectiveness in minimizing pain, reducing the need for surgical interventions, and achieving superior scar outcomes. However, its published success to date is closely linked to optimal wound bed preparation, with the best adherence and outcomes observed following excisional debridement.

Conclusion
Suprathel® is a valuable option for the management of partial thickness burns in the pediatric population. Nevertheless, further research is warranted to explore factors contributing to treatment failures, the influence of host factors, and to establish standardized protocols for its application across diverse pediatric subgroups with varying comorbidities.

Evaluating Diabetes Care Processes, Comorbidity Burden, and CGM Utilisation in Regional Australia: Results from Central Queensland Hospital

Presenter: Aatif Syed (2), MBBS student

List of co-authors:

Arushi Rana (1), Amal Rauf (2), Rajat Gupta (1), Francesca Lim (1), Akash Konantambigi (1), Belinda Weich (1), Majid-Al Abbood (1), Marian Hayward (1), Usman Malabu (3), Vasant Shenoy (1), Harshal Deshmuk (2)

1. Mackay Base Hospital
2. James Cook University, Mackay Base Hospital
3. Townsville University Hospital, James Cook University

Background
Type 1 Diabetes Mellitus (T1DM) is a chronic condition requiring lifelong management, but there remains limited data on concordance with recommended diabetes care processes, the burden of comorbidity, and the uptake of CGM amongst people living with T1DM in regional Australia

Aim
This study aimed to evaluate adherence to diabetes care processes, comorbidity burden, and continuous glucose monitoring (CGM) metrics among individuals with Type 1 Diabetes Mellitus (T1DM) attending a regional hospital in Central Queensland, Australia.

Methods
A retrospective audit of 175 T1DM patients was conducted using electronic medical records. Data on demographics, care process adherence, comorbidities, and CGM metrics were analyzed. A Gradient Boosting Machine (GBM) model assessed factors influencing glycaemic control.

Results
The cohort had a mean age of 40.4 years and a diabetes duration of 18.5 years. Most were Caucasian (92.5%), with 7.5% identifying as First Nations Australians. Obesity prevalence was 32%, and 17.9% were current smokers. Mean HbA1c was 8.51%, indicating suboptimal glycaemic control. Adherence to screening protocols varied: blood pressure monitoring (79.8%), lipid profile screening (68.8%), kidney function assessment (89.7%), retinopathy screening (43.8%), and foot examinations (28.4%). CGM usage was high (77.8%), with an average of 14 scans per day. CGM metrics showed a mean time-in-range (TIR) of 42.9%, time-above-range (TAR) of 54.2%, and a glucose management indicator (GMI) of 7.99%. The GBM model identified body mass index (BMI) as the strongest modifiable factor influencing glycaemic control.

Conclusion
Despite high CGM adoption, glycaemic control remains suboptimal, and significant gaps exist in essential care processes, particularly retinal and foot screenings. These findings highlight the need for targeted interventions to improve diabetes management in regional Australian settings.

A systematic review and meta-analysis assessing the ability of histone deacetylase 6 inhibitors to reduce the pathological impacts of acute ischaemic stroke in rodent models.

Co-presenters: Oliver Ma (1) and Timothy Noack (2), MBBS students

List of co-authors:

Alexandra F. Trollope (PhD), (2,3,4) Joseph V. Moxon (PhD) (2,4)

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3. Department of Anatomy and Pathology, College of Medicine and Dentistry, James Cook University, Townsville, QLD 4811, Australia
4. Australian Institute of Tropical Health and Medicine, James Cook University, Townsville, QLD 4811, Australia

Background
Acute ischaemic stroke (AIS) results from tissue hypo-perfusion causing a focal ischaemic core and surrounding penumbra at risk of tissue death. Current therapies focus on reperfusion, however alternative therapies are required to extend reperfusion timeframe. A promising target in early experimental evidence is pharmacological inhibition of enzyme histone deacetylase-6 (HDAC-6) which may promote neuroprotection and repair. However, evidence by independent studies has not yet been systematically appraised.

Aim
This review will systematically assess the effect of HDAC-6 inhibition in pre-clinical AIS models.

Methods
A comprehensive literature search was performed, adhering to PRISMA guidelines and SYRCLE statement. Medline, Emcare (Ovid), Scopus and Web of Science databases were searched. A Protocol was published on PROSPERO (CRD420250643034). Included studies were required to utilise pre-clinical in-vivo models of AIS, assessing selective pharmacological HDAC6 inhibition on AIS pathology and neurological outcomes. Studies that assessed inhibitors of multiple different HDACs were excluded. Articles were required to quantify the degree and/or specificity of HDAC inhibitor used and be published in English. Review articles and editorials were excluded. Included studies were required to present an appropriate comparator and control groups within the experiment.
The search identified 2445 articles and after screening six studies met inclusion criteria. Data extraction is currently underway.

Results
Preliminary analysis demonstrated marked improvement in measures of stroke pathology in HDAC-6 inhibited models post-stroke induction compared to controls. Tubastatin-A was identified as a common and effective specific-HDAC-6 inhibitor.

Conclusion

Future analysis is planned to quantify HDAC-6 association with AIS outcomes and a meta-analysis quantifying the impact of HDAC-6 inhibition on AIS outcome across studies.

This study is being supported as part of the RHMT program, and is being completed as part of the NQRTH Summary Research Bursary (Oliver Ma).

Outcome of an elective Large-Volume Paracentesis Clinic on Hospital Readmission Rates for Patients with Decompensated Cirrhosis and Ascites

Presenter: Dr Mirko Farruggia (1), Prevocational Medical Doctor

List of co-authors:
Dr Zainul Azhar Gastroenterology Advanced Trainee, MHLM (1), Dr Rozemary Karamatic MBBS RACP (1)

1. Townsville University Hospital

Background
Re-accumulation of large volume ascites requiring therapeutic abdominal paracentesis is a common clinical entity among patients with decompensated liver cirrhosis. The elective large volume paracentesis (LVP) clinic was introduced in February 2023 in Townsville University Hospital (TUH), to facilitate non-urgent LVPs among patients with recurrent large volume ascites. Evaluation of the LVP clinic's effectiveness in reducing non-elective hospital readmission rates was undertaken.

Methods
A retrospective study from 1st April 2021 to 1st April 2025 (two years pre and post commencement of the LVP clinic of 529 hospital encounters involving 44 patients was performed. Eligible patients were those with decompensated liver cirrhosis with recurrent ascites requiring LVP. Outcome measures include non-elective hospital readmission rates, length of stay, and days to next readmission.

Results
233 outpatient LVPs were performed since the clinic's inception with a reduction of biannual ward admissions from 164 to 132. Elective ward admission rates have significantly reduced from 71.3% to 25.8% ($p = < 0.01$). There was a numerical reduction in non-elective hospital readmissions rates from 28.7% to 26.9% ($p = 0.30$) but no difference in median length of stay (1 vs 1 day), or median days to next readmission (9 vs 8 days, $p= 0.30$).

Conclusion
The introduction of the LVP clinic reduces the need for hospitalization for non-urgent therapeutic paracentesis among patients with recurrent ascites, thereby reducing the pressure for acute ward beds. Further studies would be required to understand the cost effectiveness from a health service perspective of the new model of care.

Accuracy of the HEAR score in predicting 30-day Major Adverse Cardiovascular Events in Emergency Department patients with suspected Acute Coronary Syndrome: Systematic review and Meta-analysis

Presenter: Noemie Da Costa (1), MBBS student

List of co-authors:

Arnav Kalra (MBBS 5), Dr Vinay Gangathimmaiah (MBBS, Master of Public Health, ACEM Fellowship) (2), Dr Karen Carlisle (BSc (Hons), PhD, Senior Research Fellow) (1), Dr Clare Heal (MB, DRANZCOG, FRACGP, PhD) (1), Dr Leanne Hall (BPhysio (Hons), PhD Neuroscience, Senior Research Fellow) (1)

1. College of Medicine and Dentistry, James Cook University
2. Department of Emergency Medicine, TUH.

Background & Aim

Acute Coronary Syndrome (ACS) is a potentially life-threatening cause of chest pain in patients presenting to the Emergency department (ED). Risk stratification tools can help identify those at low risk of ACS who may be safely discharged without troponins. The HEAR (History, ECG, Age, Risk factors) score is one new tool that has yet to be assessed in an Australian ED. We synthesised the available evidence on the diagnostic performance of the HEAR score for predicting 30-day Major Adverse Cardiovascular events (MACE) in ED patients with suspected ACS.

Methods

Databases and reference lists were searched for publications with two independent researchers completing the search, title, abstract and full text screening, data extraction and risk of bias assessments. The primary outcome was 30-day MACE. The data was pooled in a meta-analysis using a random-effects model for HEAR score <1, <2, <3 and <4.

Results

Thirteen studies with 43, 177 participants were included. A HEAR score <1 showed a sensitivity of 99.97% (95% CI 99.57% – 100.00%) and specificity of 5.97% (95% CI 4.48% – 7.92%) with 2 low-risk participants (0.09%) experiencing MACE. A HEAR score <2 yielded a sensitivity of 99.30% (95% CI 98.26% - 99.71%) and specificity of 17.75% (95% CI 13.57% - 22.88%) with 18 of the low-risk participants (0.27%) experiencing MACE.

Conclusion

A HEAR score <2 has the potential to inform risk stratification of ED patients with suspected ACS. However, the low-quality evidence makes the findings insufficient to change practice without more rigorous prospective studies.

Aboriginal Bush Medicine as a Source of Anti-Inflammatory Agents: Insights from a Human Immune Cell Model

Presenter: Fitsum Abay Weldenugus (3), MBBS student

List of co-authors:

Shatarupa Das(PhD-Immunology) (1, 2), Phurpa Wangchuk(PhD-Drug development) (1,2), Catherine M. Miller(Prof) (3), Andres Ruiz(M Phil) (1)

1. Australian Institute of Tropical Health and Medicine, James Cook University, Cairns, Queensland, Australia.
2. College of Science and Engineering, James Cook University, Cairns, Queensland, Australia.
3. College of Medicine and Dentistry, James Cook University, Cairns, Queensland, Australia.

Background and Aim
Chronic inflammation underpins the pathology of numerous diseases affecting millions of Australians, including inflammatory bowel disease and diabetes. Despite advances in treatment, there is a growing need for safer, plant-based anti-inflammatory therapeutics. This study investigates four bioactive compounds from Aboriginal bush medicine for their anti-inflammatory effects in a lipopolysaccharide (LPS)-stimulated human immune cell model mimicking acute inflammation.

Methods
Human monocytic THP-1 cells were stimulated with LPS to induce an inflammatory response, then treated with four individual compounds (F1–F4) for 72 hours. Supernatants were analysed using the LegendPlex™ multiplex assay to measure pro-inflammatory (e.g., TNF-α, IL-1β), anti-inflammatory (e.g., IL-10), and regulatory cytokines (IL-33) via flow cytometry. Cytokine levels in THP-1 cells treated with bioactive compounds were compared against LPS-stimulated and unstimulated controls to determine their inhibitory or stimulatory effects.

Results
LPS stimulation significantly increased pro-inflammatory cytokine release, confirming induction of inflammation. F1 and F2 markedly suppressed this response, with up to 99% reduction in TNF-α and IL-1β compared to LPS-only controls. F1 also enhanced regulatory cytokines, suggesting immunomodulatory effects. F3 selectively inhibited IL-1β (~50% reduction), while F4 showed no activity. No cytotoxicity was observed across treatments.

Conclusion
These findings provide the first evidence of anti-inflammatory and immunomodulatory effects of compounds derived from Aboriginal bush medicine in a human immune cell model. F1 and F2, in particular, show strong therapeutic potential, supporting continued research into native Australian flora as a valuable source of novel treatments for chronic inflammation.

Sodium glucose co-transporter 2 inhibitor-associated euglycaemic diabetic ketoacidosis in the emergency peri-operative period: A systematic review

Presenter: Dennis Perez Castillo (1), MBBS Student

List of co-authors:
Dr Siva Senthuran (FCICM FANZCA) (2), Dr Sananta Dash (FCICM) (2), Dr Leanne Hall (PhD) (1), Dr Clare Heal (PhD) (1)

1. College of Medicine and Dentistry, James Cook University
2. Townsville University Hospital

Background
Perioperative euglycaemic diabetic ketoacidosis (EuDKA) is a rare, yet life-threatening adverse effect associated with sodium-glucose co-transporter-2 inhibitors (SGLT2i). It is characterised by ketonaemia, acidosis and normal serum glucose. Recent guidelines indicate the value of risk minimisation via early cessation of the medication before elective surgery, yet little guidance exists in the context of emergency surgery.

Methods
We performed a systematic review of EuDKA following emergency surgery to develop an understanding of the patient characteristics, and to identify risk factors that contribute to morbidity and mortality. MEDLINE, Scopus, CINAHL, EMCARE, PubMed and Web of Science were searched up to April 2024, with 30 cases identified from 21 publications.

Results
Time to EuDKA onset in most reports was within three days postoperatively (range: intraoperative to 10 days post-surgery). Risk factors identified include inadequate SGLT2i withholding time pre-operatively, poor diabetes control, morbid obesity, major surgery, intercurrent illness, inadequate intraoperative diabetes management and delayed gastrointestinal absorption. Reported morbidity included ten patients requiring intensive care unit admission, two requiring intubation and ventilation, two receiving dialysis and one receiving exploratory bowel surgery. There were no reported deaths. EuDKA continues to be under-recognised due to its atypical laboratory findings and non-specific presentation.

Conclusion
SGLT2i EuDKA in the emergency surgery context remains a challenge in diagnosis and management. A high index of suspicion for this condition, appropriate perioperative insulin management, vigilant laboratory screening, and patient education were suggested measures to reduce the risk.

Reduction in IV Fluid Use Following Implementation of a Shortage- Response Protocol in Australian Capital Territory Eds

Presenter: Marita Bolic (1), MBBS student

List of co-authors:

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1. College of Medicine and Dentistry, James Cook University
2. Canberra Health Services
3. ANU School of Medicine and Psychology, Senior Staff Specialist in Emergency Medicine - Canberra Health Services

Background
The Therapeutic Goods Administration identified a predicted shortage of intravenous (IV) fluids in July 2024.1 In response to this shortage, ACT Health developed and implemented a protocol in the Territory's electronic health record to guide fluid prescribing across the health service, including in their two Emergency Departments (EDs).

Objectives
This study aimed to describe changes to IV fluid use and measure the impact of the fluid shortage on care provision in the ACT Health EDs.

Method
Prospective descriptive study with retrospective controls, conducted over a 30-week period (6-May to 1-Dec 2024) across two mixed adult/paediatric EDs. Data collection included prescription records, stock ordering, and chart reviews. Primary outcomes were the proportion of ED presentations receiving IV fluids and mean fluid volume. Use was calculated weekly.

Results
A total of 93,684 presentations were identified; 11,485 of these had 35,819 ED fluid orders. The proportion of patients receiving IV fluids decreased from 14.3% to 8.6% at Canberra Hospital ED after protocol implementation; North Canberra Hospital ED saw a reduction from 17.4% to 9.1%. Mean order volume changed minimally – discharged patients had the greatest reduction in IV fluid use. No adverse outcomes related to restrictive fluid use were noted.

Conclusion
Both EDs saw a significant reduction in IV fluid use after protocol implementation, primarily through a reduction in the number of patients receiving IV fluids rather than the volume administered. Findings demonstrate a sustained reduction in IV fluid use in ACT Health EDs without known adverse effects.

Telehealth-assisted oncology care: identifying markers of quality and safety

Presenter: Ellie Barbagallo (1), MBBS student

List of co-authors:
Karen Johnston (PhD) (1), Deborah Smith (PhD) (1)

1. College of Medicine and Dentistry, James Cook University

Background
Models of telehealth-assisted oncology care continue to rapidly evolve and proliferate, catalysed by the COVID-19 pandemic. Teleoncology services aim to bridge systemic healthcare barriers, particularly for underserved rural, remote and culturally diverse communities. However, standards of teleoncology care remain incompletely and inconsistently defined.

Aim
A scoping review was conducted to identify markers of quality and safety within telehealth-assisted oncology care. Identifying such markers aimed to bring clarity to clinical care benchmarks. This review was supported by the North Queensland Regional Training Hubs bursary. The review forms the preliminary stage of the Telehealth in North Queensland (NQ) project which aims to optimise the quality and safety of telehealth for rural, remote and Aboriginal and Torres Strait Islander populations in NQ.

Methods
Search strategies were devised and executed in Medline Ovid, Scopus, EmCare, and CINAHL. Primary research reporting quality and safety markers in teleoncology were extracted. Such markers were systematically identified and synthesised.

Results
A total of 224 papers were included. Preliminary findings indicate several emergent themes. Using a Donabedian's Structure-Process-Outcome framework, quality and safety markers were categorised into three domains: a structural domain included markers of digital infrastructure and human resources; a processes domain included markers of care coordination and care experience; and an outcomes domain included markers of patient and physician satisfaction.

Conclusion
This review will inform subsequent stages of the Telehealth in NQ project including place-based engagement with health service stakeholders. Telehealth principles and decision-support tools will subsequently be co-developed to optimise telehealth safety and quality in NQ.

Biomarkers associated with frailty in cardiovascular surgery: a systematic review and meta-analysis

Presenter: Dr Ellen Quinn (1), Prevocational Medical Doctor

List of co-authors:
Dr Christopher Xi (2), Ms Nicola Morley (3), Distinguished Professor Jing Sun (4), Dr Mark Jackson (3)
1. Queensland Health, Charles Sturt University
2. Queensland Health/ University of Sydney
3. Queensland Health/ Griffith University
4. Charles Sturt University

Background
Frailty is a known predictor of poor postoperative outcomes in cardiovascular surgery, yet its assessment is often underutilised due to time constraints and variability in clinical tools. Serum biomarkers may offer a pragmatic alternative for identifying frail patients preoperatively.

Objective
To evaluate the association between routinely available preoperative serum biomarkers and frailty in adult cardiovascular surgical populations.

Methods
A systematic review and meta-analysis was conducted following PRISMA guidelines (CRD42024613695). Seven databases were searched for observational cohort studies reporting biomarker levels in frail and non-frail adult patients undergoing cardiovascular surgery. Eligible studies reported preoperative levels of albumin, haemoglobin, creatinine, eGFR, BMI, or HbA1c%. Random-effects meta-analyses were performed using Stata BE 18.5. Subgroup analyses were conducted by age, surgery type, biomarker level, and surgical technique.

Results
26 studies (n = 17,920) were included. Frailty was significantly associated with lower eGFR (MD: −9.89 mL/min/1.73m^2; 95% CI: −16.93 to −2.86), haemoglobin (MD: −0.692 g/dL; 95% CI: −1.118 to −0.265), albumin (MD: −0.186 g/dL; 95% CI: −0.291 to −0.081), and BMI (MD: −0.539 kg/m^2; 95% CI: −1.042 to −0.036). Subgroup analyses revealed that these associations were consistently stronger among younger patients and in vascular surgery cohorts. Heterogeneity was high (I^2 > 80%).

Conclusion
Lower eGFR, haemoglobin, albumin, and BMI are significantly associated with frailty in cardiovascular surgical populations, particularly in younger patients and those undergoing vascular surgery. These serum biomarkers may serve as practical adjuncts for frailty screening and risk stratification in preoperative care. Future studies should explore if optimisation of these markers can improve outcomes in frail patients.

PICC Line Tip Position and Reinsertion Rates in an ICU Setting: A 3-Year Retrospective Audit in Queensland

Presenter: Jasdeep Sethi (1), MBBS student

List of co-authors:

Dr. Chris Smart (Intensive-Care Consultant), Dr. Ashwin Wadwani (Registrar)

1. College of Medicine and Dentistry, James Cook University

Background and Aim

Peripherally Inserted Central Catheters (PICCs) are routinely used in intensive care units (ICUs) for long-term intravenous therapy. When tip position is confirmed by chest X-ray alone, malposition can occur, leading to the need for adjustment or reinsertion—exposing patients to additional procedures, delays in therapy, and increased use of resources.

This audit aimed to evaluate the rate of PICC adjustments and mal-positioning following blind insertion confirmed by chest X-ray in the Mackay Base Hospital ICU. The ultimate goal was to assess whether adopting ECG-guided tip confirmation could reduce malposition rates and improve efficiency.

Methods

A retrospective chart audit was conducted for all adult ICU patients who had a PICC inserted between January 2022 and December 2024. Data collected included patient demographics, PICC indications, final tip position, number of chest X-rays performed, adjustment or reinsertion rates, and time spent in the department as a proxy for resource impact. Descriptive statistics were used to summarize the data. Group comparisons for patients requiring adjustment versus no adjustment were analysed using chi-square and two-sample t-tests.

Results

A total of 403 PICC insertions were reviewed over the 3-year period. The main indications included: Antibiotics (72%), Chemotherapy (11%), TPN (9%), Other (8%). The Adjustment rate for PICC lines requiring repositioning or reinsertion was 19.3%. Tip malposition was most common at the subclavian vein, with the superior vena cava being the ideal tip location in most cases. Multiple chest X-rays were required in 9.4% of cases. Furthermore, patients requiring adjustment spent significantly longer in the department (mean 193 mins vs 161 mins, $p < 0.05$). Logistic regression showed that neither age nor indication were significant predictors for adjustment, while achieving an ideal tip position was strongly associated with reduced adjustment rates ($p < 0.0001$).

Conclusion

Nearly one in five PICCs required adjustment following blind insertion with chest X-ray confirmation, with malposition most frequently in the subclavian vein. Adjustment was associated with significantly greater departmental resource use and longer time to final confirmation. These results highlight the need to optimise current practice at Mackay Base Hospital ICU.

Adopting ECG-guided PICC tip confirmation could reduce malposition rates, decrease the need for repeat imaging, streamline workflow, and improve patient safety.

Atypical Pathogenic Effects of a Novel C. difficile Toxin

Presenter: Kimberley Bourke (1,2,3), MBBS student

List of co-authors:
Dr Diana López-Ureña, Post-doctoral fellow in Microbiology (1,2), Dr Steven J. Mileto, Post-doctoral fellow in Microbiology (1,2), Dr Ashleigh P. Rogers, Post-doctoral fellow in Microbiology (1,2), Meagan James, Senior Animal Technician (1,2), Prof Dena Lyras, Professor in Microbiology (Australian Research Council Laureate Fellow, Deputy Director, Biomedicine Discovery Institute, Sir John Monash Distinguished Professor) (1,2)

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3. College of Medicine and Dentistry, James Cook University

Background
Clostridioides difficile infection (CDI), the leading cause of antibiotic-associated diarrhoea, remains a major health issue in hospital and community settings. In rural areas, limited healthcare access can delay diagnosis and treatment, worsening outcomes. The Lyras group at the Monash BDI recently identified an uncharacterised C. difficile toxin. Preliminary data suggested a distinct structure and effects compared to known C. difficile toxins, prompting further investigation.

Aims
To investigate a novel C. difficile toxin, using in vivo and lab-based methods to identify its cellular effects and contribution to disease.

Methods
The Lyras CDI mouse model was used in this study. Mice (male C57BL/6J, aged 6–8 weeks) were randomly assigned to groups; (1) infected with wild-type C. difficile expressing novel toxin, (2) infected with a novel toxin knockout strain or (3) uninfected controls. Mice were monitored for weight loss and behavioural changes to 48 hours post-infection and euthanised for downstream analysis according to ethics (MUAEC-4 No.:36548), including colonic cytokine profiling, gene expression and histological analysis. Parallel in-vitro experiments were conducted on Saccharomyces cerevisiae to examine toxin effects on cellular stress responses.

Results
The novel C. difficile toxin induced weight loss and behavioural changes in mice, despite the absence of classical CDI signs such as diarrhoea or tissue damage. Immune profiling and gene expression analysis suggested altered host responses. Additionally, the toxin appears to impair yeast growth. Most notably, in vivo effects appear distinct to previously characterised C. difficile toxins.

Conclusion
These findings offer new insight into C. difficile pathogenesis, with further investigation into the toxin's mechanisms and clinical significance of value.

Can Non-Neurosurgeons Operate on Traumatic Brain Injuries in Non- Metropolitan Areas? A Scoping Review

Presenter: Dr Lauren Bosley (1), Prevocational Medical Doctor

List of co-authors:
A/Prof Clinton Gibbs MBBS FACEM (1,2,3), Eunah Joo, Year 6 of MBBS (1), Prof Geoffrey Dobson M.Sc. Ph.D. FAHA (1)

1. College of Medicine and Dentistry, James Cook University
2. Retrieval Services Queensland, Queensland Health
3. Emergency Department, Townsville University Hospital, Queensland Health

Background and Aim
Traumatic Brain Injuries (TBIs) with increased intracranial pressure require time-sensitive surgical intervention. In non-metropolitan areas, neurosurgeons are often unavailable to provide definitive treatment. Surgical decompression by non-neurosurgeons is a potential alternative; however, the feasibility and utility of non-specialist intervention is poorly defined in the literature. This scoping review evaluated the evidence for non-neurosurgeons performing emergent neurosurgical interventions for acute TBIs in non-metropolitan settings.

Methods
Literature was searched on Scopus, Emcare, MEDLINE and CINAHL for all original research examining neurosurgical interventions for acute TBIs in non-metropolitan settings without prompt access to a neurosurgeon. Methodological quality was assessed using the Quality Assessment Tool for Studies with Diverse Designs. Case studies and grey literature were excluded.

Results
The search yielded 20 studies that included over 2000 surgical interventions in 13 countries. General surgeons most commonly performed the procedures on patients with computed tomography-confirmed lesions. Mortality rates were heterogenous, ranging from 0 to 67% in small cohorts with variable follow-up periods. Morbidity was measured in 13 studies, commonly via the Glascow Outcome Scale. Most studies accessed remote neurosurgical advice via telehealth.

Conclusion
This review found incomplete information regarding mortality and morbidity following emergency decompression by a non-neurosurgeon for patients with severe TBIs; however, this practice may be lifesaving for patients without timely access to a neurosurgical centre. Our study further highlighted the knowledge gaps and surgical inequalities in rural and remote regions worldwide. There is an urgent need for further research, training and resource allocation, including strengthening telecommunication pathways in these communities.

Opening a can of worms: A qualitative study on the feasibility and acceptability of One Health approaches to Soil-Transmitted Helminthiases (STHs) in rural Northern Australia

Presenter: Anna Duan (1), MBBS student

List of co-authors:
Professor Maxine Whittaker (2), Professor Yvonne Cadet James (3), Mr Frank Mills, Environmental health Officer (4)

1. MBBS V and MPHTM student, James Cook University (CMD, and PHTM)
2. James Cook University, WHO CC VBDs/NTDs
3. James Cook University, IERC
4. Queensland Health

Background
Neglected tropical diseases (NTDs) like soil-transmitted helminthiases (STHs) disproportionately affect remote Aboriginal and Torres Strait Islander communities in Northern Australia, yet remain underprioritized in public health. One Health (OH), a transdisciplinary approach linking human, animal, and environmental health, has been applied internationally but its feasibility in the Australian context is unknown.

Methods
This qualitative study involved semi-structured interviews with eleven key informants from human, animal, and environmental health sectors across FNQ, including Townsville, Cairns, the Torres Strait Islands, and Weipa. A modified Health Beliefs Model informed the interview guide, developed in consultation with an Aboriginal and Torres Strait Islander advisory committee. Thematic analysis was conducted using both inductive and deductive approaches.

Results
Participants agreed that STHs are underrecognized due to asymptomatic presentations and low public awareness. OH was seen as valuable for addressing social determinants, yet implementation barriers included professional silos, unclear intersectoral roles, limited communication, and funding constraints. Cultural factors (pet ownership as part of Indigenous identity), workforce transience, and community trust were key feasibility concerns. Despite this, practitioners described existing informal collaborations and emphasized the importance of sustained community engagement. Education, policy support, and inclusion in health curricula were seen as critical enablers.

Conclusion
STHs highlight broader systemic neglect that OH could address. While conceptually supported, OH implementation in remote Australia requires structural reform, sustained funding, culturally responsive strategies, and community co-leadership to ensure success.

“But aren’t all medical students from rich families?” The financial impact of placement on medical students at an Australian regional medical school”

Presenter: Abbey Deguara (1), MBBS student

List of co-authors:

Anna Vnuk MBBS, DRANZCOG, FRACGP, Grad Cert Tert Ed, M Clin Ed, Ed D, FPAA (cert), FANZAHPE (1), Zinat Mohammadpour PhD, MSc (1), Aaron Hollins MBBS MPH GDip Hlth ProfEd FRACGP FACRRM FAFPHM (1), Jane Harte BSocSc,GradDipIGS, MSocSc, PhD (1)

1. College of Medicine and Dentistry, James Cook University.

Introduction/Background
Medicine benefits from a diverse student population in terms of patient outcomes, team performance, financial performance, and resilience (1). However, students entering medicine from lower socioeconomic backgrounds may experience significant financial difficulties while attending unpaid placement. (2) Despite this, there is limited information about the financial impact of placement on medical students in Australia.

Methods
This online survey collected data from 4th and 5th year medical students at James Cook University. Respondents provided information on sociodemographic characteristics and financial status during placements in 2024, with the opportunity for free-text comments. Ethics approval was obtained from JCU HREC.

Results
The survey recruited 163/389 students.
To cover their expenses, students used a combination of financial resources, with part-time work (60.7%) and family support (57.7%) being the most common. Overall, 97% of respondents were financially impacted by placements. Students reported being greatly or extremely impacted financially in terms of physical health (33%), mental health (54%), educational performance (22%) and access to basic food (10%).
Free text responses highlighted the risks to personal safety that students experienced due to the financial impacts of placement plus loss of identity, reduced self-esteem, decrease in social participation and disconnection from family.

Discussion
This study highlights the significant financial burden of placements on regional medical students, with widespread effects on well-being, academic performance, and access to necessities. While universities can provide targeted support, broader government action, such as stipends for students on unpaid placements, is essential to promote equity and inclusivity in medical education.
References
1. Gomez LE, Bernet P. Diversity improves performance and outcomes. J Natl Med Assoc. 2019 Aug;111(4):383-392. doi: 10.1016/j.jnma.2019.01.006. Epub 2019 Feb 11. PMID: 30765101.
2.https://medicaldeans.org.au/md/2024/05/MDANZ-MR_Student-Prac-Payments_Budget-May-2024.pdf

The Utilisation of Artificial Intelligence (AI) / Gen AI for Learning and Assessment Amongst Australian Medical Students: A Single Tertiary Institution Study in Northern Queensland

Presenter: Eunah Joo (1), MBBS student

List of co-authors:
Oliver Ma (MBBS 4) (1), Dr Torres Woolley (PhD, MPHTM) (1), A/Prof. Haleagrahara Nagaraja (MD, PhD) (1)

1. College of Medicine and Dentistry, James Cook University

Background & Aims
Anecdotal evidence suggests artificial intelligence (AI) software is transforming medical student learning and assessment by providing personalised learning experiences and potentially enhancing efficiency and adaptive learning. However, understanding exactly how and when medical students use and perceive AI is underexplored.

This study will explore how JCU medical students engage with and perceive AI in their studies. This information could help develop strategies to integrate AI into exam preparation and assignment writing; ensuring students learn core medical skills and values effectively and ethically.

Methods
Mixed-methods study involving a 24-item online, anonymous survey to Years 2–6 JCU medical students across Townsville, Cairns, and Mackay campuses in SP1 2025; to be followed in SP2 by surveying Year 1 students and running focus groups with all cohorts to explore issues in greater depth.

Findings
Year 2-6 medical students responded well to the survey (n=362; response rate 36%). Overall, students regularly use AI for either study or assignments (80%). Most common usage (often/always) was asking AI to: explain concepts (56%); medical content questions (54%); answer questions you would otherwise need to ask lecturers or doctors (46%); summarise notes/lectures (37%); and, help with PEAL assignments (36%). On average, AI provided 30% and 42% of effort into assignments and study/exam preparation, respectively.

Conclusions
JCU medical students regularly use AI. Findings identified in this study will guide College resource allocations and training to enhance better integration of AI into medical education, as well as develop ethical guidelines for AI's evolving role in medical education.

Risk perception of progressive multifocal leukoencephalopathy (PML) with natalizumab among patients with multiple sclerosis (MS) and neurologists: a systematic review.

Presenter: Lachlan Williams (1), MBBS student

List of co-authors:

Zinat Mohammadpour (PhD) (1), Liza van Eijk (PhD) (1), Mike Boggild (MD) (1)

1. College of Medicine and Dentistry, James Cook University

Background
Natalizumab is a highly effective therapy for relapsing-remitting multiple sclerosis, but it is associated with a rare risk of PML. Despite this low incidence, PML risk has influenced treatment decisions for both patients and neurologists.

Aim
To explore and synthesise the literature on how MS patients and neurologists perceive natalizumab-associated PML risk.

Methods
A systematic search was conducted across MEDLINE, PubMed, SCOPUS, CINAHL and Web of Science from inception until 21/03/2025. Each article was screened by title, abstract, and full text against the inclusion criteria by two independent investigators. Data extraction and risk of bias assessment are ongoing. We expect to finalise this project by August.

Results
Overall, 2058 articles were screened, with sixteen studies (13 patient, 3 neurologist) included in this review. We are still in the process of extracting data, but thus far, the following have been evident, which might change by the end of the project: It seems that patients overestimate the risk of PML associated with natalizumab but remain willing to accept this risk due to perceived treatment benefits. In contrast, neurologists display lower risk tolerance, frequently recommending discontinuation at risk levels patients are prepared to accept. Qualitative data reported themes of uncertainty and fear among patients regarding the risk of PML with natalizumab.

Conclusion
Differing neurologist and patient perceptions underscore the need for more transparent communication in MS care. There is a need for future research exploring perceptions of PML risk with natalizumab dosing strategies, as no such studies currently exist.

Resilience in Rural: A Longitudinal Evaluation of Medical Student Adaptability During Remote Clinical Rotations.

Presenter: Jordan Bayne (2), MBBS student

List of co-authors:
Jane Harte, Rural Academic Lead and Associate Dean Students (1), Aaron Hollins, Associate Professor Rural Health (1), Leanne Hall, Senior Research Officer (1)

1. College of Medicine and Dentistry, James Cook University
2. Final Year Medical Student/Dental Officer

Background
This study aims to investigate the impact of rural clinical rotations on the resilience of medical students at James Cook University across different training stages (2nd, 4th, and 6th years). Such insights are invaluable for shaping medical curricula that promote psychological resilience, enhance academic performance, and support retention in rural healthcare practices.

Methods
This evaluation project involves a prospective, longitudinal cohort study involving medical students in year 2, 4, and 6 at James Cook University. The Connor-Davidson Resilience Scale (CD-RISC) is administered pre and post rural rotation and matching individual surveys with AI generated unique and de-identified codes. Students are invited via email to participate.

Results
This paper will overview the progress of the project to date, including any trends in data being observed. It was implemented in early 2025 and it is expected to continue into 2026 and 2027. We are currently in data collection and data analysis. So far we have collected data from 103 students pre-rural rotation, but only 33 student post-rural rotation. Potential barriers to participation will be discussed. 35% of respondents had significant personal experiences during their rural rotations that affected resilience. 100% were either satisfied or very satisfied with their clinical experience

Conclusion
This study addresses how rural clinical experiences shape the psychological resilience of future doctors. By identifying both the benefits and potential stressors of rural placements across different training stages, we can tailor support systems that not only enhance student wellbeing but also strengthen the future rural workforce.

Value-based use of blood cultures in Townsville University Hospital Emergency Department.

Presenter: Amy Weber (1), MBBS student

List of co-authors:
Joseph V Moxon (PhD) (1), Vinay Gangathimmaiah (FACEM)

1. College of Medicine and Dentistry, James Cook University
2. Department of Emergency Medicine, Townsville University Hospital

Background
Blood cultures are critical in the management of sepsis in the emergency department (ED), however are often used unnecessarily. This causes harm surrounding false positives, unnecessary investigations/changes in management, misdirected clinician time and increased resource and financial strain in the ED. Value-based healthcare (VBHC) promotes testing that meaningfully informs patient care whilst minimising harm, and hence, a value-based blood culture is one ordered out of reasonable likelihood of sepsis. In the absence of explicit guidelines, clinical prediction tools related to sepsis—such as the modified Shapiro Rule (mSR), Systemic Inflammatory Response Syndrome (SIRS) criteria, and quick Sepsis-related Organ Failure Assessment (qSOFA) score—offer objective means of assessing whether blood cultures align with VBHC. Examining current blood culture practices in the Townsville University Hospital Emergency Department (TUH ED) is necessary to characterise strengths and shortcomings to subsequently inform further study, improvements and guideline development to optimise patient care.

Aim
To evaluate the value-based use of blood cultures in the TUH ED using clinical prediction tools.

Methods
A retrospective chart review will be performed for immunocompetent adult patients who had a blood culture performed in the ED during 2024. Demographic, clinical and pathology data will be used to calculate the mSR, SIRS, and qSOFA scores. Blood cultures will be considered value-based with a score of ≥2 using any tool. Descriptive statistics will be used to quantify the proportion of value-based blood cultures. Secondary analysis will compare the performance of each tool in identifying patients for whom a blood culture is appropriate.

Current stage: planning. Ethics approval obtained. Site governance and PHA approvals pending.

Poster Presenters

Large central hepatic regenerative nodules in adults with Alagille syndrome: a limited case series

Note on Case Study Content: To uphold strict patient confidentiality standards, the case presentation sections have been intentionally omitted from this abstract. Only background information and conclusions are provided to ensure complete de-identification and ethical compliance.

Presenter: Dr Christopher James Shephard (1); Medical Registrar (MBBS, MMed)

List of co-authors:
Dr Seema Azeem Shah (MBBS) (1), Dr Rozemary Karamatic (MBBS) (1)

1. Department of Gastroenterology and Hepatology, Townsville University Hospital, Townsville, Queensland, Australia

Background and Aim
Alagille syndrome (AS) is a rare multi-system autosomal disorder resulting from aberrant Notch signalling. Chronic cholestasis and cirrhosis are common manifestations, predisposing to focal liver lesions of which central hepatic regenerative nodules (CHRNs) comprise the majority. CHRNs usually arise from hepatic segment VIII and associate with the portal vein. Although histologically benign, comprehensive radiological evaluation is necessary to exclude hepatocellular carcinoma.
We report two recent cases of large segment IVb CHRNs in adult AS patients, with emphasis on the distinguishing radiological features.

Conclusion
CHRNs are frequent in AS and occur in response to cirrhosis. Larger nodules may raise concern for malignancy and/or produce local compressive sequalae. Meticulous radiological evaluation is essential for accurate diagnosis and avoidance of unnecessary invasive testing, especially for lesions arising outside the typical location.

Exercise-Induced Rhabdomyolysis Masquerading as Liver Injury

Note on Case Study Content: To uphold strict patient confidentiality standards, the case presentation sections have been intentionally omitted from this abstract. Only background information and conclusions are provided to ensure complete de-identification and ethical compliance.

Presenter: Dr Takuma Konno (1); Prevocational medical doctor

List of co-authors:
Christopher James Shephard - BPT 3 (1), Zainul Azhar - Gastroenterology Advance Trainee (1)

1. Townsville University Hospital

Background
Rhabdomyolysis is a clinical syndrome caused by skeletal muscle breakdown, resulting in the release of intracellular contents such as creatine kinase, myoglobin, lactate dehydrogenase and electrolytes into the bloodstream. High concentrations of aminotransferases are also released – especially aspartate aminotransferase (AST) and, to a lesser extent, alanine aminotransferase (ALT). This can mimic hepatocellular injury, thereby prompting unnecessary liver-focused work-up and management.

Aim
To present a case of exercise-induced rhabdomyolysis with marked transaminitis in a healthy young adult and offer guidance on distinguishing hepatic from extra-hepatic causes of aminotransferase elevation.

Lessons Learnt
Marked aminotransferase elevation, particularly with disproportionately high AST, should prompt consideration of non-hepatic causes, such as skeletal muscle breakdown. Careful evaluation of clinical context and muscle injury markers is essential to avoid unnecessary testing and prevent misdiagnosis or inappropriate management.

Diagnostic and Therapeutic Approach to Immune Thrombocytopenia: A Case Report

Note on Case Study Content: To uphold strict patient confidentiality standards, the case presentation sections have been intentionally omitted from this abstract. Only background information and conclusions are provided to ensure complete de-identification and ethical compliance.

Presenter: Dr Takuma Konno (1); Prevocational medical doctor

List of co-authors:
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2. Townsville University Hospital Haematology Department

Background
Immune thrombocytopenia (ITP) is an acquired immune-mediated condition characterised by platelet destruction, with presentations ranging from asymptomatic to life-threatening bleeding. Early diagnosis and treatment are critical to prevent serious complications.

Aim
To present a case of severe primary ITP and outline its diagnostic and therapeutic approach.

Lessons Learnt
This case highlights the importance of a structured diagnostic approach and timely escalation of therapy in the management of ITP.

A Rare Case of Uvular Necrosis Following Routine Diagnostic Oesophagogastroduodenoscopy

Note on Case Study Content: To uphold strict patient confidentiality standards, the case presentation sections have been intentionally omitted from this abstract. Only background information and conclusions are provided to ensure complete de-identification and ethical compliance.

Presenter: Dr Takuma Konno (1); Prevocational medical doctor

List of co-authors:

Christopher James Shephard - BPT 3 (1), Zainul Azhar - Gastroenterology Advance Trainee (1), Rozemary Karamatic- Gastroenterologist (1)

1. Townsville University Hospital

Background
Uvular necrosis is a rare complication of oesophagogastroduodenoscopy (OGD), typically due to prolonged compression of the uvula between the endoscope and oropharyngeal structures like the hard palate. While usually benign and self-limiting, it can cause notable discomfort and patient anxiety if not promptly recognised.

Aim
To highlight uvular necrosis as a rare but important complication of OGD

Lessons Learnt
Uvular necrosis is a rare but important differential for post-OGD oropharyngeal discomfort. It is generally self-limiting and responds well to conservative treatment. Early recognition and reassurance are essential to prevent unnecessary investigations and reduce patient distress.

The effectiveness of non-steroidal anti-inflammatory drugs (NSAIDs) for pain relief during outpatient intrauterine device (IUD) insertion: a systematic review

Presenter: Marita Bolic (1); MBBS Student

List of co-authors:

Clare Heal, MBChB, DRANZCOG, FRACGP, MPHTM, PhD, MSEpidemiology Professor, General Practice and Rural Medicine (1), Natalie Drever, MBBS, BMedSci, FRANZCOG, Senior Lecturer - Obstetrics and Gynaecology (1,2)

1. College of Medicine and Dentistry, James Cook University
2. Cairns Hospital, Cairns and Hinterland Hospital and Health Service

NOTE – this project, as part of my honours degree, is in progress. It is anticipated to be completed in time for the MEDNORRTH conference.

Background
Fear of procedural pain represents a significant barrier to intrauterine device (IUD) uptake. Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used as pain relief for IUD insertion due to their analgesic and anti-inflammatory properties; however, evidence for their use remains inconsistent. This systematic review aimed to synthesise current evidence regarding the effectiveness of NSAIDs for pain relief during outpatient IUD insertion.

Methods
A search of MEDLINE, Embase, Central Register of Controlled Trials, CINAHL, and Scopus was performed from inception to March 3, 2025. The search strategy was developed using the Population, Intervention, Comparator, Outcome (PICO) framework. Databases with Medical Subject Headings (MeSH) indexing were searched with both MeSH and keyword terms. Additional sources were identified using citation searching. Risk of bias was evaluated using the Risk of Bias 2 (RoB 2) tool.

Results
Twenty-two studies met inclusion criteria – all of which were randomised controlled trials. There was significant heterogenicity in NSAID type, dose and route of administration. Six studies demonstrated a statistically significant effect on pain during IUD insertion. There were three studies that identified a reduction in post-insertion pain – some of which did not observe a reduction in IUD insertion pain.

Conclusion
Prophylactic NSAIDs demonstrate a limited effect in reducing pain during IUD insertion, though they may have a role in the management of post-insertion pain. Included studies were largely single centre, with relatively small sample sizes. Large, multi-centre studies in the future may help address the limited evidence base for NSAIDs in IUD insertion.

From Barnyards to B-Cells: A review of the evidence linking Coxiella burnetiid to haematological malignancy risk

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Introduction
Q fever, caused by Coxiella burnetii, is a zoonotic disease of public health significance in Far North Queensland (FNQ), where livestock exposure is common. While traditionally associated with chronic fatigue and endocarditis, emerging evidence suggests a potential link between Q fever and non-Hodgkin lymphoma (NHL). This review critically examines published mechanistic and epidemiological data exploring this association, offering insights relevant to clinicians and researchers in rural and regional Australia.

Methods
A structured narrative synthesis was conducted across PubMed, Scopus, CINAHL, and Google Scholar. Studies were reviewed under two themes: (1) the immunopathogenic effects of C. burnetii relevant to lymphomagenesis, and (2) epidemiological evidence linking Q fever to haematological malignancy. Key findings were assessed using Bradford Hill's criteria for causation.

Results
Mechanistically, C. burnetii induces chronic inflammation, IL-10 mediated immunosuppression, and immune evasion – conditions favourable to lymphoid transformation. Persistent Q fever has been associated with gene upregulation patterns seen in NHL, and C. burnetii DNA has been detected in lymphoid tissue. A French study reported a significant association between chronic Q fever and NHL, especially diffuse large B-cell and follicular subtypes. However, this was not replicated in a large Dutch cohort, and overall evidence remains inconsistent.

Conclusion
Using Bradford Hill's framework, biological plausibility and analogy are supported, but temporality, strength, and consistency of association remain limited. The link between Q fever and NHL is best considered weak to moderate. While routine screening is not warranted, clinicians in FNQ should remain alert to this possible association, particularly in patients with chronic Q fever or unexplained lymphadenopathy.

The Impact of a Territory-Wide Protocol on First-Dose Antibiotic Route in the Canberra Hospital ED

Presenter: Marita Bolic (1); MBBS Student

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Background
The Therapeutic Goods Administration identified a predicted shortage of intravenous (IV) fluids in July 2024.1 In response to this shortage, ACT Health developed and implemented a protocol in the Territory's electronic health record to guide fluid prescribing across the health service. Part of this protocol included changes to antibiotic route and administration volumes.

Objectives
To identify and describe changes to antibiotic prescribing – specifically, route of first antibiotic dose – related to the introduction of a fluid shortage protocol at Canberra Hospital ED, a tertiary mixed adult/paediatric ED with 98,000 annual presentations.

Method
Retrospective chart review of cellulitis diagnoses made in the ED over 30 weeks (6-May to 1-Dec 2024). Patients transferred from another facility, those with cellulitis as a secondary diagnosis and those who left at their own risk were excluded. Included presentations were coded by antibiotic type, route of first dose, and compliance with the protocol. Prescribing patterns before protocol implementation (6-May to 18-Aug) were compared to patterns post-implementation (19-Aug to 1-Dec).

Results
Of a total 57,917 presentations, 638 cellulitis cases were analysed after exclusion (295 pre-implementation, 342 post-implementation). No significant demographic or disposition differences were observed between groups. Rates of first-dose IV delivery did not change after protocol implementation ($p>0.05$). 97.7% of IV prescriptions aligned with the ACT Health protocol. In both cohorts, flucloxacillin was the most prescribed IV antibiotic.

Conclusion
Whilst there was high compliance with the protocol, it had no effect on first-dose route of administration. The most prescribed antibiotic in both periods remained consistent.

Interventions to Reduce Cardiovascular Risk Factors in Indigenous Peoples with Chronic Kidney Disease: A Scoping Review

Presenter: Reece Martis (1); MBBS Student

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Background
Chronic Kidney Disease (CKD) disproportionally affects remote Indigenous communities due to the higher proportion of risk factors and social determinants to healthcare. Despite being a disease of kidneys, CKD is highly atherogenic, with the leading cause of morbidity and mortality amongst those affected being cardiovascular disease (CVD). Likewise, managing CKD involves optimizing components of one's modifiable cardiovascular risk score including systolic blood pressure, glycemic control, lipids, weight, renal function and cardiorenal drugs.

Objectives
Due to the paucity of existing research, this review aims to explore CKD interventions for Indigenous peoples and their effectiveness on reducing cardiovascular risk factors.

Sources of Evidence
Peer-reviewed articles from MEDLINE, Emcare, CINHAL, Cochrane, Pubmed, Scopus and Web of Science were searched in English between January 2000 to April 2024 using search terms for CKD, Indigenous peoples and cardiovascular risk score & its components. Grey and other references were hand search from the references of retrieved publications.

Results
Ten studies totaling 1230 participants over a median follow up of 24 months met inclusion criteria. Five studies were primary care-based, four community-based, and one home-based, with an even mix of Australian Aboriginal and Torres Strait Islander peoples, New Zealand Māori, and American Indians.

Conclusions
Overall, remote Indigenous CKD largely improved cardiovascular risk factors by increasing cardiorenal drugs, decreasing blood pressure, albuminuria, glycated hemoglobin, body mass index, lipids, cardiovascular risk, and smoking as well as stabilizing renal function. Community and home interventions were more effective than clinic interventions as they offered holistic, culturally sensitive health promotion, lifestyle education and self-management. Despite some adoption into standard practice, many authors encountered limitations and have called for longer and bigger studies and policy changes.

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