



Townsville Health Research Showcase

27th – 29th
October
2020

**Program
&
Abstracts**

**Keynote Presentation
Prof Paul Glasziou**

**Daily Abstract & Poster
Presentations**

JCU – My Research Rules



Tuesday 27th October Program

ePoster Mini-Orals

Single slide 3 minutes oral presentations each followed by 2 minutes of questions

Venue: Robert Douglas Auditorium ,
Ground Floor, TUH

9:30am to 11:30am

Keynote Speech

Prof Paul Glasziou

Venue: [Link to Microsoft Teams Live Event](#).
Robert Douglas Auditorium,
Ground Floor, TUH

12:00pm to 13:15pm

Kidneys and Livers and Divers, Oh My! -13:30pm to 16:30pm Providing Safe, Efficient, Effective, and Sustainable Services

Venue: [Link to Microsoft Teams Live Event](#). Or Robert Douglas Auditorium , Ground Floor, TUH

1.30pm	The efficacy of home phototherapy for physiological and non-physiological neonatal jaundice: a systematic review	Candice Anderson	3.00pm	Meta-analyses of randomised controlled trials reporting on interventions for prevention of diabetes-related foot ulcers.	Chanika Alahakoon
1.45pm	Success! Facilitating choice for renal patients in the tropics with central venous lines to maintain the integrity of their dressings while attending to personal hygiene	Wendy Smyth	3.15pm	Discharge Against Medical Advice as a marker of surgical cultural competency; a study of Australian Aboriginal and/or Torres Strait Islander patients	Elzerie de Jager
2.00pm	Liver Compliance and Cardiac Surgery Outcomes Pilot Study	Nicholas Ang	3.30pm	Evaluating the quality and safety of the BreastScreen Remote Radiology Assessment Model of Service Delivery in Australia	Sarah Larkins & Janet Lengren
2.15pm	Disparities in Surgical Access: A Systematic Literature Review, Conceptual Model and Evidence Map	Elzerie de Jager	3.45pm	Out of Pocket costs of cancer care and the impact on healthcare access for Aboriginal and Torres Strait Islander Australians	Rachel Cummins & Robyn Preston
2.30pm	Northern Australia Health Service Delivery Situational Analysis: Findings and Recommendations	Alexandra Edelman & Sarah Larkins	4.00pm	North Queensland retrieval of injured divers: a retrospective review	Richard Turk
			4.15pm	Tropical Australian Academic Health Centre presentation	



Wednesday 28th October Program

From Innovation to Outcomes – 8:45am – 12:15pm

Leading Excellence and Innovation / Focusing on Individual Healthcare Outcomes

[Venue: Link to Microsoft Teams Live Event.](#)

9.00am	Does diabetes during pregnancy effect fetal kidney growth?	Sonja Brennan	10.45am	Is there an association between angiotensin pathway inhibitors and COVID-19 severity and mortality? A meta-analysis of observational data	Malindu Fernando
9.15am	My Death, My Choice: Congruence between preferred and actual place of death	Glynnis James	11.00am	Break	
9.30am	Smoking Cessation in Head and Neck Cancer Patients: A Mixed Methods Study	Justin Smith	11.15am	A novel system for the treatment of aortic annular dilation: An ex-vivo investigation and Live Animal Research	Pallav Shah
9.45am	'They are inconveniencing us' - Exploring how gaps in patient education and patient centred approaches interfere with TB treatment adherence: Perspectives from patients and clinicians in the Free State Province, South Africa.	Nishila Moodley	11.30am	Effects of a high-dose 24-h infusion of tranexamic acid on death and thromboembolic events in patients with acute gastrointestinal bleeding (HALT-IT): an international randomised, double-blind, placebo-controlled trial	Luke Lawton
10.00am	Break		11.45am	Electromagnetic Stimulator Therapy: New Technology for Treatment of Diabetic Foot Ulcer -TUH Experience	Julie Goodall
10.15am	Modelling the potential of wAu-Wolbachia strain invasion in mosquitoes to control Aedes-borne arboviral infections	Samson T. Ogunlade	12.00am	Real-time nanopore genotyping for bacterial pathogens	Eike Steinig
10.30am	Use of Virtual Reality for minor procedures in the Emergency Department: a scoping review	Cate Nagle	12.15am	Impact of virtual reality interventions on haemodialysis patients: a scoping review	Wendy Smyth

Homegrown – 13:30pm – 17:30pm

Findings from Past THHS SERTA Grant Recipients and an presentation from TAAHC

[Venue: Link to Microsoft Teams Live Event.](#)

1.30pm	"You've gotta do what you've gotta do": Prostate cancer patients' perspectives on image guidance in radiotherapy	Amy Brown	2.45pm	Procalcitonin: A Novel Test for Diagnosing Diabetic Foot Osteomyelitis –A Pilot Study	Oliver Heyes
1.45pm	Perseverance with home-based upper limb practice after stroke: Perspectives of stroke survivors in Queensland	Bridee Neibling	3.00pm	An evaluation of research investment and impact at the Townsville Hospital and Health Service	Amy Brown
2.00pm	Improving outcomes for people with mild cognitive impairment: An Australian pilot study	Luciana Theodoro de Freitas	3.15pm	An Immersive Sensory Experience during Childbirth: A proof of concept study	Mariann Hadland
2.15pm	Break		3.30pm	Closing remarks and presentations	
2.30pm	Radiation induces head and neck cancer cells to undergo an epithelial-to-mesenchymal transition; a stem cell phenotype.	Kylie Lopes Floro			

Keynote Speaker

Prof Paul Glasziou

Keynote Speaker Tuesday, 28th October 2020 - 12:00pm

Director, Institute for Evidence-Based Healthcare, Bond University

Professor of Evidence-Based Practice at Bond University and the Director of the Institute for Evidence Based Healthcare.

Prof Glasziou was the Director of the Centre for Evidence-Based Medicine in Oxford from 2003-2010. His key research interests include identifying and removing the barriers to using high quality research in everyday clinical practice.

He is a leader within the Reward Alliance, investigating research waste and promoting better prioritisation, design, conduct, regulation, management and reporting of health research.

Other research interests include overdiagnosis and overtreatment, general practice, uptake of evidence for non-drug interventions, and automation of systematic review processes

Program – Tuesday Morning 27th October 2020

e-Poster Mini-Oral Presentations

Single slide 3 minutes oral presentations each followed by 2 minutes of questions

Time	Topic	Speaker
09:20	Opening remarks	
09:30	Challenges of surgical timing for Immunoglobulin G4-related disease involving the Aortic and Mitral Valve: A Case Report.	Matheus Carelli
09:40	Incidental Sarcoidosis on PET scan for melanoma staging– Case Report	James Lee
09:50	Intrathoracic Migration of a Loop Recorder Device: An Unusual Clinical Entity	Nicholas Ang
10:00	Retrospective audit of sudden unexpected death in infants presenting via The Townsville University	Matthew Rogers
10:10	An Interesting Presentation of Hypoglycaemia	Nicholas Ang
10:20	How 'Global' are the Global Lung Initiative (GLI) Spirometry reference equations?	Duron Prinsloo
10:30	Characterizing the bacterial gut microbiome of very-preterm infants from the Townsville Hospital and exploring the influence of clinical variables	Jacob Westaway
10:40	Therapeutic Drug Monitoring of Phenytoin at a Regional Tertiary Hospital	Cassie Lanskey
10:50	Validation of a commercially available human nephrin ELISA as a diagnostic marker for early glomerular injury in neonates	Belete Mesfine

Challenges of surgical timing for Immunoglobulin G4-related disease involving the Aortic and Mitral Valve: A Case Report.

Carelli MG^{1*}, Danda N², Ramponi F¹, Ang N¹, Anand D² and Yadav S¹

¹Cardiothoracic Surgery Department, Townsville University Hospital, Townsville, QLD

²Cardiology Department, Townsville University Hospital, Townsville, QLD

Background: Immunoglobulin G4-related disease (IgG4-RD) has been described in multiple organ systems. However, cardiac IgG4-RD is uncommon and there are few reports on IgG4 related aortic regurgitation (AR). This is the only report of IgG4 related aortic and mitral regurgitation (MR), where pre and post-operative steroids were used. **Case summary:** A 66-year-old woman presented with syncope and general malaise. Further investigations demonstrated thickening of the anterior leaflet of the mitral valve extending into the aortic valve leaflets via the aortomitral curtain, associated with mild AR. Subsequently she developed complete heart block requiring insertion of a pacemaker. Since no tissue biopsy was available a presumptive diagnosis of IgG4-RD was made, and steroid therapy was commenced with substantial reduction of tissue thickening. During a follow-up period of 3 years the patient developed progressive congestive heart failure (NYHA III) refractory to medical therapy due to worsening aortic and mitral valve regurgitation. She eventually required aortic valve replacement (Perceval, Extra Large) and mitral valve annuloplasty (Physio, size 30). The histopathology demonstrated lymphoplasmacytic infiltrate with fibrosis and minor component of IgG4 positive plasma cells. Echocardiographic follow-up showed no paravalvular leak and no residual mitral regurgitation. **Discussion:** This case illustrates the challenges that cardiac IgG4-RD imposes on surgical decision making and the disorder's unique characteristics. It also shows the versatility of sutureless aortic prosthetic valves. Steroid therapy, although promoting initial regression of the disease, might contribute to progression of both aortic and mitral regurgitation possible due to deferring the operation.

Incidental Sarcoidosis on PET scan for melanoma staging– Case Report

Lee J¹

¹Townsville University Hospital, Townsville, QLD

Sarcoidosis is an autoimmune disease characterised by noncaseating granulomas. The most commonly affected sites are intrathoracic lymph nodes and lung parenchyma, however any organ system can be involved. The clinical manifestations are variable and nonspecific. Currently there is no definitive test for sarcoidosis and diagnostic criteria are clinical and radiologic manifestations, noncaseating granulomas, and no evidence of alternative disease. This case describes a patient who had a staging PET following an excision of a melanoma and was found to have diffuse lymphadenopathy above and below the diaphragm which was initially thought to be metastases from the melanoma. The patient subsequently had a lymph node biopsy taken of an inguinal node which showed non-necrotising granulomas. The patient was referred on for work up of possible sarcoidosis. The patient had respiratory function tests which showed a severe obstructive defect and the patient was started on prednisone and azathioprine. A follow up PET/CT was undertaken to ensure there was no progression of metabolically active disease to suggest melanoma metastasis. This PET/CT displayed reduction in metabolic activity in the previously demonstrated involved lymph node sites which was consistent with treatment response for sarcoidosis. PET/CT is not part of the standard workup or long-term monitoring of sarcoidosis. This case demonstrates that PET/CT may be useful in complex and multisystemic forms of sarcoidosis.

Intrathoracic Migration Of A Loop Recorder Device: An Unusual Clinical Entity

Ang, N¹; Saxena P¹

¹Cardiothoracic Surgery Department, Townsville University Hospital, Queensland, Australia

Intrathoracic migration of devices implanted into the chest wall causing major intrathoracic injuries has been documented¹⁻³. To our knowledge, there have been no reports on intrathoracic migration of an implanted loop recorder. We report on the management of a 58-year-old lady, with a body mass index of 19, who presented with syncope. She subsequently had a loop recorder (Reveal LINQ LNQ11, Medtronic Inc., Minneapolis, Min) implanted in the left anterior fourth intercostal space, 2cm from the left parasternal edge and approximately 8mm deep subcutaneously for investigation of syncopal episodes. There were no complications during the implantation. Post-procedural recovery was uneventful. Four weeks post-implantation, a diagnosis of sick sinus syndrome was made. The implanted loop recorder was planned for elective removal to facilitate a cardiac magnetic resonance scan prior to implantation of a permanent pacemaker. During explantation of the loop recorder, the device was unable to be located despite dissection down to the costal margins. Subsequent thoracic imaging revealed intrathoracic migration of the loop recorder, with the medial aspect of the device being adherent to the anterior chest wall. The loop recorder was seen within the pleural space, abutting the pericardium. A decision was made to retrieve the loop recorder via video-assisted-thoroscopic-surgery. A left intrajugular transvenous pacing wire was inserted prophylactically during anaesthetic induction. Intrathoracic findings were consistent with preoperative imaging. Moreover, the lingular segment of the left upper lobe was found to be adherent to the adjacent parietal pleura which, on dissection revealed the site of migration of the loop recorder. The loop recorder was retrieved uneventfully. The patient remains well at six weeks follow-up and subsequently had a permanent pacemaker implanted. Retrospectively, there could have been a possibility that the loop recorder was implanted into the subpectoral space. The device could have then migrated into the thoracic cavity through the costocoracoid component of the clavipectoral fascia. This theory is supported by the angulation of the loop recorder; the medial aspect of the loop recorder was tilted anteriorly, being partially adherent to the anterior chest wall. A direct intrathoracic implantation of the loop recorder is unlikely to have been the case, as significant complications would have been identified soon, if not immediately, after the implantation.

Retrospective audit of sudden unexpected death in infants presenting via The Townsville University Hospital Emergency Department.

Dr Matthew Rogers¹, Dr Andrew White¹

¹Townsville University Hospital, QLD

Background: Queensland has the second highest infant mortality rate in Australia, with Indigenous infants having a significantly higher rate than non-indigenous infants. Many jurisdictions have protocols or policies relating to managing sudden unexplained infant deaths (SUDI). The purpose of this is to ensure that any history that may inform the coronial process is collected in a timely and complete manner, that family members are investigated for possible inherited disease and that the family has follow-up to facilitate closure. No such procedure exists within Queensland Health. This audit sought to characterise demographic aspects and characterise the documented history taken, and follow-up arranged by treating medical officers for cases of SUDI. **Method:** Retrospective chart review of infants (<12months old) who died in the TUH Emergency Department, within 5 days of admission or in the community and were subsequently brought to TUH. The death must have been unexpected. Study period January 2007 to January 2019. **Results:** A total of 40 infants meeting inclusion criteria were identified from hospital mortality data. 13 were excluded as interhospital transfers and 6 as expected deaths. 29% were of Aboriginal or Torres Strait Islander heritage. Medical follow-up was offered in only 14% of cases. 80% of cases were related to sleep. Documentation of relevant history was universally poor. **Conclusions:** Although uncommon, SUDI has significant impacts on family wellbeing and may have implications for future pregnancies. Low levels of follow-up and poorly documented histories support the role of a protocol to be utilised in the case of SUDI

An Interesting Presentation of Hypoglycaemia

Ang, N¹; Saxena P¹

¹Cardiothoracic Surgery Department, Townsville University Hospital, Queensland, Australia

An otherwise healthy 51-year-old female presented with delirium. An initial chest x-ray and blood work revealed an elevated right hemidiaphragm and hypoinsulinaemic hypoglycaemia, which was corrected with rapid cessation of confusion. As an inpatient, multiple episodes of hypoglycaemia recurred. Further episodes were prevented with high dose prednisolone. A computed tomography scan of the chest revealed a pleural based 15x12x17cm supradiaphragmatic tumour masquerading as a raised hemidiaphragm on initial chest x-ray. A targeted medical assessment revealed finger clubbing, hyperkalaemia, and periosteal degenerative changes of all interphalangeal joints of the hands. What is the diagnosis? A needle biopsy of the tumour confirmed the diagnosis of solitary fibrous tumour. Our patient underwent a right lateral thoracotomy for resection of the tumour. Serum glucose levels were monitored to be normal intraoperatively. The tumour was strongly positive with insulin-like growth factor 2 (IGF-2) staining on immunohistochemistry, confirming the diagnosis of Doege-Potter syndrome (DPS). There were no further hypoglycaemic events post-resection. She remains well at six-week follow-up. Steroid therapy was successfully weaned. DPS is a rare paraneoplastic syndrome associated with solitary fibrous tumours and is famously characterised by hypoglycaemia. The pathophysiology behind DPS relates to tumour oversecretion of IGF-2. Oversecretion of IGF-2 promotes the uncontrolled growth of the tumour and is the reason DPS are classically associated with large solitary fibrous tumours. IGF-2 oversecretion also causes hypoglycaemia, hyperkalaemia, and periosteal bony destruction. Surgical resection is curative in most cases.

How 'Global' are the Global Lung Initiative (GLI) Spirometry reference equations?

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²Respiratory and Sleep Units, Townsville University Hospital, Townsville, Australia

³Public Health and Tropical Medicine, College of Public Health and Medical Sciences, James Cook University, Townsville, Australia

Background: The Global Lung Initiative (GLI) are the currently recommended spirometry reference equations, superseding the older National Health and Nutrition Study (NHANES III). GLI's multi-ethnic representation is a significant advance and enables ethnic variation in lung function predictions (Caucasian, Black, South-east Asian, North-east Asian). Contemporary spirometry reference equations, which adequately represent the target population, are essential for diagnostic sensitivity and clinical utility. However, the GLI database lacks contributions from many global population groups and, as a result, may not adequately predict normal lung function in local or ethnically diverse populations. Our systematic review analyses trends in the applicability of GLI spirometry reference equations in local populations with reference to use of GLI in North QLD. **Method:** A systematic search was conducted using PubMed® and Medline. We included studies comparing the applicability (fit) of a local population's normative pulmonary function data to the current GLI reference equations. A standardized criterion was used to determine applicability: mean Z-score=0 (<0.5), SD=1, 90% Z-scores >-1.64 and <+1.64. **Results:** Analysis is currently underway (completion September). Current trends indicate that the heterogeneity of lung function across Caucasian countries is not represented by a single Caucasian GLI equation. Similar trends are also present across the other 3 GLI ethnic groups. **Conclusions:** We demonstrate the urgent need for normative spirometry data targeted at populations underrepresented in GLI. In North QLD, the relatively high proportion of Indigenous Australians and Pacific Islanders, which are not represented in the GLI, may impact spirometry diagnostic outcomes for these groups.

Characterizing the bacterial gut microbiome of very-preterm infants from the Townsville Hospital and exploring the influence of clinical variables

Jacob Westaway¹, Dr Roger Huerliman², Dr Yoga Kandasamy⁴, Dr Kyran Staunton¹, Dr Tiffany Kosche³, Dr Robert Norton⁵, Dr David Watson⁴, Dr Donna Rudd³

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Background: The gut microbiome plays a critical role in the healthy development, immunity and metabolism of infants. Preterm birth disrupts microbiome development and can contribute to acute and chronic disease. This project aimed to characterise changes in the microbiome of preterm infants admitted to the Neonatal Intensive Care Unit (NICU) and the influence of clinical variables. Better understanding this dynamic microbiome could provide significant short- and long-term health benefits for these infants. **Method:** Infants (<32 weeks) were recruited from the THHS NICU (Oct – Dec 2017) and faecal samples collected on admission and at discharge. Samples underwent 16S rRNA analysis using the Illumina MiSeq system. Univariate analysis for beta diversity, alpha diversity and differential abundance was used to assess changes from admission to discharge, and multivariate modelling was used to determine the influence of several clinical variables on the microbiome. **Results:** 141 samples (73 admission and 68 discharge) were collected and analysed. For univariate analysis, significant differences were observed between admission and discharge for beta diversity ($p = <0.01$) and for several genera. For multivariate analysis, Feeding Type, Sepsis and Retinopathy of Prematurity (ROP) all had a significant influence on alpha diversity ($p = <0.01$). Several variables also influenced differential abundance of taxa. **Conclusions:** Our findings support previous observations of the influence of several clinical variables on the infant microbiome. This is the second, and largest study to explore and find a relationship with retinopathy of prematurity. The relationship between microbiome and infant development warrants further investigation.

Therapeutic Drug Monitoring of Phenytoin at a Regional Tertiary Hospital

Cassie Lanskey¹, Dr Stephen Perks¹

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Background: The optimisation of phenytoin dosing is complicated by its non-linear pharmacokinetics and narrow therapeutic index. Although levels can be used to guide dose adjustments, inappropriate monitoring can adversely affect the quality of patient care and increase treatment costs. **Method:** Criteria for appropriate phenytoin therapeutic drug monitoring (TDM) were defined *a priori* by combining recommendations of the available literature. These criteria were used to assess current practices in terms of (1) the indications for ordering phenytoin levels, (2) sampling times, and (3) level interpretations/dose adjustments. The first part of this project comprised of a baseline audit of episodes of care that involved phenytoin access from ward Pyxis® machines between August 2017 and January 2018. Interventions (consisting of a ward poster and pharmacist-led prescriber education) were implemented, and a follow-up audit was completed using data from October 2019 to January 2020. **Results:** Of the episodes in the baseline audit, levels were deemed to have been indicated in 33.7% (31/92). Levels were ordered in 80.6% (25/31) of these. Of the 25 episodes with indicated and measured levels, 76% (19/25) had an appropriate sampling time and only 44% (11/25) had levels that were both timed and interpreted correctly. The follow-up audit found that the interventions were successful in improving the percentage of indicated levels with correct sampling and interpretation to 100%. **Conclusions:** Pharmacist-led prescriber education improved phenytoin TDM in line with recommendations of the current literature and available guidelines. Future focus should be on ensuring that levels are ordered when indicated post-intravenous load.

Validation of human nephrin ELISA as a diagnostic marker for early glomerular injury in neonates

[Belete Mesfine¹](#), [Danica Vojisavljevic¹](#), [Ranjna Kapoor¹](#), [Donna Rudd¹](#)

¹College of Public Health, Medical and Veterinary Sciences, James Cook University, Queensland 4814, Australia.

Background: Urinary nephrin has been shown to be a non-invasive biomarker of glomerular injury. However, it is not yet integrated into clinical practice. Therefore, the aim of this study was to validate the analytical performance of urinary nephrin Enzyme-Linked Immunosorbent Assay (ELISA) for the diagnosis of glomerular injury in a cohort of neonates. **Methods:** Urine samples collected from neonates were used to validate Human nephrin ELISA kits to measure urinary nephrin concentration. The analytical performance of the kits was investigated using a suite of assay validation experiments including linearity, spike-recovery, analytical specificity, limit of detection as well as a correlation study. **Results:** 240 neonatal urine samples collected as part of a previous study were used in this study. Of these all were analysed using the Exocell ELISA kit, 180 using LS-F21185, and from these 170 using both kits. The Exocell and LS-F21185 ELISA kits showed an intra-assay coefficient of variation 16% and 9.8% respectively. ELISA kit batch-to-batch variation for urinary nephrin concentration was <10% for LS-F2185 but 20% for Exocell kit. The limit of detection for Exocell ELISA kit was 0.0313µg/ml, and < 0.157ng/ml for LS-F2185 kit. This study showed acceptable results on analysis of linearity of dilution and spike-recovery experiment in both kits. There was a statistically significant difference in measurement between the two kits (P-value < 0.05). **Conclusions:** There was no useful level of agreement between the two kits. However, the LS-F21185 ELISA kit can be used with acceptable precision in the measurement of urinary nephrin.

Program – Tuesday 27th October 2020

Keynote Presentation – Prof Paul Glasziou

Time	Topic	Speaker
12:00	Acknowledgement of Country and Opening Remarks	Kieran Keyes
12:15	Keynote Presentation	Prof Paul Glasziou
13:15	Break – End of Microsoft Teams Live Event. Click next link for	
Kidneys and Livers and Divers, Oh My! - Providing Safe, Efficient, Effective, and Sustainable Services		
13:30	The efficacy of home phototherapy for physiological and non-physiological neonatal jaundice: a systematic review	Candice Anderson
13:45	Success! Facilitating choice for renal patients in the tropics with central venous lines to maintain the integrity of their dressings while attending to personal hygiene	Wendy Smyth
14:00	Liver Compliance and Cardiac Surgery Outcomes Pilot Study	Nicholas Ang
14:15	Disparities in Surgical Access: A Systematic Literature Review, Conceptual Model and Evidence Map	Elzerie de Jager
14:30	Northern Australia Health Service Delivery Situational Analysis: Findings and Recommendations	Alexandra Edelman/Sarah Larkins
14:45	Break	
15:15	Meta-analyses of randomised controlled trials reporting on interventions for prevention of diabetes-related foot ulcers.	Chanika Alahakoon
15:30	Discharge Against Medical Advice as a marker of surgical cultural competency; a study of Australian Aboriginal and/or Torres Strait Islander patients	Elzerie de Jager
15:45	Evaluating the quality and safety of the BreastScreen Remote Radiology Assessment Model of Service Delivery in Australia	Sarah Larkins & Janet Lengren
16:00	Out of Pocket costs of cancer care and the impact on healthcare access for Aboriginal and Torres Strait Islander Australians	Rachel Cummins & Robyn Preston
16:15	Tropical Australian Academic Health Centre Presentation	Sarah Larkins
16:30	Closing remarks	

Abstracts – Tuesday, 27th October 2020

The efficacy of home phototherapy for physiological and non-physiological neonatal jaundice: a systematic review.

Anderson CM¹, Kandasamy Y², Kilcullen M¹

¹James Cook University, Townsville, Australia

²Townsville University Hospital, Townsville, Australia

Background: Neonatal jaundice is a common medical presentation in newborns, affecting 60% and 80% of term and preterm babies, respectively. Elevated unconjugated bilirubin can result in bilirubin encephalopathy. Phototherapy is an effective treatment for elevated unconjugated bilirubin. Providing phototherapy at home has the potential to alleviate many of the complications of treatment within hospitals such as nosocomial infections and separation of the mother and the infant causing impaired attachment and feeding disruption. Previous reviews have explored the use of home phototherapy in physiological jaundice alone. This systematic review aims to examine the efficacy of home phototherapy for physiological and non-physiological neonatal jaundice. **Method:** A systematic review of English articles using Medline, CINAHL complete, SCOPUS, and Informit was completed. Additional articles were obtained by a hand-search of the reference lists of obtained articles. All types of quantitative and qualitative studies were included. **Results:** 19 articles were identified from our search. Home phototherapy conveyed equal efficacy with inpatient phototherapy with the daily decrement in total serum bilirubin. Home phototherapy was not associated with an increased risk of developing adverse effects. Most of the parents preferred home phototherapy to inpatient phototherapy. Treatment with home phototherapy is more cost effective than inpatient phototherapy. **Conclusions:** Home phototherapy is a safe and effective treatment for uncomplicated pathological and physiological jaundice. Implications include reduced parental anxiety and decreased healthcare expenditure.

Success! Facilitating choice for renal patients in the tropics with central venous lines to maintain the integrity of their dressings while attending to personal hygiene

Smyth, W^{1,2}, McArdle, J³, Hughes, K³, Wicking, K², Quayle, K³, Nagle, C^{1,2}

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Background: A randomised controlled trial found different central venous catheter (CVC) exit-site dressings only stayed intact two-thirds of the time in the tropics. We explored two options to assist patients undergoing haemodialysis via CVCs to maintain the integrity of their exit site dressings while managing their daily hygiene needs as they preferred. **Method:** A three-phase study was undertaken. The options provided were bath wipes, and a waterproof dressing cover. Data were collected by questionnaires, interviews, dressing audits, and case studies. **Results:** Phase 1: Nurses (37) considered both options acceptable and feasible, but expressed some practical concerns related to their use. Phase 2: All participants (27) with CVCs discussed their hygiene preferences and the difficulties they encountered with keeping dressings dry. They were enthusiastic about the proposed options. Phase 3: Participants appreciated being able to shower without wetting their CVC dressings; individuals modified the use and application of the waterproof cover to meet their body shape and CVC site. Although the waterproof covering was most popular and most frequently used, participants who tried the bath wipes were happy with them. Intactness of the dressings was 85% during the trial; there were no CVC infections during the study. **Conclusions:** These options filled an unmet need and promoted patients' hygiene and dignity. Funding for ongoing provision of the products needs to be considered, together with monitoring use in a non-research environment (for example, to guard against complacency). Other interventions that further increase patient participation in their care warrant investigation.

Liver Compliance and Cardiac Surgery Outcomes Pilot Study

Ang N¹, Egan A¹, Yadav S¹, Saxena P¹, Karamatic R², Welch C², Anstey C², Senthuran S³

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² Department of Gastroenterology, The Townsville Hospital, Townsville, Queensland

³ Intensive Care Unit, The Townsville Hospital, Townsville, Queensland

Background: Multiple studies have proposed a relationship between the severity of liver disease and that of coronary artery atherosclerosis. Coronary artery disease, when accompanied with liver disease, appears to independently increase overall cardiac mortality. Despite this knowledge, current approaches to prognosticate patients undergoing cardiac surgery exclude considerations of liver disease. Hence, this pilot study at the Townsville Hospital aims to answer the question: Do patients with preoperative evidence of liver fibrosis or steatosis on transient elastography of the liver have poorer outcomes after coronary artery bypass surgery (CABG)? **Method:** We designed a double-blinded trial with the hypothesis that patients with increasing liver stiffness on elastography and who are undergoing non-emergent CABG will have:

1. Greater rates of complications according to the Dindo-Clavian classification
2. Longer length of stay in intensive care unit
3. Longer hospital length of stay
4. Greater transfusion requirement
5. Longer duration of ventilation
6. Greater dose and duration of inotropic requirement
7. Higher in-hospital mortality

We aim to include all patients undergoing non-emergent CABG, excluding those with clinical right heart failure. Transient elastography of the liver was measured with FibroScan®. Participants complete a questionnaire about general health. We will track these patients throughout inpatient recovery, collecting data to answer our hypothesis. **Conclusions:** This is a pilot study that attempts to demonstrate the relationship between liver disease and outcomes after CABG. Should Our results aim to prompt a paradigm shift to consider liver health to prognosticate CABG outcomes.

Disparities in Surgical Access: A Systematic Literature Review, Conceptual Model and Evidence Map

Elzerie de Jager^{1,2}, Adele Levine¹, N. Rhea Udyavar¹, Helen R. Burstin³, Nizar Bhulani¹, David B. Hoyt⁴, Clifford Y. Ko^{4,5,6}, Joel S. Weissman¹, L.D. Britt⁷, Adil H. Haider¹, Melinda A. Maggard Gibbons⁵

¹ Center for Surgery and Public Health: Department of Surgery, Brigham and Women's Hospital, Harvard Medical School and Harvard School of Public Health, Boston, MA

² College of Medicine and Dentistry, James Cook University, Townsville, Australia, QLD

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⁵ Department of Surgery, David Geffen School of Medicine at University of California, Los Angeles, CA

⁶ Department of Surgery, VA Greater Los Angeles Healthcare System, CA

⁷ Department of Surgery, Eastern Virginia Medical School, Norfolk, VA

Introduction: Healthcare disparities or inequalities in quality represent one of the greatest challenges in achieving uniformly high-quality care. A relative lack of access to surgical services may be a contributing factor to disparities in surgical care in the United States. **Methods:** This systematic review, following the PRIMSA guidelines, examined measures of surgical access disparities in the United States. A PubMed search was conducted of publications published between 2008 and 2018 with the following search strategy: healthcare disparities, health status disparities and surgery. The extracted measures of surgical access were utilized to produce a conceptual model for surgical access and build an evidence map to display gaps in the literature. **Results:** The search returned 1,375 studies, the review included 225 studies and from these 223 unique measures of surgical access were extracted. These measures were categorized using a four-faceted conceptual model for surgical access; Provider Access, Surgical Indication Detection, Progression to Surgery and Receipt of Optimal Care. The measures were illustrated on an evidence map. **Conclusion:** There are many studies showing disparities in surgical access. The conceptual model for surgical access establishes a novel paradigm for conceptualizing surgical access disparities. The evidence map displays areas where there are critical gaps in the literature. It is essential that measures of surgical access disparities are incorporated into future surgical improvement initiatives.

Northern Australia Health Service Delivery Situational Analysis: Findings and Recommendations

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Background: The health sector across northern Australia is complex, with multiple health care providers across government, community controlled, non-government and private providers, and complex training and regulatory frameworks. This situational analysis identifies strategic long-term development opportunities for the health sector in northern Australia, to improve the health and prosperity of northern Australian communities. **Methods:** The Situational Analysis involved wide stakeholder engagement across northern Australia and literature review, export and demand analysis, SWOT analysis, research investment analysis and costing study to inform recommendations. **Results:** Healthcare and social assistance is responsible for 13% of total employment in the north. There are urgent challenges facing the sector, especially high health workforce turnover and shortages across the north. There are vital opportunities to: improve recruitment and retention of health workforce in areas of workforce need; review financing mechanisms; support locally led needs-based planning; and work cross-sectorally to improve the social, cultural and environmental determinants of health. More northern-led research funding is also needed: only 2 percent of research funding from major government sources is going to northern institutions and only 11 percent for health services research. Eight priority actions were identified in the project across the areas of workforce, financing, service delivery, planning, essential medicines and technologies, governance and community engagement. **Conclusion:** Implementing the priority actions will contribute to the quadruple bottom line of high-quality service provision, strong patient and provider satisfaction and improved efficiency, delivering improved health and productivity, reduced health system costs; a satisfied and stable workforce and empowered local communities.

Meta-analyses of randomised controlled trials reporting on interventions for prevention of diabetes-related foot ulcers.

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Background: The aim of this study was to perform an up-dated systematic review and meta-analysis of randomised controlled trials (RCTs) examining the efficacy of home foot temperature monitoring, patient education and offloading footwear in reducing the incidence of diabetes-related foot ulcers. **Method:** A systematic literature search was performed in MEDLINE, PubMed, CINAHL, Scopus and Cochrane databases to identify relevant original studies. Meta-analyses were performed using intention-to-treat principals for worst (main analysis) and best (sub-analysis) case scenarios. Leave-one-out sensitivity analyses were also carried out to assess the consistency of findings. The study was registered in PROSPERO (Registration number: CRD42019135226). **Results:** Out of 7,575 unique records, seventeen RCTs involving 2729 participants were included. Four tested home foot temperature monitoring (n=468), six examined patient education (n=823) and seven assessed offloading footwear (n=1438). Participants who conducted home foot temperature monitoring (Odds ratio [OR] 0.51, 95% confidence interval [CI] 0.31 to 0.84, n=468) and those used offloading footwear (OR 0.48, 95% CI: 0.29 to 0.80, n=1438) were less likely to develop a diabetes-related foot ulcer. Education of patients did not significantly reduce diabetes-related foot ulcer incidence (OR 0.59, 95% CI: 0.29-1.20, n=823). Sensitivity analyses suggested that offloading footwear findings were consistent, but home foot temperature findings were dependent on the inclusion of one trial. All RCTs had either high or unclear risk of bias. **Conclusions:** This meta-analysis suggests that offloading footwear is effective in reducing the incidence of diabetes-related foot ulcers. Home foot temperature monitoring also appears efficacious but larger trials are needed.

Discharge Against Medical Advice as a marker of surgical cultural competency; a study of Australian Aboriginal and/or Torres Strait Islander patients

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Introduction: Increasing attention is paid to healthcare cultural competency and the potential correlation with disparities in surgical care. A proxy for healthcare cultural competency is discharge against medical advice (DAMA). Rates of DAMA have not previously been examined for surgical patients of Aboriginal and/or Torres Strait Islander descent in Australia. **Methods:** This retrospective cohort study examines the rate of DAMA following a surgical procedure for Aboriginal and/or Torres Strait Islander patients at a regional tertiary care centre in Australia. A data sample from 2007-2012 were examined. Logistic regression adjusted for age, sex, year of admission, admission status (emergency, elective) and length of stay was performed. **Results:** There were 29,322 surgical procedures, 13.7% were performed on Aboriginal and/or Torres Strait Islander patients (n=4,028). A total of 178 patients (0.6%) DAMA postoperatively. Aboriginal and/or Torres Strait Islander patients were significantly more likely, than other patients, to DAMA 1.6% vs 0.44% (adjusted OR 3.4, 95% CI 2.5-4.6, p<0.001). DAMA patients were more likely to require a subsequent readmission 15.7% vs 5.3% (p<0.001). **Conclusion:** Aboriginal and/or Torres Strait Islander patients are more likely than other Australians to DAMA following a surgical procedure. This may indicate suboptimal surgical cultural competency. DAMA data is readily available in administrative datasets and could be used as a metric to monitor, benchmark and improve, the cultural competency of a surgical department.

Evaluating the quality and safety of the BreastScreen Remote Radiology Assessment Model of Service Delivery in Australia

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Background: The remote radiology assessment model was pioneered in Townsville in response to local workforce needs, to ensure timely conduct of BreastScreen assessment clinics. Subsequently, it has been rolled-out in some other services within Queensland and two other jurisdictions. This study aimed to assess the quality and safety outcomes of this telemedicine-based remote radiology assessment service delivery model for detecting breast cancer in regional Australian women, in comparison to the traditional radiologist onsite model.

Methods: This was a retrospective pre-post intervention study using de-identified data from 21,117 assessment visits from seven sites across three jurisdictions that had implemented the remote model (10,508 (49.8%) pre- and 10,609 (50.2%) post-implementation). Of the 10,609 post-implementation visits, 3,904 (36.8%) assessment visits were conducted under the remote model. Main outcome variables were cancer detection rates and timeliness. Qualitative interviews with providers and client surveys were also conducted. **Results:** After adjusting for multiple factors, there were no statistically significant differences in cancer detection rates between the radiologist remote and onsite models (AOR 1.02; 95%CI 0.86-1.19; NS). Implementing the remote radiology assessment model had statistically significant positive effects on the timeliness of assessment (AOR 0.68; 95%CI 0.59-0.77; p<0.001). Satisfaction was high amongst providers and clients. **Conclusions:** This study found the remote model delivers safe and high-quality assessment services, with equivalent rates of cancer detection and improved timeliness of assessment when compared with the traditional onsite model. Careful monitoring and ongoing evaluation of any new model is important for ongoing safety, efficiency and acceptability.

Out of Pocket costs of cancer care and impacts on healthcare access for Aboriginal and Torres Strait Islander Australians

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Background: Knowledge is growing about models of cancer care for Aboriginal and Torres Strait Islander peoples. However, much remains unknown about the true costs - encompassing financial, emotional and spiritual aspects - of care to Aboriginal and Torres Strait Islander peoples. We aimed to explore and explain how different types of costs affect the health-seeking decisions and behaviours of Aboriginal and Torres Strait Islander peoples with cancer. **Method:** A critical constructivist approach was taken with Aboriginal researchers and health workers guiding all stages. Semi-structured qualitative interviews were held with four patients, one carer and eleven service providers and analysed inductively. **Results:** Participants identified strengths and limitations of various schemes to reduce cancer-related out of pocket costs. However, three important and consistent themes emerged: 1) the 'costs' to patients of cancer treatment are more complex than simply financial costs; 2) there is an informal, unrecognised role of Indigenous Health Liaison Officers (IHLOs) in negotiating access to disparate and hard-to-find support schemes; and 3) despite programs such as the Patient Travel Subsidy Scheme, gaps in material support still exist. **Conclusions:** Direct and indirect costs of cancer care are currently impacting Aboriginal and Torres Strait Islander healthcare and outcomes. More comprehensive financial assistance is needed to support treatment access, enable family accompaniment, and support family at home. Flexibility to adapt treatment in response to cultural, family and environmental concerns is critical. Further, recognition of, and resourcing for IHLOs to continue informal, often community-based work linking patients to support services are urgently required.

North Queensland retrieval of injured divers: a retrospective review

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Background: Queensland (QLD) is the gateway to the Great Barrier Reef with two million visitors annually. Townsville University Hospital (TUH) houses the only Hyperbaric Medicine Unit (HMU) in north QLD providing recompression for injured divers. Determination of factors affecting the clinical outcome of injured divers will assist clinicians in making decisions regarding pre-hospital care and the urgency of retrieval. **Method:** Charts of injured divers presenting to TUH HMU from 2014 - 2018 were reviewed. Data collected included diver characteristics, time to symptom onset, time to oxygen (O₂) treatment, retrieval method, time to recompression and clinical outcome. Descriptive statistics are presented. **Results:** 79 divers were seen at TUH over the study period. 53% were male, median age 28 years (IQR 22, 33) with the majority overseas tourists (63%). Only 47% of the injured divers received treatment at the scene with the majority receiving normobaric O₂. The median time to symptom onset was one hour post the incident dive with O₂ treatment commenced early (n=32, median time 00:30). Road transfer was the predominate retrieval method. The median time to recompression was 30 hours and 45 minutes. 88% were well at the end of treatment. **Conclusions:** Most injured divers treated at TUH were young, overseas tourists and well at the end of treatment. Further analysis of the data within groups stratified by severity (to evaluate difference between pre-hospital O₂/no O₂ and early/late retrieval with time to recompression) will be completed before any changes to current practice can be recommended.

Program – Wednesday Morning 28th October 2020

From Innovation to Outcomes - Leading Excellence and Innovation / Focusing on Individual Healthcare Outcomes

Time	Topic	Speaker
08:45	Acknowledgement of Country and Opening Remarks	
09:00	Does diabetes during pregnancy effect fetal kidney growth?	Sonja Brennan
09:15	My Death, My Choice: Congruence between preferred and actual place of death	Glynnis James
09:30	Smoking Cessation in Head and Neck Cancer Patients: A Mixed Methods Study	Justin Smith
09:45	'They are inconveniencing us' - Exploring how gaps in patient education and patient centred approaches interfere with TB treatment adherence: Perspectives from patients and clinicians in the Free State Province, South Africa.	Nishila Moodley
10:00	Break	
10:15	Modelling the potential of wAu-Wolbachia strain invasion in mosquitoes to control Aedes-borne arboviral infections	Samson T. Ogunlade
10:30	Use of Virtual Reality for minor procedures in the Emergency Department: a scoping review	Cate Nagle
10:45	Is there an association between angiotensin pathway inhibitors and COVID-19 severity and mortality? A meta-analysis of observational data	Malindu Fernando
11:00	Break	
11:15	A novel system for the treatment of aortic annular dilation: An ex-vivo investigation and Live Animal Research	Pallav Shah
11:30	Effects of a high-dose 24-h infusion of tranexamic acid on death and thromboembolic events in patients with acute gastrointestinal bleeding (HALT-IT): an international randomised, double-blind, placebo-controlled trial	Luke Lawton
11:45	Electromagnetic Stimulator Therapy: New Technology for Treatment of Diabetic Foot Ulcer -TUH Experience	Julie Goodall
12:00	Real-time nanopore genotyping for bacterial pathogens	Eike Steinig
12:15	Impact of virtual reality interventions on haemodialysis patients: a scoping review	Wendy Smyth
12:30	Lunch End of Microsoft Teams Live Event. Click next link for afternoon session.	

Abstracts – Wednesday Morning 28th October 2020

Does diabetes during pregnancy effect fetal kidney growth?

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Background: Diabetes in pregnancy is thought to adversely affect the developing kidneys. The rate of gestational diabetes is increasing globally with major consequences for future renal function. Very little is known about the impact of hyperglycaemia on the fetal renal parenchyma which contains the developing nephrons. The aim of this study was to measure the fetal renal parenchymal thickness and evaluate whether diabetes during pregnancy affects the growth of the fetal kidneys. **Methods:** This prospective, observational study used serial ultrasound measurements to evaluate the fetal renal parenchymal growth of 55 pregnancies with diabetes compared to 72 control pregnancies. Mixed effects modelling was used to analyse the data. **Results:** The renal parenchyma of fetuses from mothers with gestational diabetes was significantly thicker than those from the control group (LR Chisq=4.8, df=1, p=0.029), however, the difference was proportional to the larger size of these fetuses. Fetuses of pregestational diabetics demonstrated no significant difference in renal parenchymal thickness compared to the control group even though they were also larger fetuses. Parenchymal growth slowed with increasing abdominal circumference in the pregestational diabetic group, suggesting an adverse effect on nephrogenesis, however this did not reach statistical significance. **Conclusions:** Our study provides unique data on how diabetes during pregnancy influences fetal kidney growth. Appropriate management of diabetic pregnancies may mitigate some of the adverse effects on the fetal kidneys. Increasing degrees of hyperglycaemia, as seen sometimes in pregestational diabetes, may affect nephrogenesis; however larger studies are needed.

My Death, My Choice: Congruence between preferred place of death and actual place of death

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Background: Supporting preferred place of death is linked to quality palliative care outcomes. The congruence between preferred and actual place of death for palliative patients was the focus of the study. **Method:** A retrospective case notes review of patients who died in 2018 and who were registered with the palliative care service was undertaken. Case notes (n = 101) of patients who had a documented preferred place of death were examined. Descriptive data including demographic characteristics, cause of death and actual place of death were collected to inform the study. **Results:** Preferred place of death for most patients (n=68, 67 %) was listed as home. Thirty three percent of patients (n = 33) stated they wished to die in hospital. Eighteen patients changed their mind during their illness. There was no statistically significant association between gender and final PPOD, with a similar proportion of males (n=34, 51.5%) and females (n=18, 51.4%) preferring to die at home, p>0.05. There was a statistically significant association between living arrangement and actual place of death, with a larger proportion of those living with family/friends (n=32, 39%) or in a care home (n=3, 37.5%) dying at home compared to those living alone (n=0, 0%), $\chi^2 = 7.47$, p<0.05. Over three-quarters of participants had congruent initial PPOD and actual POD. **Conclusions:** Services and supports play an important role when choices are made around preferred place of death. Patients with good community supports were more likely to choose home for their end of life care as opposed to hospital.

Smoking Cessation in Head and Neck Cancer Patients: A Mixed Methods Study

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Background: This study investigated the smoking behaviours and cessation rates of head and neck cancer patients and explored the barriers and facilitators to cessation. **Method:** A mixed methods, sequential explanatory design was utilised. The quantitative data was collected through surveys prior to treatment commencement, and current smokers were followed up after treatment to determine their smoking status. One-on-one, semi-structured interviews were then conducted after completion of treatment. **Results:** A total of 64 participants were recruited. Participants who were current smokers were more likely to live in a rural location ($p = 0.015$), have lower education ($p = 0.047$), and report reduced social and family well-being ($p = 0.005$) when compared with those who were former or never smokers. The 7-day point prevalence cessation rate was 72% at 1-month follow-up and 67% at 3 months, while continuous smoking cessation was 54% at 1 month and 42% at 3 months. Participants who continued smoking were found to consume more alcohol ($p = 0.032$) and have higher psychological distress ($p = 0.052$). Qualitative analysis revealed 5 key themes associated with smoking cessation: the teachable moment of a cancer diagnosis and treatment, willpower and cessation aids, psychosocial environment, relationship with alcohol and marijuana, and health knowledge and beliefs surrounding smoking and cancer. **Conclusions:** This study demonstrates that the majority of HNC patients achieve smoking cessation, but relapses are common. Cessation programs should be developed that are comprehensive, sustained and address factors such as alcohol, marijuana and depression.

'They are inconveniencing us' - Exploring how gaps in patient education and patient centred approaches interfere with TB treatment adherence: Perspectives from patients and clinicians in the Free State Province, South Africa.

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Background: Tuberculosis (TB) treatment loss to follow up (LTFU) plays a contributory role to the staggering South Africa TB epidemic. Treatment interruption is poorly understood and appears to be the culmination of poor health literacy of patients and inadequate health education provided by clinicians. We explored clinician and patient perspectives of the gaps in TB messaging that influence TB treatment LTFU. **Method:** We conducted semi-structured in-depth interviews between Jan-May 2018 with a sample of 15 clinicians managing TB and 7 patients identified as LTFU in public clinics in the Free State Province, South Africa. Thematic analysis using a mixed deductive/inductive thematic approach was used. **Results:** Limited occupational opportunities, fear of disclosure and stigmatization contributed to treatment LTFU. Patients felt they received inadequate TB messaging. Many clinicians interviewed felt that improving patient's TB knowledge would reinforce treatment adherence and shared information on treatment completion, side effects and infection control. However, clinician inability to establish rapport with patients or to identify social support challenged TB treatment adherence by patients. Clinicians perceived this as patients not following their instructions despite their lengthy TB education. Clinicians concurred that their medical management of TB lacked the psycho-social dimension to treat a social disease of this magnitude. **Conclusions:** Limited occupational opportunities, fear of disclosure and stigmatization all contributed to treatment LTFU. Clinicians concurred that poor patient understanding of TB and that biomedical management lacking a psycho-social dimension exacerbated the poor treatment outcome. TB remains a social disease, the successful management of which hinges on patient-centred care.

Modeling the potential of *wAu-Wolbachia* strain invasion in mosquitoes to control *Aedes*-borne arboviral infections

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Background: Arboviral infections such as dengue, Zika and chikungunya are fast spreading diseases that pose significant health problems globally. In order to control these infections, an intracellular bacterium called *Wolbachia* has been introduced into wild-type mosquito populations in the hope of replacing the vector transmitting agent, with one that is incapable of transmission. **Method:** In this study, we developed a *Wolbachia* transmission model for the novel *wAu* strain which possesses several favourable traits (e.g., enhanced viral blockage and maintenance at higher temperature) but not cytoplasmic incompatibility (CI) – when a *Wolbachia*-infected male mosquito mates with an uninfected female mosquito, producing no viable offspring. This model describes the competitive dynamics between *wAu-Wolbachia*-infected and uninfected mosquitoes and the role of imperfect maternal transmission. By analysing the system via computing the basic reproduction number(s) and stability properties, the potential of the *wAu* strain as a viable strategy to control arboviral infections is established. **Results:** The results of this work show that enhanced maintenance of *Wolbachia* infection at higher temperatures can overcome the lack of CI induction to support *wAu-Wolbachia* infected mosquito invasion. **Conclusions:** This modelling work helps close the gap between ways of maintaining the *Wolbachia* frequency level in the absence of LWI and CI. This could be more promising especially as the temperature increases due to the climate change effect. This study will support future arboviral control programs that rely on the introduction of new *Wolbachia* variants.

Use of Virtual Reality for minor procedures in the Emergency Department: a scoping review

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Background: The objective of this review was to collate, summarise and report evidence on the use of virtual reality (VR) as an interventional tool for pain and anxiety management during ED procedures. **Method:** Guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) we searched Medline, Embase, CINAHL, Scopus and PsychInfo databases, grey literature and reference lists of included studies. **Results:** From 162 articles, 4 studies fulfilled the selection criteria and demonstrated VR was effective as an intervention for management of pain and anxiety during ED procedures. The level of evidence was variable: 2 randomised controlled trials (RCT); a descriptive study; and a commentary on a literature review. Participants were aged 4 to 17 years and the sample sizes were small (n=20, 59, 64). One RCT compared efficacy of VR to 2 other standard of care (SOC) distractors, while the other RCT assessed for VR efficacy and safety. All four articles cited benefits of VR distraction as a procedural intervention in ED. **Conclusions:** A small number of trials have indicated the use of VR in ED for needle insertion in children is effective in managing anxiety with no adverse effects reported. Further research in a range of ED interventions with patients across diverse age groups and backgrounds is needed. VR in the ED has the potential to be a valuable, effective and safe non-pharmacological alternative to current standard care of pain and anxiety management in the ED procedural patient.

Is there an association between angiotensin pathway inhibitors and COVID-19 severity and mortality? A meta-analysis of observational data

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Background: Conflicting findings and the analysis of unpublished and retracted data has led to controversy on the safety of angiotensin-converting enzyme inhibitors and angiotensin-receptor blockers in people with COVID-19 infection. This meta-analysis of published studies examined the association of prescription of these agents with the severity of and mortality from COVID-19. **Methods:** A systematic search was conducted to find studies that reported the severity or mortality of COVID-19 in relation to prescription of angiotensin-converting enzyme inhibitors (ACEI) or angiotensin receptor-blockers (ARB). Two authors independently screened and extracted data and assessed study quality and strength of association using standardised tools. **Results:** 26 studies including 8389 people prescribed ACEI or ARB and 20,989 people not prescribed these medications were included. The quality of studies varied, and the overall strength of association was poor with a high risk of confounding bias. Patients prescribed ACEI or ARB had a greater prevalence of risk factors. Meta-analysis found an association between prescription of ACEI or ARB with severe or critical disease outcome (risk ratio, RR, 1.23, 95% confidence interval, CI, 1.06 to 1.42, $p=0.006$, $I^2=88\%$) but this association was lost in sensitivity analyses. There was no association between ACEI or ARB prescription and mortality (RR 1.18, 95% CI 0.92 to 1.50, $p=0.19$, $I^2=82\%$). **Conclusion:** This meta-analysis suggests that people prescribed ACEI or ARB more commonly had severe or critical disease outcome most likely due to a greater prevalence of risk factors, but there was no association with mortality from COVID-19.

A novel system for the treatment of aortic annular dilation: An ex-vivo investigation and Live Animal

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Background: Freedom from Aortic Valve repair related complications at 10 year is 88% vs. Prosthetic valve related complications at 10 year is 60%. Aortic annular system will add to long term outcomes of aortic valve repair by preventing aortic annular dilatation. Euro heart survey showed that 10.4% with valvular heart disease had moderate to severe Aortic Regurgitation. **Method:** This study has animal ethics approval. Exvivo studies have been conducted in Cardiolab in Milan and published in Eur J Cardiothorac Surg 2017. Currently we are conducting live animal studies in IMM-Recherche in Paris and have finished 3 months live animal studies in Pig and Calf. This study is conducted on cardiopulmonary bypass, rings are implanted below the annulus on cardioplegic heart and to monitor clinical and hemodynamic parameters. This annular system has U.S. Patent. **Results:** General health and wound healing of both animals were good prior to explantation at 3months. Hemodynamic transthoracic echocardiography evaluation showed in Calf and Pig with trace central aortic leak, normal leaflet motion, mean and peak transaortic gradient of 10 and 18mm of hg in Calf and 6 and 13mm in Pig, with no impairment of mitral valve motion and coronary angiogram shows nice perfusion of coronaries. Macroscopic evaluation of Calf and Pig shows nice integration of the ring with no signs of thrombosis, fracture and thromboembolism to distal organs. **Conclusions:** The current results are very promising. We are planning to do an FDA approved animal studies in IMMR, Paris and if that is successful, we will go for human clinical trials.

Effects of a high-dose 24-h infusion of tranexamic acid on death and thromboembolic events in patients with acute gastrointestinal bleeding (HALT-IT): an international randomised, double-blind, placebo-controlled trial

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Background: Tranexamic acid reduces surgical bleeding and reduces death due to bleeding in patients with trauma. Meta-analyses of small trials show that tranexamic acid might decrease deaths from gastrointestinal bleeding. We aimed to assess the effects of tranexamic acid in patients with gastrointestinal bleeding. **Methods:** We did an international, multicentre, randomised, placebo-controlled trial in 164 hospitals in 15 countries. Patients were enrolled if the responsible clinician was uncertain whether to use tranexamic acid, were aged above the minimum age considered an adult in their country (either aged 16 years and older or aged 18 years and older), and had significant (defined as at risk of bleeding to death) upper or lower gastrointestinal bleeding. Patients were randomly assigned by selection of a numbered treatment pack from a box containing eight packs that were identical apart from the pack number. Patients received either a loading dose of 1 g tranexamic acid, which was added to 100 ml infusion bag of 0.9% sodium chloride and infused by slow intravenous injection over 10 min, followed by a maintenance dose of 3 g tranexamic acid added to 1 L of any isotonic intravenous solution and infused at 125 mg/h for 24 h, or placebo (sodium chloride 0.9%). Patients, caregivers, and those assessing outcomes were masked to allocation. The primary outcome was death due to bleeding within 5 days of randomisation; analysis excluded patients who received neither dose of the allocated treatment and those for whom outcome data on death were unavailable. This trial was registered with Current Controlled Trials, 1SRCTN11225767, and ClinicalTrials.gov, NCT01658124. **Findings:** Between July 4, 2013, and June 21, 2019, we randomly allocated 12 009 patients to receive tranexamic acid (5994, 49.9%) or matching placebo (6015, 50.1%), of whom 11 952 (99.5%) received the first dose of the allocated treatment. Death due to bleeding within 5 days of randomisation occurred in 222 (4%) of 5956 patients in the tranexamic acid group and in 226 (4%) of 5981 patients in the placebo group (risk ratio [RR] 0.99, 95% CI 0.82- 1.18). Arterial thromboembolic events (myocardial infarction or stroke) were similar in the tranexamic acid group and placebo group (42 [0.7%] of 5952 vs 46 [0.8%] of 5977; 0.92; 0.60 to 1.39). Venous thromboembolic events (deep vein thrombosis or pulmonary embolism) were higher in tranexamic acid group than in the placebo group (48 [0.8%] of 5952 vs 26 [0.4%] of 5977; RR 1.85; 95% CI 1.15 to 2.98). **Interpretation:** We found that tranexamic acid did not reduce death from gastrointestinal bleeding. On the basis of our results, tranexamic acid should not be used for the treatment of gastrointestinal bleeding outside the context of a randomised trial.

Electromagnetic Stimulator Therapy: New Technology for Treatment of Diabetic Foot Ulcer -TUH Experience

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Background: Diabetic foot ulcer is the most common cause of prolonged hospitalisation with high cost of care, gloomy outcome leading to limb amputation and death. Sadly, management of diabetic foot ulcers is difficult and frustrating due to lack of universally satisfactory standard of care. Electromagnetic Stimulator Therapy (EMST) is a new technology in the care of chronic non-healing wounds. It delivers high-energy pressure waves by enriching the ulcer with adequate blood supply. This new technology has not been trialled in Australia. The main aim of this study was to assess the effectiveness of EMST for management of diabetic foot ulcer at the Townsville University Hospital (TUH). **Method:** Thirty patients with diabetic foot ulcer were randomised (1:1) to receive a series of fortnightly EMST treatment over 6 weeks in combination with standard care or standard care alone and then crossed over for another 6 weeks with a total duration of 12 weeks. Wound healing rates in the 2 treatment groups were assessed using a specialised 3D images by comparing images at onset compared to at completion of the treatments. **Results:** details of our findings will be presented at the conference. **Conclusions:** implications of our findings will be discussed at the forum.

Real-time nanopore genotyping for bacterial pathogens

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Background: Genome-informed surveillance of bacterial outbreaks can be expensive and time-consuming, particularly in rural or remote healthcare settings. Furthermore, recovery of pathogens directly from patient samples is complicated by high proportions of host and low proportions of pathogen DNA. Especially in time-critical applications like sepsis or septic shock a point-of-care sequencing approach that can rapidly determine clinically relevant properties from as few pathogen sequences as possible is required. **Method:** In this study we developed Sketchy, a streaming algorithm that uses real-time data from nanopore sequencing platforms to provide complete genomic profiles of common bacterial pathogens. We developed the required databases from > 50,000 whole genomes of *Staphylococcus aureus* and *Klebsiella pneumoniae*, for which it provides accurate antimicrobial susceptibility predictions (12 – 24 antibiotics), multi-locus sequence types (lineage provenance) and species-specific markers, including virulence genes and SCC*mec* subtypes. **Results:** Fewer than 100 sequence reads are required to recover most genotypes and antibiotic susceptibilities, corresponding to seconds to minutes of sequencing on a portable, laptop-powered nanopore sequencer with minimal up-front investment (MinION, < \$2000). We demonstrate clinical utility by tracking the resurgence of a pan-susceptible ST8-MSSA strain in a cystic fibrosis patient undergoing antimicrobial therapy. We further show that Sketchy can be used for large-scale genotyping of *S. aureus* isolates (n = 96 from Far North Queensland and Papua New Guinea), reducing the cost of genome-resolved outbreak information to approximately \$20-25 per isolate on the MinION. **Conclusions:** Sketchy enables real-time, genome-informed typing of bacterial pathogens for rural outbreak investigations and pathology applications.

Impact of virtual reality interventions on haemodialysis patients: a scoping review

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Background: An understanding of the potential of virtual reality (VR) to affect the level of engagement in self-care and health related quality of life is required for patients receiving haemodialysis. **Method:** This scoping review explored the literature to identify the effects of VR on the lives of patients attending renal units for life-preserving haemodialysis. MEDLINEComplete, Embase, CINAHLComplete and PsychINFO databases were searched. Additionally, hand searches of key articles and journals were performed. **Results:** From the database searches 610 studies were identified with 13 meeting the inclusion criteria; another study was added after searching reference lists of included articles, resulting in 14 included articles. The quality, study design and type of VR intervention varied. Only 3 studies used immersive VR. Several studies demonstrated significant improvement in the physical activity level and a reduction in fatigue in patients during haemodialysis, with no adverse events. Despite the demands of haemodialysis sessions, this study showed that VR interventions may improve the level of haemodialysis patients' adherence and engagement with treatment. **Conclusions:** Findings favour the use of VR to improve physical health and engagement with treatment. However, there is a need for more rigorous study designs within clinical settings to provide high quality evidence regarding the usefulness of VR interventions in improving the quality of life of haemodialysis patients.

Program - Wednesday Afternoon 28th October 2020

Homegrown - Findings from Past THHS SERTA Grant Recipients

Time	Topic	Speaker
13:25	Introduction to Session	
13:30	"You've gotta do what you've gotta do": Prostate cancer patients' perspectives on image guidance in radiotherapy	Amy Brown
13:45	Perseverance with home-based upper limb practice after stroke: Perspectives of stroke survivors in Queensland	Bridee Neibling
14:00	Improving outcomes for people with mild cognitive impairment: An Australian pilot study	Luciana Theodoro de Freitas
14:15	Break	
14:30	Radiation induces head and neck cancer cells to undergo an epithelial-to-mesenchymal transition; a stem cell phenotype.	Kylie Lopes Floro
14:45	Procalcitonin: A Novel Test for Diagnosing Diabetic Foot Osteomyelitis –A Pilot Study	Oliver Heyes
15:00	An evaluation of research investment and impact at the Townsville Hospital and Health Service	Amy Brown
15:15	An Immersive Sensory Experience during Childbirth: A proof of concept study	Mariann Hadland
15:30	Closing remarks and presentation	

Abstracts – Wednesday Afternoon 28th October 2020

“You’ve gotta do what you’ve gotta do”: Prostate cancer patients' perspectives on image guidance in radiotherapy

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Background: Information regarding patient preferences and perceptions of image guidance procedures in prostate cancer radiotherapy is limited. This study explored experiences and preferences of patients undergoing both fiducial marker (FM) insertion and Clarity ultrasound (US) procedures. **Method:** A concurrent triangulation mixed method approach was used. A survey ranked experiences from 0 to 10 (worst) in the domains of: invasiveness; pain; physical discomfort; and psychological discomfort, analysed with descriptive and inferential statistics. Semi-structured interviews of purposively selected participants obtained further insights into their perspectives and preferences based on their survey responses and were thematically analysed. **Results:** Perceptions of invasiveness varied with 46% reporting FMs more invasive than US and 49% the same invasiveness. The mean score for FM was 3.6 and 2.1 for US. Mean scores for pain, physical and psychological discomfort were higher for FMs with 3.3, 3.2, 2.9 respectively and 1.1, 1.2, 1.7 respectively for US. Psychological and invasiveness domains were significantly different ($p < 0.05$). There were three major themes from the qualitative interviews: Expectations versus Experience; Preferences linked to Priorities; and Motivations (including acceptance, resolve or resignation) The sentiment “you’ve gotta do what you’ve gotta do” to treat the cancer was overwhelming. Eleven (50%) preferred US, however 10 (45%) could not illicit a preference. **Conclusions:** Almost half the participants did not provide a preference in interview. To further explore men’s preferences., a discrete choice experiment is being developed. Insights into patient experiences and preferences is an important contribution to the health technology assessment of the Clarity ultrasound system.

Persevering with home-based upper limb practice after stroke: Perspectives of stroke survivors in Queensland

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Background: Upper limb recovery after stroke is a challenging and lifelong journey. Practice is a powerful driver to enhance neuroplasticity and promote functional upper limb recovery after stroke. Stroke survivors acknowledge that *getting going and keeping going with exercise* is essential for upper limb recovery, yet approximately half will discontinue their home exercise program within the first year following stroke. The aim of this study was to explore factors that influence perseverance with home-based upper limb practice, from stroke survivors’ perspectives. **Method:** A qualitative descriptive study embedded within a theoretical framework was conducted. Data were collected through semi-structured interviews. The Theoretical Domains Framework and COM-B Model guided data collection and directed content analysis. Participants were purposively sampled adult stroke survivors with upper limb impairment, +/- their significant other/s, who were living at home in Queensland, Australia. **Results:** Interviews were conducted with 31 stroke survivors and 13 significant others. Stroke survivors’ **capability to persevere** was influenced by *being physically and cognitively able to practice*, their **opportunity to persevere** was influenced by *accessing support and fitting practice into everyday life*, and their **motivation to persevere** was influenced by *having goals and experiencing outcomes and having support and being accountable*. **Conclusions:** Understanding factors that influence perseverance from stroke survivors’ perspectives, provides the opportunity for clinicians and researchers to design strategies to enhance perseverance with practice, to support stroke survivors to exploit their full potential for recovery.

Improving outcomes for people with mild cognitive impairment: An Australian pilot study

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Background: Dementia is a leading cause of disability worldwide including Australia. Early interventions are urgently needed to prevent or slow the progression of dementia and its predicted burden to the person, community and health services. As mild cognitive impairment may progress to dementia, the objective of this pilot study was to identify the feasibility and acceptability of a functional task exercise program to older adults with mild cognitive impairment. **Objectives:** This study tested the feasibility and acceptability of an innovative functional task exercise program to ameliorate mild cognitive impairment. **Methods:** The functional task exercise program was trialled on community dwelling adults 60 years or older. The 10-week program was conducted in regional Australia and evaluated for acceptability, feasibility and clinical effectiveness. Cognitive and functional outcomes were collected pre- and post-intervention and three months follow up. Structured interviews were conducted with caregivers and participants at the end of the program. **Results:** Acceptability was demonstrated with approximately 80% of the 23 participants completing the program. Clinical effectiveness was demonstrated by improvements in several cognitive and functional measures. Qualitative findings suggest the program is viewed positively by participants and caregivers. **Conclusion:** The trialled functional exercise program was acceptable, effective and feasible in an Australian context. Research is urgently needed to identify and treat people with mild cognitive impairment living in the community.

Radiation induces head and neck cancer cells to undergo an epithelial-to-mesenchymal transition; a stem cell phenotype

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Background: As cancers evolve some cells undergo an epithelial-to-mesenchymal transition (EMT). During this process cancer cells lose their cell polarity and adhesion to one another, become mesenchymal in appearance, and gain migratory and invasive properties. Recent studies have shown that EMT promotes dedifferentiation, reverses a cells lineage, and induces the expression of genes associated with stemness. It has been suggested by two studies that radiation can induce cancer cells to become stem like cells (Vlashi et al 2016; Reid et al 2017). Consequently, we asked if radiation induces the formation of stem like cells via EMT or by another process. **Method:** Two human cell lines, FADU (ATCC® HTB-43™; pharyngeal) and SCC-15 (ATCC® CRL-1623™; tongue), were irradiated at 1.8Gy per fraction / five fractions per week, to a total of 27Gy, using a chamber we designed in house. Subsequently we compared the ability of the irradiated cells, and non irradiated control cells, to migrate, invade through a matrix, form tumour spheres (a stem cell characteristic) and form colonies. Additionally, RNA was collected for microarray analysis; to identify the molecular pathways which are upregulated. All assays were performed at minimum in triplicate. **Results:** Irradiated FADU cells demonstrated increased migratory and invasive properties; a mesenchymal phenotype. In keeping with this, irradiated cells, from both cell lines, were less adherent and struggled to form large tumour spheres and colonies. Thus demonstrating decreased adherence to one another after irradiation. **Conclusion:** Radiation induces cancer cells to undergo EMT. The microarray results will molecularly confirm this phenotype.

Procalcitonin: A Novel Test for Diagnosing Diabetic Foot Osteomyelitis – A Pilot Study

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Background: The objective of the study was to determine whether serum levels of procalcitonin, an inflammatory marker, differs between diabetic foot ulcer with osteomyelitis (DFO) and diabetic foot ulcers without osteomyelitis (cellulitis) serving as controls. It was also aimed to assess the usefulness of procalcitonin in diagnosing DFO compared to other inflammatory markers. **Method:** A case-control study was designed comparing the aforementioned groups. Patients were classified as osteomyelitis and controls based on the International Working Group diagnostic criteria. Serum inflammatory markers -procalcitonin, adiponectin, C-reactive protein-1, osteoprotegerin (OPG) and osteopontin (OPN) were analyzed in patients with DFO and controls. **Results:** The median serum procalcitonin was significantly higher in the DFO group 108.5 (65.0-124.0) pg/ml (n=19) compared to 57.0 (37.2-77.0) pg/ml in controls (n=18), p=0.02. Procalcitonin had a higher sensitivity/specificity of 79%/70% compared to 50%/50%, 54%/50%, 63%/71%, 66%/70% for Adiponectin, CRP, OPG and OPN respectively. Receiver operator characteristic curves showed the best value of area under the curve of 0.73 for procalcitonin compared to 0.4, 0.4, 0.6 and 0.6 for Adiponectin, CRP, OPG and OPN. **Conclusions:** It is concluded that of the inflammatory markers tested, procalcitonin a novel test has the best diagnostic discrimination between DFO from cellulitis and may serve as a useful test for diagnosing DFO. Further studies on larger population is needed to verify our findings.

An evaluation of research investment and impact at the Townsville Hospital and Health Service

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Background: Research is one of the three strategic pillars within the Townsville Hospital and Health Service (THHS), alongside clinical service delivery, and education and training. This study aims to evaluate the impacts of research investment at THHS from 2008 to 2018, and to identify contextual conditions that enable or hinder intended impacts. **Method:** A mixed-methods realist-informed evaluation was conducted using documentation, interviews with 21 current and former staff and available databases to identify and measure research investments, impacts and contextual conditions influencing impact outcomes across three project phases. **Results:** Between 2008-2018, THHS committed increasing resources towards research in the form of funding for research projects, research personnel, research-enabling facilities, research events, and research education and training. Clinical practice, policy and workforce impacts are visible in isolated pockets of success, championed by individual researchers and facilitated by their policy and community-of-practice networks. However, there is little organisational-level support for continuity of research and implementation into practice and policy. Availability of research supports also vary across THHS, especially in rural health services. **Conclusions:** While the goal of becoming “the leading hospital research centre in Northern Australia” remains aspirational, definitive early steps in the development of THHS as a credible and productive research centre are evident. Investments in research-enabling infrastructure at THHS are valued highly by staff but need to be supplemented by further practical support and clear clinician-researcher career pathways. Continuing investments should also involve actively supporting research translation and establishing ongoing, systematic processes for evaluating research investment and impact.

An Immersive Sensory Experience during Childbirth: A proof of concept study

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Background: Women's labour and birth environment can have an impact on birth experience, birth outcomes and breastfeeding. We altered one conventional birthing suite by installing a projector screen to assess the effects compared to women allocated to labour in a conventional birthing suite. The aims of this study were to measure the impact of an Immersive Sensory Experience (ISE) in labour on labour and birth outcomes and to explore women's experience of using ISE. **Method:** A mixed methods study design was used (quasi-experimental and a qualitative exploratory study). Women were allocated the ISE room according to availability and their birth outcomes and experiences were compared to those not using the intervention. Descriptive statistics were used to summarise labour and birth outcomes. Data from interviews were analysed thematically for qualitative data using an inductive approach. **Results:** Forty-five women were allocated to the room with the intervention. There was no statistically significant difference on mode of birth, epidural rates and breastfeeding rates at six weeks. Allocation to the intervention did not lead to any adverse outcomes or harm. Preliminary analysis of 32 interviews with women indicates that the intervention was appreciated, calming and non-intrusive. **Conclusions:** This study provided no evidence that ISE increased the rate of spontaneous vaginal births, however women's labour and birth experience as reported by women using the intervention was overwhelmingly positive. Women stated ISE made a difference to their birth experience. The ISE concept warrants testing using a more robust study and including women from different models of care.

POSTERS

Topic	Author
Correlation between the Epworth Sleepiness Scale (ESS) and Apnoea Hypopnea Index (AHI) and comparison between Male and Female patients	Allysha Barry
Unplanned hospital re-presentation in the geriatric population post-discharge	Angeline Khoo
Are dental students prepared to manage a growing frail and care-dependent population? An educational intervention	Angie Nilsson
Retrospective audit comparing the accuracy of radiological diagnosis vs. frozen section histopathological diagnosis (intraoperative) and final confirmatory diagnosis.	Anson Chan
Predicting poor response to non-surgical multidisciplinary management of knee osteoarthritis in tertiary care	Ben Phillips
Audit of Informed Consent in Neurosurgical Patients	Edward Ku
Magnesium therapy in the treatment of chronic pain: a systematic review	Evan Matthews
Improving the detection of African Trypanosomiasis in cattle under field conditions	Gloria Mulenga
Peritoneal Carcinomatosis in an SPC-related SCC – Case Report	James Lee
A foot in both worlds: health professionals who are mothers of adult children with schizophrenia	Debra Klages
Stroke Prevention by Non-Vitamin K Oral Anticoagulant (NOAC) Agents in the Absence of Atrial Fibrillation: Meta-Analysis of Randomized Control Trials	Krystle Lander
Outcomes of high-risk pregnancies due to Rheumatic Heart Disease (RHD) in indigenous women at The Townsville Hospital.	Krystal Lander
Bone health screen in community dwelling population 75 years old and older at Townsville	Larisa Syphers
Understanding the clinical detection of mild Traumatic Brain Injury in children presenting to the Emergency Department	Madhu Edirisinghege
Is preoperative non-contrast CT chest associated with a lower rate of neurological complications following isolated coronary artery bypass surgery?	Matheus Carelli
Life-Limiting Fetal Conditions: Are Australian Student Midwives Prepared?	Natalie Browning
Umbilical Cord Clamping and Hyperbilirubinemia	Nimisha Aithal
Smoking and its impact on treatment outcomes (nutrition and swallowing) in head and neck cancer	Sarah Deacon

Retrospective audit to review the turnover time for intra-operative diagnostic report of frozen section (FS) and the time taken to deliver the final histopathological confirmation report.	Sriya Chakrabarty
Time-to-Antibiotics in Septic patients at Townsville University Hospital – A COVID-19 Analysis	Stephanie Samios
Wideband Acoustic Immittance – A study of comparison between cholesteatoma and OME	Venkatesh Aithal
Success! Exploring an alternative to showering for frail, elderly persons living in the community	Vickie Archer
Three year trajectory of chest pain in frequent ED re-presentations	Vidula Garde

Poster Abstracts

Is the Epworth Sleepiness Scale (ESS) an appropriate screening questionnaire for predicting Sleep-Disordered Breathing (SDB) in Female and Male Patients?

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Background: Sleep-disordered breathing (SDB) is the most common sleep disorder affecting the Australian population and the severity of the disease is classified via the Apnoea Hypopnoea Index (AHI). The Epworth Sleepiness Scale (ESS) is a screening questionnaire used to predict how likely a patient is to have a sleep disorder. Recent literature suggests that the ESS has low sensitivity in screening women for SDB. This study assesses the correlation of the ESS and the AHI as well as a comparison between male and female patients.

Method: This clinical audit was performed at the Townsville University Hospital with a sample size of 286 patients. A retrospective chart audit of patients between July 2018 and December 2019 has collected patients ESS, AHI, gender, age and BMI from ieMR. Data has been analysed using a Weighted Kapa analysis to determine the correlation between the ESS and AHI. **Results:** This clinical audit is currently underway and results will be provided by the end of September. It is expected that the ESS is less associated with the AHI in female patients, a higher BMI is associated with severe SDB and in women, the higher the patients age the higher the AHI. **Conclusions:** The results from this clinical audit are expected to demonstrate that the ESS is not sensitive nor specific in predicting women with SDB. This clinical audit will impact the clinical prioritisation, therefore allowing quicker diagnosis of patients. Future research will be required in order to design a more sensitive and specific questionnaire to screen women for SDB.

Unplanned hospital re-presentation in the geriatric population post-discharge

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Background: Unplanned hospital readmissions are often used as a hospital's quality and safety indicator reflecting the quality of care provided. **Method:** Admission data on the geriatric population presenting through the hospital's emergency department (ED) were obtained through the hospital's performance and reporting unit. This audit is to determine the frequency of 28-day hospital re-presentation following discharge from hospital. Data within a six-month period from 1 July 2019 to 31 December 2019 were analysed using descriptive statistics and significance testing was performed using chi-square test. **Results:** 3996 of discharged patients were included in the analysis (including 291 ATSI patients aged 55 to 64 years old). The median age group was 75 years old with 52% were men. 42.3% of the population aged between 65-74 years old. A fifth of patients (n=793) re-presented to the ED within 28 days. The proportion of patients who were discharged from ED Short Stay/HITH, geriatrics, surgical, medical/other subspecialty and mental health were 33.3%, 8.7%, 12.9%, 44.7% and 0.38% respectively. The proportion of re-presentation in the unit groups were 20.9%, 14%, 16%, 21% and 26% respectively. Of those who re-presented, 62% of patients required admission. The difference in re-presentation rates between different health units were significant with p-value 0.00739. Geriatric units had the lowest re-presentation rates. **Conclusions:** Elderly patient discharged from geriatric units have significantly lower 28-day ED re-presentation rates compared to other units. This data is consistent with the literature findings for ACE (Acute Care of the Elderly) units. The differences require further evaluation.

Are dental students prepared to manage a growing frail and care-dependent population?

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Background: Australia's population is living longer and retaining more of their dentition. While the demand for oral health services in residential aged care facilities (RACFs) increases, there is a call to further inclusion of gerodontology in the undergraduate dental curriculum. This qualitative study explored the attitude of dental students to providing oral health care to older people using a pilot gerodontology curriculum as an intervention during a final year clinical placement in Hobart, Tasmania. **Method:** Focus groups with undergraduate dental students on clinical placement were conducted prior to and after implementation of a pilot gerodontology curriculum. The qualitative data was thematically analysed. **Results:** Two focus groups were conducted with a total of 18 dental students. The main themes included applied practical learning in aged care; unpreparedness for managing older patients; lack of confidence for consenting people with dementia; barriers to providing care to older people; and interactions with residents and staff of residential aged care facilities. **Conclusions:** This study highlighted the barriers for dental students providing care to older people. There is a need to evaluate how gerodontology is currently taught in the undergraduate dental curriculum to better prepare the dental workforce and growing population of dentate older people in RACFs.

Retrospective audit comparing the concordance of pre-operative radiological diagnosis of brain tumours with their final histopathological diagnosis.

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Background: Radiological and pathological diagnoses are of utmost importance in the management of neurosurgical patients with brain tumours. Hagen et al. in 1995 investigated the accuracy of pre-operative neuroradiological diagnosis of intracranial pathology in a prospective study and reported the diagnostic accuracy was 76%.^[1] In 2006, Julià-Sapé et al reported a high specificity of 85.2 to 100% in diagnosis of brain tumour types and grades.^[2] We conducted a retrospective audit to review the accuracy of radiological diagnosis compared with the final histopathological diagnosis for brain tumour patients treated at the Townsville University Hospital (TUH). **Method:** We performed a three-year retrospective audit of all patients who underwent neurosurgery for brain tumours at TUH between January 2017 and December 2019. The data was analysed using SPSS software. **Results:** A total of 134 patients underwent surgery for brain tumours in the study period. Concordance between radiological and final histopathology diagnosis was achieved in 96 cases (71.6%). The final histopathology categories with the most accurate pre-operative radiological diagnoses were metastases (87.5%), meningiomas (86.84%), and gliomas (57.47%). Non-concordance was observed in 29 cases (21.6%). There was no radiological diagnosis provided in 9 cases (6.7%). Of these cases, 5 resulted in a final histopathological diagnosis of glioma and 2 were found to be meningiomas. **Conclusions:** The overall accuracy of pre-operative radiological diagnosis of brain tumour patients treated at TUH during the past 3 years was 71.64%. This was slightly lower compared with other literature reports.^[1,2]

Predicting poor response to non-surgical multidisciplinary management of knee osteoarthritis in tertiary care

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Background: For patients with knee osteoarthritis (KOA), predicting who is likely to respond poorly to non-surgical multidisciplinary management would inform patient centred management and avoid unproductive care provision. The study aim was to explore patient characteristics associated with a poor response to non-surgical multidisciplinary management of KOA. **Method:** Design: prospective, multisite, longitudinal study of 238 patients referred to orthopaedic specialist outpatient services for KOA. The setting was advanced practice physiotherapy led multidisciplinary orthopaedic services within eight tertiary hospitals. Standardised measures were recorded in all patients prior to care. These measures were examined for their relationship with a poor response to management 6 months following the initial consultation using a 15-point Global Rating of Change measure. Generalised linear models with binomial family and logit link were used to examine which patient characteristics yielded the strongest relationship with a poor response to management as estimated by the Odds Ratio and 95% Confidence Interval (OR 95%CI). **Results:** The odds of a poor response reduced with higher Patient Expectations of Benefit (OR 0.74 (0.63 – 0.87) per 1/10 point score increase) and higher self-reported knee function (OR 0.67 (0.51 – 0.89) per 10/100 point score increase) ($p < 0.01$). The odds of a poor response increased with a greater degree of varus Frontal Knee Alignment (OR 1.35 (1.03 - 1.78) per 5° increase in varus angle) and severe radiological rating of Medial Compartment Degenerative Change (OR 3.11 (1.04 – 9.3)) ($p < 0.05$). **Conclusions:** Measurement of the above patient characteristics may potentially better inform patient centred care.

Audit of Informed Consent in Neurosurgical Patients

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Background: Informed consent is integral in high-quality care; the provision of clear, relevant information ensures valid consent. Thorough documentation of the consent process safeguards patient autonomy and protect clinicians from legal action. Our objective was to evaluate patient satisfaction of the consent process, subjective understanding of information provided, and to assess quality of consent form documentation in neurosurgical patients. **Method:** Forty-nine post-operative neurosurgical patients were interviewed over a 4-week period using a questionnaire on the ward and their consent forms examined on integrated electronic medical record for completeness. **Results:** We found 92% of patients expressed satisfaction that all necessary information were provided to facilitate informed consent, 98% reported they understood their health condition and indication for an operation, 94% understood risks and benefits of the procedure, 84% understood the risks of having no procedure performed, and 90% understood anaesthesia risk. During interview, only 65% of patients recalled the necessary components of informed consent correctly. There were key deficiencies in documentation. Only 12% of forms documented patient's condition in their own words, and 61% had unexplained abbreviations. Only 76% of forms had significant risks documented and 27% had risk of no procedure documented. Provision of patient information sheets were rarely documented. **Conclusions:** Patient satisfaction of consent process were high, however, patient retention of provided information were lower. The quality of consent form documentation was less than ideal. We recommend provision of patient information leaflets, pre-operative re-iteration of procedural indication, risks, benefits and alternatives to aid patient information retention, and to educate staff regarding thorough documentation. We plan to re-audit our study following implementation of our recommendations.

Disparities in Surgical Access for Black patients at NSQIP Participating Hospitals in the United States

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Introduction: Surgical access is one of the pillars to providing universal high-quality surgical care. There is a lack of validated quality metrics that encapsulate surgical access. This analysis examined five conceptual measures of surgical access to assess surgical access for black patients. **Methods:** NSQIP data from 2011-2015 were utilized. Five conceptual measures of surgical access were examined; the emergency to elective surgery rate for colectomies, hernias and biliary surgeries, the rate of open versus laparoscopic appendectomies and the rate of perforated appendectomies. Logistic regression adjusted for sex, age, functional status (independent, dependent) and comorbidities (diabetes, smoking, COPD, congestive heart failure, renal failure, dialysis) was performed. **Results:** The percentage of patients undergoing emergency procedures was 16.47% (48,522/294,673) for colectomies, 4.94% (26,053/527,363) for hernias and 10.80% (34,896/322,993) for biliary surgeries. There was a total of 239,348 appendectomies, of these 10.19% (24,391) were performed open and 3.15% (7,561) had ruptured. In the adjusted models' Black patients were more likely to have an emergency surgery for colectomy, hernia and biliary procedures. Black patients were more likely to have an open appendectomy and more likely to have a ruptured appendix (Table). **Conclusion:** This analysis evaluated five conceptual measures of surgical access using NSQIP data and found significant disparities for black patients. Disparities in these conceptual measures of surgical access suggest advanced presentation or decreased access to surgical services for black patients.

Table: Stepwise regression of five conceptual measures of surgical access for Black patients (White non-Hispanic reference).

	Unadjusted OR (95% CI)	Adjusted Age, Sex OR (95% CI)	Adjusted + functional status OR (95% CI)	Adjusted + comorbidities OR (95% CI)
Colectomy Emergency surgery	1.14 (1.10-1.18)	1.18 (1.14-1.22)	1.14 (1.10 -1.18)	1.05 (1.01-1.09)
Hernia Emergent surgery	1.57 (1.52-1.64)	1.59 (1.53-1.66)	1.58 (1.52-1.65)	1.49 (1.43-1.55)
Biliary Emergency surgery	1.14 (1.09-1.19)	1.21 (1.16-1.27)	1.21 (1.16-1.26)	1.22 (1.17-1.27)
Appendectomies open	1.25 (1.19-1.32)	1.30 (1.23-1.38)	1.31 (1.23-1.38)	1.27 (1.20-1.34)
Appendectomies ruptured	1.18 (1.07-1.30)	1.33 (1.21-1.47)	1.32 (1.21-1.46)	1.25 (1.14-1.39)

Magnesium therapy in the treatment of chronic pain: a systematic review

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Background: Persistent pain has numerous societal costs and substantial impact on patient quality of life. Pharmaceutical management of chronic pain is complex and often only partially effective. Current pharmacotherapy options are limited by tolerance and adverse effects. Through its N-methyl-D-aspartate antagonism effects magnesium may be beneficial in treating chronic pain. **Methods:** We conducted a systematic review in accordance with the PRIMSA statement and preregistered our protocol with PROSPERO (CRD42020164342). Multiple databases were searched by an expert librarian and possible studies were independently screened by three authors for inclusion. Data-extraction was conducted using a preformed data extraction template. A statistician was consulted regarding the feasibility of meta-analysis. **Results:** Ten studies with a combined sample size of 370 patients were identified. Six studies focused on the role of magnesium in the treatment of neuropathic pain, two studies in management of complex regional pain syndrome and two in fibromyalgia. Magnesium therapy improved pain intensity and lumbar spine range of motion in patients suffering from neuropathic lower back pain. There was no clear improvement in other forms of neuropathic pain, complex regional pain syndrome or fibromyalgia when the remaining literature was assessed. The findings of this review were significantly limited by the heterogeneity of study methodology and lack of randomised control trials. **Conclusions:** Magnesium therapy may be effective in the treatment of neuropathic pain in patients with chronic lower back pain. Further high-quality randomised control trials with sufficient follow up are required to define the role magnesium has in the treatment of persistent pain.

Improving the detection of African Trypanosomiasis in cattle under field conditions

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Background: Tsetse transmitted trypanosomiasis causes disease in both man (sleeping sickness) and animals (Nagana). Challenges in the detection of trypanosomiasis in Africa, has contributed to setbacks in trypanosomiasis control efforts. The study investigated the impact and performance of PCR and LAMP against microscopy in determining prevalence of trypanosomes in cattle under field conditions. **Method:** In a cross-sectional survey, blood was collected from 227 cattle from Mambwe district of eastern Zambia. The study compared four field sampling techniques (LAMP-FTA, PCR-FTA, PCR-FP and Microscopy; buffy coat, thin and thick smears) used for detecting trypanosomiasis. **Results:** Examination and detection of trypanosomes from blood samples indicated : buffy coat (17 cases), thin smears (26 cases), thick smears (28 cases), combined microscopy (40 cases), PCR-FP (47 cases), PCR-FTA (83 cases) and LAMP-FTA (18 cases; n = 131). Using microscopy as gold standard, sensitivity and specificity of diagnostic tests were compared. LAMP-FTA was highly specific (88-96%) but lacked sensitivity (36-65%) in detecting trypanosomes as compared to PCR-FP (specificity 82-88%, sensitivity 53-78%) while PCR-FTA had the best sensitivity (specificity 67-72%, sensitivity 73-86%). **Conclusions:** PCR is a better screening test for diagnosing trypanosomes while LAMP is good for confirming a diagnosis. However, the practicality in the use of PCR for field diagnosis remain a challenge. The study recommends the use of combined microscopy in order to reduce under estimation of trypanosome prevalence resulting from single microscopy methods. In terms of blood sample collection and storage in remote areas, the study recommends the use of FTA cards.

Peritoneal Carcinomatosis in an SPC-related SCC – Case Report

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Squamous cell carcinoma (SCC) is a rare but known complication secondary to long-term SPC use. Peritoneal carcinomatosis secondary to bladder related SCC is rarer still. Here, we document a case of a 46 year old female with quadriplegia post a dive injury at the age of 17 and subsequent long term SPC. This patient had a false passage during routine SPC replacement. Following this the patient had recurrent infections around their SPC site which subsequently turned into collections and complex fistulae. Over a two-month period, peritoneal nodules were noted to have appeared on CT, which were presumed granulation in reaction to infection. During operative repair of the abdominal wall and bladder a sample of the granulation tissue was taken which demonstrated squamous cell carcinoma. The patient went on to have a staging PET/CT which demonstrated FDG avidity of locoregional lymph nodes, peritoneal deposits and a solitary iliac metastasis. Thus, confirming peritoneal carcinomatosis. The intraperitoneal spread of the SCC in this case is proposed to be secondary to false passage and intraperitoneal seeding during SPC reinsertion. In this case it is unclear if the primary SCC arose from the bladder itself or the SPC tract.

A foot in both worlds: health professionals who are mothers of adult children with schizophrenia

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Background: Schizophrenia is a global concern and care is provided by family and health professionals. Health professionals have children too, and if they have developed a psychotic illness, they undoubtedly care for them. There is a paucity of scholarly literature about health professionals with dual roles as carers of family members with mental illnesses. In this talk, I discuss my recent research with an international group (n=13) of health professionals who are mothers of adult children with schizophrenia. **Methods:** The participants were recruited from Australia, Canada, Scotland and the United States of America. A qualitative feminist storytelling design was used to conduct the study. Conversational interviews with the purposively selected participants were conducted face-to-face or via Skype ©. The transcripts from the audio-recorded interviews were then thematically analysed. **Findings:** The findings indicated caring for and negotiating mental health care for their adult children was a complicated and stressful experience. With time, they developed a sense of purpose and resilience as they faced multifaceted challenges within their dual roles. **Conclusions:** The research addressed a gap in research and services for health professionals with dual roles as caregivers of family members who live with schizophrenia. Informed by a fusion of professional and mothering knowledges, their insights into mental health care have been forged by their experiences and is an untapped resource.

Stroke Prevention by Non-Vitamin K Oral Anticoagulant (NOAC) Agents in the Absence of Atrial Fibrillation: Meta-Analysis of Randomized Control Trials

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Background: Anticoagulation to prevent stroke is a mainstay of atrial fibrillation (AF) management. Cardiovascular disease produces prothrombotic state even in sinus rhythm. The efficacy and safety of non-vitamin K oral anticoagulant (NOAC) agents has not been studied. **Objective:** To assess ischemic stroke and bleeding risk with NOAC agents in patients without AF. **Methods:** A search for randomized controlled trials that evaluated a NOAC and control drug (placebo or antiplatelet) in non-AF patients with cardiovascular disease was conducted. The primary efficacy and safety outcomes were ischemic stroke and major bleeding, respectively. Results were stratified based on full- and low- NOAC doses. **Results:** Thirteen RCTs were identified with a total of 89,383 patients (53,778 on NOAC, 35,605 on control drug; mean age 65.5 ± 2.7 years). Over a mean follow-up of 18.3 months, 1429 (1.6%) ischemic strokes occurred. Use of NOAC was associated with 26% reduction in stroke (odds-ratio [OR] 0.74, 95% confidence-interval [CI] 0.63—0.88; 1.1 vs. 1.7 events per 100-person years), with numbers needed to treat of 153 patients to prevent one stroke. Major bleeding was increased (OR 1.79, 95% CI 1.46-2.20; 2.1 vs. 1.0 events per 100-person years). The net clinical benefit (NCB, composite of ischemic stroke and bleeding) did not suggest a favourable effect of NOAC (NCB for full-dose: -0.35; NCB for low-dose: -0.06). **Conclusion:** Use of NOAC in non-AF population reduces rate of ischemic stroke however risk of major bleeding exceeds antithrombotic benefit. Full- and low-NOAC doses may not differ in therapeutic safety advantage in sinus rhythm.

Outcomes of high-risk pregnancies due to Rheumatic Heart Disease (RHD) in indigenous women at The Townsville Hospital.

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Introduction: Rheumatic Heart Disease (RHD) is mostly found in Aboriginal and Torres Strait Islander people in Australia. As a cause of structural heart disease RHD can impact on the course pregnancy. This study aimed to elucidate the obstetric, neonatal and cardiovascular outcomes of pregnancies in indigenous women with RHD at Townsville Hospital, a tertiary referral central in North Queensland over a decade (2008-2018). **Findings:** We analyzed outcomes of 81 pregnancies in 35 women. Comorbidities: diabetes(10%), past CVA (5%). The most common baseline valve lesion was mitral regurgitation (MR); mild (26%), moderate (36%), severe (22%). Mitral stenosis 24% (mild 17%, moderate 7%, severe none). 38% had 2 or more at least moderate valve lesions. 95% had a normal LVEF. **Cardiac Outcomes:** 15% of pregnancies were complicated by the development acute heart failure in the peripartum period. This was significantly more likely to occur with increasing severity of valvular lesion. No women required prenatal or peripartum intervention on valves. **Obstetric and neonatal outcomes:** Of the 32 (40%) labors which required surgical intervention (planned or emergency caesarian section, instrumental delivery) 7 (9%) were undertaken to shorten labour due to cardiac concerns. 40% deliveries were pre-term (<37 weeks), 28% of babies required NICU admission. There was no relationship between severity of cardiac lesion either of these outcomes. **Conclusion:** In this cohort of indigenous women who delivered babies over a decade (2008-20018) at Townsville Hospital cardiac outcomes followed previously reported local and worldwide outcomes, with worsening cardiac outcomes according to increasing severity of valvular lesions.

Bone health screen in community dwelling population 75 years old and older at Townsville

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Background: The Australian population is ageing and bone health screening and management is becoming increasingly important to reduce risk of fragility fractures and preventing morbidity and mortality in the older population. In 2018 the Frail Older Persons Project was launched at Townsville University Hospital with the aim to improve the quality, safety and care of older Queenslanders where the Frail Registrar is involved in comprehensive geriatric assessment amongst community dwelling adults aged 75 years and above who presented to ED. **Method:** Clinical audit involving retrospective patient chat review in 100 random community dwelling elderly patients seen by the Frailty registrar in the Emergency Department TUH in 2018. Analysis performed using descriptive statistics. **Results:** 44 % of presented patients had a fall with sustained fracture which 25% were in men and 29% in women. Half of these group of patients had another fall within 1 year including 3 cases of neck of femur fracture. Only 42% of screened patients had Bone Mineral Density scan performed previously. The prevalence of osteoporosis was 45% with 79% receiving treatment. Bone health assessment and recommendations were only undertaken in 58% of patients screened. **Conclusions:** This audit highlights the need to improve bone health assessment and education by medical offices with stronger collaboration with GP in the community setting to potentially reduce the risk of fragility fractures. This can promote better health outcome in older community dwellers.

Understanding the clinical detection of mild Traumatic Brain Injury in children presenting to the Emergency Department

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Background: In 2009, the Centres for Disease Control and Prevention published guidelines for the diagnosis and management of Mild Traumatic Brain Injury (mTBI) in children. Despite research indicating evidence-based clinical guideline compliance improves prognostic outcomes, Australia remains without a standardised protocol. This study aims to investigate the current approaches utilised at a single study centre, The Townsville University Hospital Emergency Department (TUH ED), for children presenting with mTBIs. **Methods:** A retrospective chart review of children aged 0-16 years presenting to TUH ED between January to March of 2018 and 2019 was conducted. Information of patient-specific demographics, head injury presentation and respective management was evaluated. Data was transcribed into IBM SPSS Version 25 with categorical variables set in descriptive statistics and further analysed with Chi-squared Fischer's Exact tests. **Results:** A total of 359 cases were eligible for study with 51 cases excluded. Of 308 cases included, two-thirds of patients were male with the cohort having a mean age of 5.02 ± 4.62 years (mean \pm standard deviation). Seventy-four percent of injuries occurred between midday and midnight, where presentations later in the day were significantly less likely to have head injury protocols applied ($P=0.032$). Eighty-five percent of cases had no documentation of clinical tools being applied in assessing the need for a head CT. **Conclusion:** In conclusion, utilisation of existing evidence-based clinical tools specific to mTBI in children was poor and significantly associated with time of presentation. Given low implementation rates, research to identify and assess barriers to utilising these existing tools is required.

How to avoid oversizing Perceval sutureless aortic valve: Technique

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Aortic valve replacement surgery technique has been revolutionised with the introduction of sutureless valves. Perceval sutureless aortic valve (PV) is one of the most widely used example. However, oversizing the PV has been reported to be an issue. After a case of PV stent recoil in our institution, a new technique was developed, where only the white obturator is used to size the valve. Recently, this technique was also mentioned by different authors. With this technique, we achieved low rates of paravalvular leaks and pacemaker implantation with good transvalvular gradients. Therefore, we recommend this technique over the manufacturer's instructions.

Is preoperative non-contrast CT chest associated with a lower rate of neurological complications following isolated coronary artery bypass surgery?

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The incidence of cerebrovascular accidents (CVA) after isolated coronary artery bypass graft (CABG) surgery varies from 1% to 5% depending on the patient population and the criteria for diagnosis of stroke. Main risk factors for adverse neurological outcomes are older age and increased atherosclerotic burden. The literature suggests that computed tomography (CT) is the best diagnostic modality to identify atherosclerotic burden of the ascending aorta. Moreover, current evidence suggests that including a CT scan of the chest as part of routine pre-operative investigation for patients undergoing CABG decrease the rate of peri-operative CVAs. With that in view the 2018 European Guidelines on Myocardial Revascularization recommend preoperative CT chest for patients older than 70 years of age (Class IIa, Level of Evidence C). Therefore, we decide to analyze our own data to understand where we stand in this topic, which current does not have an overwhelming level of evidence. Our study is as a single center retrospective analysis of a prospectively maintained national registry. Through database interrogation we will review the data of all patients ≥ 60 year-old who underwent elective/urgent isolated CABG at Townsville University Hospital in the last 5 years. Two groups will be defined according to the presence or not of a preoperative non-contrast CT chest. The primary end point of this study is the occurrence of post-operative adverse neurological events.

Life-Limiting Fetal Conditions: Are Australian Student Midwives Prepared?

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Background: In Australia, women who receive a diagnosis of a life-limiting fetal condition generally have a choice between termination of pregnancy and perinatal palliative care. Midwives are often involved with caring for these women and their families. It is currently unknown what Australian student midwives are being taught about life-limiting fetal conditions, termination of pregnancy, and perinatal palliative care during their entry-to-practice program. This research seeks to discover teaching methods and curricula surrounding life-limiting fetal conditions and whether Australian student midwives are adequately prepared to care for affected families.

Methods: Academic Leads of all entry-to-practice midwifery programs at Australian Universities received a questionnaire exploring topics taught, teaching time, teacher role, and effectiveness of student preparation. The response rate was 50% (12/24). Data was analysed statistically and thematically. **Findings:** 42% of respondents taught all three topics. More respondents taught about termination of pregnancy (83%) than perinatal palliative care (58%). An average of 4.2-7.5 ($\pm 3.1-3.4$) hours was spent teaching about life-limiting fetal conditions, termination of pregnancy, and perinatal palliative care during the entire midwifery program, with a range of 0.5-12 hours. Most (82%) University Leads do not believe midwifery students are prepared to care for affected families. **Conclusion:** Entry-to-practice midwifery programs vary considerably in their time, curricula and methods surrounding the teaching of life-limiting fetal conditions, termination of pregnancy and perinatal palliative care. Further research is required to determine if early career midwives find their university education in life-limiting fetal conditions, termination of pregnancy, and perinatal palliative care adequate preparation for practice.

Umbilical Cord Clamping and Hyperbilirubinemia

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Background and Aim(s): This study was conducted at the Townsville University Hospital's Neonatal Intensive Care Unit (NICU) to investigate incidence of term neonates requiring phototherapy for neonatal jaundice and to determine the relationship between cord clamping status, total haemoglobin (THb) and total bilirubin (TBil). A secondary outcome was to investigate correlation between blood gas analyser (BGA) derived TBil and laboratory-based methods. **Methods:** In this retrospective study involving term infants admitted to a tertiary regional neonatal unit for neonatal jaundice between 2013 and 2019, information on neonatal and maternal antenatal characteristics, cord clamping status, THb, Direct Coombs Test (DCT) and TBil were collected. **Results:** 258 term neonates were included. 148 neonates had cord clamping status documented, 110 had unknown cord clamping status. Incidence of phototherapy increased as did rates of documented delayed cord clamping (DCC). DCC was linked to higher mean THb in DCT negative infants only (193.89g/L vs 201.15 g/L) ($t(110)=-2.093, p=0.039$). Mean TBil did not vary with cord clamping or DCT status. THb results did not correlate with TBil. There was strong positive correlation between BGA and laboratory assays. **Conclusions:** DCC was linked to higher THb in DCT negative infants. There was no correlation between THb and TBil. As a significant proportion of infants had unknown cord clamping status it cannot be determined if DCC infants represent a larger overall proportion of those requiring admission for phototherapy. There was strong positive correlation of TBil between BGA and laboratory assays.

Smoking and its impact on treatment outcomes (nutrition and swallowing) in head and neck cancer patients: Preliminary Results

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Background: There is evidence suggestive of a causal relationship between cigarette smoking and increased treatment related toxicities¹. Toxicities as a result of head and neck cancer treatment are well known to have physiological impact on swallowing² and lead to weight loss³ and malnutrition. **Method:** Nutrition and swallowing outcomes were collected as part of the ongoing prospective study (ACTRN12618000165280) using the Patient Generated-Subjective Global Assessment (PG-SGA), Australian Therapy Outcome Measures for Swallowing (AUSTOMs) and the Penetration Aspiration Scale (PAS). Study participants were divided into 3 groups – current smokers, former smokers and never smokers. A pre and post ANCOVA was used to determine whether there were any differences in outcomes between the three groups at each of the defined time periods. **Results:** Tables 1, 2 and 3 demonstrates the mean nutritional risk scores (as calculated using the PG-SGA), PAS and AUSTOMs scores respectively for current, former and never smokers at each of the time periods. Analysis demonstrated that the difference between baseline and 3 months post treatment was statistically significant between the 3 smoking groups, with a p value of 0.021. There were no significant differences between the 3 groups for either PAS or AUSTOMs. **Conclusions:** Despite data collected to date showing minimal differences in swallowing outcomes between smoking status groups, the severity of aspiration increased after treatment across all groups. PG-SGA scores across all groups were similar at completion of treatment, with never smokers having a significantly improved nutritional status at 3 months post treatment compared to other groups.

An audit to review turnover time for delivery of intra-operative diagnostic report of frozen section and final histopathological report of formalin fixed paraffin embedded section of brain tumours and concordance between the two reports.

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Background: Turnover time taken to report intra-operative frozen section (FS) diagnosis and final histopathological report is important for surgical planning and oncological management.

Novis et al. investigated the intra-operative turnaround time for FS and estimated 90% were reported within 20 minutes [1]. Our objective was to review the turnover time of FS and final histopathological report and their concordance in diagnosis of brain tumour patients at the Townsville University Hospital (TUH). **Method:** We performed a three-year retrospective audit of patients who underwent brain tumour surgery and had specimens sent for FS and histopathology analysis at TUH between January 2017 and December 2019. SPSS software was used for statistical data analysis. **Results:** A total of 134 patients were identified. The mean time for delivery of FS report was 19 minutes (range 5 to 32 minutes). The mean time for final histopathology report was 13 days (range 1 to 56 days). We found 33% cases had delay of more than 14 days, 57% of which were Gliomas. Diagnostic concordance between FS and final report was 82%, no FS diagnosis in 10%, and non-concordance in 8%. 80% of non-concordance cases were Gliomas. **Conclusions:** Turnover time for FS diagnosis at TUH is consistent with other literature reports. We found most of the delay in the final histopathology report were in Glioma patients. We believe this to be due to understaffed local neuropathologists, and the need to send samples to Brisbane for necessary ancillary studies. Diagnostic concordance between FS and final report was high. Most non-concordance cases were Gliomas.

Time-to-Antibiotics in Septic patients at Townsville University Hospital – A COVID-19 Analysis

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Background: Sepsis is a life-threatening disease state, with current therapy at Townsville University Hospital (TUH) emergency department guided by the Electronic Therapeutic Guidelines (eTG). Prolonged time-to-antibiotics has been correlated with increased mortality in septic patients. The review of the discrete timeframe to antibiotics will provide insight into current practices at TUH in treating septic patients. **Method:** To determine if COVID-19 impacted patient treatment, this retrospective study aimed to establish the time-to-antibiotic treatment in septic patients that presented to TUH ED *before* COVID-19 (Oct-2019 to Jan-2020) and *during* COVID-19 (Feb-2020 to May-2020). The review elucidated the number of patients who received antibiotics within one-hour (as per eTG guidelines) and within 3 hours as per the current *Queensland State Government ED Adult Sepsis Pathway* which is currently not utilised at TUH. **Results:** Our findings reveal that the minority (21% of patients pre-COVID, and 19% of patients during COVID) received antibiotics within 1-hour with Covid-19 making little difference. Conversely 47% of patients pre-COVID met the 3-hour threshold and 76% of patients met during COVID. Overall, this demonstrated an improvement during Covid-19. Interestingly during Covid-19 an almost 2-fold increase in sepsis presentation occurred while at the same time ED presentations overall decreased. **Conclusion:** Future deliberation and analysis are warranted regarding any practice changes or the potential implementation of the *QLD Gov ED Adult Sepsis Pathway* to streamline antibiotic administration in septic patients. This review has paved the way for future sepsis management research at TUH, which aims to ameliorate patient care and outcomes for septic patients.

Wideband Acoustic Immittance – A study of comparison between cholesteatoma and OME

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Background: Although 226Hz tympanometry is the standard test to assess tympanic membrane conditions, it is not sensitive to measure middle ear conditions such as otitis media with effusion (OME) and conditions such as cholesteatoma. The objectives of this study were to compare wideband Acoustic immittance (WAI) measures in cholesteatoma with ears with OME. **Method:** A total of 38 normally hearing adults (38 ears) (control group), 35 patients (35 ears) with cholesteatomas and 18 patients (30 ears) with OME participated in this study. All participants were assessed using pure tone audiometry, 226-Hz tympanometry and WAI. **Results:** Wideband absorbance (AB) of the cholesteatoma group demonstrated predominantly a flat pattern across the entire frequency range. AB of the cholesteatoma group was significantly lower than that of the control group from 0.8 to 5 kHz. Results showed that the area under the ROC curve (AROC) for AB ranged from 0.66 to 0.85 and attained a maximum of 0.85 at 1.5 kHz. AROCs for Admittance magnitude and phase angles in ears with cholesteatoma were less than 0.63. Ears with OME demonstrated similar pattern of results to that of cholesteatoma, albeit, with differing magnitude. **Conclusions:** WAI measures in ears with cholesteatomas was significantly different to that obtained from healthy ears. OME and Cholesteatoma groups differed in magnitude. WAI has the promise to be used as an adjunct tool during assessment of middle ear function.

Success! Exploring an alternative to showering for frail, elderly persons living in the community.

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Background: Functional decline is an expected aspect of ageing, and for persons living alone this often equates to difficulties with personal hygiene, the risk of falls and subsequent loss of autonomy. Bathing wipes are made available to Townsville Transition Care clients as part of their care package. However, it was unknown if this option is acceptable to older persons in the community settings. This study explored Transition Care Program clients' experiences, views and attitudes to using bathing wipes after hospital discharge. **Method:** The descriptive, exploratory study design used telephone interviews. Participants were frail elderly persons discharged from hospital with a Commonwealth-funded Transition Care Package which included hygiene assistance/retraining. A telephone interview involved the researcher asking questions from the prepared questionnaire that had been provided to the participant at the time of recruitment. **Results:** All 37/49 participants who used the bathing wipes had some form of bathing support such as grab rails or shower chair. All but 2 of the 30 participants who completed the interviews agreed that bathing wipes were a satisfactory alternative to having a shower. All 30 agreed that the bathing wipes were easy to use, they felt clean after using them, and would use the product in the future. **Conclusion:** Bathing wipes negate the risk of wet bathroom floors, thus reducing falls risk. Patients felt clean even when they were not 'up to showering'. Bathing wipes are a viable, relatively inexpensive, safe option in the short or longer term and could be used by other patient groups.

Three-year trajectory of chest pain in frequent ED re-presenters

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Background: Chest pain is one of the most frequent presentations to ED. However, there is little information on the long-term trajectory of chest pain in frequent re-presenters who present over 3 times in any calendar month. In fact, in our review of literature we have found no study which follows individuals over this period of time for this cohort of patients. The current study is a retrospective follow up study of individuals who presented to ED in 2016 from October to December. It is a single centre longitudinal study **Method** This is a single centre longitudinal cohort study. Individuals who presented to ED over 3 times in a calendar month between October and December 2016 and were discharged with a diagnosis of chest pain. These patients were then retrospectively followed up to analyse their morbidity and mortality profile over the 3-year period. **Results:** This study examines the underlying diagnoses at the time of initial presentation and subsequently and the conversion rate of non-cardiac chest pains to cardiac chest pain over the 3-year period. **Conclusions:** The study examines the chest pain profiles of frequent re-presenters and analyses the factors associated with chest pain related mortality in frequent ED re-presenters

Program – Thursday 29th October 2020

My Research Rules – JCU Post Graduate Abstracts

9:00-9:10		Opening welcome
		Honours
9:15-9:30	D. Harrison	Acute effects of traditional resistance training on sport-specific performance in adolescent cricket players
9:30-9:45	K. Kirkham-Ali (online)	Direct Oral Anticoagulants and Novel Oral Antiplatelets: an Evaluation of Current Practices and Interactions Between Medical and Dental Practitioners in Australia
		PhD students – (Early candidature)
9:45-10:00	R. Cook	Validation of a Multiplexed Immunoassay for the measurement of VEGF-A and its receptors for use as a diagnostic tool for diseases in neonates, infants and in pregnancy.
10:00-10:15	C. Alahakoon	Meta-analyses of randomised controlled trials reporting on interventions for prevention of diabetes-related foot ulcers.
10:15-10:30	J. Zhang	Adaptation, gene flow and demography of extreme stress tolerant <i>Acropora digitifera</i> from the Kimberley, Western Australia revealed through whole genome resequencing.
10:30-10:45	T. Singh	Comparison of peak wall stress and peak wall rupture index in ruptured and asymptomatic intact abdominal aortic aneurysms
10:45-11:00		MORNING TEA
11:00-11:15	N. Engstrom	Use of Implantable Cardiac Defibrillators (ICD) in Heart Failure Patients: A tale of two regional centres
11:15-11:30	L. Taylor	T-cadherin: A myogenic cell adhesion molecule
11:30-11:45	D. Lennox-Bulow (online)	Potential therapeutical applications of stonefish (<i>Synanceia</i> spp.) Ichthyocrotoxins: identifying novel compounds with anthelmintic activity
11:45-12:00	Y. Peck	Structural characterisation of the cysteine rich conotoxin, Sigma-GVIII
12:00-12:15	S. Karnaneedi	Identifying allergens in edible insects that may pose harm to shellfish-allergic people.
12:15-12:30	E.O'Hara (online)	Metamorphosis in the Irukandji jellyfish <i>Carukia barnesi</i>
		PhD students (Late candidature)
12:30-12:45	P. Hartin	Bullying in nursing: How has it changed over 4 decades?
12:45-13:00	S. Kophamel	A new method for turtle health assessment in the field: bioelectrical impedance analysis
13:00-13:45		LUNCH
13:45-14:00	C. Schmidt	Discovery and characterisation of novel peptides from the stony coral <i>Heliofungia actiniformis</i>
14:00-14:15	R. Takjoo	Characterization of peptides from the common starfish, <i>Asterias rubens</i>
14:15-14:30	A. Brown	"You've gotta do what you've gotta do": Prostate cancer patients' perspectives on image guidance in radiotherapy
14:30-14:40		BREAK
14:40		ANNOUNCEMENT OF WINNERS