IN THIS ISSUE

Townsville Health Symposium
WEDNESDAY 7 OCTOBER, 2015 - FRIDAY 9 OCTOBER, 2015
ROBERT DOUGLAS AUDITORIUM
THE TOWNSVILLE HOSPITAL
Using knowledge vectors to confront the diseases of northern Australia

Living in northern Queensland and particularly in the dry topics of Townsville it is tempting to view medicine through the prism of infectious diseases. This is particularly so for a recently arrived infectious diseases specialist from Melbourne. However, as is blindingly apparent to all observers, infection frequently occurs as a part of the chronic diseases that beset the population of this growing region.

Ongoing advances in the control of tropical infectious diseases build on the historical endeavours of towering figures of 19th and 20th century science. Ronald Ross discovered the life cycle of malaria parasites in anopheleline mosquitoes, opening the modern era of study of this most lethal of diseases. Similarly world changing was William Gorgas’s work to control yellow fever, the mosquito vectorborne illness that was decimating the work force building the Panama Canal. These and other brilliant investigators often worked alone and often acquired the disease they were studying. To not mention Louis Pasteur and Robert Koch in a discussion on pioneers of microbiology would invalidate it.

The theme of epochal leaps in the fundamentals of tropical infectious diseases discovery and intervention, followed by slower, more incremental advance, is an unfortunate reality. This leaves many millions of people of the tropical zone at risk of deadly infections. Progress towards eradication of these infections now requires international cooperation between highly skilled teams and billions of government and philanthropic dollars. Crucially, there are huge differences central to modern approaches to conquering tropical infections, due to the more inherently difficult remaining barriers. The nature of discoveries currently needed to counter disease and immune-specific features of severe tropical infection are ever more demanding.

Unfortunately, and in a similar vein, the available treatments for tropical infectious diseases are limited in number, toxic and prone to short periods of efficacy constrained by the development of resistance. Two of the most effective of antimalarial drugs are natural compounds applied to the treatment of fever for centuries. Artemesinins are derived from Chinese herbal treatments and quinine from the bark of the cinchona tree. Resistance is developing rapidly to these therapies leaving doctors with few treatment options for severe malaria. It is heartening then that other interventions such as insecticide-impregnated bednets are currently reducing malaria incidence.

The main efforts in vectorborne disease control, including malaria and dengue, are now driven by vaccine development and reduction of parasite carriage in their mosquito hosts. Over the last 150 years, relatively simple approaches to vaccine design have been used to tremendous effect in controlling severe infection. Early vaccines employed techniques including reducing the infectivity of organisms like typhoid and smallpox or by using a non-infectious toxin such as for tetanus. However, the hard nuts of tuberculosis, malaria and dengue cannot be prevented by the relatively straightforward biological mechanisms relied on for such vaccines. It will be a stunning day when tuberculosis, malaria, group A streptococcal infection and dengue, along with innumerable neglected tropical diseases, have all been eradicated by effective vaccines and public health interventions, just as smallpox was in 1970.

Implementation of ground-breaking research on blocking dengue transmission by introduction of Wolbachia-infected mosquitoes is underway in Townsville. These mosquitoes are unable to transmit dengue and as they reproduce and replace Aedes mosquitoes that are not infected with Wolbachia, the number of disease cases falls, as has happened here (see http://www.eliminatedengue.com/program). More novel, well-considered and proven methods for tropical infectious diseases control are urgently required.

Chronic diseases including ischaemic heart disease, diabetes, and cancer, as well as smoking-related chronic pulmonary disease are increasingly prevalent, Australia-wide. These impact on urban, rural and remote populations alike, causing very major reduction in health and longevity. No more dramatic insight into the significance of these conditions is available than looking at their contribution to the gap between health in Indigenous and non-Indigenous Australians (see http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=10737418922).

The absolute difference in potential years of life lost rates between Indigenous Australians and other Australians (1,523 per 10,000 population) is referred to as the mortality gap in this report. About 80% of the mortality gap between Indigenous and other Australians can be attributed to chronic diseases.

So with all these challenges Townsville Hospital Health Service is increasing and nurturing its research output to make contributions to the well-being of its patient population. We are not content with this mandate and aim to reach out with proven benefits for management of conditions in northern Australia and the tropical zone in general. Our Health Symposium is a chance to show off current research successes and to discuss what is to come.

Previous Townsville Health Research weeks have indicated the outstanding projects coming from all the Townsville Hospital Health Service professional groups: Allied Health, Nursing and Medicine. Particular themes and strengths are: perinatal care, such as improving respiratory support and pressure care for premature babies; helping diabetic patients deal with the consequences of renal failure and severe vascular disease; delivering effective health care to patients living in remote areas of our catchment zone; and health promotion in many other areas of patient care. This brief roll call does not do justice to the many worthy research projects that speak to the energy, curiosity and determination of our staff, who are striving to add to knowledge in health care.

The Townsville Hospital and Health Service awards grant funds to assist many established and first-time researchers to complete projects. This is a generous process that distributes an amount of money that greatly exceeds that from other major metropolitan hospitals. The projects that succeed in being awarded these grants are those with well-considered research questions that can be answered using the available resources, including participants. Thus, priority is given to work that is feasible and meaningful. From small projects large initiatives grow and these grants will set many researchers on the trail of pursuing grander plans. Common to all staff working in discovery health is the sense of excitement and zeal, particularly when results are produced and the energy required to pursue research dreams pays off.

The Townsville Health Symposium illustrates then, how our staff are drawing vectors between problems they identify, mobilising means to research their antecedents and to add to the knowledge required to conquer them. The power of this desire to change the health of our patients is huge and is fulsomely supported by the Townsville Hospital. We all need to be proud of our achievements and look forward to building on them.
# Townsville Health Symposium 2015 – Program Overview

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Professor Christine Duffield
Nursing Key Note Speaker

Christine Duffield is Professor of Nursing and Health Services Management at the University of Technology, Sydney (UTS) and Edith Cowan University. She has been the foundation Director of the Centre for Health Services Management at UTS since 2000. Prior to her appointment to UTS she worked for several years as a clinical nurse, educator and manager in a variety of acute care hospitals in Canada, Australia, New Zealand and the United Kingdom. Christine has over 10 years clinical and managerial experience in the health industry in Australia and internationally and more than 25 years in senior management and research roles in the university sector. She has published extensively on workforce, staffing and leadership topics. Professor Duffield’s international reputation in the field was recognised in 2012 when she was inducted as a Fellow in the American Academy of Nursing. In 2013 she was elected to the Board of the Australian College of Nursing.

Dr Wendy Smyth
Nursing Symposium Chair

Dr Smyth has over 35 years nursing experience in clinical, education, management and research positions in the private and public health sectors, and tertiary facilities. In 1984-85 she was a recipient of a short-term Kellogg Foundation Australian Nursing Fellowship, through which she spent six months at the University of Rochester, New York, exploring her interest in integrating theory with practice. Dr Smyth has held the position of Nurse Manager – Research, THHS, since February 2002. Dr Smyth has provided research education sessions, and assists nurses across the health service to plan and conduct research, write submissions to human research ethics committees and grant funding bodies, and disseminate research findings.

Dr Smyth’s research interests include:
- Qualitative research methodologies
- Critical theory
- Using research in clinical practice
- Developing nurses’ research awareness and expertise
- History of nursing research

Professor John Whitehall
Medicine Key Note Speaker

Professor John Whitehall is Foundation Chair and Professor of Paediatrics and Child Health at the University of Western Sydney.

Professor Whitehall graduated from Sydney University in 1966 and completed his residency at Sydney Hospital before working in developing countries. He then pursued paediatric training in England and Australia, followed by training in neonatology.

Professor Whitehall has held positions as Staff Specialist in the neonatal intensive care unit at Nepean Hospital, where he developed a particular interest in foetal medicine and echocardiography, Director of the Neonatal Intensive Care Unit in Townsville, and Chair of Northern Region Women’s and Children’s Committee which oversaw the development of services and the maintenance of standards throughout the region.

As Associate Professor in the School of Public Health and Tropical Medicine at James Cook University, he developed and delivered courses in tropical paediatrics, a feature of which was to become an annual block of study, first in Sri Lanka, then Papua New Guinea and Bangladesh.

Professor Whitehall’s extensive experience working in developing countries includes a refugee aid program in Vietnam, a mission hospital in remote South Africa and the university hospital in Zimbabwe (then Rhodesia). He has been involved in aid organisations in Guam, East Timor, Lebanon and Mexico. In 2005, he was involved in an aid program in Sri Lanka after the Asian tsunami, and was finalist for Senior Australian of the Year in 2006 for his humanitarian work with victims the disaster. He then returned as visiting Professor to the Medical College of Tamil Eelam where he designed and presented a three-month block of paediatric study and research for local practitioners.

Professor Whitehall maintains a special interest in international health, and has published on a range of subjects from neonatology to public health. He is assistant author of the book War and Medicine, a collection of short stories of the experiences of medical practitioners in northeast Sri Lanka.
Dr. Yoga Kandasamy works as a Senior Neonatal Paediatrician in a tertiary perinatal centre in Townsville, Queensland. He graduated with a medical degree from University of Malaya, Malaysia in 1995. He obtained a Master’s degree in Clinical Epidemiology and a PhD from the University of Newcastle, NSW. He has specialist registration in Paediatric Medicine with the Medical Board of Australia and has received fellowships from the Royal Australasian College of Physicians (FRACP), the Royal College of Physicians (Edinburgh) (FRCP) and the Royal College of Paediatrics and Child Health (UK) (FRCPCH). He is an Adjunct Associate Professor with James Cook University’s College of Medicine and a Conjoint Research Fellow with the University of Newcastle.

To date Dr. Kandasamy has more than 35 publications in peer-reviewed journals and has secured more than $1 million in research grants. In 2014, Dr. Kandasamy received an NHMRC New Investigator Project grant to carry out research into the effects of prematurity and low birth weight on retinal and renal development. Dr. Kandasamy’s area of research is in neonatal medicine, specifically effects of prematurity on development of the kidney and retina, and neonatal health in indigenous babies.

The North Queensland Festival of Life Science and the Division of Tropical Health and Medicine at James Cook University is proud to be associated with the Townsville Health Symposium.

Over the last four years our research students have taken this opportunity to profile the high quality of research undertaken in the tropics to promote health and innovation.

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- Travel Medicine

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## PROGRAM

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A great many people have contributed to the Allied Health Symposium and we would specifically like to thank Gail Kingston, Venkatesh Aithal and Venkat Vangaveti.
Systematic review of amino acids and Chinese herbal supplements in diabetic foot ulcers

Achamma Joseph and Anne P Anthikat
Townsville Hospital and Health Service, Townsville, Queensland

Background/Aims: Amino acids and Chinese herbal supplements have well known wound healing properties. This study systematically reviews the role of amino acids and Chinese herbal supplements as a complementary therapy in the treatment of diabetic foot ulcers (DFU).

Methods: Keyword searches in English language publications using a combination of ‘nutritional supplements’, ‘supplements’, ‘arginine’, ‘ulcer’, ‘wound healing’, ‘diabetic foot ulcer’ were conducted from peer-reviewed literature in PubMed, Scopus, Web of Science, MEDLINE, Cochrane Library, Embase, CINAHL, CAM on PubMed, ProQuest, ScienceDirect, Allied & Complementary Medicine Resources (AMED) and Informit library. Two independent researchers used critical appraisal skills programme (CASPer) tools to critically appraise articles for inclusion and exclusion. Data was extracted and synthesised into a standardized data extraction form with data on study design, methodology, dosage, mode of administration, time to healing, wound healing and other study variables. Results: Of the 4316 articles, 11 studies met the inclusion criteria. Seven studies investigated the role of amino acids in DFU, while three studies focused on Chinese herbal supplements, and the remaining study explored the healing effects of general nutrition supplement in malnutrition and DFU. Some favourable outcomes were observed with faster healing times of ulcers and reduction in ulcer size when compared to controls where applicable. Conclusion: Reduction in wound size, healing times and limb salvage improve quality of life for clients with DFU and result in enormous reduction of health care costs. Nutrient adjuvant therapies appear to be an easily accessible, low-cost effective treatment for some DFU clients. More robust studies are needed to support this evidence.

Wideband absorbance in newborns and six-month-old infants

Alehandrea Manuel, 1,2 Joshua Myers, 1,2 Sreedevi Aithal, 1,2 Venkatesh Aithal1, 2 and Joseph Kei2
1The Townsville Hospital and Health Service, Townsville, Queensland
2School of Health and Rehabilitation Sciences, Faculty of Health and Behavioural Sciences, University of Queensland, Brisbane, Queensland

Background/Aims: Middle ear disease remains a significant public health concern for Australian infants. Traditional audiology tests (conventional tympanometry, distortion product otoacoustic emissions [DPOAE], and automated auditory brainstem response) are ineffective in assessment of middle ear function in the first six months of development. Wideband absorbance (WBA) is effective in assessing middle ear function in children and adults: however, there is limited research investigating WBA in newborns and infants. This study aims to compare WBA in newborns and six-month-old infants.

Methods: A longitudinal study was conducted on 39 infants from birth to six months of age. A test battery of DPOAEs, high frequency tympanometry (1000 Hz) and WBA was administered, and infants were classified as refer or pass. Results: Maturational effects were evident between newborns and six-month-old infants. WBA was reduced between 250 Hz and 800 Hz. The WBA peak increased in frequency from 1600 Hz to 4000 Hz. WBA was reduced in infants that referred compared to those that passed. The difference ranged from 25% to 60% in newborns and 10% to 55% in six-month-old infants. Conclusion: WBA provides improved diagnostic capability of middle ear function in infants. Understanding the changes in WBA with age has important value in interpreting whether measurements are attributable to maturational effects or to middle ear disease.

The utility of CPAP in the tropics: a preliminary investigation

Anna Bajema, 1 Anne Swinbourne, 1 Marion Gray2 and Anthony S. Leicht1
1College of Healthcare Sciences, James Cook University, Townsville, Queensland
2Cluster for Health Improvement, University of the Sunshine Coast, Sippy Downs, Queensland

Background/Aims: Continuous positive airway pressure (CPAP) provides assistance to patients with a range of respiratory illnesses. However, little research has investigated CPAP use in tropical environments. This preliminary study investigated the utility of a novel CPAP device during common activities within tropical conditions.

Methods: Sixteen healthy participants completed six everyday activities (e.g. dressing, hanging towels, treadmill walking) with and without a CPAP device within a tropical/hot-humid environment (31.0 ± 0.5°C, 71.0 ± 1.6% relative humidity). For each condition, the participant’s perceptual and physiological responses to each task and recovery time were recorded. Comparisons between conditions were examined via repeated measures and one-way ANOVAs.

Results: Participants experienced similar perceptual responses (thermal comfort, thermal sensation and rating of effort) during all activities in both conditions (device use/non-use). In contrast, wearing the device increased heart rate (18%) and prevented the environmental-induced increase in body temperature (~0.2°C) during the dressing, hanging towels and treadmill walking activities. Conclusion: Our preliminary findings demonstrated that use of a CPAP device in tropical conditions provided both beneficial and unfavorable physiological effects. Future studies will clarify the benefits of CPAP use in extreme environmental conditions for clinical populations that rely on CPAP use.

Physical activity for patients with chronic kidney disease living in north Queensland

Anne Jones, Doug Steele and Anthony Leicht
College of Healthcare Sciences, James Cook University, Townsville, Queensland

Background/Aims: Current recommendations to slow the progression of chronic kidney disease (CKD) include a healthier lifestyle with increased physical activity (PA) levels. This study aimed to identify the following in people with CKD living in north Queensland: a) current levels of PA; b) barriers and facilitators to PA participation; and c) the impact of a tropical climate on PA participation.

Methods: Sixty-seven patients diagnosed with CKD by nephrologists and listed with the Townsville Health Service District volunteered for this study. All patients completed a mailed-out survey including self-reported PA scale, barriers and facilitators to PA, and impact of extreme environments on CKD symptoms and PA levels.

Results: Patients were predominantly older than 65 years of age (65.7%), Caucasian (86.6%) with average-good PA levels (~44 MET-hrs/day). The most common barriers to PA were lack of energy (39%), pain (36%) and ill-health (28%), with motivators being to improve health (63%), to feel good (57%) and to improve energy levels (54%). Patients reported to be less active (54% vs.10%) and experienced worse symptoms (25% vs. 8%) during hot/humid conditions compared to cooler/drier conditions.

Conclusion: Patients with CKD living in north Queensland exhibit average-good PA levels that are impacted upon by climate. Identification of PA barriers, motivators and climate impact provide important foci for the development of programs to better target lifestyle management for CKD patients.
Real time ultrasound imaging of lumbar multifidus in chronic low back pain populations: a systematic review of methodological consistency and measurement reliability

Connie Whittle and Carol Flavell
College of Healthcare Sciences, James Cook University, Townsville, Queensland

Background/Aims: Real time ultrasound imaging (RTUS) is used to measure the lumbar multifidus (LM) muscle in low back pain (LBP) populations. However, increased body mass index and older age in chronic, compared to acute or sub-acute LBP subgroups, presents challenges to measurement reliability and RTUS methods. Therefore, a review of the reported methodologies and reliability for LM measurements was conducted to identify the evidence base for RTUS clinical application in chronic low back pain (CLBP) populations. Methods: A systematic search of MEDLINE, CINAHL, PEDro, Cochrane, Scopus and Informit databases was conducted. Studies that reported RTUS measurement of LM in CLBP populations were included. Two independent reviewers used the QualSyst and the QAREL to appraise each of the included studies. Results: Seven studies were included in the review. Methodological quality was moderate to high for these studies. Transducer position, measurement and patient position varied throughout the included studies. Reliability was poorly reported or not reported and was calculated from healthy or combined healthy and CLBP populations. Intra-rater reliability was moderate to high with an ICC [3,1] over 0.9 and a dependability co-efficient from 0.50 to 0.94. Inter-rater reliability was lower with a dependability co-efficient ranging from 0.31 to 0.78. Conclusions: This review showed that reported methods were inconsistent and reliability was often reported from combined CLBP and asymptomatic subjects. Currently, insufficient evidence exists to determine the reliability of LM measurement using RTUS in CLBP populations. Future studies to evaluate measurement reliability of LM using standardised methodologies specifically in CLBP populations are required.

Psychological support within a neonatal unit: what is it and what does it look like?

Corrine Dickinson1 and Allyson Browne2
1The Townsville Hospital, Townsville, Queensland
2School of Medicine and Pharmacology, University of Western Australia, Perth

Background/Aims: Currently, there is no clear indication of the prevalence of psychological distress among parents who have babies admitted to the Neonatal Intensive Care Unit (NICU) of the Townsville Hospital (TTH). The type of input required is also unclear in the absence of national benchmarking data across NICU services. Methods: A literature review of current knowledge of psychological aspects of neonatal admissions and best practice models of early psychological intervention was conducted. Results: Literature review revealed that the adverse psychological reactions experienced by mothers of neonates can compromise parenting capacity and interaction with the infant and have long-term negative consequences on developmental outcomes for the infant. In addition, rates of trauma or post-traumatic stress disorder symptoms have been documented between 23-41% for NICU parents. There is emerging evidence of the benefits of early psychological interventions that target trauma symptoms and parent anxiety. For example, trauma focused cognitive behaviour therapy reduces symptoms of depression and trauma for women during their baby’s NICU admission. Conclusion: Early evidence-based focused psychological interventions for parents during their baby’s NICU stay are required, highlighting a significant gap between best practice and current service levels. Investigation of the psychological well-being of parents in TTH NICU in the first weeks after their baby is born is urgently required, with specific emphasis on the inclusion of fathers. This review has informed a new research project to investigate the local need for psychological support which will aid in the development of a local model of psychological service.

I’ve got mixed feelings: attitudinal ambivalence toward health behaviours

Daniel Lindsay1 and Anne Swinbourne2
1College of Public Health, Medicine and Veterinary Science, James Cook University Townsville, Queensland
2College of Healthcare Sciences, James Cook University, Townsville

Background/Aims: Attitudinal ambivalence occurs when individuals hold both positive and negative attitudes toward the same target object simultaneously. Ambivalent attitudes may be particularly relevant for health behaviours, as these behaviours may have mixed evaluations associated with them. Despite this, the majority of research focused on attitudes toward health behaviours assumes that these attitudes are either positive or negative, not positive and negative. We aimed to assess the ambivalence towards health behaviours to gain a greater understanding of the nature of attitudes underlying these behaviours. Methods: A total of 362 participants (M= 26.73 years) took part in this study. Participants completed both cognitive- and emotionally-focused measures of attitudinal ambivalence for different health-promoting (exercise and fruit and vegetable intake) and health-risk behaviours (drinking alcohol and smoking). Results: It was found that attitudes toward different behaviours shared differing relationships with the ambivalence measures. Particularly, it seems as though felt ambivalence may predict increased performance of health-protective behaviours. In contrast, potential ambivalence may predict increased performance of health-risk behaviours. Conclusions: The results suggest that there may be a complex relationship between attitudinal ambivalence and the performance of different health behaviours.

Changing the delivery of occupational therapy services on acute medical wards at The Townsville Hospital

Gail Kingston,1 Kym Murphy,2 Michelle Watson,1 Michelle Bennett3 and Tilley Pain1
1The Townsville Hospital, Townsville, Queensland
2Sir Charles Gairdner Hospital, Perth, Western Australia
3Rehabilitation and Community Care, ACT Health Directorate, Canberra, Australian Capital Territory

Background/Aims: Occupational therapy (OT) services at The Townsville Hospital have become increasingly reactive with a focus on screening and assessment immediately prior to discharge as opposed to rehabilitation and improving patient function. This study compared a post-acute OT service and allied health assistant (AHA) inpatient support with an inpatient only OT service. Methods: Participants were recruited from either an intervention or control ward using an OT needs assessment tool designed for the study. Participants in the intervention group received input from either an intervention or control ward using an OT needs assessment tool designed for the study. Participants in the intervention group received input from an OT and AHA. Community follow up was provided after discharge by the OT. The control group received standard intervention from an OT with a focus on inpatient care. Results: There were no statistically significant differences in patient functional outcome measures between the two groups. The intervention group OT was able to spend increased time with high needs patients, particularly in the patient’s home. There was a trend towards shorter length of stay for high needs patients in the intervention group when compared to the control group. Conclusion: Using a framework for delegating tasks to AHAs and identifying patients according to functional need, rather than the discharge date, can ensure OTs focus on patients with identified high needs who need intensive OT intervention to facilitate smoother timely discharge planning.
Investigating the impact of a clinical pharmacist on the health outcomes of paediatric patients

Kelvin Robertson, 1 Niechole Robinson, 1, 2 Stephen Perks, 1 Rosie James, 1 Marissa Steilmaschuk, 1 Jane Hart-Davies, 1 Sarah Malby, 1 Matthew Tucker, 1 Lyndsey Pell, 1 Kristiana MacFarlane, 1 Stefanie Leotta, 1 Judy Ede, 1 Ann Bond, 1 Aaron Drovandi, 2 and Therese Kairou 2

1 The Townsville Hospital, Townsville, Queensland
2 Pharmacy, James Cook University, Townsville, Queensland

Background/Aims: Recent fiscal scrutiny and changes in health care financing have necessitated that health care providers justify a clinical and economical basis for their involvement in patient care. Although clinical pharmacists have shown to enhance patient health outcomes and reduce costs among adult patients, the impact of a pharmacist in paediatric patient care has not been extensively documented. Methods: A team of pharmacists was established to conduct a systematic review of the literature. A title scan of papers in 5 databases was performed by 14 pharmacists using the MeSH terms pharmacists, medical intervention, paediatrics and cost-benefit analysis. The underpinning research question was: “How do the professional activities of a clinical pharmacist impact the health outcomes of paediatric in-patients?” The abstracts of suitable titles were scanned and articles read to assess relevance. Relevant articles were then evaluated independently by at least two members of the team, using critical appraisal tools suitable for quantitative, qualitative or systematic review studies. Results: The initial search identified 327 citations, which after full text review and application of the scoring tool, resulted in 10 studies being included in the systematic review. The average number of interventions reported varied from study to study. Dosing recommendations, pharmacokinetics and drug allergy alerts were the most commonly recorded interventions by pharmacists for a paediatric population. Evidence from this review will be used to formulate improvements to in-patient paediatric care. Conclusion: Clinical pharmacists have a positive impact on inpatient paediatric care which included both health and economic benefits.

My Story: engaging Aboriginal and Torres Strait Islander Australians in rehabilitation

Marayah Taylor1 and Nicole Hunt1, 2
1 Community Rehab northern Queensland, Townsville, Queensland
2 Mount Isa Centre for Rural and Remote Health, James Cook University, Queensland

Background/Aims: Fourteen percent of people accessing community-based neurological rehabilitation at Community Rehab northern Queensland (CnRnQ) in 2014/15 identified as Aboriginal and/or Torres Strait Islander. The aim of this project was to assist Indigenous clients to be comfortable within the CnRnQ setting and engage in meaningful rehabilitation with goals relevant to their needs. Methods: The My Story Program was implemented at CnRnQ in 2013, after development of the program based on rehabilitation guidelines, narrative therapy and the use of My Story cards. Consultation with stakeholders and Indigenous participants also occurred. The program is led by the CnRnQ Indigenous Rehabilitation Assistant, is goal-focused and includes reducing cultural barriers, using strength-based client centred approaches, and assistance in the establishment of meaningful and challenging, but achievable, goals. Outcomes have been assessed through examination of service records. Results: Twenty-seven Indigenous clients with neurological conditions have participated in the My Story Program since its inception. Participants have reported enjoying meeting and talking with others in similar situations, listening to stories and preparing a creative journal documenting their story. Benefits noted by program leaders include the identification and clarification of key motivators and rehabilitation goals through improved self-awareness and empowerment, improved mood and increased sense of belonging through social engagement in a safe environment. These improvements are subsequently harnessed in other programs delivered by CnRnQ, making positive rehabilitation outcomes more achievable for Indigenous participants. Conclusions: The My Story Program has proved to be a valuable component of the CnRnQ service. Future plans include ongoing evaluation and integration with other CnRnQ programs.

Queensland teacher sun survey: measurements and procedures for recording occupational UV exposures in Townsville and Toowoomba

Nathan Downs, 1, 2 Simone Harrison 1,3 and Alfio Parisi1, 2

1 Faculty of Health, Engineering and Sciences, University of Southern Queensland, Toowoomba, Queensland
2 College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Queensland

Background/Aims: Occupational exposure guidelines have been developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) which weight a UV source corresponding to its potential to cause harm to the skin or eye. When weighted across the incident UV spectrum this limit is expressed as 30 Jm-2 per 8 hour working day. Local calibration procedures and UV exposure results were made on participating teachers in Townsville and Toowoomba to assess occupational UV exposure risk. Methods: Calibrated polysulphone dosimeter badges were distributed to 58 primary and secondary teachers employed in a range of teaching roles, and compared to self-reported exposure times during the Queensland teaching Term 4, November 2014 for teaching staff located in Townsville (18oS) and Toowoomba (27.5oS). Results: The calibration process required to measure site-specific personal UV exposures relative to the ICNIRP guidelines are presented for both participating teacher groups in the November 2014 survey. A total of 474 ICNIRP weighted daily UV exposures were collected, ranging from 0 to 279 Jm-2. Of these, 109 exposures exceeded the ICNIRP daily exposure limit of 30 Jm-2. Conclusion: In Queensland, the potential for harm as a result of exposure to solar UV in an outdoor occupational setting is high. The influence of a high UV climate and the requirement of teaching staff to spend time outdoors supervising children during lunch breaks and sporting activities can result in exposures greater than the ICNIRP occupational UVR exposure guidelines.

Lymphoedema education: are patients listening?

Nicola Cosgriff, Janet Lemcke and Tilley Pain
The Townsville Hospital and Health Service, Townsville, Queensland

Background/Aims: Lymphoedema cannot be prevented. Best practice recommends education to all patients at risk of lymphoedema after cancer treatment and is common clinical practice. Education may help patients recognise early signs and symptoms thereby seeking treatment earlier when it is most effective. However, several studies indicate many women post-breast cancer report not receiving adequate information at the time of surgery. This study will evaluate lymphoedema patient education to determine if one-off education is effective for information retention and also to determine if group or individual education is more effective for retention of information. Methods: This study is a randomised control trial in which patients are randomised to control (individual education) or intervention arms (group education). A researcher designed questionnaire with multiple choice, short answer responses and practical demonstration, was developed to assess patient knowledge and recall prior to initial intervention, immediately post-intervention and at 3-, 6- and 12-month follow up. Results: Preliminary analysis suggests after single education sessions patients do not have good recollection of risk reduction behaviours and the signs and symptoms of lymphoedema. Recall of self-management techniques is poor. Final results will determine if reiterative education over 12 months increases knowledge retention and self-management techniques. Conclusion: One-off education at the time of surgery is insufficient to transfer knowledge on early detection and self-management techniques. Poor retention may result in delays seeking treatment, poor uptake of risk reduction behaviours and ineffective self-management techniques.
An investigation of alcohol consumption in north Queensland: an application of the prototype willingness model

Rebekah Boynton, Anne Swinbourne, Daniel Lindsay, and Kayla Morris

College of Healthcare Sciences, James Cook University, Townsville, Queensland

Background/Aims: The prototype willingness (PW) model suggests that there are two separate antecedents to behaviour: intention and willingness. Whereas intention is suggested to be reasoned and deliberative, willingness is more automatic and reactive. The aim of this study was to assess alcohol consumption in an Australian sample as well as the antecedents to drinking behaviour on both weekdays and weekend days. Methods: The sample for this study was taken from a larger cross-cultural study (n = 371); however only those who identified as Australian were included in the current analysis. From the original sample, 177 participants identified as Australian (115 females and 62 males). Participants completed a questionnaire assessing demographic variables, alcohol consumption and variables on the PW model. Results: Participants reported consuming more alcohol during weekend drinking sessions (M = 5.60, SD = 4.80) than weekday drinking sessions (M = 1.46, SD = 2.49). The model accounted for 15.0% of the variance of quantity of alcohol consumed in a typical weekend drinking session and 41.5% of the variance in a typical weekend drinking session. Willingness to drink significantly predicted alcohol consumption during weekday drinking sessions. Both willingness and intention to drink, and demographic variables significantly predicted alcohol consumption during weekend drinking sessions. Conclusion: The antecedents of the PW model differentially predicted alcohol consumption during a typical weekday and weekend drinking session.

Dietetic intervention for inpatients on fluid diets helps to achieve nutritional requirements

Kristina Ahnon, Sarah Deacon, Maree De Jonge, Bonnie Laskey-Gilboy, Natalie Moran, Shonnen Rothery and Melissa Whiting

Dietetics Department, Townsville Hospital and Health Service, Townsville, Queensland

Background/Aims: Fluid diets are frequently used in the hospital setting. These diets are inadequate in all nutrients and prolonged use can increase the risk of malnutrition. Dietetic interventions of nutrition supplementation, alternative feeding and individualised dietary counselling are targeted at increasing nutritional intake to reduce malnutrition risk. This study aimed to assess whether dietetic intervention helps patients on fluid diets to meet their energy and protein requirements. Methods: A quasi-experimental study of 57 patients receiving fluid diets was conducted at The Townsville Hospital. The fluid consumption of participants was observed over 24 hours and was used to calculate total energy and protein intakes. The percentage of protein and energy requirements met was compared between patients receiving dietetic intervention and patients in the control group. Results: Patients on fluid diets receiving dietetic intervention met a higher percentage of their energy requirements (73.93%) than the control group (16.99) based on median intakes (p<0.001). Patients on fluid diets receiving dietetic intervention also met a higher percentage of their protein requirements (70.84) than the control group (12.0) based on median intakes (p<0.001). Conclusion: Patients on fluid diets receiving dietetic intervention had improved energy and protein requirements compared against controls. Addressing malnutrition is a core priority in Queensland Health facilities. Current models of care may not be meeting the needs of patients on fluid diets to reduce their risk of malnutrition. Dietetic intervention will be considered standard care for patients receiving fluid diets at The Townsville Hospital.

Exploration of how a pharmacist role benefits an inter-professional rehabilitation team

Stephanie Kenzie and Nerida Firth

Community Rehab northern Queensland (CRnQ), Townsville, Queensland

Background/Aims: Community Rehabilitation northern Queensland (CRnQ) provides rehabilitation services for people with neurological conditions. On referral to CRnQ, a person undergoes assessment whereby a medication history is obtained. We reviewed the participant assessment process through consideration of a person’s pharmaceutical profile and taking a best possible medication history (BPMH). Methods: A pharmacist was employed for 136 hours over a 14 week period to observe and audit current processes around BPMH taking and assessment at CRnQ. Upon review, a suite of recommendations for consideration and implementation was developed. Results: Audit results indicated a need for changes to medication management processes to optimise person-centred care at CRnQ. These changes include the development of templates for taking and recording BPMHs, medication management screening within participant assessment to include referral criteria to a pharmacist, and the elimination of the current medication management assessment. Furthermore, it was recommended that mandatory minimum training for health and social care professionals be implemented regarding recording BPMHs, conducting medication management screenings, and the utilisation of community pharmacists. Optimising use of the electronic record management system to record BPMHs so as to limit transcription errors was also recommended. Creation of a pharmacist position to work within the interprofessional CRnQ team was highlighted as a priority. Conclusion: The results of the study found a pharmacist working as part of a multi-disciplinary team can highlight improvements in pharmaceutical care. Further investigation in measurement of the impact a pharmacist role will have within CRnQ is required as well as tracking and evaluation of the recommendations made.

Sweep frequency impedance measures in young infants: developmental characteristics (birth to 6 months) and clinical significance

Venkatesh Aithal, 1 Sreedevi Aithal, 1 Joseph Kei2 and Carlie Driscoll1

1Audiology Department, Townsville Hospital and Health Service, Townsville, Queensland
2Hearing Research Unit for Children, University of Queensland, Queensland

Background/Aims: Acoustic ear canal measurements that depend on the physical properties of external and middle ear undergo maturational changes in infants over several months of life following birth. From both clinical and research perspectives it is important to distinguish between changes due to maturational effects of ear canal and middle ear from dysfunction. The aim of this study was to describe the maturational effects of sweep frequency impedance (SFI) measures in healthy neonates from birth to 6 months of age. Methods: Participants included 24 newborns (30 ears), 16 infants aged 1 month (28 ears), 13 infants aged 2 months (18 ears), 17 infants aged 4 months (22 ears), and 13 infants aged 6 months (19 ears). Ears that passed both 1000 Hz tympanometry and distortion product otoacoustic emissions testing were included in the study. A mixed model ANOVA was applied to analyse the data. Results: A clear maturational trend of increased resonance and decreased mobility was noted for ear canal from birth to 4 months of age. Middle ear measures of resonance and mobility were stable across all ages demonstrating no maturational effect. Conclusions: The maturational effects of ear canal were evident whereas maturational effects of middle ear on SFI measures were stable during the first six months of life. This developmental effect can be used as normative reference for detecting dysfunction in the sound conduction pathways in young infants.
### PROGRAM

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<td>12:35</td>
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<td>Prof Christine Duffield</td>
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<td>A survey of unmet needs and self-efficacy in women diagnosed with breast cancer and role of breast care nurse</td>
<td>Tracey Ahern</td>
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<td>1:50</td>
<td>What really matters in person centred care? Measuring the patients' experience</td>
<td>Julie Shepherd</td>
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<td>Do staff working with families in community child health hold different perceptions than their counterparts in acute settings?</td>
<td>Rose Kruze</td>
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<td>2:10</td>
<td>Nursing students' experiences of an evidence-based mental health first aid course to improve mental health literacy</td>
<td>Melanie Birks</td>
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<td>2:15</td>
<td>Can being part of a multi-centred trial enhance family centred model of care at The Townsville Hospital?</td>
<td>Jennifer Orbeso</td>
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<td>Advancing the role of the enrolled nurse in an oncology day unit: A quality improvement project</td>
<td>Corrie Miles</td>
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<td>Staff knowledge of delirium improves following education: a pre/post survey</td>
<td>Helen Murray</td>
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<td>The incidence of boils on Palm Island</td>
<td>Pauline Wilson</td>
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<td>Congenital hypothyroidism with seizures: a case study</td>
<td>Ann Sproul</td>
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<td>3:15</td>
<td>Rules sometimes need to be broken: qualitative aspects of a randomised controlled trial of wound dressings</td>
<td>Joleen McArdle</td>
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<td>3:20</td>
<td>Why does nursing and midwifery research matter? Why should I be interested? Panel discussion and Q &amp; A session</td>
<td>Led by Professor Christine Duffield</td>
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<td>3:45-4:00</td>
<td>Awarding of Symposium Prizes  Concluding Remarks</td>
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A great many people have contributed to the Nursing Symposium and we would specifically like to thank Wendy Smyth, Jenny Kelly and Venkat Vangaveti.
ABSTRACTS
Nursing Symposium

Knowledge of delirium improves following staff education: results of a pre/post-survey

Wendy Smyth,1,2 Kelly Wright,3 Sandra Burton4 and Helen Murray4
1 Tropical Health Research Unit for Nursing and Midwifery Practice, Townsville Hospital and Health Service, Townsville, Queensland
2 Nursing, Midwifery and Nutrition, College of Healthcare Sciences, James Cook University, Townsville, Queensland
3 Department of Gerontology, Townsville Hospital and Health Service, Townsville, Queensland
4 Medical Unit Five, The Townsville Hospital, Townsville, Queensland

Background/Aims: Delirium, a frequent complication of hospital admission, often remains undiagnosed. This may be related to a lack of staff knowledge about predisposing factors and other predictors of delirium. Education has improved staff knowledge and recognition of delirium; however, most of those studies have only assessed nurses’ knowledge. This study aimed to measure delirium knowledge across members of a multi-disciplinary team working in two wards of The Townsville Hospital, where there is a high prevalence of patients with delirium, using a pre and post educational intervention. Methods: A pre-/post-survey design was used. All doctors, nurses and allied health staff who worked in the two units were asked to complete a paper questionnaire before and after the multifaceted educational intervention. Results: One hundred and fifty-one staff completed questionnaires. Of the 39 staff who completed questionnaires both pre- and post- the education, there were statistically significant improvements in their total overall knowledge about dementia post-education (M=21.31, SD=5.85) compared to pre-education (M=17.75, SD=4.83), t(36)=5.96, p<0.001. The mean increase in knowledge scores was 3.56 (95% confidence interval 2.34-4.77). The eta squared statistic (0.50) indicated a large effect size. There were also statistically significant improvements on knowledge and risk factor sub-scales, and fewer uncertain responses given following the education. Conclusion: The educational intervention improved overall knowledge of delirium among a multidisciplinary team. Not all respondents completed both pre and post surveys. A similar study is underway with a more structured educational intervention for nurses working in another health service.

Which dressing? Qualitative aspects of a randomised controlled trial of wound dressings

Wendy Smyth,1,2 Joleen McArdle3 and Anne Gardner4
1 Tropical Health Research Unit for Nursing and Midwifery Practice, Townsville Hospital and Health Service, Townsville, Queensland
2 Nursing, Midwifery and Nutrition, College of Healthcare Sciences, James Cook University, Townsville, Queensland
3 Townsville Renal Service, Townsville Hospital and Health Service, Townsville, Queensland
4 Australian Catholic University, Canberra, Australian Capital Territory

Background/Aims: Many patients undergoing life-preserving haemodialysis are exposed to additional risks because access is via a central venous catheter (CVC). Despite a paucity of evidence, guidelines and policies dictate the use of transparent exit site wound dressings, contrary to local nurses’ practice. This study aimed to explore nurses’ experiences with three different types of CVC exit site dressings in the context of a randomised controlled trial (RCT). Methods: Seven focus groups were held with haemodialysis nurses across the Renal Service following data collection for the crossover RCT. Four key questions were explored and thematic analysis of the transcripts was undertaken. Results: Fifteen nurses, with varying haemodialysis experience, provided comments on the ease of applying and removing the dressings, problems encountered with the dressings, which dressings types they thought were best or worst, and the value of having a specific work practice instruction developed for the RCT. It was clear that, although no dressing type was perfect, the opaque dressing was the best given the properties of the dressings, the patients’ preferences, and the humid climate. Conclusion: These perspectives are congruent with the results from the RCT that the opaque dressing type is safer than the transparent dressing type for these patients. It is suggested that necessary steps are taken to incorporate these local findings in to the health service’s policy to reflect current state and national guidelines.

What really matters in person centred care? Measuring the patient’s experience

Julie Shepherd
Townsville Hospital and Health Service, Townsville, Queensland

Background/Aims: Improving the patient experience requires an environment that facilitates a more person-centred care approach. The aims of this study were to promote awareness of, and measure, person-centred care, using the Paediatric International Nursing Study framework and resources. Methods: The project was introduced in three wards in The Townsville Hospital in October 2014. The experienced nurse leading the project began by holding workshops with staff that encouraged them to reflect on their care and build their ability to make small changes in their wards. Performance data measures included feedback from patients against eight key performance areas, together with evaluation of documentation and observational studies. All data were then mapped against the Person-Centred Nursing Framework with facilitated presentation of data and identification of gaps in nursing care. Results: One hundred and forty-two patient/carer surveys, 62 observations of practice, and 76 chart reviews were completed. Patients in the project wards felt safer whilst under the care of their nurse (82% of the time), and felt confident in the knowledge and skills of their nurse (76%). Patients were least satisfied with the nurses’ time availability (49%) and involvement in decision-making about their care (57%). Conclusion: The nurses now have the tools to target areas for improvement in their own clinical settings. This will transform teams to deliver person-centred care that embraces the needs of patients, families and staff. This project, the first in Australia with its application into the adult setting, will be expanded into more wards in the near future.

Robotic seals as therapeutic tools in an aged care facility: an exploratory study

Melanie Birks,1 Marie Bodak1 and Joanna Barlas2
1 Nursing, Midwifery and Nutrition, College of Healthcare Sciences, James Cook University, Townsville, Queensland
2 Clinical Psychology, James Cook University, Singapore

Background/Aims: A significant component of the health care regime for residents of aged care facilities is diversional therapy. Robots, including robotic seals, have been used as an alternative to therapies such as pet therapy in the promotion of health and social well-being of older people in aged care facilities. There is limited available research that evaluates the effectiveness of such therapies in these settings. This study aimed to identify, explore and describe the impact of the use of Paro robotic seals in an aged care facility by diversional therapists who employed these therapeutic tools in their work with the elderly. Methods: A qualitative descriptive, exploratory design was employed in this study, set in an aged care facility in a regional Australian city over a four-month period. Interviews were conducted with three diversional therapists who maintained logs of their interactions with Paro during this period and observed their interactions with the robotic seals in the facility. Findings were analysed using axial coding. Results: The findings of this study present an overview of the impact of Paro robotic seals on residents from the perspective of the diversional therapists. Three major themes were identified: ‘a therapeutic tool that’s not for everybody’; ‘every interaction is powerful’ and ‘keeping the momentum’. Conclusions: Paro is a therapeutic tool that can aid in the promotion of the wellbeing of elderly citizens. Findings reveal improvement in emotional state, reduction of challenging behaviours and improvement in social interactions of residents. The potential benefits justify the investment in Paro, with clear evidence that these tools can have a positive impact that warrants further exploration.
Do staff working with families in community child health hold different perceptions than their counterparts in acute settings?

Rose Kruze, 1 Wendy Smyth, 2,3 Andrew White, 4 Abdullah Mamun 5 and Linda Shields 1,3,6

1Child Youth and Family Health, Townsville Hospital and Health Service, Townsville, Queensland
2Tropical Health Research Unit for Nursing and Midwifery Practice, Townsville Hospital and Health Service, Townsville, Queensland
3Nursing, Midwifery and Nutrition, College of Healthcare Sciences, James Cook University, Townsville, Queensland
4Department of Paediatrics, Townsville Hospital and Health Service, Townsville, Queensland
5School of Population Health, University of Queensland, Brisbane, Queensland
6School of Medicine, University of Queensland, Brisbane, Queensland

Background: Although staff in acute paediatrics feel more positive working with children than with parents, it was anticipated that community child health staff may hold different perceptions because their family partnerships model of care claims to be family-centred. Methods: Nurses, doctors and allied health staff (n=48) working in community child health in regional Australia completed the ‘Working with Families’ questionnaire. The questionnaire, used previously in acute care settings in several countries, comprises 10 semantic differential statements to each statement: “I find working with children...” and “I find working with parents...” Results: There were no significant relationships between demographic variables and the mean ‘working with children’ and ‘working with parents’ scores. However, there was a difference between the mean scores (1 lowest - 5 highest): working with children: 4.29, (CI 4.06, 4.51); with parents 3.9 (CI 3.68, 4.12), mean difference -0.39 (CI-0.54, 0.23; p<0.001). Conclusion: Community child health staff, similar to staff in acute paediatric settings, felt more positive about working with children. However, if family-centred care was effectively implemented no such difference should occur. Staff in community child health require support and education about family-centred care. This is the first use of the Working with Families questionnaire in a community setting but it needs replication with a larger sample.

Nurses and midwives in northern Australia: a survey of their long-term conditions and how they manage them

Wendy Smyth, 1,2 David Lindsay, 3 Colin Holmes 3 and Anne Gardner 2,3

1Tropical Health Research Unit for Nursing and Midwifery Practice, Townsville Hospital and Health Service, Townsville, Queensland
2Nursing, Midwifery and Nutrition, College of Healthcare Sciences, James Cook University, Townsville, Queensland
3Australasian Catholic University, Canberra, Australian Capital Territory

Background/Aims: Although nurses and midwives are ageing, are in short supply, and they comprise the largest proportion of the health workforce, very little is known about how they manage any personal long-term conditions. This study aimed to identify the types and impacts of reported long-term conditions, and to identify strategies used to self-manage these conditions. Methods: A cross-sectional survey design was used. All nurses and midwives employed by the Health Service were sent a paper-based questionnaire, comprising six sections; 665 (30.9%) completed surveys were returned. The questionnaires were anonymous, and took no more than 25 minutes to complete; less if the nurse/midwife reported no long-term conditions. Results: Approximately two-thirds (n=401) reported having at least one long-term condition; musculoskeletal conditions were most frequently identified. More experienced nurses/midwives reported having more than one long-term condition. More than one quarter (n=107) identified conditions relating to mental health and wellbeing. Respondents were more likely to use personal than workplace-related strategies for managing their long-term conditions. Conclusion: Although this is a non-representative sample, it is evident that nurses and midwives struggle with their own long-term conditions. The lower uptake of employer-provided strategies needs to be examined to minimise the loss of nurses and midwives from the workforce. This study has informed a similar study being undertaken with doctors and health practitioners in the Health Service; a larger cohort study involving nurses and midwives across metropolitan, rural and remote areas is recommended.

EDITORIAL

Professor Peter A. Leggat, AM
Executive Editor, Annals of the ACTM

Expedition and Wilderness Medicine

Following the establishment by The Australasian College of Tropical Medicine (ACTM) of a transitional Sub-Faculty of Expedition and Wilderness Medicine on 14 November 2009, a fully-fledged Faculty of Expedition and Wilderness Medicine (FEWM) was launched on 21 February 2011. This Faculty operates as a joint Faculty with the Faculty of Travel Medicine, which was established on 9 March 2000. The Oxford Handbook of Expedition and Wilderness Medicine defines the field as being: “concerned with maintaining physical and psychological health under the stresses and challenges of expeditions. Its aim is to encourage adventure but to attempt to minimise the risk of trauma and disease by proper planning, preventive measures such as vaccinations, sensible behaviour and acquisition of relevant medical skills. Responsible attitudes towards the environment and the welfare of the indigenous peoples in the areas of travel are also of great importance.” [p. (v)]

The Faculty is actively seeking to encourage membership amongst those working in expedition and wilderness medicine and provides professional recognition through different grades of membership, which reflect the level of training and experience of applicants, as well as their commitment to continuing education. Professional grades of membership include Fellow, Associate Fellow, and Member. The Foundation Chair of the FEWM is Professor Marc Shaw, who is Medical Director of Worldwise New Zealand.

The FEWM is also seeking submissions for a themed issue of the Annals of the ACTM on Expedition and Wilderness Medicine and is seeking papers for this issue. Examples of potential areas relevant to the body of knowledge in this field might include:

- Epidemiology of illness and injury on expeditions and in the wilderness
- Tropical and travel medicine
- Environmental medicine
- Diving, hyperbaric and marine medicine
- Retrieval medicine and crisis management
- Hazards of flora and fauna
- Medico-legal aspects of expeditions
- Expedition and wilderness medicine skills and training
- Medical challenges of specific expedition locations and types, e.g. jungle, desert, polar, altitude and special groups

Further information may also be obtained by contacting The Executive Officer, ACTM Secretariat, AMA House, P.O. Box 123, Red Hill, Queensland, 4059, Australia. Telephone: +61-7-3872-2246; Fax: +61-7-3856-4727; Email: acrm@tropmed.org

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2. Leggat PA, Klein M. Professional organisation profile: the Australasian Faculty of Travel Medicine. Travel Med Inf Dis 2004; 2: 47-49.

Corresponding Author

Professor Peter Leggat, AM
AM, College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Qld 4811 Australia
# Medicine Symposium

Friday 9 October, 2015
Robert Douglas Auditorium, The Townsville Hospital

## Program

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<td>Plenary Speaker</td>
<td>Prof Damon Eisen</td>
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<tr>
<td>1:35</td>
<td>A case-control study reveals that polyomaviruria is significantly associated with interstitial cystitis and vesical ulceration.</td>
<td>Prof Damon Eisen</td>
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<tr>
<td>1:50</td>
<td>Tele-monitoring for type 2 diabetes: a randomised, controlled trial</td>
<td>Mrs Robin Warren</td>
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<td>2:05</td>
<td>A study comparing local infiltrative analgesia (LIA) versus regional block following total knee arthroplasty in our local practice</td>
<td>Dr Madelaine Tarrant</td>
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<td>2:10</td>
<td>Association of antenatal risk status with labour, delivery, neonatal and postpartum complications: a retrospective cohort study of rural women birthing in a regional tertiary setting in Queensland, Australia</td>
<td>Dr Maheesha Ridmee Seneviratne</td>
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<td>Cortisol awakening response and its predictive value for transition and treatment response in psychosis: a systematic review and meta-analysis</td>
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<td>Paradise Lost? The burden of neuropsychiatric disorders in the tropics</td>
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<td>Statin-associated necrotizing autoimmune myopathies in the indigenous population: a case series from north Queensland</td>
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<td>Long-term survival after chronic subdural haematoma (CSDH)</td>
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<td>The effect of body weight on serum creatinine and cystatin C measurements in neonates</td>
<td>Dr Donna Rudd</td>
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<td>Geographical access to radiation therapy in north Queensland: a retrospective analysis of patient travel to radiation therapy before and after the opening of an additional radiotherapy facility</td>
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<td>Unlocking the potential of resilience in health care: using resilient thinking to develop and implement an ICU intervention</td>
<td>Dr Paul Lane</td>
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<td>Basic life support (BLS) and the medical student: an exploration study on confidence and competence</td>
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<td>3:30</td>
<td>Evaluation of the Dual Path Platform syphilis point of care test in north Queensland</td>
<td>Ms Linsey Skinner</td>
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<td>Genetic basis of diabetic foot ulcers</td>
<td>Mr Shaurya Jhamb</td>
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<td>3:40</td>
<td>Morphine requirements in recovery after total knee arthroplasty: a study comparing local infiltrative analgesia (LIA) versus regional blocks in our local practice</td>
<td>Dr Mady Tarrant</td>
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<td>An Improved CMRI-based approach for diagnosis of LVNC</td>
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<td>Long-term efficacy of the anterior elevate approach for vault prolapse</td>
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<td>Diabetes: an under recognised contributor to mycobacterial infections in tropical Australia</td>
<td>Ms Tahnee Bridson</td>
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<td>Wideband absorbance associated with otitis media in neonates and children</td>
<td>Dr Sreedevi Aithal</td>
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<td>4:15</td>
<td>MiniArcTM single-incision sling system: 5-year performance</td>
<td>Dr Yung Hsiao</td>
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<td>4:30</td>
<td>Changes in standard clinical laboratory tests in diabetic foot osteomyelitis: a case control study.</td>
<td>Mr Oliver Hayes</td>
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<td>4:45</td>
<td>Management of hyperglycaemic hyperosmolar state: 10 years of experience in a regional tertiary hospital.</td>
<td>Dr Kathryn Berkman</td>
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<td>4:50</td>
<td>Proton pump inhibitors and vitamin B12 deficiency in older adults: a systematic review of clinical studies</td>
<td>Dr Minnie Au</td>
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<td>Sun-protective behaviours of primary school students at swimming carnivals in Townsville</td>
<td>Ms Nicole Bates</td>
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<td>5:00-5:30</td>
<td>Awarding of Symposium Prizes</td>
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<td>Concluding Remarks</td>
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A great many people have contributed to the Medicine Symposium and we would specifically like to thank Yoga Kandasamy and Venkat Vangaveti.
ABSTRACTS

Medicine Symposium

Awareness of surgeons and surgical trainees of online web-based techniques of teaching laparoscopic surgery in north Queensland

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4Mackay Hospital, Mackay Hospital and Health Service, Mackay, Queensland

Background/Aims: Surgical training for generations has followed the example of an apprenticeship model. However, this way of teaching surgical skills does not fit daily practice, and many doctors see this training as not sufficient. Laparoscopic surgery has become a gold standard. Web-based simulation training for teaching laparoscopic surgery is not only becoming increasingly popular but is affordable. We aimed to assess the educational value of web-based training for laparoscopic surgeries. Methods: The study used an exploratory, descriptive design. All general surgeons and surgical trainees who received laparoscopic surgical training using the various techniques of teaching surgical skills at three hospital sites in north Queensland were invited to participate in the online survey. A 25-item questionnaire on knowledge and attitudes of surgeons and registrars in north Queensland was distributed to the surgical departments of three public hospitals in north Queensland. Results: There were 16 respondents: 10 consultants (85.71% response rate) and 6 trainees (14.29%). Most trainees strongly agreed that increasing exposure to online web-based training would increase their skills highly, although satisfaction with current web-based training video resources was found to vary widely for a variety of reasons. Conclusion: Meeting the educational needs of surgeons and trainees in hospital surgical training units is challenging. Surgeons and trainees in academic sectors accept the importance of laparoscopic training, but feel that it is currently not optimal.

Effectiveness of web-based training videos for teaching laparoscopic surgery: a systematic literature review

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Background/Aims: Teaching a surgical trainee is time-consuming and costly in the operating room. The time spent in the operating theatre teaching trainees raises enormous and inappropriate costs if it is the only avenue of teaching. Further, operating room-acquired surgical skills are of variable effectiveness. The objective of this review was to assess how traditional teaching and on-line training can complement each other. We determined if web-based training video (WBTV) learning is equivalent to conventional teaching (standard surgical training, SLT) in improving scores in cognitive surgical skills. Method: Randomized clinical trials addressing this issue were identified from the Cochrane Library trials register, Medline, Embase, Science Citation Index Expanded, grey literature and reference lists and other databases. The selection criteria were inclusive of web-based model randomised clinical trials. Other criteria used were training methods that compared web-based training video versus other forms of training, including standard laparoscopic training (SLT) and supplementary animal models. Clinical trials comparing the different methods of surgical simulations were also included. Results: Thirty RCTs with 831 participants were identified and included in this review. The effectiveness of virtual reality simulation (VR) was most studied; seventeen randomised clinical trial VR studies were selected from the Cochrane trial library database. Only one web-based training video (WBTV) RCT was identified in the Cochrane library trial database. Conclusion: WBTV can complement standard surgical training. This model is at least as effective as other methods in complementing standard laparoscopic training.

Biochemical parameters contributing to amputation amongst the diabetic foot cohort at The Townsville Hospital

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Background/Aims: The diabetic foot (DF) has established itself as a common diabetic complication. DF contributes to a plethora of clinical sequelae including ulceration, foot infection, and Charcot’s arthropathy, with amputation often being the inevitable outcome. In light of the soaring diabetic rates, the burden of the DF is predicted to rise, placing increased financial burdens on healthcare systems. There is currently limited data on the role of biochemical parameters in development of diabetic amputations. In light of this, we evaluated the role of biochemical parameters contributing to amputation amongst DF patients. Methods: A retrospective quantitative analysis was conducted using the AUSLAB software system to obtain biochemical profiles of 129 subjects attending the High Risk Foot Clinic at The Townsville Hospital, 2010-2012, inclusive. Three-yearly averages were obtained and non-parametric analyses were conducted using SPSS software. Results: Out of the total study sample of 129 subjects, 81 were male and 48 female with a M:F ratio of 1.69. The average age of the study cohort was 63.43 ±14.07 years [CI 60.98-65.89]. Average corrected calcium levels were found to be higher amongst the amputee cohort (2.37 mmol/L vs. 2.26 mmol/L respectively; p=0.003). Serum creatinine levels were higher amongst males (155.03 mmol/L vs. 99.25 mmol/L; p=0.003). Other factors tested but that fell short of statistical significance included Hba1c levels (p=0.044) and eGFR levels (p=0.22), amongst others. Conclusions: Our results suggest that compromised renal function plays an important role in the clinical outcome of DF patients, however further studies are required to validate these findings.

Epidemiology and predictors of clinical outcomes of cryptococcosis in north Queensland: the association between delay to diagnosis and treatment outcomes

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Background/Aims: Cryptococcosis is a systemic mycotic disease with high morbidity and mortality. There is also an association with neurological sequelae. Although the demographics, clinical presentation, and associated comorbidities of cryptococcosis have been described, the association between delay to diagnosis and the effect on outcome has not been described locally. The aim of this study is to determine the epidemiology of cryptococcal disease in north Queensland and to analyze the predictors of
clinical outcomes, particularly the effect of delayed diagnosis on treatment outcomes. Methods: A retrospective review of culture or serological confirmed cases of cryptococcosis admitted to The Townsville Hospital (TTH) from 1997 to 2015 was conducted. Logistic regression analysis was performed to identify predictors of poor outcomes. Results: A total of 29 cases of cryptococcosis, were identified. Of these, 27 were culture positive and two were culture negative and confirmed by a cryptococcal serum antigen. The mean age was 56 years (range: 17-80). The majority (22, 75.9%) were immunocompetent. Nine (31%) were Indigenous Australians, and two were culture negative and confirmed by a cryptococcal serum antigen. Sixteen (55.2%) infections were caused by C. neoformans, 10 (34.5%) by C. gattii, and one isolate of Cryptococcus species was not further specified. The in-hospital mortality was 6.9% (2 of 29) and 34.5% (10 of 29) had persistent neurological deficit post-discharge. Conclusion: Young age and increased intracranial pressure (ICP) were significant predictors of neurological deficit. Neurological deficit occurred more frequently when the presentation was delayed for ≥30 days but was not statistically significant.

A case-control study reveals that polyomaviruria is significantly associated with interstitial cystitis and vesical ulceration

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Background/Aims: To investigate whether polyomaviruses contribute to interstitial cystitis pathogenesis. Methods: A prospective study was performed with 50 interstitial cystitis cases compared with 50 age-matched, disease-free controls for the frequency of polyomaviruria. Associations between polyomaviruria and disease characteristics were analysed in cases. Polyomavirus in urine and bladder tissue was detected with species (JC virus vs. BK virus) specific, real-time PCR. Results: Case patients were reflective of interstitial cystitis epidemiology with age range from 26-84 years (median 58) and female predominance (41/50). There was a significant increase in the frequency of polyomavirus shedding between cases and controls (p<0.02). Polyomavirus shedding, in particular BK viruria, was associated with vesical ulceration, a marker of disease severity, among interstitial cystitis cases after adjustment for age and sex (OR 6.8, 95% CI 1.89 - 24.4). There was a significant association among cases between the presence of BK viruria and response to intravesical Clorpactin® therapy (OR 4.50, 95% CI 1.17 - 17.4). Conclusion: The presence of polyomaviruria was found to be associated with the ulcerative form of interstitial cystitis. Clorpactin®, which has anti-DNA virus activity, was more likely to improve symptoms in the presence of BK viruria. These data suggest associations between polyomaviruria and interstitial cystitis warranting further investigation.

Influence of anthropometric and metabolic factors on nerve conduction studies: a systematic review

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Background/Aim: Nerve conduction studies (NCS) are commonly used to investigate peripheral nerve function. Few studies have elucidated the impact of certain metabolic and anthropometric risk factors on nerve conduction outcomes despite continued use in clinical practice. This systematic literature review explores if there is any correlation between anthropometric and metabolic factors on nerve conduction amplitude and velocity. The results will determine whether taking into account these factors will have implications in the interpretation of NCS. Methods: Appropriate search MeSH terms were used to identify suitable studies in the following databases: PubMed, Embase and MEDLINE (from January 1966 to March 2015). A minimum of three studies was needed on a parameter (anthropometric/biochemical) before comparison of results. Results: Nine studies were identified with three studies each investigating the effects of HbA1c, height and BMI on NCS parameters. HbA1c was found to conclusively demonstrate an inverse, linear correlation to velocity in all three studies. When studied as a categorical variable, the cut-off for HbA1c of 7-9% was found to be most statistically significant (p=0.0001-0.03). Height was found to moderately inversely correlate to nerve conduction velocity in two out of three studies (p=0.01-0.05). BMI did not correlate with NCS outcomes at all. Conclusion: NCS outcomes are influenced by glycaemic control and height. The interpretation of NCS must therefore take these factors into consideration with the development of linear models taking into account height and HbA1c. These findings suggest that improved glycaemic control would therefore also improve nerve conduction outcomes.

Geographical access to radiation therapy in north Queensland: a retrospective analysis of patient travel to radiation therapy before and after the opening of an additional radiotherapy facility

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Background/Aims: Access to radiation therapy (RT) underlies optimal care for cancer patients. This study aims to investigate the distance and time taken for prostate and breast cancer patients travelling to RT appointments and the utilisation of RT over a three year period. Methods: Prostate and female breast cancer patients were selected from The Townsville Hospital (TTH) and Radiation Oncology Queensland (ROQ) Cairns, radiation oncology databases between July 1st 2010 and June 30th 2013. Distance from home to RT clinic was mapped with ArcGIS software and distance (km) and travel time in minutes was determined by Google MapTM road directions. Additional analysis included age, gender, Aboriginal and Torres Strait Islander status and cancer site. Results: The number of prostate and breast cancer patients treated by RT in Cairns and Townsville clinics increased by 16% in 2011-2012 and by 15% in 2012-2013. ArcGIS maps illustrate that fewer patients reside outside the 400 km buffer zone from a radiotherapy service. Total median road travel time decreased annually from 201 minutes in 2010-2011 to 66 minutes in 2011-2012 and 56 minutes in 2012-2013 (p<0.0001), corresponding to a decrease in the median distance travelled to RT facility. Conclusion: An additional RT facility in north Queensland led to an increase in patients treated for prostate and breast cancer and on average less travel distance and time to treatment.

An evaluation of factors contributing to the evolving gender gap in obstetrics and gynaecology trainees

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Background/Aims: As of 2013, female obstetrics and gynaecology trainees comprised 78% of the trainee population whilst males made up 22%. Of
the current fellows, 59% are male and 41% are female. Over the past 15 years RANZCOG has been mandated to recruit ~3/4 of their trainees from less than half of medical students. The aim of this study is to identify medical students’ and junior doctors’ perceptions of a future career in obstetrics and gynaecology, in the hope of identifying methods to improve gender equality in trainee numbers. Methods: A cross-sectional study of second and sixth year James Cook University medical students and post-graduate year 2 doctors at The Townsville Hospital was conducted. Demographic and validated questionnaire data from each group was analysed to determine perceptions and influences to pursue a career in obstetrics and gynaecology. Results: In all, 120 women (57%) and 84 men (43%) participated in this study. A variety of factors appeal to medical students and junior doctors including surgical opportunities and clinical variety. Factors which deter all groups from this career include liability concerns and work hours. Clinician encouragement and positive experiences whilst on an obstetrics and gynaecology term are strong predictors of interest. Conclusion: A variety of factors impact career interest in obstetrics and gynaecology and specific areas of significant similarity and difference exist between genders. The core factor in career decision is experience in obstetrics and gynaecology.

Management of hyperglycaemic hyperosmolar state: 10 years of experience in a regional tertiary hospital

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2College of Medicine and Dentistry, James Cook University, Townsville, Queensland

Background/Aims: Hyperglycemic hyperosmolar state (HHS) is a serious condition with a reported mortality of approximately 10-20%. Due to a lack of Australian data, there are no national guidelines available and international guidelines give conflicting advice regarding management. The aim of this study is to examine the current practices in our hospital as a basis for the development of a management protocol. Method: We conducted a retrospective chart audit of patients diagnosed with HHS who were admitted to The Townsville Hospital between 1 July 1999 and 31 January 2015, using hospital diagnosis related codes (DRG). Sixty-two patients were initially identified; 26 met the diagnostic criteria for analysis. The data was analysed using descriptive statistics (SPSS). Results: Preliminary results of the audit suggest a mortality rate of 3.8%, which is significantly lower than previously reported. There was great variability in the accuracy of diagnosis of HHS, with 80% of patients who fit the criteria being correctly diagnosed. However, of the total patients diagnosed with HHS, only 48% met the criteria. Only 11% of patients were admitted to the intensive care unit. Conclusion: This is the first local Australian audit with significantly better outcomes than described in the literature. Further analyses at a state level are required to develop appropriate guidelines to standardise diagnosis and management.

Evaluating the role of third trimester growth ultrasound scan (USS) in predicting small for gestational age (SGA) babies in women with low PAPP-A

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2College of Medicine and Dentistry, James Cook University, Townsville, Queensland
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4Townsville Hospital and Health Service, Townsville, Queensland

Background/Aims: Low levels of maternal serum PAPP-A in the first trimester are associated with small for gestational age (SGA) babies and adverse placentation outcomes. Low PAPP-A is defined as a maternal serum PAPP-A concentration <5th percentile. Systematic identification of subsets of these pregnancies with SGA babies could aid in appropriate intervention decreasing morbidity and mortality. The aim of this study was to determine if all high-risk pregnant women with low PAPP-A should be offered a third trimester growth ultrasound scan. Methods: A retrospective, cohort study was conducted at The Townsville Hospital. We compared results from a chart audit of 40 women with low PAPP-A (<5th percentile) and normal karyotype, who had a third trimester growth USS to those of a control group (n=73) with normal PAPP-A. Results: The birth weight of babies in the study group was 290 grams lighter than those in the control. The gestational age at delivery was one week earlier than in the control group. The third trimester growth USS predicted only one quarter of babies that were born SGA. Conclusion: A low PAPP-A is descriptive of poor early placentation and may result in adverse pregnancy outcomes. Early third trimester growth USS is not predictive of SGA at birth.

Innate immune responses in vitiligo

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Background/Aims: Vitiligo is an acquired autoimmune disease of the skin in which melanocytes are destroyed by CD8+ cytotoxic T-cells, resulting in patches of depigmentation. Vitiligo affects 0.5–1% of the population and two forms of the disease have been recognised: segmental and non-segmental vitiligo. The aim of this study is to identify the relationship between innate immune responses of stressed melanocytes and the activation of an autoimmune response in vitiligo, focusing on the role of damage associated molecular patterns (DAMPs), dysfunctional regulatory T cells and the success rates of various treatments available. Methods: A literature search was conducted on PubMed, MEDLINE and Google Scholar using the terms ‘vitiligo’ AND ‘innate immune response’ & ‘vitiligo’ AND ‘reactive oxidative species’ & ‘vitiligo’ AND ‘adaptive immune response’ for full text articles in English. Results: We identified that upon release of heat shock protein 70i, pro-inflammatory signalling is up-regulated and pattern-associated molecular patterns are stimulated, causing T-cell activation, thus facilitating an adaptive immune response. One study highlighted the effects of reduced expression of FoxP3 can cause functional defects in T regulatory cells, affecting their suppressive activity and potentiating the autoimmune disease. Conclusion: Additional-research on the expression of FoxP3 in T regulatory cells of vitiligo patients must be undertaken to assist in defining the exact immune processes involved in the destruction of melanocytes in vitiligo. Similarly, clinical trials investigating various treatments must be continued so that guidelines preventing the disease progression and achieving repigmentation can be developed.

A study comparing local infiltrative analgesia (LIA) versus regional block following total knee arthroplasty in a local practice

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Background/Aims: Pain after total knee arthroplasty (TKA) is severe and often affects postoperative rehabilitation and hospital discharge. There has been increasing interest in local infiltration analgesia (LIA) to control postoperative pain compared to traditional methods such as regional nerve blocks. Despite promising results, there is limited evidence-base behind the use of LIA. This study aims to compare early analgesic efficacy of LIA with regional nerve blocks. Methods: Patients (n=201) who underwent TKA between February 2011 and November 2014 were included. Two independent clinicians collected data from ORMIS, AARK and APS databases. Patients receiving
LIA versus regional blocks were compared for their analgesia requirements in recovery, calculated as morphine equivalents. Patient controlled analgesia (PCA) use and length of stay (LOS) were also studied. Data was analysed using SPSS 22. **Results:** We collected 4020 data points. Forty-eight (23.9%) patients had regional blocks, 110 (54.7%) patients had LIA, 8 (4%) patients received both regional block and LIA and 35 (17.4%) patients received neither. Of the patients who had regional blocks, 70.8% (n=34) required parenteral analgesia in recovery compared to 42.7% (n=47) who had intraoperative LIA. The median opioid requirements (morphine equivalents) in PACU were 6.8 mg (regional, range 0-27) and 0 mg (LIA, 0-30) (p=0.061). **Conclusion:** LIA may provide superior analgesic effect compared to regional blocks in patients in the early post-operative period. This is a significant finding as effective analgesia is essential for early rehabilitation, associated with shorter LOS and better functional outcomes. Future randomised controlled trials investigating LIA are warranted.

**Cortisol awakening response and its predictive value for transition and treatment response in psychosis: a systematic review and meta-analysis**

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2Comparative Genomics Centre, James Cook University, Townsville, Queensland
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**Background/Aims:** Neuroendocrine abnormalities are frequently observed in patients with schizophrenia and are believed to interact with pathophysiological mechanisms of psychosis. Cortisol awakening response (CAR), the increase in cortisol secretion in response to waking up, is a standardised cortisol readout that shows strong associations with social and environmental risk factors of schizophrenia and with adverse physical health outcomes. Over the last few years an increasing number of studies has reported flattening of the CAR in patients at different stages of psychosis but this data has not been synthesised. **Methods:** We performed a systematic review and meta-analysis of studies reporting CAR in patients with schizophrenia, first episode psychosis or at risk states. A systematic search was performed using MEDLINE, PsychINFO and Embase and hand search of relevant reference lists. We include studies that either directly report CAR, or report awakening and 30 minute post-awakening cortisol levels that allow for calculation of AUCi. **Results:** Patients with schizophrenia show an attenuated CAR compared to healthy controls. Subset meta-analysis showed that CAR alterations are already present in patients with first episode psychosis and individuals at-at-risk states. **Conclusion:** Despite the limited number of studies currently available, there is a clear trend for attenuated CAR in patients at different stages of psychosis. These distinctive alterations of the hypothalamic-pituitary-adrenal axis function appear to be already present in at-risk states. Few studies so far employed longitudinal designs and investigated the predictive value of CAR for transition from at-risk states to first episode and for treatment response.

**Proton pump inhibitors and vitamin B12 deficiency in older adults: a systematic review of clinical studies**

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3Gerontology Services, The Townsville Hospital, Townsville, Queensland

**Background/Aims:** Proton pump inhibitors (PPIs) are commonly prescribed in the clinical setting. Current evidence shows an association between PPI use and fractures, pneumonia and enteric infections, with inconclusive findings on PPI use leading to vitamin B12 deficiency. This is particularly relevant in older adults as the physiological changes that occur with ageing predispose to illness and additional co-morbidities places older adults at greater risk of vitamin B12 deficiency. The aim of this study is to determine whether long term use of PPIs in the older adult population is related to vitamin B12 deficiency. **Methods:** A systematic review was conducted using PubMed, Embase and the Cochrane library from 1988 - 2015. Search terms used included: ‘proton pump inhibitors’, ‘vitamin B12 deficiency’, ‘cobalamin’, ‘clinical studies’, ‘elderly’ and ‘older adults’. **Results:** A total of seven studies were analysed, including one non-randomised controlled trial, one retrospective cohort study, two retrospective case-control studies, one cross-sectional study and two case reports. Four studies found an association between long term PPI use and vitamin B12 deficiency and a retrospective case-control study showed no association. Both case reports showed an association between long term PPI use and vitamin B12 deficiency. One case report demonstrated clinical manifestations of vitamin B12 deficiency. **Conclusion:** Small scale clinical studies suggest that vitamin B12 absorption is impaired in individuals on PPI therapy. This finding is supported by observational studies showing a reduction in vitamin B12 levels associated with long-term PPI therapy in participants over 60 years. It is not known if this association has a significant clinical impact.

**Emerging role of iron oxide nanoparticles in the diagnostic imaging of pancreatic cancer: a systematic review**

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**Background/Aims:** Pancreatic cancer is the fourth most common cause of cancer-associated death worldwide, with a five-year survival rate less than 5%. The poor prognosis is mainly due to late presentation in 80% of patients and its drug resistant nature. Most diagnoses are made using contrast-enhanced computed tomography (CT) or magnetic resonance imaging (MRI), which have a limited sensitivity of 76-86%. Iron oxide nanoparticles are increasingly used in the diagnostic imaging of pancreatic cancer, due their ability to selectively target tumour cells thereby increasing image resolution. The aim of this study is to identify studies investigating the use of iron oxide nanoparticles in the diagnostic imaging of pancreatic cancer. **Methods:** A systematic review was performed using PubMed for records up to 2015. Search terms used included ‘iron oxide nanoparticles’, ‘pancreatic cancer’ and ‘imaging’. **Results:** Sixteen studies were identified evaluating the use of iron oxide nanoparticles in the imaging of pancreatic cancer in vitro and in-vivo animal models. Eight of these studies evaluated the use of superparamagnetic iron oxide nanoparticles (SPION), and showed SPION significantly decrease the T2 and T2* relaxation times of tumour tissue, providing a high sensitivity for MRI. Similar results were seen in eight studies that investigated the use of iron oxide nanoparticles conjugated to other molecules including gelatin, survivin, chemokine-receptor-4, silica-gold, endothelial growth factor receptor, urokinease receptor activator, Clostridium and a sonic-hedgehog target. **Conclusion:** Iron oxide nanoparticles in the form of SPION or conjugates are biocompatible and effective at targeting tumour cells and significantly attenuate MRI signals in T2-weighted images of pancreatic cancers from a range of cell lines.
Effects of therapy on subclinical hyperthyroidism and bone mineral density

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Background/Aims: Subclinical hyperthyroidism is known to increase fracture risk. However, there is limited evidence to determine whether treatment leads to a significant benefit. Bone mineral density is a reliable predictor of fracture risk, whereby for a decrease in bone mineral density of one standard deviation below the age-adjusted mean, the relative risk of a fracture is 1.5 in all sites apart from the hip and spine. The aim of this study is to determine whether treatment of subclinical hyperthyroidism leads to any improvement in bone mineral density.

Methods: A systematic review was performed using PubMed, Cochrane Library and Embase from inception to July 2015 without language restrictions. Search terms used included: ‘subclinical hyperthyroidism’, ‘treatment’, ‘therapy’ and ‘bone mineral density’.

Results: Five studies were identified, including one randomized controlled trial, three intervention studies and one prospective case-control study. Four studies that evaluated elderly patients, postmenopausal women or those who have a multinodular goiter with subclinical hyperthyroidism demonstrated a significant increase in bone mineral density after treatment. Treatment options studied were methimazole, radioactive iodine or thyroidectomy. A small scale randomized controlled trial involving 40 participants showed no benefit in treating pre-menopausal women with subclinical hyperthyroidism.

Conclusion: Small-scale clinical studies show that treatment of subclinical hyperthyroidism improves bone mineral density in postmenopausal women, the elderly and those with a multinodular goiter. However, large-scale randomized controlled trials directly evaluating whether treating subclinical hyperthyroidism reduces fracture risk with stratification for confounding factors are needed to confirm this benefit.

Long term efficacy of the Anterior Elevate® approach for vault prolapse

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2 Mater Health Services North Queensland, Townsville, Queensland
3 The Townsville Hospital, Townsville, Queensland

Background/Aims: The long-term efficacy and subjective cure rate of single-incision vaginal approach (Anterior Elevate®) to treat anterior and apical vault prolapse was studied. This study evaluated symptomatic, functional and subjective quality-of-life outcome four years post-surgery.

Methods: Retrospective, non-randomised study of women with vaginal vault prolapse. Outcome measures include symptomatic relief from, and recurrence of, prolapse, improvement in sexual function, rate of mesh extrusions or surgical revisions, and sequelae of operative complications.

Results: Sixty-one of sixty-three eligible patients with grade 4 cystocele, were assessed at a median follow up of 4.4 years. Overall post-operative anatomical success rate was 95.2%. Of the 79.5% (n=50) patients that reported pre-operative vaginal lump/dragging sensation, 94% (n=47) patients reported a marked improvement in the symptoms of prolapse, 56% (n=28) reported improved sexual function, and 49% (n=23) of procedures resulted in mesh extrusions. Data analysis reported no significant correlation between age and improved outcomes.

Conclusion: Results suggests this single-incision technique results in improved symptomatic and functional outcomes. Subjective cure rates propose the long-term efficacy of the Anterior Elevate system to be promising, with sustained therapeutic benefit for pelvic organ prolapse correction.

Statin-associated necrotizing autoimmune myopathies in the Indigenous population: a case series from north Queensland

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Background/Aims: To describe clinical and histopathological features of statin associated necrotizing autoimmune myopathies (NAM) in Indigenous Australians and increase awareness of this condition amongst treating physicians.

Methods: Cases were collected through the Rheumatology Department at The Townsville Hospital between March 2012 and January 2015. A chart review was performed to obtain retrospective information about each case. We detail patient demographics, presenting features, histopathological findings, autoimmune profile, treatment and outcomes.

Results: 4 Indigenous Australians were identified as having a biopsy-confirmed statin-associated NAM. All patients had been on atorvastatin for at least 2 years and had significant proximal weakness with average CK level on presentation 16,820 U/L. Predisposing factors for myopathy included vitamin D deficiency and diabetes mellitus (all cases), with primary hypothyroidism and liver cirrhosis identified in two other cases. Two individuals were positive for the auto-antibody anti-HMGCR. Histopathological findings included muscle necrosis with varying degrees of membrane attack complex deposition and MHC-1 upregulation. Treatment involved various combination of prednisolone, IVIG, methotrexate and mycophenolate. Recovery was slow but favorable in all cases with an average length of inpatient stay of 54 days. There was a significant delay in diagnosis of 1-3 months in two of the cases.

Conclusion: The statin-associated necrotizing autoimmune myopathies are rare but important disorders with significant morbidity. Given the prevalence of cardiovascular disease in Indigenous Australians, further research is required to promote earlier diagnosis and improved treatment outcomes.

Sun-protective behaviours of primary school students at swimming carnivals in Townsville

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Background/Aims: It is well known that ultraviolet radiation (UVR) is the principal environmental factor for the development of skin cancer. Queensland government primary school students are expected to wear swim-shirts when participating in water-activities but these are not compulsory when competing. Hat and shirt-wearing behaviours of primary school students in Townsville were observed at swimming carnivals. Method: Inter-school swimming carnivals held in March each year from 2009 to 2015 inclusive were observed. Of the 41 schools observed, 66% were Cancer Council Queensland-accredited SunSmart Schools (SSS). Results: Less than a third of all students observed wore a hat and only 77% wore a shirt while not competing. Students attending non-government schools were more than twice as likely to be seen wearing a hat compared to public students, although the proportions for both groups were low at 41% vs 18.2% respectively. The proportion of student spectators wearing a hat and shirt were similar, irrespective of their SunSmart status (hats: SSS 36.3% vs. non-SSS 23.6%; shirts: SSS 77.3% vs. non-SSS 76.2%).

Conclusion: Student spectators at swimming carnivals need encouragement to wear a hat and shirt, particularly since UVR reflected off pool water presents an additional risk factor for over-exposure. SunSmart status was not associated with improved sun-protective behaviours. Voluntary use of swim-shirts may be a significant barrier to the uptake of sun-protection at swimming carnivals, where the risk of sunburn is high. A comprehensive, school community-based sun-protection intervention is being trialled in Townsville schools to improve declining sun-protection practices.
Changes in bone turnover markers in diabetic foot osteomyelitis: a case control study

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Background/Aims: Diabetic foot osteomyelitis, a common complication of diabetic foot ulcers (DFUs), is a destructive and costly condition to treat. Osteomyelitis involves both the resorption and formation of new bone. Bone formation and resorption is known to release bone turnover markers. It is thus theorised that osteomyelitis should raise such serum markers. The aim of the study was to determine whether specific serum bone turnover marker levels [LP (Lysylpyridinoline: bone resorption marker), P1NP (procollagen type 1 N propeptide: bone formation marker)] differed between patients with diabetic foot osteomyelitis and diabetic foot ulcers without osteomyelitis. Methods: Patients with diabetes mellitus with proven diabetic foot osteomyelitis (cases) and DFUs without osteomyelitis (controls) were drawn from The Townsville Hospital wards, High Risk Foot Clinic and Kirwan Podiatry Clinic into a case-control study. Results: Demographic characteristics include a mean age of 64 years, 80.6% male, 22.2% identified as Indigenous, 96.3% non-smokers, 81.5% injecting insulin and 61.5% taking oral hypoglycaemic medications. The LP and P1NP medians were significantly higher in the case group (n=18) than the control group (n=13) (LP median: 9.8, IQR 5.5-11.4 vs. 2.7, IQR 2.9-10.7 mmol/l, p=0.001), (P1NP median: 12.4 vs. 2.2, IQR 2.1-13.0 ng/ml, p=0.002) respectively. Conclusion: This research indicates that serum LP and P1NP were both elevated in the diabetic foot osteomyelitis group. To the authors’ knowledge this is the first significant bone turnover marker elevations in diabetic foot osteomyelitis. Bone turnover markers may provide a non-radiological method of diagnosing osteomyelitis.

MESSAGE FROM THE CHAIR

Townsville Health Symposium 2015

Several changes have been made to the 2015 Townsville Health Research Week. First and foremost is a name change to ‘Townsville Health Symposium’ as a result of consultation with Townsville Hospital and Health Service staff during the planning process. THHS staff advised they supported and encouraged research to improve practice and fill knowledge gaps but they felt the previous title implied academic rather than clinical research. The aim of the week is, and has always been, to showcase the world-class health research being conducted in northern Australia by local researchers and clinicians. The new name will encourage greater participation from clinical staff conducting quality improvement and translation research as well as academics and clinician-researchers.

Another change has been to reduce the size of the organising committee to a core ‘working group’. The working group is comprised of representatives from medicine, nursing and allied health from THHS and JCU as well as our partners, Northern Clinical Training Network (NCTN). The partnership with James Cook University and Festival of Life Sciences remains an important component of the Townsville Health Symposium which will continue to grow as the research capacity at THHS grows, facilitating future collaborations between the two institutions. Due to the reduced committee size, sub-committees have oversight of different components of the planning such as abstracts, social events and evaluation. The format of the committee this year has allowed the planning to proceed over the shorter timeframe from February 2015 due to delays in late 2014.

The Townsville Health Symposium Networking Dinner on Wednesday 7th October is an inaugural event. The recently employed Director of Research/Professor of Medicine, Professor Damon Eisen will provide the keynote address on the evening. This event is designed to foster collaborations between researchers within THHS and also to link THHS and JCU researchers. Many successful research collaborations were born at conference dinners or similar networking events in the past, and we hope to encourage this in the future. Popular social events such as the Trivia Night and C-Bar Breakfast remain on the program to enjoy the lighter side of research.

Finally, I wish to thank the enormous effort contributed by everyone on the organising committee. In particular, I want to thank the managerial, financial, and administrative support provided by NCTN. We have learned many lessons over the years and will continue to evaluate the event with the aim of customising it to the needs of our clinicians and academic partners.

I encourage you to attend the symposia to learn from and support your colleagues.

Dr Tilley Pain
BSc (Biochem), MSc Qual (Physiology), PhD (Cardiac Physiology)
Principal Research Fellow

ACKNOWLEDGEMENTS

We would like to formally acknowledge those who have made contributions to the delivery of this year’s symposium, making it a significant event on the research calendar.

Thank you.

Achamma Joseph  Ian Irving  Stephen Anderson
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Corey Moran  Rene Jaeggi  Theo Emeto
Daryl Brennan  Bob Jones  Tilley Pain
Damon Eisen  Robert Norton  Venkat Vangaveti
David Lindsay  Robin Ray  Venkatesh Aithal
David Porter  Sally Sutherland  Venkatesh Shashidhar
Elizabeth Heyer  Sara Potts  Vian Nsengiyumva
Erik Biros  Sarah Simeoni  Wendy Smyth
Gail Kingston  Smrili Krishna  Yoga Kandasamy

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TOWNSVILLE HEALTH SYMPOSIUM

Networking Dinner 2015

The Townsville Health Symposium organising committee on behalf of Townsville Hospital and Health Service, Northern Clinical Training Network and James Cook University invite you to the 2015 Symposium Networking Dinner. Professor of Medicine and Director of Clinical Research for Townsville Hospital and Health Service, Professor Damon Eisen will provide the inaugural address for the dinner. The dinner is on Wednesday 7 October, 2015 at 6.30pm at the Rydges, Southbank, Townsville. To make a booking go to http://alumni.jcu.edu.au/TsvHealthSympDinner.

Townsville Health Symposium

WORKSHOP PROGRAM FOR 2015

Health Economics Workshop
(Conducted by Australian Centre for Health Service Innovation)

Registration for the Health Economics Workshops is essential as spaces are limited.
Please register at sally.sutherland@health.qld.gov.au

Tuesday 15 September, 2015 - CIMHA Training Room - 9 am to 5 pm
Monday 12 October, 2015 - CIMHA Training Room - 9 am to 5 pm
Tuesday 13 October, 2015 - CIMHA Training Room - 9 am to 5 pm

Time to Turbocharge your Publication Writing
(Maria Gardener)

Registration for the Writing and Research Workshops is essential.
Please register at sally.sutherland@health.qld.gov.au

Thursday 15 October, 2015 - JCU Clinical School Tutorial Room - 9 am to 12 noon

The Research Support Unit at Townsville Hospital and Health Service run a comprehensive workshop program throughout the year. Contact them on TSV-Researchsupportunit@health.qld.gov.au for further information on what workshops are coming up.
INSTRUCTIONS FOR AUTHORS

The format of the Annals of the ACTM will, in general, follow guidelines of the “Uniform requirements for manuscripts submitted to biomedical journals” and published by the International Committee of Medical Journal Editors (http://www.icmje.org/index.html).

The Annals will appear twice a year and will consider for publication, papers on a wide range of topics relating to tropical and travel medicine. All papers will be refereed prior to acceptance for publication. Papers will be included in one of the following categories:

a) Review Articles (5,000-10,000 words)
b) Research Articles (up to 5,000 words)
c) Case Reports (1,000-2,000 words)
d) Research Reports (1,000-2,000 words)
e) Letters (200-500 words)

Figures to be included: 1/4 page size = 250 words; 1/2 page size = 500 words etc. One page with images is approximately 900 words, two pages with image is approximately 1,800 words. Manuscripts should be double spaced and a short summary should be included at the beginning of the paper after the title and author details. Title page with contributor names and addresses should be on a separate page. Each table and figure should be on a separate page together with an appropriate caption, explanatory notes etc. Any acknowledgements should be included at the end of the paper before the references. Where appropriate, authors must confirm in the paper that experimental procedures on humans and animals conformed to accepted international ethical guidelines. References should be numbered consecutively in order of first appearance in the text. For details of references, consult the “Uniform requirements for manuscripts submitted to biomedical journals” available at http://www.icmje.org/index.html.

In the first instance, papers submitted for consideration should be sent to:

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