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Singapore Health & Biomedical Congress (SHBC) 2012

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SG-CIA-01

Predictors of Mortality in Systemic Sclerosis (SSc) in a Singaporean Cohort

AMELIA SANTOSA¹, GG TENG¹, CS TAN², WSF WENG³, ME PNG³, HQ TEO³, PT LEE¹, A LOW³

¹National University Hospital, ²National University of Singapore, ³Singapore General Hospital

Background & Hypothesis

Although prognosis of systemic sclerosis (SSc) has significantly improved, mortality remains high. We describe the causes and predictors of mortality in our patients.

Methods:

From 2008, patients diagnosed with SSc fulfilling the American College of Rheumatology or Very Early Diagnosis of SSc criteria were recruited. Clinical data (demographics, organ involvement and treatment) were collected from 2 rheumatology centers. In-hospital cause-of-death was determined by 2 independent reviewers. Censor date for live patients was set as 1 May 2012 if clinic/prescription activity were present within 6 months, or the last activity date if uncontactable. Person-years were calculated from date of SSc diagnosis to death or 1 May 2012. We examined the association between each variable and survival-time with Cox proportional hazard (PH) regression. *P* value <0.05 was considered statistically significant.

Results:

Of 133 SSc patients, 87% were women, with mean age 46.5 years (SD15.4) at diagnosis and mean follow-up 7.2 years (SD8.1). Fifty-six percent and 44% had limited- and diffuse-SSc respectively; 28% had overlap syndromes. Sixteen (12%) deaths occurred over 959.7person-years. Majority of deaths were SSc-related (5 interstitial lung disease (ILD), 2 renal crisis, 2 pulmonary arterial hypertension (PAH)). Regression analysis showed: age at diagnosis (HR1.08, 95%CI, 1.03 to 1.12), renal crisis (HR14.35, 95% CI, 3.11 to 66.19), baseline renal impairment (HR5.22, 95%CI, 1.66 to 16.43), NYHA class \geq II (HR4.17, 95%CI, 1.16 to 15), poor right-heart function (HR5.38, 95%CI, 1.2 to 24.18) and FVC<60%predicted (HR4.96, 95%CI, 1.25 to 19.72) increased mortality risk. Limited-SSc (HR0.25, 95%CI, 0.07 to 0.89), higher DLCO (HR0.92, 95%CI, 0.86 to 0.99) and increased LVEF (HR0.94, 95%CI, 0.91 to 0.99) conferred better survival.

Discussion & Conclusion:

In our cohort, ILD, PAH and renal crisis are major causes of mortality. Older age at diagnosis, renal involvement, right-heart dysfunction, decreased FVC and diffuse-SSc conferred higher mortality risk.

SG-CIA-02

A Comparison Between Novice and Trained Personnel When Using the Macintosh Laryngoscope, the Pentax AWS, the C-MAC and the Bonfils Intubation Fiberscope: A Manikin Study

EDWIN SEET¹, KF KOH¹, CMLIAW¹, ST LYE¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Indirect laryngoscopes improve laryngeal view and increase intubation success. Few studies have compared between different indirect laryngoscopes versus conventional Macintosh laryngoscope; and between anaesthetists with varying experience. We hypothesised that time required for intubation, overall success, and ease of intubation were more favourable for indirect laryngoscopes than the Macintosh laryngoscope, and novices may have higher success and intubate faster using indirect laryngoscopes.

Methods:

This cross-sectional observational study was funded by a peer-reviewed enabling grant. Thirteen novice trainee doctors and 13 skilled anaesthetists consented. Participants intubated the manikin with all devices for both normal and difficult airway scenarios. The time taken for intubation, success rate, and subjective ease of intubation were analysed, making comparisons between skilled and novice anaesthetists, and between the 4 airway devices.

Results:

Skilled anaesthetists intubated faster than novices with the Pentax AWS® in the difficult airway scenario (22s vs 33s, $P = 0.047$). The mean intubation times for C-MAC™ and Pentax AWS® were faster than for Macintosh laryngoscope and Bonfils intubation fiberscope in both the difficult (24s, 28s vs 80s, 61s respectively, $P < 0.001$) and normal (17s, 19s vs 39s, 38s respectively, $P = 0.002$) airway scenarios. The ease of intubation was more favourable for all 3 indirect laryngoscopes than the Macintosh laryngoscope ($P < 0.001$).

Discussion & Conclusion:

Both C-MAC™ and Pentax AWS® achieved faster intubation times compared to Macintosh laryngoscope and Bonfils intubation fiberscope for both airway scenarios. Skilled anaesthetists were 33% faster than novices when intubating a difficult airway with the Pentax AWS®. Indirect laryngoscopes were easier to use than Macintosh laryngoscope.

SG-CIA-03

Epidemiologic Data of Human Papilloma Virus (HPV) Positivity in an Asian Cohort of Head and Neck Squamous Cell Carcinoma (HNSCC)

CMLIM¹, FG YU², BC GOH², F BERGT², KS LOH²

¹National University Hospital, ²National University Health System

Background & Hypothesis:

The aim of this study is to evaluate the epidemiologic data of HPV positivity in an Asian cohort of head and head and neck squamous cell carcinoma (HNSCC).

Methods:

Retrospective charts review of all patients with HNSCC were conducted over a 5-year period. Archived paraffin tissue blocks of these tumours were retrieved from the tumour bank and analysed for a panel of 40 HPV strains using fluorescence in-situ hybridization (FISH) technique (Qiagen, Valencia) and immunohistochemistry (IHC) for p16.

Results:

One hundred and fifteen tumour samples contained adequate DNA for analysis. High-risk oncogenic HPV 16 were detected in 17.4% (4/23) OPSCC and 0.3 % (1/38) laryngeal cancer. Of interest, HPV 31, 45, 56 and 68 were identified in 65.2%, 78.2%, 26.1% and 30.4% of OPSCC respectively. Using p16 IHC assays, 43.4% (10/23) were identified in OPSCC but none in the other head and neck subsites. P16 positive OPSCC were more commonly found among patients who were younger ($P < 0.05$), females and non-smokers compared to p16 negative OPSCC. No patients with p16 positive OPSCC recurred (mean follow-up of 36.3 months), compared to 15.4% (2/13) of patients with p16 negative OPSCC (mean follow-up 24.7 months).

Discussion & Conclusion:

High risk HPV 16 and p16 were detected predominantly in OPSCC in our Asian cohort of HNSCC patients. Interestingly, other HPV strains (16, 31, 45, 56 and 68) were also identified in OPSCC which merits further investigations. P16 positive OPSCC patients were more likely to be younger females and have better loco-regional control compared to p16 negative OPSCC.

SG-CIA-04

Epidemiology of Candida Glabrata Fungemia and Implications for Intensive Care Units (ICUs)

L LI¹, PL LAI¹, D SIM², YY TAN², J TAN¹

¹Tan Tock Seng Hospital, ²National University of Singapore

Background & Hypothesis:

Local surveillance of Candida blood isolates indicate a shift towards Candida non-albicans species. Locally, little published data exist on the epidemiology of *Candida glabrata* fungaemia. We explore and highlight salient features associated with this infection.

Methods:

A retrospective chart review was conducted of all candidaemias from 2006 to 2011 at Tan Tock Seng Hospital to determine prevalence of *Candida glabrata*, anti-fungal susceptibility, impact of anti-fungal use and outcomes for the critically ill.

Results:

Three hundred and thirty-five patients had candidaemia, of which 77 (23%) was due to *C. glabrata*. Hospital-wide incidence was 0.06 per 1000 patient-bed days; in intensive care units (ICUs), it was 0.29 per 1000 patient-bed days. Median age was 69 years; Charlson's comorbidity score 5. Notable observations include surgery in 36% of patients, cancer 37%, prior yeast colonization 36%, urinary catheters 74% and broad-spectrum antibiotic use 58%. Median onset of candidaemia was 10 days from admission, with median time from onset to antifungal therapy of 5 days. Intensive Care Unit (ICU) patients comprised 42%; median APACHE-II score 22 at time of candidaemia. Eighty percent had fluconazole susceptible isolates, yet only 19% had fluconazole monotherapy. Overall, only 68% received anti-fungals, of which 15% had them empirically. Median ICU and hospital length of stay was 11 days and 32 days; 30-day mortality for ICU and non-ICU patients was 56% and 40%, respectively.

Discussion & Conclusion:

This is the largest case series of *Candida glabrata* fungaemia described in Singapore. Delayed or absent initiation of antifungals is concerning particularly for ICUs, given their higher incidence and 30-day mortality.

SG-CIA-05

The Role of Sentinel Lymph Node Biopsy in Breast Ductal Carcinoma-in-situ

JOSEPH ZW LO¹, EY TAN², P CHAN²

¹National Healthcare Group HQ, ²Tan Tock Seng Hospital

Background & Hypothesis:

There is no consensus as to whether sentinel lymph node biopsy (SLNB) should be performed based on a preoperative diagnosis of ductal carcinoma-in-situ (DCIS). While SLN involvement is uncommon, a proportion of tumours contain invasive foci not present on biopsy. In this study, we evaluate the outcome of SLNB in patients with a preoperative diagnosis of DCIS and aim to identify those who will benefit from it.

Methods:

Retrospective review was performed on 294 patients with a preoperative diagnosis of DCIS from 1 January 2001 to 31 December 2008. SLNB was performed in all cases where a mastectomy was performed. In cases of wide local excision, SLN was performed in cases deemed likely to have invasive disease, according to surgeon preference.

Results:

Of 294 patients, 128 underwent SLNB. Five patients were found to have metastases in the SLN. Invasive disease was found on histological analysis of the surgical specimen in all 5 patients. We proceeded to evaluate factors that predicted for an upgrade of DCIS to invasive carcinoma. The presence of a mass on mammogram, suspicion of microinvasive foci on core biopsy and oestrogen receptor (ER) negativity were found to be significant on multivariate analysis.

Discussion & Conclusion:

In all cases where the SLN was positive, a final diagnosis of invasive disease was made. This suggests that SLNB should be considered in DCIS tumours which have a mass on mammogram, possible microinvasive foci on core biopsy and which are ER-negative since such tumours are likely to be upgraded to invasive carcinoma.

SG-AH-01

Brief Assessment of Cognition in Schizophrenia: Normative Data in an English Speaking Ethnic Chinese Sample

GK ENG¹, M LAM¹, YL BONG¹, M SUBRAMANIAM¹, D BAUTISTA³, A RAPISARDA¹, M KRAUS², J LEE¹, SL COLLINSON⁴, SN CHONG¹

¹*Institute of Mental Health*, ²*Duke University Medical Centre, Durham, North Carolina, USA*, ³*Duke-National University of Singapore Graduate Medical School*, ⁴*National University of Singapore*

Background & Hypothesis:

Cognitive deficits are highly prevalent in patients with schizophrenia. Accurate measurements of cognitive deficits are important, but normative data for neuropsychological tests that assess cognitive deficits in non-Western samples are limited. This study aims to establish normative data for English-speaking Chinese on the widely used Brief Assessment of Cognition in Schizophrenia (BACS).

Methods:

Participants were English-speaking Chinese aged 14 to 55, enrolled as healthy controls in the 'Singapore Translational and Clinical Research in Psychosis' programme. Trained research psychologists administered BACS on 931 participants. BACS consists of a battery of tests and was designed to measure cognition (verbal-memory, working-memory, verbal-fluency, motor-speed, attention and executive-functioning) in schizophrenia. Linear-regression was employed to generate continuous norms adjusted for age, gender and education. We also compared our normative data to a Western-sample.

Results:

Computational algorithms were created to calculate test performances using our normative data. Comparisons with a Western-sample revealed significant differences. The Western-sample demonstrated better performance than the ethnic-Chinese in language-related tasks, while the converse was true for non-language tasks, such as symbol-coding.

Discussion & Conclusion:

Our findings suggest that it is inappropriate for Chinese samples to use norms derived from Western individuals in interpreting cognitive performances, due to influences of culture and language on neuropsychological performances. Normative data established in the current study is the first of its kind in Asia, and demonstrates cultural-linguistic differences between Western and Chinese samples. Normative data established in the current study can potentially bolster clinical and research efforts, and serves as a reference for accurate interpretation of cognitive performance in English-speaking Chinese.

SG-AH-02

The Use of Exclusive Enteral Feeding as Primary Therapy for Crohns Disease in Singaporean Children and Adolescents

FY ONG¹, MA GARCIA¹, SH QUAK¹, MYH AW¹

¹*National University Hospital*

Background & Hypothesis:

Exclusive enteral feeding has been found to be effective in children with Crohns Disease (CD). Modulen is a polymeric feed from Nestle that has been shown to be effective in Western countries. Its effectiveness in our population is less well known.

Methods:

Drug therapy, growth, biochemistry and outcomes of children with CD managed with exclusive Modulen feeds were reviewed from 2010 to 2011. Weight change and Pediatric Crohn's Disease Activity Index (PCDAI) score were primary outcomes measured.

Results:

Eight children aged 5 to 16 years old with CD were offered Modulen orally as primary therapy. Seven were newly diagnosed. One child refused Modulen and was excluded in analysis. Four children completed 8 weeks of exclusive Modulen feeding with a mean weight gain of 8.2 ± 3.0 kg. Mean PCDAI score reduced from 58.3 ± 10.4 to 15.0 ± 2.5 in 3 of them. The fourth child had inadequate information for PCDAI but showed improvements in extra-intestinal manifestations at 8 weeks. Three other children completed 5 weeks of exclusive Modulen with mean weight gain of 3.0 ± 1.3 kg. PCDAI score reduced from 42.5 to 25.0 for one child. The other 2 children had inadequate information for PCDAI but showed improvements in extra-intestinal manifestations. All children met caloric requirements and either had a reduction or maintenance of drug therapy. No adverse side effects were reported.

Discussion & Conclusion:

Preliminary data suggests that exclusive feeding with Modulen for 8 weeks in CD seemed to produce favourable outcomes. A randomised controlled trial using a larger sample and longer follow-up would be beneficial. Exclusive Modulen feeding was acceptable for most subjects.

SG-AH-03

Depressive Symptoms in Singaporean Primary Care Patients: Do They Differ Based on Age, Gender, or Ethnicity?

SHARON SUNG¹, CL HALEY³, CCH LOW², DSS FUNG¹

¹*Institute of Mental Health, ²Peace Family Clinic, ³University of Texas Southwestern Medical Center*

Background & Hypothesis:

Approximately 20% of patients in primary care present with clinically significant depressive symptoms, but symptom profiles may differ based on demographic characteristics. The present study examined age, gender, and ethnic differences in mean scores on items from 2 common depression screening instruments in a sample of Singaporean primary care patients.

Methods:

We enrolled a total sample of 400 patients presenting at a primary care clinic for medical consultation, age 21 to 65, of normal intelligence, who could read and understand English. After completing informed consent procedures, participants filled out a demographic data form, the 9-item Patient Health Questionnaire (PHQ-9), and the 16-item Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR).

Results:

On the PHQ-9, younger adults (aged 21 to 35) scored higher on anhedonia, appetite disturbance, worthlessness, and trouble concentrating. Malay participants scored higher on fatigue/loss of energy and trouble concentrating. On the QIDS-SR, younger adults scored higher on difficulty falling asleep, feeling sad, decreased weight, trouble concentrating, and negative views of self. Older adults (aged 36 to 65) scored higher for difficulty sleeping during the night. Malay participants scored higher on feeling slowed down. Chinese participants scored higher for sleeping too much. Women scored higher on feeling sad.

Discussion & Conclusion:

Younger adults appear to be at greater risk for depressive symptoms such as anhedonia, depressed mood, sleep/appetite disturbance, negative views of oneself, low energy, and concentration difficulties. However, it is also possible that a higher level of symptom endorsement by younger people reflects a greater willingness to disclose such symptoms relative to older adults.

SG-NA-01

Confirming the Nasogastric Tube Placement: Crossing the X-ray Chasm

FC WEE¹, SL TAN¹, WG KHIN-LIN¹, IHL NG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

A chest radiograph may be used to verify the position of a feeding tube when the pH test fails. A new algorithm was introduced in October 2011 to systematically screen for unsafe feeding tube placement before requesting radiograph. It incorporated enhanced pH testing and chest radiographs. The 'order-by-protocol' in December 2011 empowered the nurses to request a radiograph. We hypothesise that these measures will minimise the demand for chest radiograph in these patients.

Methods:

We reviewed all reports for radiographs performed between 27 December 2011 and 15 March 2012 related to tube feeding. The time of examination, source of request and the radiologists' findings were collated and analysed using Excel 2003.

Results:

There were 1245 radiographs performed over 2.5 months in 527 patients. About 65% of the radiographs were requested by the nurses under 'order-by-protocol'. The maximum number of radiographs ordered per day is 25, which is a small fraction of tube-feeding patients (14%) in the hospital. Half of the patients had 1 radiograph during hospitalisation; 1.5% had at least 10 radiographs in the same admission (range 1 to 20). The data also showed that patients had 2 radiographs on the same day on 123 occasions; 3 radiographs on 19 occasions. About 21% of tube positions were not safe for feeding with 6 cases of placement in the lungs.

Discussion & Conclusion:

The new algorithm benefited some patients who avoided multiple radiographs. The 'order-by-protocol' facilitates the nurses in situations needing frequent x-rays. Developing a simple and smarter technology to verify the tube position is a high priority.

SG-NA-02

Clinical Application of the Broset Violence Checklist to Predict Inpatient Violence in a Tertiary Psychiatric Hospital in Singapore: A Preliminary Study

R MAO¹, ABA HAMED¹, AS GOH¹, DW WEN¹

¹*Institute of Mental Health*

Background & Hypothesis:

As a common phenomenon, nurses in such settings are predisposed to a higher risk of violence. Timely and accurate prediction of violence may reduce violent incidences and possible consequences. The Broset Violence Checklist (BVC) has been proven to be sensitive in predicting short-term violence in Europe. No similar study has been conducted in Asia. This study aimed to test the sensitivity, specificity and reliability of the Broset Violence Checklist (BVC) in predicting short-term violence among institutionalised acute adult psychiatric patients.

Methods:

This study used a longitudinal prospective design. A convenience sample of 44 in-patients (32 male and 12 female) was recruited from 2 randomly-selected acute adult psychiatric wards. Participants were assessed 2 hours after admission and twice daily over the first 3 days of hospitalisation using the BVC. All violent incidents were rated using the Staff Observation Aggression Scale revised version (SOAS-R). Receiver Operating Characteristic (ROC) and Intraclass Correlation (ICC) were used to analyse the data.

Results:

The BVC yielded a sensitivity and specificity of 75% and 100%, respectively, with good IRR (ICC >0.80) during a 24-hour period. Area Under Curve (AUC) reported a score of 0.974 ($P < 0.001$) in ROC test. This study yielded good results including sensitivity (75%), specificity (100%) and IRR (ICC >0.80).

Discussion & Conclusion:

Preliminary findings reported strong sensitivity, specificity and reliability of the BVC in predicting short-term violence among acute adult psychiatric patients locally. This study will be conducted on a larger sample size to enhance the generalizability of the findings and to guide the development of a comprehensive violence-prevention model.

SG-NA-03

The Effect of Illness Self-Management and Recovery Program in Reducing Symptoms and Increasing Social Functioning of the People with Mental Illness in the Community: A Preliminary Study

RB ISHAK¹, SCH TAN², K KAUR², TM YEO², M PALANIAPPAN², JJY LEONG²

¹National Healthcare Group HQ, ²Institute of Mental Health

Background & Hypothesis:

Frequent readmissions and the inability to integrate back to our society remains a challenge for the mentally ill. The use of motivational interviewing in the Illness Self-Management Recovery (ISMR) programme has been found to be effective in motivating patients to achieve their recovery goals. It is hypothesised that they will have reduced symptoms and hospitalisation rates and increased social functioning.

Methods:

An experimental quantitative design using structured questionnaires consisted of: demographic, ISMR scale, BPRS scale, and GAS Scale. Fifty subjects who met the criteria and consented to the study were selected from the Community Psychiatric Team. Within each of the “current” and “new referrals” categories, these subjects were randomly assigned to a control (n = 25) and experimental group (n = 25). One way ANOVA was used for statistical differences between the means of the 2 groups within each category and between current case loads and new referrals were employed.

Results:

Both experimental groups have lower mean scores for readmission (current cases): (M = 0.30, SD = 0.467), readmission (new referrals): (M = 3.97, SD = 1.38) as compared to the control groups. The mean scores for functioning level were higher in the experimental groups as compared to the control groups: functioning level (current cases): (M = 3.64, SD = 1.617), functioning level (new referrals): (M = 1.575, SD = 1.575).

Discussion & Conclusion:

Relevance to clinical practice as the programme motivates patients, allows for communication of views and utilises coping strategies. Outcomes will serve as evidence and direction for the implementation of the ISMR program within the hospital and community.

YIA-BSTR-01

Small Hairpin RNA Targeting Chikungunya Virus E1 Gene Effectively Inhibits Virus Replication in Cells and Mice: A Novel Antiviral Strategy

SHIRLEY LAM¹, JJH CHU¹, MML NG¹, KC CHEN¹

¹*National University Hospital*

Background & Hypothesis:

Chikungunya virus (CHIKV) is a re-emerging alphavirus that causes CHIKV fever and persistent arthralgia in human. Currently, there is no effective vaccine and antiviral for CHIKV infection. Hence, this study evaluates if RNA interference which targets at viral genomic level may be a novel antiviral strategy to inhibit the medically important CHIKV infection.

Methods:

Small hairpin RNA (shRNA) designed against CHIKV viral genome were transfected into HeLa cells and stable cell lines were established. The anti-CHIKV efficacy of shRNA in CHIKV-infected cell clones was determined by viral plaque assay, Western blot and transmission electron microscopy analysis. In vivo studies on suckling mice were performed to evaluate the efficacy of shRNA against CHIKV replication.

Results:

For cell clones expressing shRNAs against CHIKV E1 and nsP1 genes, there was significant inhibition of infectious CHIKV production as compared to scrambled shRNA cells or wildtype CHIKV-infected cells. Additionally, shRNA E1 showed non cell-type specific antiviral effect against CHIKV replication and broad-spectrum silencing against different geographical strains of CHIKV. Furthermore, shRNA E1 had no inhibition against Dengue virus and Sindbis virus replication. This indicates the high specificity of shRNA against CHIKV replication. Moreover, shRNA-resistant CHIKV mutants were not generated after 50 passages of CHIKV in stable cell clones. More importantly, strong and sustained anti-CHIKV protection was also conferred in suckling mice pre-treated with shRNA E1.

Discussion & Conclusion:

Taken together, these data suggest the promising efficacy of anti-CHIKV shRNAs, in particular, plasmid-shRNA E1 expression, as a novel antiviral strategy against CHIKV infection.

YIA-BSTR-02

A Novel DANP Coupled Hairpin Diagnostic RT-PCR for Rapid and Specific Detection of Chikungunya Virus

JUSTIN JH CHU¹, HX CHEN², F TAKEI³, K NAKATANI³

¹National University Hospital, ²National University of Singapore, ³Osaka University

Background & Hypothesis:

Chikungunya virus (CHIKV) belongs to the Alphavirus genus of the Togaviridae family. The CHIKV produces an illness in humans that is often characterised by sudden onset of fever, myalgia and severe arthralgia.

Methods:

We have developed a novel diagnostic platform that ensure rapid and cost effective one-step RT-PCR assay with high sensitivity and specificity for the early detection of Chikungunya virus (CHIKV), with clinical sample validation. It utilises 2,7-diamino-1,8-naphthyridine (DANP) labelled cytosine-bulge hairpin primers to amplify nsP2 region of CHIKV genome followed by measuring the fluorescence emitted from DANP-primer complexes after the PCR. The clinical sensitivity and specificity of the method was validated using CHIKV patient samples and serums from a panel of healthy individuals collected during the CHIKV outbreak in Singapore.

Results:

The detection limit of our assay was determined to be 0.01 PFU/mL. It was also proved that the HP-nsP2 primer was highly specific in detection of CHIKV having no cross reactivity with other viruses tested in this study. The feasibility of our DANP coupled Hairpin RT-PCR for clinical diagnosis was evaluated using clinical serum samples and the specificity and sensitivity was found to be 100% and 95.5%, respectively.

Discussion & Conclusion:

In conclusion, the novel DANP coupled Hairpin RT-PCR technology reported herein is a simple, rapid and cost effective detection method for CHIKV. Our results from patient samples indicated high clinical sensitivity and specificity of this method, and that this method can be a useful tool for rapid detection of CHIKV during outbreaks in many parts of the world.

YIA-BSTR-03

Impact of Maternal Body Mass Index on the Retinal Microvasculature in Pregnancy

LJ LI¹, SM SAW², YS CHONG², TY WONG³

¹National University Hospital, ²National University of Singapore, ³Singapore National Eye Centre

Background & Hypothesis:

Obesity increases the risk of maternal morbidity during pregnancy, including gestational hypertension, gestational diabetes and pre-eclampsia, possibly via its impact on the microcirculation. We estimated the impacts of maternal body mass index (BMI) and pregnancy weight gain on the retinal microvasculature among pregnant women.

Methods:

A total of 814 pregnant women aged 18 to 46 years were enrolled in the Growing Up in Singapore Towards Healthy Outcome (GUSTO) cohort study. Recalled pre-pregnancy weight was recorded and maternal anthropometric measurements of weight and height were performed at 26 weeks gestation, together with retinal photography.

Results:

In multiple linear regression models, each SD increase of 26-week pregnancy BMI (4.57 kg/m²) was associated with narrower retinal arteriolar caliber (by 1.58 μm, *P* <0.001), wider venular caliber (by 1.28 μm, *P* = 0.02) and increased retinal venular tortuosity (*P* = 0.01). Compared with mothers with normal weight, obese mothers (pre-pregnancy BMI >30.0 kg/m²) had narrower retinal arteriolar caliber (118.81 vs. 123.38 μm, *P* <0.001), wider retinal venular caliber (175.81 vs 173.01 μm; *P* <0.01) and increased retinal venular tortuosity (129.92 vs 121.49 ×10⁻⁶; *P* <0.01). Pregnant women whose BMI-specific weight gain from pre-pregnancy to 26 weeks gestation above Institute of Medicine recommendations had narrower retinal arteriolar caliber (120.68 μm) than women with ideal (121.91 μm) and less than ideal weight gain (123.17), respectively (*P* trend = 0.05).

Discussion & Conclusion:

These data indicate that greater pre-pregnancy BMI and pregnancy BMI are associated with adverse retinal microvascular measures, suggesting that maternal obesity has an impact on her microcirculation.

YIA-CR-01

A Survey of Postoperative Nausea and Vomiting in the Local Population: Prevalence, Risk Factors, Validation of APFEL Score and Management

RUTH QY LEE¹

¹*National University of Singapore*

Background & Hypothesis:

Postoperative nausea and vomiting (PONV) is one of the commonest adverse event encountered following anaesthesia and can result in significant distress which decreases overall patient satisfaction. The objective of this epidemiological study was to obtain local representative numerical estimates of current incidence of PONV and the need for anti-emetic medication and compare them with the incidence reported overseas. Another aim was to identify and compare risk factors of PONV with those from overseas, as well as to validate APFEL score which is currently used internationally to predict PONV.

Methods:

This prospective survey collected data from 500 in-patients aged 12 to 90 years over a 2-month period, and had received general anaesthesia and/ or regional anaesthesia. PONV is defined as nausea or vomiting within 24 hours of surgery. Risk ratios were used to determine the association of independent fixed patient factors with the incidence of PONV. APFEL score was also prospectively validated to predict PONV locally.

Results:

The incidence of nausea and vomiting were 35% and 29% respectively; severe nausea was experienced by 5%, while 7% had 4 or more episodes of vomiting. The most important predictive factors associated with an increased risk of PONV were female gender, non-smoking, and general anaesthesia. There was good predictive accuracy between the actual incidences of PONV and those predicted by APFEL score.

Discussion & Conclusion:

We were able to enhance our awareness of PONV, and this raised the possibility of using APFEL score routinely to identify patients at high risk of PONV preoperatively so that anti-emetics could be given prophylactically to this group of patients.

YIA-CR-02

Inappropriate Use of Proton Pump Inhibitor

CHRISTOPHER CHIA¹, **WP LIM**¹, **GSR HOO**¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

There are growing concerns that the use of proton pump inhibitors (PPI) may be inappropriate in many instances and do not conform to evidence based indications. The purpose of this point prevalence study was to investigate the frequency, indications and appropriateness of PPI use in hospitalised patients on a randomly chosen day.

Methods:

The total number of in-patients on a particular day was 1025. The numerator was the number of in-patients on any form of PPI on the same day (477). The indications for maintaining the patients on PPI were obtained from the electronic medical records. The list of accepted indications for PPI use was adapted from the Food and Drug Administration (FDA) approved list and these were cross-referenced with the indications documented from the medical records.

Results:

Of the in-patients chosen on the study date, 46.5% were using PPI. Out of the 477 patients on PPI, 45.9% (219) fulfilled criteria for FDA approved indications. The remaining 54.1% (258) were either not indicated based strictly on the FDA guidelines (43.2% [208]) or had borderline indications (10.9% [52]).

Discussion & Conclusion:

Less than half of the total PPI usage amongst hospitalised patients have evidence-based indications to support their use. Overuse of PPI has a negative impact on health care cost and may lead to certain adverse effects. Steps to curb inappropriate PPI use should address a few factors including indications to initiate PPI, reassessing need for on-going use while in hospital or upon discharging patients and upon out-patient reviews.

YIA-CR-03

The Use of the Facial Clinimetric Evaluation Scale as a Patient-Based Grading System in Bell's Palsy

JIA HUI NG¹, RYS NGO¹

¹*National University Hospital*

Background & Hypothesis:

The severity of Bell's facial palsy is monitored through physician-graded instruments, like the House Brackmann or Sunnybrook Facial Grading System (FGS). These instruments primarily measure the degree of facial muscle impairment and its resulting asymmetry, but neglect the other functional aspects of facial disability. The aim of this study is therefore to compare the FGS with a patient-graded quality of life (QOL) instrument, Facial Clinimetric Evaluation Scale (FaCE).

Methods:

This is a prospective longitudinal study. Twenty-one patients with newly diagnosed Bell's were recruited. All patients received standard treatment with a corticosteroid. They were scored with the FGS at every visit, and they also completed the FaCE at baseline and when they recovered from their palsy.

Results:

At presentation, there was a positive correlation between the FGS score and the total FaCE score ($\rho = 0.63$, $P = 0.002$). However, when individual domains of the FaCE score was analysed separately, the domains of facial comfort and lacrimal score did not have significant correlation with the FGS. Similarly, at the end of follow-up, the amount of improvement in FGS and the amount of improvement in the FaCE domains of facial comfort, lacrimal control, and social function showed insignificant and low correlation ($P < 0.05$).

Discussion & Conclusion:

This is the first longitudinal study comparing scores on the FGS and FaCE in patients with Bell's palsy. Our findings suggest that without patient-based QOL assessments such as the FaCE, certain functional aspects of facial disability may be overlooked by physician-graded instruments, which focuses on facial aesthetics.

YIA-QHSR-01

Prevalence of Cognitive Impairment in Older Adults Admitted to Two Acute Medical Wards

YUIN CHENG CHIN¹, RA MERCHANT², CH TAN², YK TAY²

¹National University of Singapore, ²National University Hospital

Background & Hypothesis:

Delirium is associated with significant morbidity and mortality yet under diagnosed in acute medical wards. The aim of this study is to determine the prevalence of cognitive impairment and case notes documentation for older adults admitted to acute medical wards.

Methods:

We administered Mini Mental State Examination (MMSE) and Clock Drawing Test (CDT) to 58 older adults admitted to the 2 acute medical wards on admission and discharge. The initial cut off for MMSE scores was adjusted based on age and education level. The case notes and discharge summaries were reviewed for documentation of dementia and/or delirium for older adults with abnormal MMSE on admission.

Results:

We collated MMSE scores and CDT scores from 58 patients (age range, 60 to 94 years; mean age = 76; education: 0 to 18 years). On admission, 27/58 patients (47%) had MMSE scores within the normal range while 31/58 patients (53%) had impaired MMSE scores that indicated some forms of cognitive impairment. On discharge, 9/27 (33%) of the patients from the normal MMSE score group and 18/31 (58%) of the patients from the cognitively impaired group had an improvement of at least 2 points on their MMSE scores. Only 13/58 patients (22%) had case sheet documentation of dementia, delirium or cognitive impairment.

Discussion & Conclusion:

A total of 47% (27/58) older adults had ≥ 2 points improvement at discharge, indicating a possibility that they had underlying delirium with no documentation in the notes or discharge summary. Baseline cognition screening should be performed in every older adult patient admitted to hospital.

YIA-QHSR-02

Effectiveness of a Palliative Care Programme in Reducing Hospital Admissions for Nursing Home Residents

GOVINDA RAJANUSHA¹, CWL NG¹, KWS TEO¹, IYO LEONG²

¹National Healthcare Group HQ, ²Tan Tock Seng Hospital

Background & Hypothesis:

Repeated hospitalisations are common in nursing home (NH) residents at the end of life. Studies indicate that palliative care can reduce hospitalisation and thereby improve quality of life. In 2009, palliative care was initiated in 7 NHs for residents with a prognosis of 1 year or less. The aim of this study was to evaluate the effectiveness of the palliative care programme in reducing hospital admissions and cumulative length of hospital stay.

Methods:

NH residents receiving palliative care were compared to a historical cohort of residents on routine care. Outcomes included hospitalisation (yes/no), number of hospitalisations and cumulative length of stay in the 1 and 3 months before death. Multivariate logistic and poisson regression analyses were conducted adjusting for differences in resident characteristics.

Results:

There were 96 and 242 residents on palliative and routine care respectively. Significant differences were found in the duration of observation (start of study to date of death), nursing needs and number of comorbid conditions. In comparison to residents with palliative care, residents with routine care had 3.4 to 4.6 times higher odds of being hospitalised. The expected number of hospitalisations was 1.4 to 2.0 times higher and expected cumulative length of stay was 1.3 to 2.0 times higher in residents with routine care.

Discussion & Conclusion:

The palliative care programme is effective in reducing hospital admissions and cumulative length of stay in NH residents in the last month and 3 months of life. Expansion of the programme to other NHs is recommended.

YIA-QHSR-03

Socioeconomic Status and its Association with Cognitive Impairment Amongst Community-Dwelling Elderly in A Low Socioeconomic Status Neighborhood in Singapore

IAN LE WEE¹, **WX YEO**², **GR YANG**², **N HANNAN**², **L CHENG**², **AHQ CHUA**², **C CHUA**², **GCH KOH**², **HM SHEN**²

¹National University Hospital, ²National University of Singapore

Background & Hypothesis:

Neighbourhood socioeconomic-status (SES) has been associated with cognitive function in Western societies; however it is unknown whether this link exists in Asian societies as well. We assessed cognitive function amongst community-dwelling elderly in a multi-ethnic urban low-SES Asian neighbourhood, comparing against a higher-SES neighbourhood.

Methods:

The study population involved all residents aged ≥ 60 years in 2 housing estates comprising owner-occupied housing (higher-SES) and rental-flats (low-SES) in Singapore in 2012. Cognitive-impairment was defined as < 24 on the Mini-Mental-State-Examination. Demographic/clinical details were collected via questionnaire. Cognitively-impaired were referred to the local public primary-care clinic, while cognitively-normal were offered free mental-wellness programs. Multivariate logistic regression determined predictors of cognitive impairment/referral-acceptance/wellness-program participation.

Results:

Participation was 61.4% (558/909). Cognitive-impairment was 26.2% (104/397) in low-SES community; 16.1% (26/161) in higher-SES community. After adjusting for other sociodemographic variables and individual-level socioeconomic status (e.g. income, education), staying in a low-SES community (rental flats) independently associated with cognitive impairment (adjusted odds ratio, aOR = 5.13, CI, 1.98 to 13.34). Within the low-SES community, older age; female gender; lower education; ADL impairment all associated with cognitive impairment. Amongst cognitively-impaired in the low-SES community, 96.2% (100/104) were newly-detected; 30.0% (30/100) accepted referral. Amongst cognitively-normal residents, 13.7% (40/293) were willing to participate in mental-wellness programmes. Non-Chinese ethnicity associated with increased participation; due to differing cultural perceptions of mental health and stigma.

Discussion & Conclusion:

Staying in a low-SES community independently associated with cognitive-impairment in an urban Asian society. Mental-health-services can thus be targeted not just at the individual but also at communities; participation should also be encouraged amongst those of Chinese ethnicity.

HPE-RI-01

Transactive Memory System as a Measure of Interprofessional Collaborative Practice and Work Satisfaction in a Multidisciplinary Geriatrics Team

KENG TENG TAN¹, MPC CHAN¹, WS LIM¹, IWY LIM², FB ADZHAHAR²

¹Tan Tock Seng Hospital, ²National Healthcare Group

Background & Hypothesis:

Transactive memory system (TMS) represents the collective understanding of the expertise and specialised knowledge of individuals working closely within a team, culminating in improved collaboration and team decision-making. In this study, we evaluated TMS and its relationship with perception of work satisfaction by health professionals who participated in multidisciplinary rounds (MDRs) in 2 acute geriatrics.

Methods:

Quality of TMS was represented as the cumulative score on the validated Lewis and Faraj scales (total score: 75 and 55 respectively). We measured satisfaction with the MDR experience and with geriatric medicine practice on a 5-point Likert scale. We performed logistic regression analyses to evaluate the significance of TMS scores in determining satisfaction with MDRs, adjusting for participant gender, age, clinical experience, number of MDRs attended, and team roles.

Results:

Our sample comprised 78 subjects (34.6% medical, 30.8% nursing, 17.9% therapists, 15.4% care coordinators/social workers). Majority were satisfied with MDRs (67.9%) and their work experience (66.7%). The mean TMS scores were 57.95 (SD: 5.15) and 42.23 (SD: 4.78) for Lewis and Faraj scales respectively. TMS scores increased with increasing number of MDRs attended (Lewis: $P = 0.01$, Faraj: $P = 0.069$). In logistic regression analyses, TMS was a significant predictor of satisfaction with MDR experience (Lewis: OR = 1.24, $P = 0.004$; Faraj: OR = 1.25, $P = 0.005$) and clinical work (Lewis: OR = 1.33, $P = 0.001$; Faraj: OR 1.23, $P = 0.007$).

Discussion & Conclusion:

TMS as a measure of interprofessional collaborative practice improved with more MDRs attended, and is significantly associated with team members' satisfaction with MDR and their professional work in geriatric medicine.

HPE-RI-02

Enhancing Safe Care for a Deteriorating Patient: A Simulation-Based Interprofessional Learning in Undergraduate Medicine and Nursing Education

SOK YING LIAW¹, TZ WEN¹, CL TANG¹, S CHIANG¹, SWC CHAN¹

¹*National University of Singapore*

Background & Hypothesis:

Interprofessional learning to enhance teamwork and communication is increasingly recognised as a high priority for patient safety. Simulation is a valuable educational tool for the training of team skills and is now advocated in both medicine and nursing education. The study aimed to evaluate the outcomes of a simulation-based interprofessional program on medical and nursing students' self-confidence in interprofessional communication skills and perception in interprofessional learning.

Methods:

A quasi-experimental pretest and post-test design was performed with 125 fourth year medical students and third year nursing students. After baseline evaluation, the students participated a 3-hour small group team training that incorporated deteriorating simulation scenarios and communication strategies. The nursing students were assigned to participate training either with medical students or simulated doctors. They were then retested and completed a survey to evaluate their simulation experiences.

Results:

Both groups demonstrated a significant improvement on post-test score from pre-test score for self-confidence ($P < 0.0001$) and perception ($P < 0.0001$). No significant differences were detected between the 2 groups. Nursing students who participated with the medical students scored significantly higher than those with the simulated doctors in perception post-tests ($P < 0.01$), but no significant differences was found in the self-confidence post-test scores. They were highly satisfied with their simulation learning.

Discussion & Conclusion:

The program has better prepared the medical and nursing students in communicating with one another in providing safe care for deteriorating patient. The challenge of bringing both groups together for interprofessional learning could be overcome by the use of simulated health professional.

HPE-RI-03

Confidence Levels of Internal Medicine Trainees in Rheumatological Skills and Diagnosis: A Singapore Perspective

FAITH CHIA¹, **JY TAY**², **ZY CHIAM**¹

¹Tan Tock Seng Hospital, ²National University Singapore

Background & Hypothesis:

Musculoskeletal (MSK) disease is a frequently encountered medical problem. A strong foundation in clinical skills is crucial to management but studies have shown that physicians are not confident in handling rheumatological conditions. We aim to assess the self-confidence of internal medicine (IM) trainees in rheumatological knowledge and clinical skills, and determine factors that affect this.

Methods:

IM trainees in TTSH received an email invitation to the online survey. They were asked to rank confidence in various aspects of rheumatology compared against other core specialties on a 5-point Likert scale. Perception of difficulty of specialties, year of training, rheumatology exposure and interest in a future career was also captured.

Results:

Fifty-eight (71.6%) trainees responded. Mean rating for confidence in knowledge of rheumatology (2.31 ± 0.94), MSK examination (2.67 ± 0.87) and diagnosis and management of rheumatological disorders (2.55 ± 0.91) were significantly lower than other specialties. Rheumatology was rated the most difficult specialty; trainees cited unfamiliarity with the subject and lack of exposure as reasons. This corresponds with poor exposure to rheumatology at both an undergraduate and postgraduate level. 5.2% had done a rheumatology student elective and 19% had done a rheumatology posting. Multivariate analysis showed that having done a rheumatology rotation increased confidence in knowledge, examination and management and decreased perception of difficulty ($P < 0.05$). Other factors, including being taught the GALS screen did not affect confidence.

Discussion & Conclusion:

Overall confidence in rheumatological skills and diagnosis is poor but improves with rheumatology postings. This should be taken into consideration when planning the IM residency curricula.

SGPCR-O-01

Potential Risk Factors for Albuminuria in Patients with Type Two Diabetes

ENG SING LEE¹, WE TANG¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

In a previous cross-sectional study conducted at Clementi Polyclinic in 2010, the prevalence of microalbuminuria and macroalbuminuria was reported to be 14.2% and 5.7% respectively. Microalbuminuria is an early sign of kidney disease and an independent risk factor for cardiovascular disease in patients with diabetes. This study aims to find the associated risk factors for albuminuria in diabetic patients.

Methods:

Multivariate logistic regression analysis was performed on 786 type 2 diabetic patients to study the potential predictors of albuminuria (microalbuminuria and macroalbuminuria). Analysis of the data was done using SPSS version 19.0.

Results:

Patients with albuminuria were more likely to have hypertension OR 3.47 (95% CI, 1.55 to 7.80). Diabetics with poorer diabetic control, higher systolic and diastolic blood pressures were more likely to have albuminuria OR 1.88 (95% CI, 1.26 to 2.79), OR 1.69 (95% CI, 1.14 to 2.49) and OR 1.96 (95% CI, 1.20 to 3.22) respectively. Furthermore, diabetes of more than 7 years duration, being a male gender, patients with chronic kidney disease of stage 3 and beyond, and patients of Malay ethnic origin had higher odds to be diagnosed with albuminuria. Interestingly, all the parameters of the lipid panel did not seem to significantly impact on albuminuria.

Discussion & Conclusion:

In conclusion, this study suggests that the presence of hypertension, suboptimal blood pressure control and poor diabetic control are possible risk factors for albuminuria in patients with diabetes. Primary care emphasis on these parameters may have more far-reaching effects than on blood pressure and diabetic control alone.

SGPCR-O-02

Relationship Between Anxiety and Insomnia in Primary Care

BOON TIONG BOH¹, MY WONG², KC LOKE²

¹National Healthcare Group HQ, ²National Healthcare Group Polyclinics

Background & Hypothesis:

Anxiety is commonly perceived by the healthcare professional, including doctors, to be associated with insomnia and vice versa. This high prevalence and comorbidity of anxiety and insomnia suggest an important underlying relationship between these disorders, particularly in the Western context. However this correlation is still not established in some studies. Therefore the association between insomnia and anxiety warranted further investigation. In this study, we aimed to examine the association of this co-occurrence in primary care and hypothesised there is a significant positive correlation between anxiety and insomnia.

Methods:

A retrospective research method was chosen to analyse medical records of patients with presenting symptoms of anxiety and insomnia; and had sought psychologist intervention in the polyclinics between January 2012 and June 2012. Twenty-two patients between 21 and 65 years, who were administered both Generalized Anxiety Disorder 7 (GAD7) and Insomnia Severity Index (ISI), were selected for correlational analysis. A Pearson product-moment correlation coefficient was computed to assess the relationship between the scores of GAD7 and ISI to investigate the association between anxiety and insomnia.

Results:

There is a positive correlation between the scores of GAD7 and ISI, $r = 0.46$, $n = 22$, $P = 0.03$.

Discussion & Conclusion:

This study shows that there could be a strong positive relationship between anxiety and insomnia in the primary care. The implication of our data is suggestive of the need for healthcare professionals to assess for possible co-occurrence of symptoms of anxiety and insomnia and treat them accordingly to elicit better well-being.

SGPCR-O-03

A Study on Burnout Amongst Doctors in a Singapore Public Primary Healthcare Institution

DAVID HY TAN¹, **ZY KOH**², **KM EU**², **YF SIM**¹

¹National Healthcare Group Polyclinics, ²NUS Yong Loo Lin School of Medicine

Background & Hypothesis:

The public primary healthcare setting in Singapore is a stressful and high volume work environment. There is likely a high level of burnout amongst public primary care doctors which could negatively impact patient care. There is a dearth of published studies in Singapore on burnout in family doctors and a need for local research.

Methods:

A cross-sectional survey of doctors in one polyclinic cluster was conducted using a custom-designed questionnaire which incorporated the validated Maslach Burnout Inventory Human Services Survey (MBI-HSS) as well as questions about demographic factors, work experience, lifestyle and job satisfaction. MBI-HSS scores were analysed in the 3 dimensions of emotional exhaustion (EE), depersonalisation (DP) and personal accomplishment (PA). Frequency analysis and Spearman rank correlation were carried out where applicable.

Results:

A total of 126 doctors participated, giving a response rate of 66.3%. As compared to the normative data provided in the Maslach manual, doctors studied experienced higher degrees of burnout with overall mean scores of 28.15 (SD = 12.66) for EE, 11.22 (SD = 8.09) for DP, and 32.84 (SD = 8.30) for PA. Fifty-five percent of doctors surveyed had seriously considered changing job at least once over the past few months and scored high on EE. The 2 top reasons for wanting to leave the polyclinic were excessive workload (71%) and better pay/benefits outside (41%). Shorter lunch breaks and longer working hours were also associated with higher burnout.

Discussion & Conclusion:

Burnout syndrome exists in public primary care doctors and effort should be taken to target key factors for burnout such as workload, pay/benefits and working hours.

BP-AH-01

Rapid Prenatal Diagnosis of Beta-Thalassaemia Using Pyrosequencing

SOLOMON DH TAN¹, **MK KHONG**¹, **KW TEO**¹, **CYL TAN**¹, **PT HUANG**³, **HY LAW**²,
ESC KOAY³, **SSY HO**³

¹*Ngee Ann Polytechnic*, ²*KK Women's and Children's Hospital*, ³*National University Hospital*

Background & Hypothesis:

Current prenatal diagnostic methods for beta-thalassaemia require 10 to 14 days of amniocyte culture to obtain sufficient amounts of DNA for analysis. A diagnostic assay with a reduced turnaround time (TAT) will facilitate clinical intervention and improve patient outcome. We aim to develop a pyrosequencing assay that bypasses cell culture to accurately detect common beta-thalassaemia mutations in Singapore.

Methods:

Six biotinylated primer pairs and paired sequencing primers were designed using the PyroMark Assay Design software to detect 27 beta-thalassaemia mutations. DNA samples (n = 111) isolated from peripheral blood (PB) of patients with known beta-thalassaemia mutations were used as controls during assay validation. Seven families each consisting of parental (paternal/maternal), and matched fetal DNA from uncultured amniocytes were analysed. Single-stranded-biotinylated PCR amplicons were bound to streptavidin-sepharose beads before downstream pyrosequencing reactions. All detected mutations were validated with the current gold standard, Sanger sequencing.

Results:

All 27 targeted beta-thalassaemia mutations in the 111 controls were detected during assay validation. Amongst these, there were 2 compound heterozygotes [(IVS-II-654(C>T)/Codon17(A>T), IVS-II-654(C>T)/HbE(G>A)], and 3 homozygotes for IVS-I-5(G>C), Codon17(A>T), and HbE(G>A). In the 7 families, all mutations were detected in both parental and fetal DNA samples. There were 5 heterozygous [IVS-II-654(C>T), -28(A>G), Codon17 (A>T), Codons71/72(+A), HbE(G>A)], 1 homozygous [IVS-II-654(C>T)], and 1 compound heterozygous [IVS-II-654(C>T)/-28(A>G)] fetuses. All mutations corresponded with their respective Sanger sequencing results.

Discussion & Conclusion:

We have developed a rapid and cost-effective pyrosequencing method to detect common beta-thalassaemia mutations with 100% sensitivity (lower 95% CI, 96.5). Amniocyte culture is not required, thereby reducing the current TAT of 10 to 14 days to 24 hours.

BP-AH-02

A Pilot Study on the Evaluation of an Innovative Approach to Administering a Calorie-Dense Oral Nutrition Supplement during Medication Rounds Amongst Hospitalised Elderly

PUAY SHING¹, YP LIM¹, GAL CHU¹, L LIANG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Elderly patients in the acute setting who are at risk of malnutrition are often given oral nutrition supplements (ONS) to optimise their nutritional status. In long-term care, an innovative approach of delivering small volume calorie-dense ONS to patients during medication rounds has shown positive results. Limited reports are available for this application in the acute setting. It is hypothesised that such a novel approach of supplementation will increase the overall calorie and protein intake of elderly patients.

Methods:

The study is a single blinded, randomised controlled trial. Twenty-three patients mean age 86 ±6 years, 78% malnourished were randomised into the control group (n = 11), receiving 1kcal/ml supplement at 150ml between meals 3 times daily (477 kcal, 17g protein) as the standard approach; or intervention group (n = 12), receiving calorie-dense 2kcal/ml supplement at 60 mL during medication rounds four times daily (480 kcal, 20 g protein). The calorie and protein intake between groups were compared using independent samples t-test.

Results:

The total protein intake from diet and supplements in the intervention group was 49 g/day compared to the control group of 34g/day ($P = 0.058$). The innovative approach does not significantly affect usual food intake, with the control and intervention group consuming 389 kcal/day and 543 kcal/day from food respectively ($P = 0.158$). There were no significant changes in weight throughout the study period within both groups (control $P = 0.412$; intervention $P = 0.241$).

Discussion & Conclusion:

This pilot study indicated that the innovative approach can be used as an alternative to deliver ONS to hospitalised elderly as it is comparable to the standard approach in delivering additional calories and protein.

BP-AH-03

Genetic Variation of Psychosis Susceptibility Gene CACNA1C rs1006737 Influences Brain Frontal Volumes and White Matter Microstructure in Schizophrenia

CARISSA NADIA KUSWANTO¹, SW PUAY¹, YS MIN¹, LY GUO⁴, WL NOWINSKI⁴, YY SITO³, JJ LIU², K SIM¹

¹Institute of Mental Health, ²Genome Institute of Singapore, A*STAR, ³National Neuroscience Institute, ⁴Singapore Bioimaging Consortium, A*STAR

Background & Hypothesis:

Genome-wide association studies have implicated CACNA1C gene in schizophrenia and CACNA1C risk variant rs100673 is associated with functional brain imaging changes and cognitive deficits (attention, verbal fluency) related to the frontal lobe in healthy individuals. We hypothesise that CACNA1C risk allele rs1006737 affects brain frontal-hippocampal structures (smaller volumes and decreased white matter integrity) in schizophrenia.

Methods:

A total of 160 Chinese participants (96 patients with DSM-IV of schizophrenia and 64 healthy controls) were genotyped using blood samples and underwent structural magnetic resonance imaging (MRI) and diffusion tensor imaging (DTI) scans. Two-way ANCOVA was employed to examine genotype effects, diagnosis effects and genotype x diagnosis interaction effects on relevant brain parameters.

Results:

Significant effect of diagnosis was found (hippocampus, $P = 0.006$) in which patients had smaller hippocampal volumes compared to controls. Significant effects of genotype (frontal lobe volume, $P = 0.008$) and genotype x diagnosis interaction (frontal lobe FA, $P = 0.004$) were found. Specifically, patients with A carriers had smaller frontal brain volumes and lower fractional anisotropy compared with GG genotype.

Discussion & Conclusion:

Our results revealed that CACNA1C genetic risk variant rs1006737 is associated with lower frontal lobe volume and frontal white matter integrity in schizophrenia. Further imaging genetic investigations on the underlying effect of CACNA1C on the other brain functional and chemical parameters may shed light on the impact of CACNA1C risk gene on affected brain circuitries and suggest potential novel targets for intervention in schizophrenia.

BP-BSTR-01

Novel Endodermal Progenitor Cells from Human Gastric Epithelium can Regenerate Hepatocytes in Animal Models of Liver Cirrhosis

NUR HALISAH JUMAT¹, SL CHAN², YY DAN¹

¹National University Hospital, ²National University of Singapore

Background & Hypothesis:

Progress in identification of putative human liver progenitor cells (hLPCs) in adult liver has advanced our understanding of their role in repair of chronic liver injury, but isolation of the definitive hLPCs remains elusive. We hypothesise that the adult gastric epithelium, having the same embryonic origin as the liver, may contain endodermal progenitor cells (EPCs) that are potentially useful in ameliorating liver insufficiency.

Methods:

Gastric biopsies from volunteers were dissociated and cultured under conditions simulating a developing fetal liver. Expanded EPCs were differentiated along the hepatocytic lineage using known physiological differentiation protocols. 2×10^6 cells were transplanted intrasplenically into cirrhotic NSG mice to determine their therapeutic potential.

Results:

Gastric biopsies yielded a population of cells similar to EPCs with mixed mesenchymal-epithelial features and positive for EPCAM, CD44 but negative for albumin, AFP, HNF4. Their progenitor status is confirmed as they could be differentiated into specific gastric lineages and able to augment healing of gastric ulcers in rat model of cryo-induced gastric ulcers. In-vitro differentiation into hepatocytic lineage yielded cells that expressed and secreted albumin, stored glycogen, express inducible P450 activity, LDL uptake, ICG clearance and development of bile canaliculi on EM. Transplantation into cirrhotic mice showed engraftment of these cells with positive co-labeling of human specific albumin and HLA antibodies. Cytogenetic analysis show no evidence of chromosomal abnormalities and follow-up in-vivo post-transplant showed no tumour formation.

Discussion & Conclusion:

Gastric EPCs represent a novel autologous source of cells potential in repair of injured liver. Their close physiological relationship with LPCs obviates the need for intensive manipulation or transit through multipotent stem cell state, making an ideal candidate for further exploration of therapeutic effect.

BP-BSTR-02

Hepatoprotective Role of Coenzyme Q10 and Detection of Early Biomarkers in Statin-Related Liver Injury

BERNICE LF LIN¹, SLT PEK¹, K WOON¹, YT LIEW¹, XC DONG¹, SC LIM¹, CF SUM¹, T SUBRAMANIAM¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Simvastatin lowers low-density lipoprotein cholesterol by inhibiting mevalonate synthesis, a precursor in cholesterol and coenzyme Q10 (CoQ10) synthesis. Previously, we showed simvastatin treatment in HepG2 cells at high-doses was associated with increased apoptosis, reduced with CoQ10 supplementation. MicroRNAs (miRNAs) are endogenous, small noncoding RNAs modulating gene expression and are key regulators in many biological processes. We hypothesise that miRNAs may be early biomarkers in statin-induced liver toxicity before changes in transaminases (AST/ALT), and aimed to identify specific miRNAs as early biomarkers of hepatopathy, and to explore if CoQ10 supplementation may have a protective role.

Methods:

This is a double-blind, placebo-controlled study where 16 male Chinese with hypercholesterolemia were recruited. All patients received simvastatin (20 mg/day), and were randomised to receive 150 mg/day CoQ10 (n = 8) or placebo (n = 8). Blood was collected before and after 12-week treatment. RNA (including miRNA) was extracted from whole blood and miRNA profiling was performed by Agilent human microRNA microarray platform.

Results:

Mean age (SD) was 43 (14.5), baseline ALT 67.9IU/L (33.4). No significant difference in ALT was noted after 12-week treatment. Those on 12-weeks simvastatin and placebo CoQ10, had significant difference in expression of 7 miRNAs (miR-146a, miR-148a, miR-15a, miR-192, miR-21, miR-23b, miR-324-3p) associated with liver dysfunction ($P < 0.05$), and this was not observed in patients randomised to supplemental CoQ10.

Discussion & Conclusion:

Simvastatin treatment was associated with changes in expression of miRNAs associated with liver dysfunction, even in the absence of changes in hepatic transaminases. These changes were not present with CoQ10 supplementation, suggesting depletion of hepatic CoQ10 may have a causal role in these molecular changes caused by simvastatin.

BP-BSTR-03

Brain Derived Neurotrophic Factor (BDNF) Mediates the Effects of Smoking in Improving Negative Symptoms in Patients with Schizophrenia

MILAWATY NURJONO¹, J LEE¹

¹*Institute of Mental Health*

Background & Hypothesis:

It was previously suggested that patients with schizophrenia smoke to “self-medicate”, to improve their cognitive impairments and negative symptoms, which cause significant disabilities. Brain Derived Neurotrophic Factor (BDNF), has been shown to be down-regulated in schizophrenia, and has recently been implicated in smoking. We hypothesised that the beneficial effects of smoking on negative symptoms could be mediated through BDNF. This study aims to investigate the effects of smoking on serum BDNF in patients with schizophrenia, and if BDNF levels are correlated with negative symptoms of schizophrenia.

Methods:

Sixty-six Chinese patients with schizophrenia were recruited for this case-controlled study. Information on smoking was obtained and their negative symptoms were assessed on the Positive and Negative Syndrome Scale by a single rater. Fasting serum BDNF was measured using commercially available enzyme-linked immunosorbent assays (ELISA).

Results:

The prevalence of smoking in the sample was 24.2%. Serum BDNF was significantly higher in smokers ($P = 0.020$). A dose-dependent increase in BDNF was observed with smoking intensity ($P = 0.047$). BDNF was observed to be inversely associated with negative symptoms score, but this was not statistically significant.

Discussion & Conclusion:

This study revealed that smoking was associated with elevated serum BDNF in a dose dependent manner. There was a suggestion that the increase was inversely correlated with negative symptoms, but this sample was likely under-powered to detect this change. There is currently no available treatment for negative symptoms in schizophrenia and this finding could highlight potential therapeutic targets for the treatment of negative symptoms in schizophrenia.

BP-CR-01

Functional Outcomes in the Elderly Who Have Undergone Major Colorectal Surgery

OLIVIA Q ZHU¹, PXZ TAN¹, KY TAN¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

This study reviews the medium-term functional outcome of elderly patients following elective and emergent surgical management of colorectal cancer under the Geriatric Surgical Service.

Methods:

A prospective study of patients aged 75 and above, managed by a collaborative, transdisciplinary approach was performed. Assessment of their pre-operative functional status was carried out using the Barthel Index and compared with their respective scores taken at scheduled intervals following surgery.

Results:

Forty-seven patients were studied from February 2007 to November 2011. The mean age was 81.9 (range, 75 to 94). Eleven cases (23.4%) were emergent cases. Thirteen (27.6%) patients had a Charlson Weighted-comorbidity Index of 4 and above. Of the 32 patients assessed for frailty, 9 (28.1%) were identified as frail. The mean follow-up was 91.2 weeks (range, 6 to 249). The mean preoperative Barthel Index was 89.5 (range, 45 to 100). At 6 weeks after surgery 83% (n = 39) of patients had a Barthel's Index similar or above to that prior to surgery. At a mean follow-up of 91.2 weeks (range, 6 to 249), 93.6% (n = 44) had an Index not inferior to pre-op score. Medium-term functional decline was significantly higher in patients whose comorbidity index score was 4 and above ($P = 0.004$) and patients who were frail ($P = 0.004$). Functional decline occurred about 1 year post-surgery.

Discussion & Conclusion:

Attention to functional outcome through a transdisciplinary approach allows good medium-term functional outcomes after major colorectal surgery in the elderly. Patients with a high comorbidity index and are frail need further targeted intervention in the respect.

BP-CR-02

Factors Other Than Margin Status Predict for Recurrence in Borderline and Malignant Phyllodes Tumours

QING HULLU¹, **HM LIU**¹, **EY TAN**¹, **JJC CHEN**¹, **C TEO**¹, **PMY CHAN**¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Borderline and malignant phyllodes tumours (PTs) have the potential for disseminated disease. Surgical resection with adequate margins is therefore advocated. However, there is no consensus as to what constitutes an adequate margin, and furthermore, recurrence and disseminated disease may still occur despite apparently complete resection. We aim to review the outcome of surgical resection of borderline and malignant PTs, as well as to identify factors that may predict for recurrence.

Methods:

Retrospective review was performed of 56 patients diagnosed with borderline and malignant PTs at our institute from 1 January 2000 to 10 October 2011. All patients, except 1, with a malignant PT underwent surgical resection. A margin of 1mm was considered adequate.

Results:

Of the 56 patients, 38 had borderline PTs and 18 had malignant PTs. There were 4 local recurrences in the borderline and 4 in the malignant group. There were 4 distant recurrences in the malignant group and none in the borderline group. There was no significant difference in the age at presentation. Older patients were more likely to develop recurrent disease ($P = 0.02$). A malignant histology ($P = 0.04$, OR 5.26, 95% CI, 0.04 to 0.89) and high mitotic count ($P = 0.01$, OR 7.30, 95% CI, 0.02 to 0.76) correlated significantly with the likelihood of recurrence. Although larger tumours were more likely to recur, this did not reach statistical significance. Margin status did not correlate with recurrence.

Discussion & Conclusion:

Recurrence following surgical resection with a 1-mm margin was 10.5% for borderline PTs and 27.8% for malignant PTs. Surgical margin status did not correlate with recurrence. Rather, age, malignancy and the degree of mitotic activity appeared to predict for recurrent disease.

BP-CR-03

A Method-Comparison Study to Validate a Novel Parameter of Obesity, the Body Adiposity Index (BAI), in Chinese Subjects

BENJAMIN CC LAM¹, E SHUM¹, M WONG¹, SC LIM¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

The limitations of the Body Mass Index (BMI) as a measure of adiposity are well documented. A recently developed parameter, the Body Adiposity Index (BAI) –a composite index based on hip circumference and height- estimates the percentage (%) body adiposity directly. We compared the BAI with dual energy X-ray absorptiometer (DEXA)-derived % adiposity, so as to determine whether the BAI could be validated in our local Chinese.

Methods:

This is a Method-Comparison study. One hundred and five Chinese subjects were recruited, and % adiposity estimated by BAI was compared with that derived from DEXA using the Bland Altman plot.

Results:

The BAI tends to underestimate the DEXA-derived % adiposity by a mean of 5.77% (95% Confidence Interval, 4.94% to 6.6%). We went on to study the possibility of re-calibrating the BAI formula, retaining the relationship of Hip/Height^{1.5} found in the original formula. Two re-calibrated formulae brought the mean difference (when compared to DEXA-derived % adiposity) to +0.23% (1.06%, -0.61%) and -0.33% (0.5%, -1.16%) respectively. Given the near-zero mean difference, the re-calibrated formulae would perform better than the original BAI formula for our local Chinese subjects.

Discussion & Conclusion:

We conclude that the BAI formula may require calibration for various ethnic groups, with the retention of the unique relationship of Hip/Height^{1.5} as the core to this BAI formula. We foresee that BAI can become an adjunct to adiposity assessment, if it continues to be validated in various ethnic groups and proven to be a useful predictor of health outcomes.

BP-HPE-01

Decoding the Transactive Memory System (TMS) Within a Multidisciplinary Geriatrics Team

FADZLI BAHAROM¹, **KT TAN**², **MPC CHAN**², **I LIM**¹, **WS LIM**²

¹National Healthcare Group HQ, ²Tan Tock Seng Hospital,

Background & Hypothesis:

Transactive memory system (TMS) describes a system where group members rely on one another to attain, accumulate and communicate information from different knowledge areas of expertise. Studies affirmed that TMS is related to positive team outcomes. This study aims to explore TMS within the context of multidisciplinary rounds (MDRs) in an acute geriatrics ward by studying the dimensions of 2 validated scales of TMS.

Methods:

We studied members of the geriatrics multidisciplinary team (n = 78) who have participated in MDRs. Lewis' (2003) 15-item scale measured 3 dimensions of TMS behavior while Faraj's (2000) 11-item scale measured 3 dimensions of expertise coordination. We performed principal component analysis (PCA) with varimax rotation to determine the factor structure of both scales. The optimal number of factors was determined by parallel analysis.

Results:

Factor analysis was appropriate (Lewis: KMO = 0.803, Bartlett t = 355.39, $P < 0.001$; Faraj: KMO = 0.791, Bartlett = 325.72, $P < 0.001$). As opposed to the conventional tri-dimensional structure of both scales, we identified an optimal 2-factor structure instead. The Lewis scale comprised the dimensions of teamwork and team functioning, while the Faraj scale highlighted team culture and team knowledge. A higher percentage of variance was explained by Faraj (55%) compared to Lewis (45%). Both scales exhibited a high degree of internal reliability (Cronbach's $\alpha = 0.84$).

Discussion & Conclusion:

Our study demonstrates the viability of TMS in MDRs within an acute geriatrics setting that is predicated on the 2 core components of knowledge resource and team processes. Future studies are needed to study the applicability of TMS in other settings and its relation to team outcomes.

BP-HPE-02

Situated Learning Enhances Authenticity of Learning Experience of Geriatric Assessment Skills Among Junior Medical Students

WEE SHIONG LIM¹, A NG², N SELVAGANAPATHI¹, WC WONG¹, KY THAM¹

¹Tan Tock Seng Hospital, ²NUS Yong Loo Lin School of Medicine

Background & Hypothesis:

Situated learning emphasises that learning needs to occur in an authentic context. We studied the difficulties experienced by junior medical students when performing 4 geriatric assessment skills (GAS) in “real” elderly patients: communication, functional assessment (FA), cognitive assessment (CA) and postural blood pressure (PBP).

Methods:

We studied 99 second year students who received bedside GAS teaching after completing Aging Simulation workshops involving students who role-play the scenario. Students indicated which GAS was most difficult and provided reasons why. We employed mixed-methods approach using quantitative (pre-post difference on 7-point Likert scale) and qualitative (thematic analysis of questionnaire) data.

Results:

Students appreciated the difficulty performing GAS among frail elderly patients (pre-post difference, mean: 0.38 to 0.65, all $P < 0.01$). Communication (36%) was the most difficult, followed by PBP (33.7%), FA (24.4%) and CA (5.8%). We identified 4 themes among the reasons: language, technical, harm to patients, and patient factors. Language featured prominently in communication and CA, while technical reasons predominate in FA and PBP.

Discussion & Conclusion:

Patient contact enhances the authenticity of the learning experience of GAS. Different strategies are needed to address the reasons for the difficulties encountered.

BP-HPE-03

Assessment of Surgical Trainees' Quality of Knot Tying

SIOK SIONG CHING¹, CW MOK¹, YX KOH¹, SM TAN¹, YK TAN¹

¹Changi General Hospital

Background & Hypothesis:

This study aimed to assess surgical trainees' knot tying technique and determine the type and security of knots created.

Methods:

Twenty-five participants were requested to tie 40 knots each, using Vicryl 2-0 and Prolene 2-0 sutures. With each suture material, the participants tied: in series 1, 4 knots as they would normally do during surgery; in series 2, 4 knots with 3 throws, 4 knots with 4 throws, 4 knots with 5 throws and 4 knots with 6 throws. All knots were tested for tensile strength using a tensiometer. Knots with tensile strength of less than 5 N were considered dangerous.

Results:

Of the 25 participants, 2 created square knots consistently, 2 created a mixture of square and slip knots, and 21 created only slip knots. Square knots accounted for only 12.8% of all the knots. The incidence of knot slipping under tension was significantly lower with square knots ($P < 0.001$). Square knots had significantly higher tensile strength than slip knots (56.90 ± 15.93 vs 36.12 ± 23.06 N, $P < 0.001$). For Vicryl, 4-throw square knots were superior to 6-throw slip knots ($P < 0.001$). For Prolene, 3-throw square knots were superior to 6-throw slip knots ($P = 0.035$). Some 12.6% of Vicryl knots and 5.6% of Prolene knots were dangerous and all of these were slip knots.

Discussion & Conclusion:

Knot tying is often executed with technical errors resulting in less than optimal knot security. Tensiometry testing could be used to evaluate knot tying competency for surgical trainees.

BP-NA-01

Validation of the Accuracy of Bio-Impedance Body Composition Analyzer (InBody S20) in Estimating Waist Circumference among Subjects with Type 2 Diabetes

MAWARNIAROF¹, A ASRAP¹, Y OU¹, J CHEOK¹, N RIFFIN¹, XW NG¹, NJ LUM¹, T SUBRAMANIAM¹, LY YEOH¹, CF SUM¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Waist circumference (WC) measurement, surrogate marker of abdominal fat mass, helps identify patients who are at risk for cardiometabolic diseases. The technique involves measuring body girth at abdomen level with measuring tape. Alternative methods available include magnetic resonance imaging, computed tomography and bio-impedance body composition analyser (BIA). Aims: To evaluate the accuracy of BIA (InBodyS20), against manual anthropometric measurements. Hypothesis: WC obtained from InBodyS20 and tape measurements are similar.

Methods:

Forty-three diabetic subjects (21 to 90 years old) were measured. Manual measurement: Subjects standing upright had measuring tape placed around their bare midriff (midpoint between the lowest rib and the iliac crest) with sufficient tension that conformed to surface after exhaling. InbodyS20 (Biospace): Imperceptible, multi-frequency electrical current were passed through probes placed on bilateral thumbs, middle fingers and ankles of a supine subject. Body composition (tissue and fluid compartments) was estimated based on bio-impedance principles. Statistics Performed: Pearson's correlation coefficient, Linear regression and Bland-Altman plot.

Results:

Pearson's $r = 0.993$ and Linear regression $R^2 = 0.987$ (both $P < 0.01$) indicated strong, positive and significant relationship between manual and InbodyS20 measurements. Bland-Altman plot revealed most points clustered-closely around zero average (horizontal line) and 95% of the between-methods measurement-difference was within $\pm 5\%$ boundaries.

Discussion & Conclusion:

InbodyS20 can substitute tape in measuring WC, yielding advantages: (i) Convenience (data available in 2 minutes on a supine resting subject). (ii) Provide additional data i.e. fat and lean mass; intracellular- and extracellular- water; basal metabolic rate. (iii) Less inter-observer variation.

BP-NA-02

Frontline Nurses' Experiences in Recognising and Responding to Clinical Deterioration

WEILING CHUA¹, SY LIAW², EKC NG³, SJ MACKEY²

¹*Tan Tock Seng Hospital*, ²*National University of Singapore*, ³*Parkway Health*

Background & Hypothesis:

With the increasing number of patients requiring high acuity care, nurses in the general ward are faced with patients who are at high risk of clinical deterioration. Being the main bedside caregiver and having the key role in performing routine vital signs monitoring, enrolled nurses in Singapore hospitals play an important role in detecting patient deterioration and escalating for medical attention. This study aimed to explore enrolled nurses' experiences in caring for deteriorating ward patients and identify strategies to enhance their roles in caring for deteriorating ward patients.

Methods:

A qualitative study using a critical incident technique was conducted. Fifteen enrolled nurses who had encountered ward deteriorating patients were interviewed using semi-structured questions. Content analysis was used to analyse the data.

Results:

Recognising deterioration; responding to deterioration and taking responsibility were 3 themes that described enrolled nurse's experience in caring for deteriorating patients. Two key strategies to enhance enrolled nurse's role in caring for deteriorating patients include educational development and system modifications.

Discussion & Conclusion:

The findings revealed the pivotal role of enrolled nurses in recognising, reporting and responding to patient deterioration. Nursing education could focus on: highlighting the importance of performing complete vital signs monitoring; undertaking accurate interpretation of vital signs; and designing simulation training program to enhance the ability in recognising and responding to deteriorating patients. Strategies to improve existing system include the involvement of registered nurses in sharing the workload of vital signs monitoring and reviewing the frequency of vital signs monitoring for stabilised patients.

BP-NA-03

Effectiveness of Strategies in Enhancing Transfer of Learning in Newly Graduated Nurses

LAY KIAN GOO¹, **SG LIM**¹, **YH TAN**¹, **D DJONG**¹, **E TEOH**¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Transfer of learning of newly graduated nurses is a genuine concern for Nurse Educators. According to Reids (2004), a total of 16 contributory factors could influence the learner's learning transfer. The study aimed to explore the factors that influence learning transfer in newly graduated nurses.

Methods:

A quasi-experiemental, pre and post study was conducted. The Learning Transfer System Inventory (LTSI) was used to identify factors influencing learner's learning transfer. Crobach alpha reliability estimates, Wilcoxon matched-paired signed ranks test were used. Prior orientation, numerous strategies involving learners, preceptors and managers were introduced. The LTSI was administered after the orientation programme followed by 3 months later.

Results:

Forty-three newly graduated nurses participated in the study. Their performance self- efficacy was significantly improved with a mean difference of 0.67 and ($P < 0.0008$). For transfer effort performance expectation, it was better with mean difference of 0.03 and $P = 0.003$. There was a strong evidence towards openness to change with a mean difference of 0.66 and $P = 0.0001$. Nurses' perception on performance coaching was improved with a mean difference of 0.15 and $P = 0.28$ with a 95% CI, -0.13 to 0.43. Though, there were improved scores in factors such as learner's readiness, personal capacity for transfer and peer support, their findings were insignificant.

Discussion & Conclusion:

To enhance learning transfer, it is essential to design effective strategies into the orientation programme. Other factors such as motivation to transfer, supervisory support, opportunity to use learning and peer support could be further established in future study with larger sample size.

BP-QHSR-01

Health-Related Quality of Life Impairment Associated with Psychiatric and Chronic Physical Conditions in Singapore

JANHAVI VAINGANKAR¹, M SUBRAMANIAM¹, E ABDIN¹, N LUO⁴, D HENG³, P MCCRONE², SA CHONG¹

¹*Institute of Mental Health*, ²*Kings College London*, ³*Ministry of Health*, ⁴*Saw Swee Hock School of Public Health*

Background & Hypothesis:

We examined the health-related quality of life (HRQoL) and quality-adjusted life year (QALY) losses associated with psychiatric and chronic physical conditions in the Singapore resident population. We hypothesised that psychiatric disorders would cause significant impairment in HRQoL at individual level.

Methods:

The Singapore Mental Health Study was a cross-sectional household survey that included interviews with 6616 Singapore residents aged 18 years and above in the year 2010. Respondents were administered the Composite International Diagnostic Interview that generates diagnosis for psychiatric disorders. Information on socio-demographic background, life-time chronic physical conditions and HRQoL using EQ-5D, was obtained. All analyses were weighted and Tobit's regression was used to estimate the impact of physical and psychiatric conditions on HRQoL at individual and population level.

Results:

The survey response rate was 75.9%. The lowest EQ-5D scores were reported among those with dysthymia (0.700), followed by generalised anxiety disorder (0.816), cardiovascular disorders (0.832), major depressive disorder (MDD) (0.837) and bipolar disorder (0.846). After controlling for socio-demographic factors, physical and psychiatric comorbidity, MDD had the greatest impact on the EQ-5D score, followed by obsessive compulsive disorder and bipolar disorder. Chronic pain was associated with the largest loss of QALYs followed by hypertension and MDD in the population.

Discussion & Conclusion:

As hypothesised, psychiatric conditions have a significant influence on individual's HRQoL. Pain conditions and MDD are associated with the highest loss of QALYs at population level. The study provides evidence of the disease burden of psychiatric and physical conditions in Singapore to augment clinical and health policy decision making.

BP-QHSR-02

Needs of Informal Caregivers of People with Dementia: A Triangulation Approach

JANHAVI VAINGANKAR¹, M SUBRAMANIAM¹, L PICCO¹, A PHUA¹, KE GOI¹, SB SHAFIE¹, RD SAMBASIVAM¹, NBM THOIMI¹, SA CHONG¹

¹*Institute of Mental Health*

Background & Hypothesis:

Informal caregivers play a critical role in the well-being of people with dementia and often experience excessive burden of care. This study explored emotional, social, service and financial needs of caregivers in Singapore with the intent of identifying unmet needs from their perspective.

Methods:

Focus group discussions (FGDs) and semi-structured interviews (SIs) were conducted with informal caregivers who were relatives of people with dementia, and were responsible for organising care and providing regular physical and/or financial support. Ten FGDs and 12 SIs were conducted with caregivers aged 21 years and above. Information was collected using a semi-structured interview script. Data were transcribed verbatim and thematic analysis was conducted using triangulation approach.

Results:

The average age of the participants (n = 63) was 52.9 years; the majority were of Chinese (50%), followed by Indian (23%), Malay (22%) and Other (3%) ethnicity. Four dominant needs were identified- (i) need for information on services, early recognition and treatment, (ii) need for financial support and support from employers, (iii) need for emotional and social support arising from poor assistance from family and society, resulting in stigma, anxiety, anger and frustration, and (iv) need for aesthetically and ethnically appropriate facilities.

Discussion & Conclusion:

Caregivers are willing to support people with dementia in the community but there is a clear demand to address information needs, respite care, and social needs of caregivers. The findings of this qualitative research will help enhance and provide culturally and ethnically appropriate services and alleviate caregivers' burden, thus aiding in effective management and de-institutionalization of people with dementia.

BP-QHSR-03

Visual Experiences During Vitreous Surgery Under Regional Anesthesia: A Multicenter Study

KELVIN LI¹, **C TAN**², **PD OBRIEN**², **S BEATTY**², **A KWOK**², **V LEE**², **KG AU EONG**²

¹*Khoo Teck Puat Hospital*, ²*Tan Tock Seng Hospital*

Background & Hypothesis:

To investigate patients' subjective intraoperative visual experiences during vitreous surgery performed under regional anesthesia, to ascertain if patients were frightened by their visual experiences, and to determine the risk factors associated with a frightening visual experience.

Methods:

Sixty-five patients who had vitreous surgery under regional (retrobulbar or peribulbar) anesthesia in 5 centers in Ireland, Singapore, and Hong Kong were interviewed within 2 hours of their operation using a standardised questionnaire.

Results:

Thirty patients (46.2%) perceived light perception throughout the entire operation, 19 patients (29.2%) experienced transient loss of light perception, and 16 patients (24.6%) experienced no light perception throughout the entire duration of the surgery. Nine patients (13.8%) were frightened by their intraoperative visual experiences. Patients who were frightened by their visual experiences were more likely to see color (100%) than those who were not frightened (55.4%) ($P = 0.010$). The mean age of the patients who were frightened was lower (51.8 years) compared with those who were not frightened (64.6 years) ($P = 0.003$). The mean duration of surgery was longer for patients who were frightened (118.9 minutes) compared with those who were not frightened (91.2 minutes) ($P = 0.047$).

Discussion & Conclusion:

Most patients undergoing vitreous surgery under regional anaesthesia retained at least light perception intraoperatively. Importantly, 13.8% of patients were frightened by their visual experiences. A younger age, longer duration of surgery, and perception of color were risk factors for a frightening visual experience.

SGPCR-P-01

Reducing Hypoglycaemia Amongst Type 2 Diabetics Managed in Primary Care

DARREN SEAH¹, YF SIM¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

NHGP provides care to 80 000 type 2 diabetic patients. A common complication of intensive glycaemic control is hypoglycaemia, especially with use of long-acting sulphonylureas. Patients are defined as high risk of hypoglycaemia due to older age (≥ 65 years old) and impaired renal function (Serum Creatinine ≥ 130 $\mu\text{mol/dl}$). We hypothesise that reducing the use of Glibenclamide in high-risk diabetics would decrease the incidence of hypoglycaemia related hospital admissions.

Methods:

Two retrospective cross-sectional surveys were conducted during January 2007 to September 2007 and January 2009 to September 2009. Hospital admission data was used to determine the incidence of hypoglycaemia related admissions. Since July 2008, active intervention to switch high-risk users to shorter-acting sulphonylureas was initiated. The proportion z-test was used to compare the difference in incidence rates between the different time periods.

Results:

Total number of High-Risk patients had decreased from 1558 during July 2008 to September 2008 to 260 during July 2009 to September 2009. The incidence rate of hypoglycaemia admissions was 1.08% for the period January 2007 to September 2007. The incidence rate of hypoglycaemia admissions was 0.42% for the period January 2009 to September 2009. The incidence of hypoglycaemia in 2009 (0.4220%, 95%CI, 0.3742% to 0.4697%) was statistically significantly smaller than the incidence in 2007 ($P < 0.0001$).

Discussion & Conclusion:

Converting to use of shorter-acting sulphonylurea therapy has significantly decreased the incidence of hypoglycaemia-related hospitalisation amongst the large pool of NHGP patients. Long-acting sulphonylureas should be avoided due to potential hypoglycaemia risks. A systematic reminder can be used to ensure that long-acting sulphonylureas are not prescribed to high-risk patients.

SGPCR-P-02

An Analysis of Common Sports Injuries in Professional Footballers—A Primary Healthcare Perspective

ELTON ONG¹

¹ *Fullerton Healthcare Group*

Background & Hypothesis:

Professional footballers are subject to vigorous pre-season medical screenings. Many develop injuries, and some require surgical intervention. The objective of this study is to analyse the type of sports injuries, the rate of conversion to surgery, and to discuss injury-prevention strategies.

Methods:

Between January and April 2011, 347 footballers underwent pre-season screenings at our centre. Between May and December 2011, 201 footballers presented for a sports-related injury. Injuries were assessed by physical examination and radiological investigations to obtain a diagnosis. Non-sporting and head injuries were excluded. Recurrent presentations by a player for the same injury were excluded. The incidence and type of injuries were recorded according to anatomical location.

Results:

Fifty percent of presentations were attributable to knee injuries. 30% thigh, 5% ankle, 3% foot, 2% shoulder, and the remaining 10% were a mixture, including fractures and back injuries. Eighteen of the 201 players required surgery, representing a 9% conversion rate. Thirty-nine percent of the surgeries were Anterior Cruciate Ligament reconstructions, 28% knee arthroscopies, 17% fracture fixation, 6% shoulder arthroscopies, 5% open wounds, and another 5% ankle arthroscopies.

Discussion & Conclusion:

Professional footballers are elite athletes, who are better equipped to withstand the rigors of competitive training. Many deficiencies in their musculoskeletal physique are not adequately conditioned during pre-season training, and this resulted in the development of an injury involving the anatomical region that is injury-prone and intrinsically weak. The injury-prevention strategy is to identify these regions, stratify the footballers, and customise programs that target these deficiencies during their pre-season training, and reduce the need for surgery.

SGPCR-P-03

Plantar Fasciitis in Primary Care

LIANG SHENG TAN¹, YF SIM¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

Plantar fasciitis is a common foot problem among adults and may cause significant mobility issues if not resolved. This study aims to investigate the profile of patients diagnosed with plantar fasciitis in primary care and to identify factors associated with this condition.

Methods:

Patients who were diagnosed with plantar fascial fibromatosis (ICD 10 code: M72.2) between 3 January 2012 and 31 March 2012 were identified through the polyclinic database. The gender, age, race and chronic diseases of these patients extracted from the database were compared.

Results:

Nine hundred and sixty-nine patients were diagnosed with plantar fasciitis over the 3-month period and this accounted to 0.20% of total polyclinic attendances. Overall, 55.0% of the patients were female, 55.6% were Chinese and the mean age was 47.0 (SD 13.2). Of them, 32.2% were diagnosed with obesity, which was significantly higher than the general population ($P < 0.001$). When comparing between gender, male patients were significantly younger than female patients ($P < 0.001$). While the proportion of patients having chronic diseases among the male and female patients was the same, the proportion of male patients having diabetes mellitus was significantly higher than female patients ($P < 0.05$).

Discussion & Conclusion:

The results indicated that patients with plantar fasciitis were more likely to be female and obese. The study also identified interesting findings that male patients with heel pain were younger and more likely to have diabetes mellitus. This preliminary study warrants further investigations to understand other possible factors such as occupation, footwear and level of athletic activity.

OP-AH-01

To Provide Acupuncture as a Mode of Pain Relief for Patients with Chronic Neck Pain of 6 Months to a Year Duration

ANGELIA CHUA¹, CPC CHAN¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

Patients with chronic neck pains were referred by polyclinic doctors to acupuncture for treatment. The reasons for referral include intolerance to oral analgesia, or non-compliance to physiotherapy sessions, or patients who refused further surgical interventions.

Methods:

A clinical observation was conducted on 20 patients with chronic neck pain. The pain scale was noted to be at 7 on the Wong-Baker Faces Pain Rating Scale for all of them. All 20 patients had a Cervical Spine Xray done in the polyclinic before the start of the acupuncture treatment. X ray results showed all of them had some degree of cervical spondylosis. All 20 cases were given a course of acupuncture treatment with written consent of 8 sessions each at 4-day intervals. All of the patients had fully complied with the 8 sessions of acupuncture.

Results:

Fourteen patients with neck pain of 6 months duration showed very good response to the treatment with a pain scale reduction approximately by 71% from a score of 7 to 2. Four patients with neck pain of 10 months duration showed 50% improvement with a pain scale reduction from 7 to 3. Two patients with neck pain of one year duration showed 28% of improvement with a pain scale reduction from 7 to 5. All the patients showed significant pain relief after 8 sessions of acupuncture.

Discussion & Conclusion:

Acupuncture plays a good complementary role in modern medicine, especially in pain management of musculoskeletal conditions.

OP-AH-02

Why Do Patients and their Families Not Use Services for Dementia?

JUNE WP LIM¹, **P YAP**², **HL CHIONH**², **J GOH**²

¹Tan Tock Seng Hospital, ²Khoo Teck Puat Hospital

Background & Hypothesis:

Despite the need for community services to support the intensive levels of care provided by dementia family caregivers, findings consistently indicate low rates of service utilisation. This study aims to explore the extent of service use and examine the factors that may influence the use of dementia support services in a sample of family caregivers of Persons With Dementia (PWD).

Methods:

Two hundred and seventy-two family caregivers completed a questionnaire assessing caregiver burden, knowledge and use of services, dementia severity, frequency of problem behaviours and socio-demographic characteristics.

Results:

The rate of service use was modest with 39.9% using any of the available services. Reasons for non-use included lack of time (26.2%), perceived lack of need (18.5%) and presence of domestic help (21%). Separate regression models were evaluated to identify factors associated with caregiver service use and PWD service-use. Caregiver employment status [OR = 0.53, CI, 0.30 to 0.94] and knowledge of available services [OR = 4.22, CI, 2.23 to 7.98] contributed significantly to the model distinguishing caregiver service users from nonusers. Knowledge of available services [OR = 2.14, CI, 1.23 to 3.71] was the only significant predictor of service use targeted at the PWD.

Discussion & Conclusion:

Given that knowledge significantly increased the odds of service use, strategies should be designed to raise awareness about the availability of dementia support services in the community and provide a deeper understanding about the value of such services. Future research should employ larger sample sizes and explore factors not measured in this study that might potentially better explain use of services.

OP-AH-03

How Provision of Timely Scanning of Ang Mo Kio Hospital Patients with Suspected Deep Vein Thrombosis Help Improve Their Clinical Outcome—A Comparative Study

JACQUELINE SU¹, J AZUPARDO², MTJ CHUA², MI LARAYA²

¹National Healthcare Group HQ, ²National Healthcare Group Diagnostics

Background & Hypothesis:

Patients of Ang Mo Kio Hospital with suspected deep vein thrombosis (DVT) had to be sent to a restructured hospital for ultrasound scanning. In 2006, NHGDiagnostics (NHGD) initially undertook an improvement project in collaboration with Hospital to increase the capability of Ultrasound service by providing this service within the Hospital. The purpose of this study is to determine the effectiveness of the service provision towards the patients.

Methods:

A total of 757 patients from January 2007 to December 2011 with known symptoms suggestive of DVT were presented to NHGD clinic and compared with 485 Ang Mo Kio Hospital patients referred to secondary institution before January 2007. Clinical systems were compared, including cost, appointment waiting time, accessibility and productivity.

Results:

Within 3 years of data, Ang Mo Kio Hospital patients' costs were significantly reduced by 16.5%. The waiting appointment time was dramatically shortened by 2 times. Only 35.9 % of patients being referred to secondary institution and 56.08 % increased in productivity. Patient's morale was high with regards to safety and security.

Discussion & Conclusion:

Clinical system improvement was adopted by the Ang Mo Kio Hospital with consequent improvement in quality, timeless care, clinical process at the heart of service delivery, significantly contribute to lowering patients costs .The Hospital therefore benefits from providing better health outcomes for their patients. NHG Diagnostics has shown itself to be able to support the organisation in their effort to reducing delays, lowering cost and adding value to the patients as well as improving its service provision and increasing productivity.

OP-AH-04

Evaluation of chromID™ VRE - bioMerieux Agar (cVRE-agar) for Detection of Vancomycin—Resistant Enterococci (VRE) in a 1400-Bed Hospital

JEN MEE LONG¹, KE TANG¹, RCS SIM¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

VRE are major causes of nosocomial infections in healthcare facilities. A rapid, reliable and cost effective identification of these antibiotic-resistant organisms is crucial for timely patient management and infection control measures.

Methods:

Stool culture using bile-esculin-azide agar with 6 mg/L vancomycin (BEAV) and subsequent identification and antimicrobial testing of suspect colonies is the VRE screening method used in this laboratory (BEAV-method). In this study (a) 42 known positive VRE from 19 stool samples and 23 stock cultures and (b) 172 unknown samples from 142 stool specimens and 30 clinical isolates of enterococci were evaluated using the current BEAV-method and cVRE-agar. The cVRE-agar was examined after 24 and 48 hours of incubation. All suspected VRE isolates were identified using Matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) (Bruker Daltonics), and susceptibility done using Vitek-2 (bioMérieux) for the period of this evaluation. The cost per test and turn-around-time were also calculated.

Results:

For (a), there was complete concordance of results between the current BEAV-method and using cVRE-agar. For (b) 8 additional VRE were isolated; 7 from stool and 1 from clinical sample. Using cVRE-agar method, there was a 38% increase in sensitivity for new samples without loss of specificity and a 50% decrease in cost; turn-around-time was reduced by 2 days.

Discussion & Conclusion:

A reduction in cost and workload was an advantage for laboratory staff. The earlier and better detection helped institute faster and better infection control measures, possibly contributing to decreasing spread of VRE in this hospital.

OP-AH-05

Study of the Outcome of Limb Salvage Angioplasty in High-Risk Patients with Diabetic Foot Ulcer and Limb Ischaemia

CHELSEA LAW¹, **T SUBRAMANIAM**¹, **P BARKER**¹, **P ANAND**², **S SRINIVASAN**¹

¹*Khoo Teck Puat Hospital,* ²*National University Hospital*

Background & Hypothesis:

Angioplasty is a common intervention for patients with critical limb ischaemia, with variable success in clinical outcome. Aim: To examine the effects of angioplasty on clinical outcome in patients with critical limb ischaemia and diabetic foot ulcer.

Methods:

A retrospective analysis was carried out for patients who underwent angioplasty for diabetic foot ulcer with limb ischaemia in our institution for a 8-month period from September 2010. Clinical data, ABI/TBI, TASC scoring were documented. Outcome data was collected up to 6-months post-angioplasty.

Results:

Twenty-seven patients underwent angioplasty during the period of study. Mean age (1SD) was 64.3 (8.3) years, diabetes duration 12.4 (8.8) years. Males 48.1%; IHD 44.4%, nephropathy 85.2%, neuropathy 74.1%. Mean HbA1c was 8.9% (3.3), LDL-C 2.6 (1.0) mM, serum creatinine 242 (226) umol/l. Using University of Texas classification for ulcer, 59.3% were 3D, with 11.1% 3C. Using Rutherford Classification for limb ischaemia, 89% had Stage 5 and 11% Stage 6 disease. Using angiographic TASC scoring for tibial lesions, 82% had TASC D scoring, and for femoral lesions 1/3 of patients had TASC C or worse. Successful angioplasty (radiological criteria) was achieved in 82%. Within the 6-month of follow-up, ulcer-healing noted in 60%, not requiring more than minor amputation; BKA/AKA in 32%, with 2 deaths. Renal impairment, low TBI ≤ 0.25 and TASC D scoring were associated with poorer outcome ($P < 0.05$).

Discussion & Conclusion:

In carefully selected patients, angioplasty is associated with favourable outcome in patients with diabetic foot ulcers and critical limb ischaemia. Individualised risk stratification is likely to provide cost-effective patient outcome.

OP-AH-06

Knowledge of Chronic Obstructive Pulmonary Disease (COPD) among People in the Community

YIN MIN THAUNG¹, JST CHUAH¹, MBL YEOW¹, LS YEO¹

¹*National Healthcare Group HQ*

Background & Hypothesis:

Chronic obstructive pulmonary disease (COPD) is the top 10 cause of death and hospitalisation in Singapore. But the COPD awareness is still rather low. It is imperative to heighten the awareness of COPD among people in community. This study aimed to determine the COPD knowledge of people attending COPD outreach programme.

Methods:

We conducted a cross-sectional survey. Participants were given self-administered questionnaire. Data on demographic, medical history, lifestyle and COPD knowledge were collected. COPD Knowledge Score was computed based on 7 COPD knowledge questions for each respondent. Data were analysed to see association between COPD knowledge and demographic profile, lifestyle and medical history.

Results:

A total 409 people participated in this study. Among them, 61.9% were female, 84.8% were Chinese and 79.2% were above 41 years old. Overall, 80.7% had never attended any outreach programme; 80.9% were non-smokers. While 91.7% did not have any lung disease, 81.9% had no COPD symptoms. Mean COPD knowledge score was $5 \pm 1.9SD$. Data showed no association between COPD knowledge and social demographic profile. COPD knowledge score was higher among people who had previous knowledge (mean 5.9 vs 3.5) and is statistically significant). Non-smokers had higher COPD knowledge score (mean 5.5 vs 4.5) than smokers. People who had COPD related medical history showed lower COPD knowledge (mean CKS 4.6 vs 5.2) than who did not but not significant.

Discussion & Conclusion:

People with COPD symptoms and smokers were found to have relatively lower COPD knowledge. Majority (80.7%) have never attended any outreach programme. More outreach programmes should be planned and targeted at people with high risk of COPD.

OP-AH-07

Knowledge on Stroke Prevention Among People in the Community

YIN MIN THAUNG¹, ST AUNG¹, SC TANG¹, LS YEO¹

¹*National Healthcare Group HQ*

Background & Hypothesis:

In Singapore, stroke is highly prevalent and is one of the main causes of adult disability. The awareness of stroke prevention can be further improved in the community. This survey aimed to determine whether there is an increase in the awareness of stroke prevention among the people attending the stroke forum.

Methods:

Participants were given self-administered questionnaires before and after the forum. The questionnaires are designed to study the knowledge, attitude and belief towards stroke prevention. Data on demographic, knowledge, attitude and belief were collected. Chi square and Fisher's test were used for analysis.

Results:

Total of 123 participants completed the pre and post forum survey. Ninety-five percent were Chinese and 90% were above 51 years. Ninety-one percent of participants do not have stroke. Data showed an increase in awareness of healthy diet and exercise of stroke prevention. However there was no increase in understanding on causes of stroke after the forum. Twenty percent of participants showed an increase in knowledge of risks factors for stroke. Twenty-six percent of people understood the meaning of FAST (drooping of Face, drifting of one Arm, slurring of Speech and Taking action quickly) and were able to recognise the early signs of stroke. The perception for stroke risk and knowledge on treatment options did not change significantly post-forum.

Discussion & Conclusion:

The study showed an increase of knowledge on stroke risk factors. However perception of stroke risks remained unchanged. There is no baseline data on participants' risk factors for comparison. Further community health education should include the screening of risk factors of participants.

OP-AH-08

Fluorescence In Situ Hybridization (FISH) on Archival Paraffin Embedded Tissues—A Faster Approach Using Automated Scanning of Tissue Microarrays

SHIRLEY YN CHAN¹, CLM CHUA¹, HB MA¹, SB NG¹, YL CHEE¹, EYT SIM², PW TEO², L GOLE¹

¹National University Hospital, ²Ngee Ann Polytechnic

Background & Hypothesis:

Routine Fluorescence In Situ Hybridization (FISH) on formalin fixed paraffin embedded tissues (FFPE) is technically demanding, time consuming and costly. However, with recent advances in the medical field, e.g. the recent WHO reclassification of aggressive B-cell lymphomas (BCL), retrospective analyses of archival FFPE using varied FISH probes is necessary to provide us with new insights for future treatment of these patients. To study this on large numbers of archival tissues, an efficient, feasible and economical technique is required. One approach would be the use of FISH on a tissue microarray coupled with an easier capture and scoring method.

Methods:

A set of 25 patients with aggressive BCL was selected for retrospective analysis with BCL2, BCL6 and cMYC break-apart FISH probes. A tissue microarray was constructed and sections subjected to FISH followed by an automated capture process with the GSL-120 scanner. Five frames per sample spot were captured and on-screen analyses were done by 2 observers. A concurrent manual capture was also done to compare the efficacy of automation (abnormality pick-up rate, time reduction and cost).

Results:

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Discussion & Conclusion:

Using the results of the above process, the cytogenetic findings, together with pathologic and clinical features, were correlated with a view to re-classify the set of 25 patients according to the new WHO guidelines for lymphomas.

OP-AH-09

To Reduce the Outpatient TCUs Default Rate in Ward 33B in Schizophrenia and Delusional Disorder Patients

SERLINA SL ENG¹, SDS PILLAI¹, JY TEY¹, GA FERNANDEZ¹

¹*Institute of Mental Health*

Background & Hypothesis:

Institute of Mental Health (IMH) faces a high default rate for TCU or follow-up appointments. According to data from March 2010 to March 2011, the hospital's average monthly TCU default rate stood at 18.67%. In ward 33b, the default rate was 12%. A Clinical Practice Improvement Project was initiated to reduce the rate of TCU in April 2011.

Methods:

A root-cause analysis was used to identify the real cause of high default rate. Thus, a more targeted framework was designed to solve the problem. At the same time, a cost and benefit analysis ensured the team's solutions are both cost-efficient and effective.

Results:

The first intervention ensured every patient's experience at IMH was as satisfactory as possible. On top of a telephonic case management after a patient is discharged, the case manager would also meet patients and families in the Specialist Outpatient Clinic (SOC). The second intervention enhanced reminder aids. Prior to patient's discharge from IMH, case manager would prepare a reminder post-it note which contained subsequent appointment details and well wishes. One month after the first intervention, outpatient TCU default rate experienced an improvement, falling by 8% from 12% to 4%. The percentage of re-admissions reduced by 66% and resulted in significant cost savings to the hospital.

Discussion & Conclusion:

When TCU default rate falls, the number of patients who are at risk of relapse is likely to improve, leading to fewer re-admissions. Thus, the hospital could reduce its operational cost. More importantly, resources could be directed to patients who needed them more.

OP-AH-10

Low Cost Paper-Based Electrochemical Device to Measure Glucose in Biological Fluids for Diabetics

RADHA SWATHE PRIYA MALON MARUGAN¹, D WICAKSONO¹, E CÓRCOLES¹, RSPM MARUGAN¹

¹*Universiti Teknologi Malaysia*

Background & Hypothesis:

According to WHO, 346 million people worldwide are diabetics and require tight glycemic monitoring and control. This makes glucose the most commonly tested analyte and creates a huge market for glucose biosensors. In this research, diabetes was used as a model disease for developing a low-cost biosensor, Paper-based Electrochemical Device (PED) for glucose measurement in biological fluids.

Methods:

Three-electrode configuration sensors was fabricated by applying conductive carbon paste as both, working and counter electrodes and Ag/AgCl paste as reference electrode onto a filter paper. After drying, the glucose oxidase (GOD) enzyme cross-linked with glutaraldehyde and modified with ferrocene was immobilised on the working electrode of the biosensor. In order to create a hydrophilic sample placement zone bounded by hydrophobic barrier, the designed pattern was printed on a wax-impregnated paper and subsequently transferred to the filter paper by heat treatment. To demonstrate the practicality of the biosensor, glucose standard solutions were tested as the sample as enzymatic generation of hydrogen peroxide (H₂O₂) takes place in the presence of glucose, resulting in a current change proportional to the concentration of glucose in the sample and this was monitored using a potentiostat.

Results:

The detection limit of glucose in the PED is about 0.2 mM which is lower than the approximately 1.0 mM specified by conventional glucometers.

Discussion & Conclusion:

The low detection limit of the biosensor coupled with the high sensitivity and accuracy makes the PED suitable to measure glucose in biological fluids such as serum, urine and saliva samples.

OP-AH-11

Moving Part of Pharmacy Dispensing Process Upstream and into Clinics

LYNN C KWA¹, HY LIM¹, CL KOH¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Waiting time is one of the major determinants of patient satisfaction in health care services. This project aims to reduce the rework rates at dispensing, which significantly delay patient waiting time by moving the prescription registration process upstream at the clinics.

Methods:

The experiment was carried out at Clinic 5A from 1 June 2011 till 31 August 2011 where patients saw the pharmacy technician located at the clinic and confirm their medication orders. A patient survey was conducted during dispensing that includes patient perceived waiting time and satisfaction with this service to review the effectiveness of this project. In addition, baseline data of rework rate for Outpatient Pharmacy was collected for comparison purpose.

Results:

Rework rates effectively reduced from baseline of 15% to 4.22%. The largest reduction of rework was repacking and billing issues comparing between baseline (L2P) and experiment (Clinic 5A). The highest rework observed was repacking, which were 22 out of 54 reworks (40%) and the lowest was billing (6%). Ninety-six percent of patients collected medications within the current 15 minutes target. A total of 95% patients perceived that acceptable waiting time was within 15 minutes. Ninety-two percent of survey participants agreed that this service will shorten waiting time.

Discussion & Conclusion:

Waiting time, patient satisfaction and rework rates had improved by confirming medication orders at clinics instead of pharmacy. This allows increases efficiency as queries from patients can be settled at upstream. It also brings about a paradigm shift of the usual pharmacy process and enables pharmacists to spend more time on valuable counseling.

OP-AH-12

The Role of Intrinsic Motivation in a Group of Low Vision Patients Participating in a Self-Management Program to Enhance Self-Efficacy and Quality of Life

PETER KC TAY¹, **VB DRURY**², **S MACKEY**³

¹National University of Singapore, ²Curtin University of Technology, ³University of Western Sydney

Background & Hypothesis:

Self-management programs were previously found to decrease health problems, enhance quality of life and increase independence. However, there is no evidence in the literature that examined the influence of the participants' intrinsic motivation on the outcomes of such programs. This study examined the role of intrinsic motivation in the pilot 'Singapore Low Vision Self-Management Program' (SLVSMP) to enhance self-efficacy and quality of life of the program participants.

Methods:

Nine patients with visual acuity 6/24 or worse were included in the pilot study and undertook the self-management program. There were 5 male and 4 female participants, aged 50 to 74 years (Mean = 63, SD = 9.24). Self-efficacy was evaluated using the General Self-Efficacy Scale (GSS) and Quality of life was assessed through the Low Vision Quality of Life Questionnaire (LVQoL). GSS and the LVQoL were administered once prior to the commencement of the intervention and again at the end of the last session of the intervention program. The intrinsic motivation inventory was administered once at the last session of the intervention program.

Results:

A positive association was observed for the female participants' perceived choice and perceived competence, 2 underlying dimensions of the intrinsic motivation inventory. In addition, a positive correlation was observed between the younger participants' perceived competence and the change in their quality of life.

Discussion & Conclusion:

The SLVSMP is a feasible program to carry out in small groups of approximately 10 participants. The findings provide some support for consideration of participants' intrinsic motivation in the development of effective self-management programs.

OP-AH-13

Physiotherapy Face-to-Face and Telephone Reviews in Multiple Sclerosis: A Qualitative Investigation in Ireland

MARIE CONDON¹, S COOTE²

¹Tan Tock Seng Hospital, ²University of Limerick, Ireland

Background & Hypothesis:

Guidelines recommend People with Multiple Sclerosis (PwMS) receive regular physiotherapy reviews (NICE, 2003). However it is unclear how PwMS are currently reviewed. Reviews can be face-to-face, telephone or postal. The telephone is increasingly used to improve access to healthcare systems. No research is available on TRs with PwMS. Qualitative research would provide information-rich data on the topic. To explore: (i) how Irish physiotherapists currently review PwMS and (ii) physiotherapists' opinions of telephone reviews (TRs) in this population.

Methods:

Three focus groups were conducted. Purposive sampling identified physiotherapists working in urban (n = 4) and rural (n = 2) primary care and an acute hospital (n = 3). The researcher moderated discussions adhering to a questioning route. Sessions were audio-recorded, transcribed verbatim and one researcher performed thematic analysis.

Results:

Physiotherapists reported not regularly reviewing PwMS due to service constraints and inconsistencies in review pathways. Service provision by MS-Ireland lessened the need to perform reviews. TRs were perceived beneficial. Concerns regarding compromised quality of care arose due to loss of visual cues, patients' self-reporting ability and confidentiality issues. Patients known to therapists to be reliable in self-reporting and the use of a structured review assessment based on function, would ease these concerns.

Discussion & Conclusion:

Physiotherapists are not regularly reviewing PwMS due to healthcare cutbacks and problems with patient pathways. TRs are possible if the patient is known to the therapist and reviews question patient functioning. Used appropriately, TRs have potential to be beneficial. Further research with a larger cohort is required to ascertain actual benefits and to ensure the safety of TRs in MS.

OP-AH-14

Accuracy of Spinal Palpation Between Students and Clinicians: A Pilot Study

PEI WEN KWOK¹, **S CHAUDHARY**², **R LI**², **H OWCHAR**², **A WONG**², **GN KAWCHUK**²,
NG PRASAD²

¹Tan Tock Seng Hospital, ²University of Alberta

Background & Hypothesis:

Palpation is a skill required by many clinicians for the identification of certain anatomic landmarks. While the reliability of palpation has been shown to be moderate in most applications, the validity of palpation is largely unknown. The objective of this study was to compare palpation accuracy in the lumbar spine between physiotherapy students and experienced clinicians.

Methods:

Ultrasonic imaging was used in conjunction with optical tracking to identify the reference coordinates of the spinous processes of L1, L3 and L5, and the transverse processes of L2 (right) and L4 (left) in 2 asymptomatic subjects. A cohort of 18 physiotherapy students and a cohort of 5 practicing clinicians blinded to the reference data were then asked to identify each landmark using their preferred method of palpation. Palpation error was calculated as the absolute difference in the superior-inferior direction between the ultrasonic reference location and the palpated point.

Results:

The mean palpation error (with 95% CI) for all landmarks was 22.1 mm for the student group and 16.1 mm for the clinician group. Overall, the students correctly identified the spinal level 21.2% of the time, while the clinicians did so 31.1% of the time. A 2-way ANOVA analysis demonstrated significantly higher palpation error in the student group versus the clinician group, as well as a significant main effect of landmark on accuracy. The interaction between experience and landmark was not significant.

Discussion & Conclusion:

These results support the hypothesis that palpation accuracy improves with experience and that some landmarks have higher palpation error regardless of experience.

OP-AH-15

Reliability and Validity of Four Square Step Test in Subjects with Chronic Stroke

ESTHER YF GOH¹, SYQ CHUA³, SJ HONG²

¹National Healthcare Group HQ, ²Khoo Teck Puat Hospital, ³Tan Tock Seng Hospital

Background & Hypothesis:

This study aims to establish (1) the intra-rater and inter-rater reliability of four square step test (FSST) scores in subjects with chronic stroke, (2) the FSST's known-groups validity and cut-off score for distinguishing subjects with chronic stroke from healthy adults older than 50 years, and (3) the convergent validity of FSST score with balance and functional performance.

Methods:

Design: Cross-sectional study. Setting: University-based rehabilitation center. Participants: Convenience sample of subjects (n = 30); community-dwelling subjects with chronic stroke (n = 15) and healthy adults older than 50 years (n = 15). Interventions: Not applicable. Main Outcome Measures: FSST scores; Berg Balance scores; Time-Up and Go test (TUG) scores; Limits of Stability (LOS) measured by SMART Balance Master®.

Results:

FSST scores showed excellent intra-rater reliability with intraclass correlation coefficient ranging from 0.825 to 0.831 and inter-rater reliability of ≥ 0.999 . A FSST cut-off score of 11 seconds were found to be the best discriminators between healthy adults older than 50 years old and subjects with stroke at a sensitivity of 73.3% and a specificity of 93.3%. FSST was found to be correlated with TUG scores and LOS scores for end point excursion in the forward direction and directional control in the backward direction, but not with BBS scores.

Discussion & Conclusion:

FSST is an easy to administer clinical test with excellent intra-rater and inter-rater reliability. Significant negative correlation with LOS and TUG scores strengthens the use of FSST in assessing dynamic standing balance in patients with stroke.

OP-AH-16

Virtual Reality and Dance Movement Therapy on Children with Cerebral Palsy

CHERYL KK TAN¹, **BS RAJARATNAM**³, **M NG**³, **HY LIM**², **HL WAN**¹, **SASS LIM**³,
JSQ LEE⁴, **RWY CHAY**³, **DS KUMAR**⁵

¹Tan Tock Seng Hospital, ²Changi General Hospital, ³Nanyang Polytechnic, ⁴National Heart Centre,
⁵Spastic Childrens Association of Singapore

Background & Hypothesis:

This pilot study is to explore the feasibility and efficacy of virtual reality (VR) and dance movement therapy (DMT) as an adjunct therapy for children with cerebral palsy (CP) in improving postural control and lower limb coordination.

Methods:

Seven children, aged 10 to 16 years old from the Spastic Children's Association of Singapore (SCAS) were recruited. The control group (n = 4) continued with regular conventional physiotherapy, while the experimental group (n = 3) underwent 12 sessions of 35 minutes of intervention, one session per week, conducted using Nintendo Wii Dance Dance Revolution Disney Grooves™, on top of regular conventional physiotherapy. The outcome measures used for postural control were the Modified Timed Up and Go test (TUG), Wii Balance Board (WBB) and Functional Reach Test (FRT). For lower limb coordination, the LEMOCOT and Step Test were used. Data for all outcome measures were collected at baseline and post-intervention.

Results:

There were no statistically significant differences post-intervention. A greater improvement was seen in the FRT and WBB scores for the experimental group as compared to the control group. Mean improvements of 7.67cm in the FRT scores and 230.33 points in the WBB were shown. There were no positive changes in the TUG test and lower limb coordination outcome measures.

Discussion & Conclusion:

It is feasible for VR and DMT to be used in a group to improve postural control, and there were no adverse effects as well. LEMOCOT is feasible to be used in children with CP, and may be more accurate when used in a homogenous group of children with CP.

OP-AH-17

Antidepressants and Benzodiazepines Use: Results from the Singapore Mental Health Study

MYTHILY SUBRAMANIAM¹, JA VAINGANKAR¹, VFH YAO¹, E ABDIN¹, SA CHONG¹

¹*Institute of Mental Health*

Background & Hypothesis:

The aims of the current study were to establish the prevalence and factors associated with the use of antidepressants (ADs) and benzodiazepines (BZDs) in Singapore.

Methods:

This study is based on data from the Singapore Mental Health Study (SMHS) - a nationally representative survey of the adult Singapore Residents who were interviewed face to face with the Composite International Diagnostic Interview version 3.0 (CIDI-3.0) to establish the diagnosis of mental disorders and medication use. Help-seekers for the purposes of this study were defined as those who had consulted a psychiatrist, general practitioner or any other medical doctor for their emotional or mental health problems.

Results:

The overall prevalence estimates for ADs and BZDs use during the 12 months prior to the interview were 1.1% and 1.2% respectively. The prevalence rates of ADs and BZDs use were significantly different across ethnicity, marital status and education. Help-seeking for emotional or mental health problems was the most important predictor for the use of ADs and BZDs—help-seekers were much more likely to use ADs (adjusted OR: 31.6, 95% CI, 13.4 to 74.8) and more likely to use BZDs than non-help-seekers in the previous 12 months (adjusted OR: 34.4, 95% CI, 13.0 to 91.2).

Discussion & Conclusion:

The use of ADs and BZDs in our population was low as compared to studies conducted in Western populations. 'Help-seeking' was the most important predictor of the use of ADs and BZDs in the population. The findings highlight the issue regarding the appropriateness and adequacy of the prescription of these medications.

OP-AH-18

Predicting Peak Cycle Work Rate from the Six-minute Walk Test in Chronic Obstructive Pulmonary Disease (COPD)

RAHIZAN ZAINULDIN¹, JA ALISON², MG MACKEY²

¹Alexandra Hospital, ²The University of Sydney

Background & Hypothesis:

Equations predicting peak work rate (W_{peak}) on an incremental cycle test (ICT) from a 6-minute walk test (6MWT) have been developed but W_{peak} estimates differed significantly from actual W_{peak} . Since peak oxygen consumption (VO_2) from the 6MWT and ICT have been shown to be equivalent in moderate to severe chronic obstructive pulmonary disease (COPD), it may be possible to use VO_2 as the common measure between 6MWT and ICT to improve the accuracy of the predictive equations. The study aimed to develop equations to estimate W_{peak} of an ICT from a 6MWT using VO_2 as the common link.

Methods:

Participants performed an ICT and two 6MWTs. Gas exchange during exercise tests was measured by a portable gas analyser. Analyses performed were: (i) A stepwise multiple regression analysis with independent variables of gender, age, height, FEV1 and 6MWwork (product of 6MWdistance and weight) was used to develop an equation predicting $\text{VO}_{2\text{peakICT}}$; (ii) Slopes and intercepts of the relationship between $\text{VO}_{2\text{ICT}}$ and work rate for each participant were averaged.

Results:

Fifty participants with Chronic Obstructive Pulmonary Disease (COPD) (mean [SD] FEV₁ = 57 [18] %predicted) were recruited. The mean peak VO_2 measured in the 6MWT and ICT were not significantly different. From the stepwise analysis, the regression equation was $\text{VO}_{2\text{peakICT}} = 0.018 * 6\text{MWwork} + 7.57 * \text{Ht} - 737.3$, ($r = 0.63$). The subsequent equation to predict W_{peak} using the mean slopes and intercepts was developed as: $W_{\text{peak}} = (\text{VO}_{2\text{peakICT}} - 429) / 10.2$.

Discussion & Conclusion:

The calculation of a W_{peak} from a clinically available 6MWT via these equations may aid prescription of cycle training intensity when an ICT is unavailable.

OP-AH-19

A Common Understanding on the Level of Assistance and Reliability of 4C-Test among Physiotherapists

SALAN YO CHUA¹, WW SEAH¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Independent, supervision, contact guard, minimal assistance, moderate assistance, maximum assistance are common terms used by therapists when assessing functional mobility of patients. However, there appears to be no standardised understanding on the various level of assistance. The objective is to develop a standardised concept on the understanding of the various “level of assistance” and establish the inter-rater reliability of 4C Test when assessing the level of assistance a patient requires during functional mobility. Hypothesis: Good reliability exists when using 4C-Test.

Methods:

Thirty-one inpatient physiotherapists in Tan Tock Seng Hospital (Singapore) were selected to participate in a questionnaire and video survey to rate the level of assistance of 8 functional mobility based on their existing understanding of the level of assistance. The physiotherapists were then introduced to the 4C-Test with new definitions modified from Functional Independence measure (FIM) and concept of the level of assistance using videos illustration and hand-outs provided. A similar questionnaire and a new set of 8 videos were shown to the physiotherapists 2 weeks later. They were required to rate the level of assistance by subjects in the video to complete the task.

Results:

All physiotherapists surveyed defined level of assistance as the amount of help that patient required in completing the task. (Agreement = 100%, Fleiss Kappa = 0.654). Substantial to almost perfect agreement were found in rating the 8 videos post-test (Fleiss Kappa = 0.65 to 1.00) after administering the 4C- Test. (Pretest Fleiss Kappa = 0.29 to 0.6)

Discussion & Conclusion:

The 4C-Test is a reliable tool that can potentially be applied in the clinical setting to rate the level of assistance during functional mobility.

OP-AH-20

Ambulatory Nutrition Support Service Improves the Follow-Up Rate and Nutrition Status of Malnourished Patients Post-Discharge

SU LIN LIM¹, **CXH LIN**¹, **YH CHAN**¹, **M FERGUSON**², **L DANIELS**³

¹National University Hospital, ²Princess Alexandra Hospital, Australia, ³Queensland University of Technology, Australia

Background & Hypothesis:

Malnutrition is common among hospitalised patients, with a low follow-up rate post-discharge. To date, no studies have been published on the efficacy of ambulatory nutrition support (ANS) for malnourished patients discharged from hospital. The aims of this study were to determine Dietetics follow-up rate of malnourished patients post-discharge and evaluate a 5-month ambulatory nutrition support (ANS) implemented in 2010.

Methods:

Consecutive samples of 261 (year 2008) and 163 (year 2010) adult inpatients referred to the dietitians and assessed to be malnourished using Subjective Global Assessment (SGA) were enrolled in this study. Body weight, SGA, Quality of Life (EQ-5D VAS) and handgrip strength were measured at baseline and 5 months post-ANS for patients enrolled in 2010. Paired t-test was used to compare baseline and post-intervention results.

Results:

In 2008, 14.9% of the 261 patients returned for follow-up with the dietitians in the first 5 months post-discharge. After the implementation of ANS in 2010, the follow-up rate of malnourished inpatients referred to dietetics was 100%. Five months post-ANS, there were significant improvements in mean weight (from 44.0 ± 8.5 kg to 46.3 ± 9.6 kg), EQ- 5D VAS (from 61.2 ± 19.8 to 71.6 ± 17.4) and handgrip strength (from 15.1 ± 7.1 kg force to 17.5 ± 8.5 kg force); $P < 0.001$ for all. Seventy-four percent of patients showed improvement in SGA score.

Discussion & Conclusion:

Ambulatory Nutrition Support makes significant improvements to the nutritional status and quality of life of malnourished patients discharged from hospital. Incorporating ANS for post-discharge malnourished patients in the community setting should be considered.

OP-AH-21

Factors Affecting the Decision Making of an Appropriate Discharge Planning Among Junior Physiotherapists in Tan Tock Seng Hospital

SAW LAI AIK¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Tan Tock Seng Hospital is an acute tertiary care hospital with high occupancy rate. Appropriate discharge planning plays an important role to minimise bed crunch situation. The physiotherapist (PT) plays an important role in the complex process of discharge planning as PT makes recommendation for discharge planning after the initial assessment. Inappropriate discharge planning may result in an increase length of stay in the hospital, thus, worsening the hospital bed crunch situation. The aims of the study are to evaluate (i) whether junior PT are making appropriate discharge recommendations and (ii) the possible factors that may affect a physiotherapist's decision with discharge planning. It is hypothesised that junior PT makes inappropriate discharge recommendations.

Methods:

For this pilot study, a discharge planning review form was created to collect cases that the junior PT finds the discharge plan for patients challenging after their initial assessment. The junior PT discussed the discharge plan for these cases with the senior PT. The agreement between the junior and senior PT discharge plan for all the patients was analysed.

Results:

Ninety-two cases were discussed. The PT discharge recommendations for 85 cases (92.4%) were appropriate. Seven cases (7.6%) were inappropriate.

Discussion & Conclusion:

The most common factor affecting junior PT discharge recommendation was due to inadequate clinical knowledge in predicting the rehabilitation potential and outcome for patients. The preliminary results suggest that an intervention that aims at improving the clinical knowledge in predicting rehabilitation potential and outcome may potentially further minimise inappropriate discharge recommendations among junior PT.

OP-BSTR-01

Cognitive Style and the Relation to Lateralized Processing of Visual Spatial and Facial Emotion Stimuli

PETER KC TAY¹

¹*National University of Singapore*

Background & Hypothesis:

The E-S model describes the 2 sexually dimorphic cognitive styles systemising and empathising. Systemising refers to an individual's motivation to extract patterns and rules governing a system. Empathising refers to one's motivation to identify and respond appropriately to another's emotions and thoughts. At current, while the concept of cognitive style has been alluded to the operations of laterality, no research has confirmed that. In addition, the overemphasis of data drawn from the clinical population limits the generalisability of the E-S model. The present study explored the association between cognitive styles and cognition by using a 2-part spatial and social experimental task.

Methods:

One hundred and three male participants aged 19 to 34 years volunteered for the study. The systemising/empathising quotient questionnaire (Baron-Cohen, 2003) was administered to the participants to determine their cognitive styles. Subsequently, the participants' cognition was measured using a computer reaction timed task based on an existing visual spatial methodology (spatial categorisation and spatial coordinate) (Kosslyn, et al, 1989) and a novel facial emotion recognition task (happy, angry, sad and fearful) modeled after the visual spatial task.

Results:

Results indicate that cognitive style is predictive of facial emotion recognition (happy, angry and sad) and spatial categorisation task but not spatial coordinate task. The effect of laterality was observed for all the tasks.

Discussion & Conclusion:

The oversimplified convention of left/right hemispheric specialisation in verbal/spatial information should be reexamined in the context of cognitive styles. In addition, the current study demonstrates some evidence for the precedence of laterality over cognitive styles for both spatial and social cognition.

OP-BSTR-02

Electrophysiological Mechanisms of Atrial Fibrillation Suppression Using Red Wine Antioxidant Resveratrol in Langendorff Heart Model

ERIC CHONG¹, **SL CHANG**², **SA CHEN**²

¹Alexandra Hospital, ²Veteran General Hospital Taipei

Background & Hypothesis:

Resveratrol, a red wine antioxidant, has beneficial effects against ischemic perfusion injury and ventricular arrhythmia. Its electrophysiological characteristics on atrial fibrillation (AF) are largely unknown. Our study aimed to assess AF suppression effect of Resveratrol in isolated perfused rabbit hearts.

Methods:

Six heart failure rabbits using coronary artery ligation model were sacrificed for Langendorff perfusion study. Electrophysiological study (EPS) at 300 and 250 pacing cycle length (CL) was performed at baseline and after 30 min of resveratrol perfusion (10 μ M). Diphenyliodonium (DPI), a nitric oxide synthase (NOS) inhibitor, was then added and followed by EPS.

Results:

Resveratrol reduced the action potential duration (APD90) and action potential amplitude (APA) from baseline. It significantly suppressed AF episodes and early or delayed after-depolarisation. NOS inhibitor DPI reinitiated AF episodes and reversed APD90 closer to baseline. Tissue histology was analysed using western blot and immuno-staining. Electrophysiological parameters at baseline, after Resveratrol and DPI were presented below with *P* value. Activation time (ms) 7.4 vs 8.0 vs 6.8, *P* = 0.326. APD90 (ms) 124.8 vs 77.9 vs 100.3, *P* <0.001. APA (mV) 29902 vs 29036 vs 16114, *P* <0.001. Slope (mV/ms) 9377 vs 12976 vs 14396, *P* <0.001. AF episodes 22.5% vs 0% vs 12.5%, *P* = 0.001. Early after depolarization (EAD) 12.2% vs 0% vs 17.5%, *P* = 0.001. Delay after depolarization (DAD) 8.5% vs 0% vs 25.8%, *P* = 0.001. Histology and molecular findings will be presented in the meeting.

Discussion & Conclusion:

Resveratrol suppressed AF in heart failure animal model via enhancement of NOS pathway. Resveratrol can be a potentially useful drug for treatment of AF.

OP-BSTR-03

Gene Expression Profiling of Peripheral Blood Leukocytes Shows Consistent Longitudinal Downregulation of TOMM40 in AD Subjects and Upregulation of PLOD1, SLC2A8, KIR2DL5A in Fast Alzheimer's Disease (AD)-Progressors

MEI SIAN CHONG¹, **LK GOH**², **WS LIM**¹, **MPC CHAN**¹, **L TAY**¹, **GB CHEN**², **L FENG**³, **TP NG**³, **CH TAN**⁴, **TS LEE**²

¹Tan Tock Seng Hospital, ²Duke-NUS Graduate Medical School, ³National University Health System, ⁴National University of Singapore

Background & Hypothesis:

Differential mRNA gene expression may lead to different levels of protein translation and potentially to disease phenotypes. We previously reported TOMM40 was significantly down-regulated in blood of AD subjects. In this report, we present data on blood gene profiling differences over a one-year period comparing early AD subjects based on disease progression.

Methods:

We studied 29 probable AD subjects with Clinical Dementia Rating (CDR) score between 0.5 and 1. We performed serial 6-monthly clinical assessments and blood sampling over a 1-year period. Eight subjects were defined as fast AD-progressors (CDR–sum of boxes (SOB) increase ≥ 2) and 21 slow AD-progressors. Controls were matched for age, race and gender. RNA was extracted from whole blood and met stipulated quantity and quality control (RIN >5.5). Microarray profiling was performed using the Illumina® Human-6 Expression BeadChips and normalised with the RMA algorithm. Batch differences were observed and adjusted with ANOVA model. Differentially expressed genes between AD fast- and slow-progressors were assessed using the Partek© software.

Results:

No clinical or neuroimaging differences were noted between AD fast- and slow-progressors. TOMM40 gene expression remained significantly lower in AD patients at baseline, 6 and 12 months compared to controls. We found statistically significant increases in PLOD1, SLC2A8 and KIR2DL5A ($P < 0.05$) for fast- compared with slow-progressors consistently across all 3 time-points.

Discussion & Conclusion:

Our novel findings of longitudinally lower TOMM40 expression, and specific gene expression differences between fast- and slow-progressors in the absence of clinical changes, suggest the potential role of gene profiling as a prognostic blood biomarker in AD.

OP-BSTR-04

Molecular Profiling of Circulating Tumour Cells (CTCs) as a Companion Diagnostic Tool in Cancer Management—Early Clinical Validation Results

SALMUN LEONG¹, **MC HUANG**¹, **HW CHUA**³, **WC CHEONG**², **WS CHONG**⁴, **N OSMAN**⁴, **A TAN**⁴, **MH LI**², **ESC KOAY**¹

¹National University Hospital, ²Cell Sievo Pte Ltd, ³National University of Singapore, ⁴Ngee Ann Polytechnic

Background & Hypothesis:

Circulating tumour cells (CTCs) derived from primary tumours and shed into the bloodstream are a surrogate source of cancer cells that can be obtained in real time and CTC-based molecular diagnostics may be developed to guide treatment decisions.

Methods:

A microsieve-centred device, patented by our bioengineering partners, was used to capture and enumerate CTCs in fresh blood (~10 mL) of breast, colorectal and prostate cancer patients. CTCs were captured on the microsieve by size exclusion and deformability differential. Contamination by rbc's and wbc's were minimised by immunoaffinity and filtration, and the captured CTCs recovered for molecular analysis and characterisation by FISH and qPCR protocols for microRNA biomarker profiling.

Results:

(i) CTCs were identified in most cancer patients, but not in normal subjects. Patients responding to (neo)adjuvant therapy showed decline in CTC numbers over time. (ii) We demonstrated HER2/neu overexpression in CTCs from 7 breast cancer patients. Two of these patients with HER2/neu positivity in CTCs had previously tested HER2/neu-negative for their primary tumours. (iii) MicroRNAs mediating epithelial-mesenchymal transition (EMT) and drug resistance were detected in breast cancer patients, while miR-200c, indicating a poorer prognosis, was detected in a colorectal cancer case.

Discussion & Conclusion:

Our results proved that CTCs remained viable after elution from the microsieve. Apart from fluorescence-assisted enumeration, we have successfully applied FISH and microRNA qPCR techniques on these rare cells. Discordance in HER2/neu status between CTCs and tumour biopsies, and detection of CTCs with EMT and/or drug resisting molecular signatures augment the importance of CTC-based diagnostics in guiding therapeutic decisions.

OP-BSTR-05

Transoral Robotic Anatomy of the Tonsillar Fossa and Lateral Pharyngeal Wall Using the Da-Vinci Si Robotic System—Anatomical Dissection with Radiographic and Clinical Correlation

CHWEE MING LIM¹, **V MEHTA**², **U DUVURRI**²

¹National University Hospital, ²University of Pittsburgh Medical Center

Background & Hypothesis:

The aim is to evaluate the transoral robotic anatomy of the tonsillar fossa and lateral pharyngeal wall and to correlate these findings with radiographic measurements and TORS of patients with early tonsillar tumor.

Methods:

Six complete dissections of the tonsillar fossa and lateral pharyngeal wall were performed using the Da Vinci Si robotic system. Radiographic dimensions were measured on a cohort of patients from CT-angiogram. Measurements were taken from the lateral pharyngeal wall (LPW) to the carotid arterial system taken at several bony landmarks (body of C3 and level of hyoid bone). Two consecutive patients with T1 squamous cell carcinoma of the tonsil were managed using TORS of the tonsillar tumor and correlations of these anatomical features were done.

Results:

The glossopharyngeal (IX) nerve was consistently identified deep to the superior constrictor musculature at the intersection of the posterior tonsillar pillar with the base of tongue. The styloglossus muscles form the deep plane of dissection before a transoral communication to the neck was identified. Radiographic measurements taken at the body of C3 to the ECA and ICA were (18.2 ± 1.0 mm) and (21.3 ± 0.7 mm) respectively. Similarly, the measurements from the greater horn of the hyoid bone to the ECA and ICA were (2.7 ± 1.5 mm) and (5.7 ± 0.6 mm) respectively.

Discussion & Conclusion:

A systematic approach to dissect the tonsillar fossa and lateral pharyngeal wall can be performed during TORS and we have correlated the anatomical landmarks with surgical treatment of patients with early tonsillar tumour.

OP-BSTR-06

A Locally Developed Hip Disarticulation Prosthesis: Affordable Mobility and Body Image Restoration for the Filipino Amputee

AMIEL ADAJAR¹, J BUNDOC¹

¹*University of the Philippines-Philippine General Hospital*

Background & Hypothesis:

Osteosarcoma is a primary malignant tumour involving the distal femur and proximal tibia with an incidence of approximately 1 to 3 per 1 million per year. Management options include chemotherapy and radical amputation such as hip disarticulation which adversely alters the patient's body image and limits his activities of daily living, most especially mobility.

Methods:

A 15-year-old male from Quezon Province who was diagnosed with osteosarcoma of the right distal femur with subsequent hip disarticulation in March 2009 consulted for possible fabrication of a hip disarticulation prosthesis. Physical examination revealed a surgically absent right lower extremity with no note of neuroma or phantom limb pain.

Results:

Patient is independent in donning and doffing of his prosthesis, ambulatory using the prosthesis with lofstrand crutches, independent in his activities of daily living and, most importantly, has improved body image.

Discussion & Conclusion:

Osteosarcoma is a disease that primarily renders the adolescent group handicapped. Treatment such as wide resection in the form of hip disarticulation impairs mobility as well as body image. Community reintegration at this young age can only be achieved by comprehensive early pre- and post-prosthetic rehabilitation program that will optimally restore patient's body image and ambulation. More importantly, the rehabilitation program can only be possible if the components for the hip disarticulation prosthesis are locally available and affordable.

OP-BSTR-07

Co-Enzyme Q10 Supplementation Modulates Anti-Inflammatory MicroRNAs in Simvastatin-Treated Patients

SHARON PEK¹, **LF LIN**², **K WOON**², **YT LIEW**², **M LEE**², **SC LIM**², **CF SUM**², **T SUBRAMANIAN**²

¹National Healthcare Group HQ, ²Khoo Teck Puat Hospital

Background & Hypothesis:

Statin therapy is effective for reduction of cardiovascular events. In addition to their cholesterol-lowering activities, statins exert pleiotropic effects, e.g. anti-inflammation and diabetogenic. Coenzyme Q10 (CoQ10) deficiency has been proposed to be causal in statin-induced side effects. MicroRNAs are endogenous, small noncoding RNAs modulating gene expression and are key regulators in many biological processes, including insulin signaling and inflammation. In hypercholesterolemic patients, we aimed to compare changes in miRNA expression after statin therapy with/without CoQ10 supplementation.

Methods:

Patients with primary hypercholesterolemia were recruited from the Lipid Clinic, Khoo Teck Puat Hospital. This is a prospective study. Forty patients were given simvastatin (20 mg/day). Twenty patients were randomised to receive 150 mg CoQ10 supplementation and 20 to placebo of Q10. Fasting blood before and 12-weeks after treatment were collected. Serum triglyceride, total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL) levels were measured. miRNA was extracted from whole blood. miRNA profiling performed by Agilent Human microRNA array platform. Differentially expressed miRNAs with *P* values <0.05, were identified by paired-Student's t-test.

Results:

After 12 weeks of simvastatin treatment, all patients had significant reduction in LDL (*P* <0.0001). Eighteen microRNAs (related to insulin-signaling) significantly regulated both in placebo-and Q10 supplemented groups. Additional 18 microRNAs, including let-7 family, (related to inflammation) were significantly up-regulated in placebo-arm, but not in group receiving Q10 supplementation.

Discussion & Conclusion:

Coenzyme Q10 supplementation does not affect the LDL-lowering capacity of simvastatin. Additionally, coenzymeQ10 may fine-tune the inflammatory response via moderate reduction of various microRNA expression (related to inflammation).

OP-BSTR-08

Acetyl-Keto-Boswellic Acid Inhibits Tumour Necrosis Factor- alpha Activated NF-kappaB Signaling in Adipocytes

JIAN JUN LIU¹, SYLVIA¹, WC TOY¹, A CHENG¹, M WONG¹, C TAN¹, CF SUM¹, CC LIM¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Tumour necrosis factor- α (TNF- α) secreted by hypertrophic adipocytes contributes to the pathogenesis of obesity-related dysmetabolism. Increased expression of TNF- α initiates and potentiates a series of inflammation signaling cascades in adipocytes by activating NF-kappaB pathway. Acetyl-keto-boswellic acid (AKBA), a naturally occurring triterpenoid compound which is widely used as an anti-inflammation adjuvant, is a potent NF-kappaB inhibitor. We hypothesise that AKBA inhibits TNF- α actions in adipocytes by blocking NF-kappaB signaling.

Methods:

Mature mouse and human adipocytes were subjected to TNF-alpha stimulation. Monocyte chemoattractant protein-1 (MCP-1), interleukin-1 β (IL-1 β) and fractalkine expressions were assayed by real time RT-PCR and ELISA. NF-kappaB signaling was analysed by detection of cytoplasm- nuclear translocation of p65, phosphorylation of p65 and by assay of NF-kappaB promoter activity. Changes of Inhibitor of kappaB α (iKBA), total and phosphorylated ikappaB kinase α/β (IKK- α/β) were analysed by immunoblots.

Results:

Re-treatment of adipocytes with AKBA significantly attenuated TNF-alpha- induced over-expression of MCP-1, IL-1 β and fractalkine in both mouse and human adipocytes. Reduced expression of inflammation mediators in AKBA- treated adipocytes was accompanied by a lower phosphorylation of p65, reduced NF-kappaB promoter activities and increased level of inhibitor of kappaB α (iKBA) after TNF-alpha stimulation, suggesting attenuated NF-kappaB activation. Further analysis revealed that AKBA blocked TNF-alpha-induced phosphorylation of ikappaB kinase α/β (IKK- α/β), the central regulator of NF-kappaB signaling.

Discussion & Conclusion:

AKBA inhibited TNF- α - triggered NF-kappaB signaling in adipocytes. Our data suggested that AKBA may be further investigated as a potential anti-inflammation compound in obesity-related dysmetabolism.

OP-BSTR-09

Poly I:C, a TLR 3 Ligand Mediates Immune Mediated Enhanced Cytotoxicity via NK Cells in Cetuximab Mediated ADCC in Head and Neck Cancer

CHWEE MING LIM¹, R STEPHENSON², RL FERRIS²

¹National University Hospital, ²University of Pittsburgh Medical Center

Background & Hypothesis:

To determine the potential enhancement in cetuximab-mediated antibody dependent cytotoxicity (ADCC) of HNC cells by toll-like receptor 3 (TLR3)-stimulated human PBMC and to correlate these results with FcγR IIa polymorphisms on monocytes (codon 131 H/R) and FcγR IIIa polymorphisms on NK cells (codon 158 V/F).

Methods:

Cytotoxic activity of PBMC or isolated NK was determined using a Chromium51 release assay during which PBMC pre-treated with TLR3 agonist poly I:C (20 μl/mL) for 18 hours were incubated with UM-22B HNC cells and cetuximab (10 μg/mL) for 4 hours. PBMC activation was measured using a multiplex cytokine assay. FcγR IIIa-158 genotype was determined using a quantitative PCR-based assay kit. Significant differences in ADCC by FcγR IIIa were determined using a Kruskal-Wallis one way analysis of variance with a *P* value <0.05 considered statistically significant, and a post hoc Mann-Whitney non-parametric t test was performed for differences between groups with *P* <0.05 considered significant.

Results:

TLR3 stimulation enhanced ADCC in NK expressing FcγR IIIa FF genotype (3.3-fold), VF (1.6-fold) and VV (1.9-fold), with significant difference between genotypes (*P* = 0.006). TLR3 treated PBMC achieved similar enhancement in cytotoxicity compared to IL-2 treated PBMC (*P* = 0.01 vs *P* = 0.02). NK cells were the primary effectors in poly ICLC-enhanced, cetuximab-mediated ADCC. TLR3 stimulated PBMC from HNC patients were more avid effectors in cetuximab-mediated ADCC (*P* = 0.0004), and this treatment caused an additional subset of HNC patient PBMC to manifest cetuximab-mediated ADCC.

Discussion & Conclusion:

Poly ICLC enhances cetuximab mediated ADCC in HNC, and can cause PBMC from HNC patients to manifest cetuximab-mediated ADCC who had not done so previously

OP-BSTR-10

Bio-Conjugated Polycaprolactone Membrane as a Wound Dressing

ELIJAH ZY CAI¹, **EYL TEO**², **J LIM**³, **PK YUN**¹, **JWK LEE**¹, **HH CHOR**⁴, **JL HAN**⁴, **HT SWEE**¹, **J LIM**⁴, **CL THIAM**⁴

¹National University of Singapore, ²KK Women's and Children's Hospital, ³Nanyang Technological University, ⁴National University Health System

Background & Hypothesis:

Current treatment modalities for skin defects are inadequate. We have engineered a novel wound dressing by combining polycaprolactone and hyaluronic-acid. This study evaluates the efficacy and safety of bio-conjugated polycaprolactone membrane (BPM) as a wound dressing, compared to the current standard of care, Mepitel®.

Methods:

Twelve New Zealand white rabbits were used. Preoperatively, the rabbits were sedated and local anesthesia administered. Two 3.0 cm X 3.0 cm full-thickness excision wounds were created on the dorsum of each rabbit using aseptic techniques. Wounds were dressed with either BPM (n = 12) or Mepitel® (control) (n = 12), a polyamide-silicon dressing. Wounds were evaluated macroscopically on the 7th, 14th, 21st and 28th postoperative days for granulation, re-epithelialization, wound size and infection. Batches of rabbits were euthanised at similar time points. Wounds were excised for histology with haematoxylin and eosin, and Masson's trichrome stains. Specimens were examined for epidermal and dermal regeneration, along with collagen and elastic fiber deposition.

Results:

Macroscopically, wounds of both groups showed comparable extent of granulation and re-epithelialization throughout the study period. No signs of infection were observed. The mean wound sizes of both groups at the different time points were not statistically different (t-test: $P > 0.05$). BPM (n = 6): 8.33cm², 4.90cm², 3.12cm², 1.84cm²; Mepitel® (n = 6): 10.29 cm², 5.53cm², 3.63cm², 2.02cm²; at 7th, 14th, 21st and 28th postoperative days respectively. Histology showed comparable extent of epidermal and dermal regeneration, and comparable extent of elastic and collagen fiber deposition.

Discussion & Conclusion:

1. BPM is comparable to Mepitel® as a safe and efficacious wound dressing 2. BPM is non-toxic and is able to facilitate wound healing.

OP-BSTR-11

Blood Pressure and Retinal Microvascular Characteristics During Pregnancy

LING JUN LI¹, **SM SAW**², **YS CHONG**¹, **TY WONG**³

¹National University Hospital, ²National University of Singapore, ³Singapore National Eye Centre

Background & Hypothesis:

Changes in maternal blood pressure during pregnancy are associated with poor maternal and neonatal outcomes. We investigated whether maternal blood pressure during midpregnancy has an impact on the retinal microcirculation among pregnant Asian women.

Methods:

Total of 665 pregnant women aged 18 to 46 years were recruited from the Growing Up in Singapore Towards Healthy Outcomes Study. Blood pressure and retinal vascular parameters were both measured at 26 weeks' gestation following a standardised protocol. Blood pressure was measured by a digital automatic blood pressure monitor (Omron HEM 705 LP). Quantitative retinal vascular parameters were assessed by a semiautomated computer-based program (Singapore I Vessel Assessment, version 3.0).

Results:

In multiple linear regression models, every 10 mm Hg increase in mean arterial blood pressure was associated with a 1.9 μm ($P < 0.001$) reduction in retinal arteriolar caliber, a 0.9° ($P = 0.05$) reduction in retinal arteriolar branching angle, and a 0.07 ($P < 0.01$) reduction in retinal arteriolar fractal dimension, respectively. Patients classified into a high-risk group in developing preeclampsia (mean arterial blood pressure [MABP] ≥ 90 mm Hg) were twice as likely (odds ratio 2.1 [95% CI, 1.0 to 4.4]) to have generalised retinal arteriolar narrowing compared with those classified into a low-risk group (MABP < 90 mm Hg). Retinal venular caliber and vascular tortuosity were not associated with blood pressure measures.

Discussion & Conclusion:

Elevated blood pressure is associated with a range of retinal arteriolar changes in pregnant women, providing evidence for an impact of blood pressure on the microcirculation during pregnancy.

OP-BSTR-12

Analysis of Semantic Fluency Data

SARA ANN LEE¹

¹*National University of Singapore*

Background & Hypothesis:

Verbal Fluency is a cognitive domain found consistently impaired in schizophrenia. It is a crucial predictor of psychosis and is associated with neuregulin polymorphisms. Processes of lexical retrieval or storage are purported to be impaired in schizophrenia, however mechanisms underlying these deficits remain poorly understood. A novel method of analysing semantic fluency data is proposed: one that maximises variances of each lexicon via application of feature vector weights to the coding of semantic fluency responses. We hypothesise that the lexicon produced during a fluency task can be deconstructed into their feature components.

Methods:

One hundred most frequently generated words from a healthy community sample (n = 1012) recruited on the Singapore Translational and Clinical Research in Psychosis was used as a reference to generate further lexical features. Subsequently, 100 independently recruited undergraduate participants were asked to generate feature descriptions of a randomised list of 25 words from the original 100 words.

Results:

Hierarchical bicluster analysis and linear probability modelling revealed hierarchical organisations of features pertaining to each word stimuli presented. Features are organised in superordinate as well as subordinate levels, confirming the spreading activation hypothesis.

Discussion & Conclusion:

Preliminary results of our training data suggest that underlying feature relationships can be elucidated and potentially applied to larger semantic fluency databases, in particular those of schizophrenia cases. This could potentially uncover important lexical production patterns that might yield greater insights to anomalies occurring with respect to the neural substrates of schizophrenia.

OP-BSTR-13

Identifying Candidate Genes Associated with Non-Syndromic Developmental Delay at the Microdeletion16p11.2 Locus

KAR MUN EU¹, **R YAN**¹, **PS LOW**¹, **E LIM**², **EC TAN**, **PS LAI**¹
¹National University of Singapore, ²KK Women's and Children's Hospital

Background & Hypothesis:

It is postulated that chromosome 16p11.2 locus is prone to recurrent rearrangements due to prevalent Low Chain Repeats. Submicroscopic recurrent 16p11.2 rearrangements have known association with neurodevelopmental disorders, however, the precise causative genes is not yet fully elucidated. In this study, we identified a submicroscopic 1.4 Mb deletion mapped to 16p11.2. We hypothesise that haploinsufficiency in this locus could contribute towards clinical outcome for these disorders.

Methods:

Comparative genomic hybridization (CGH) analysis was used to detect copy number variations (CNVs), followed by gene prioritisation through literature review and bioinformatics tools (Suspects, PosMed and Endeavour). Gene dosage analysis was performed by quantitative real-time PCR (RT-PCR). Quantification of candidate gene targets normalised to control, and relative to calibrator was performed by $2^{-\Delta\Delta C_t}$ calculations.

Results:

The 16p11.2 microdeletion region contains 29 known genes. We found 6 annotated genes (*EIF3CL*, *CLN3*, *ATXN2L*, *QPRT*, *C16orf54*, *ZG16*) to be hemizygous through RT-PCR analysis, spanning 28.39 Mb to 29.80 Mb on chromosome 16. *QPRT* and *ATXN2L* may play a role in neurological deficits based on their protein functions. Comparison of 6 patients with deletion encompassing the typical and atypical 16p11.2 microdeletion regions show minimum overlaps of 28.398 Mb to 30.085 Mb. Patients exhibited developmental delay, with varying incidence of hyperactivity, behavioural problems and congenital abnormalities.

Discussion & Conclusion:

We identified a novel microdeletion in 16p11.2 locus overlapping the 2 previously reported typical and atypical 16p11.2 microdeletion regions associated with developmental delay, thus extending the spectrum of chromosomal rearrangements in this region. This deletion spanned 29 genes, and *QPRT* and *ATXN2L* may be candidate causal genes associated with developmental delay phenotypes.

OP-BSTR-14

Clinical Features of Dengue Fever in Hyderabad Sindh

SAIRA BALOCH¹, M ALI PIR¹

¹*Liaquat University of Medical & Health Sciences (LUMHS) Jamshoro, Pakistan*

Background & Hypothesis:

To study the history of ailment in terms of clinical presentation and outcome regarding hospitalised patients with confirmed cases of dengue infection.

Methods:

A brief study of case series have been conducted at LUMHS during the period from September to November 2010. Patients exhibiting vigorous symptoms like fever and manifestations of suspected dengue infection were surveyed with respect to clinical presentation, investigations, management and outcome.

Results:

A total of 500 patients admitted with suspicious symptoms of dengue fever were kept under observation and further study. To confirm Dengue fever, antibody IgM was tested upon all suspected patients along with CBC, PT/aPTT, Blood C/S, Serum protein and chest X- ray. The 432 patients with positive Dengue fever, IgM test were been taken for further evaluation. It has been observed that common noticeable symptom among dengue patients was fever (100%), rash (71.17%), vomiting (52.25%), hemorrhagic manifestation (36.03%) and fits (5.40%). Among those 432 dengue infection positive cases, 65 (58.58%) were Dengue Fever (DF) cases, 40 (36.03%) were Dengue Hemorrhagic Fever (DHF) and 6 (5.4%) were cases of Dengue Shock Syndrome (DSS). Among all, 2 patients expired during their treatment at hospital.

Discussion & Conclusion:

A high percentage of dengue infection positive cases among suspected patients were observed and a significant proportion of dengue hemorrhagic fever and dengue shock syndrome cases demands careful and thorough investigation and management to form a treatment strategy.

OP-BSTR-15

Effects of Guava (*Psidium guajava* L.) Water Extortion on Histopathological Langerhans Islet of Diabetes Mellitus Rat Which Induced by Alloxan

ENIKARMILA ASNI¹, S VIOLETTA¹, Z MALIK¹

¹*Riau University, Indonesia*

Background & Hypothesis:

Guava (*Psidium guajava* L.) has high amounts of antioxidants, e.g. vitamin C, carotenoid and polifenol. Guava water extortion (GWE) has been traditionally used as therapy for diabetes by people in Indonesia. This study aims to investigate the difference of giving guava water extortion on insulinitis score of Langerhans islet in diabetes mellitus rats which are induced by alloxan.

Methods:

Male Wistar rats, 150 to 300 g bodyweight, were divided into 5 groups. They were non-diabetic rats, diabetic rats which were given aquadest as a control, and the groups of; 50%; and 100%. Alloxan was used to induce diabetic condition. Guava water extortion was given 1 ml/day during 14 days after diagnosing diabetes (fasting glucose > 150 mg/dL). Rats were sacrificed and the pancreas were prepared in haematoxylin eosin preparation. Beta cells were analysed based on insulinitis score.

Results:

Insulinitis scores were $0,12 \pm 0,09$ for non-diabetic rat, $2,54 \pm 0,23$ for diabetic rat which was given aquadest only, and $1,14 \pm 0,53$ for diabetic rats which were given guava water extortion at 25%, $0,96 \pm 0,31$ for 50% and $0,62 \pm 0,37$ for 100%. There were significant differences between normal rats and diabetic rats ($P = 0.00$). Furthermore, diabetic rats and diabetic rats given 25%, 50% and 100% guava water extortion showed significant difference ($P = 0.00$) in repairing the damage of Langerhans islet.

Discussion & Conclusion:

Although the mechanisms are still unclear, this research proves that guava water extortion could repair Langerhans islet through regenerating the cells and protecting the cells from the oxidative stress condition.

OP-BSTR-16

Real-Time Depth-Resolved Raman Endoscopy for In Vivo Diagnosis of Gastric Precancer

SYLVEST MADDS BERGHOLT¹, W ZHENG³, YH KHEK², M TEH², JBY SO², A SHABBIR², KG YEOH², ZW HUANG³

¹National Healthcare Group HQ, ²National University Hospital, ³National University of Singapore

Background & Hypothesis:

Raman spectroscopy is a vibrational analytic technique sensitive to the changes in endogenous biomolecular composition and conformations occurring in tissue. With our most recent development of integrated near-infrared (NIR) depth-resolved Raman spectroscopy with multimodal wide-field imaging modalities (i.e., white-light reflectance (WLR), narrow-band imaging (NBI), auto-fluorescence imaging (AFI)), on-line in vivo confocal Raman tissue diagnosis (optical biopsy) of gastric precancer has been realized for the first time. This study aimed to evaluate the depth-resolved Raman endoscopic diagnostics of gastric dysplasia.

Methods:

We present result from 6 patients suspicious for precancer (dysplasia). Histopathological examination showed that 48 Raman spectra were from normal gastric epithelium and 23 spectra were from dysplastic epithelium. The partial least squares (PLS) discriminant analysis (DA) was employed to develop diagnostic algorithms for in vivo tissue diagnosis.

Results:

High quality in vivo depth-resolved Raman spectra can be acquired in real-time (within 0.5 sec) during clinical endoscopy. Significant differences in Raman spectra between normal and dysplasia are observed, reflecting the distinct histopathology. The PLS-DA modeling on the in vivo gastric Raman spectra achieves the diagnostic sensitivity of 91.30% and specificity 83.33% for identifying precancer from normal gastric tissue in vivo.

Discussion & Conclusion:

This is the first study to demonstrate the utility of real-time in vivo depth-resolved Raman endoscopic diagnostics of gastric dysplasia and indicates that the technique is a powerful tool for in vivo diagnosis of early premalignant conditions at the molecular level.

OP-BSTR-17

Molecular Mechanism of UV-Induced Clearance in Psoriasis

ANANDIKA PAWITRI¹, NJ REYNOLDS¹, A FORRESTER¹

¹*Newcastle University, United Kingdom*

Background & Hypothesis:

Psoriasis is characterised by hyperproliferation of keratinocytes leading to plaque formation. Narrowband UVB (311nm) phototherapy is an effective treatment and induces plaque clearance. Apoptosis, defined by active caspase-3 expression, has been identified as a key mechanism of clearance (Weatherhead S. et al. JID (2011)). Notably, these effects are not induced by irradiation with 290nm UVB which is clinically ineffective. To further delineate mechanism of 311nm induced apoptosis in lesional psoriasis and to identify biomarkers, we studied the expression of p53. p53 is known to be expressed at low levels in normal and psoriatic skin. We hypothesised that p53 expression would increase in 311nm treated psoriasis, correlating with induction of apoptosis.

Methods:

Lesional psoriasis was treated with 290nm or 311nm or left untreated and biopsies taken at 18, 24 and 48 h post irradiation. p53 protein expression was measured by immunohistochemistry and images were taken using confocal microscopy. Protein expression was quantified using Volocity software. Statistical analysis was performed using one-way Anova, comparing untreated and treated psoriatic skin.

Results:

Our key findings were that p53 expression was low in untreated and 290nm treated lesional epidermis. Moreover, in agreement with our hypothesis, high levels of p53 were present in 311nm treated lesions and in part colocalized with active caspase-3 positive cells.

Discussion & Conclusion:

Our study has shown that in vivo, p53 is a potential biomarker for the clearance of psoriatic plaques and provide further evidence that apoptosis in keratinocytes is a key target of effective UV treatment of psoriasis allowing its development as therapeutic target.

OP-BSTR-18

Ethnic Variations in Baseline Symptomatology in Youth with an At Risk Mental State

NATASHA MITTER¹, G REKHI¹, JD JIANG¹, SA CHONG¹, J LEE¹

¹*Institute of Mental Health*

Background & Hypothesis:

Consistent evidence exists of a high prevalence of psychosis in ethnic minority groups both in Western and Asian populations. Few have investigated the relationship between ethnicity and symptoms of individuals with an At Risk Mental State (ARMS) for psychosis, and none have examined it in an Asian population. This study aims to examine the ethnic variations in the baseline symptomatology in a sample of Asian youth meeting the ARMS criteria for psychosis.

Methods:

The baseline symptoms of 146 Chinese, Malay and Indian subjects were analysed. These individuals met the criteria for ARMS based on the Comprehensive Assessment of At Risk Mental State (CAARMS) and consented to participating in the Longitudinal Youth At Risk Study (LYRIKS). Analysis of variance was used to compare the mean scores among the 3 ethnicities. Chi-squared tests were used in comparing categorical variables.

Results:

Statistically significant differences were found between the 3 ethnicities in the mean CAARMS positive symptoms scores for the Attenuated Psychotic Symptoms (APS) group, with Malays having the highest mean score (10.22, $P < 0.05$). The Global Assessment of Functioning (GAF) scores were low across the different ethnicities.

Discussion & Conclusion:

This is the first study to examine cross-ethnic differences in Asian individuals with ARMS. Though current functioning is equally impaired across the 3 ethnicities, a higher baseline CAARMS score for Malays in the APS group indicates a vulnerable sub-population that may warrant closer clinical attention.

OP-CR-01

Comparison of Conventional Risk Factors and Body Fat Composition among Males and Females in Patients of Coronary Artery Diseases and at Risk of Coronary Artery Disease (CAD)

RK SINGH SUNNY¹, VATSAL SINGH², SAURABH PANDEY², CHARUKANT SINGH², ROHIT KUMAR SRIVASATAVA², SUNITA TIWARI², MPS NEGI³, ANIKET PURI²

¹Others, ²CSM Medical University (erstwhile KGMU), Lucknow, ³Institute for Data Computing and Training, Lucknow

Background & Hypothesis:

Body fat seems to be more in Indian females as compared to males whereas prevalence of Coronary Artery Disease (CAD) is considered to be higher in males. We aim to study association of conventional risk factors of CAD and newer body fat composition parameters among males and females.

Methods:

Four hundred and forty-seven subjects were divided into 3 heterogeneous groups: Documented CAD (those who have received prior treatment for CAD with high dose lipid lowering drugs for minimum of 6 weeks), CAD risk (those with Metabolic Syndrome (NCEP-ATPIII criteria) or with Framingham 10 yr risk > 10%) and healthy controls. Body fat percentage (BF%) and Visceral Fat Rating (VFR) (using bioelectrical impedance analysis (InnerScanV, TANITA, Tokyo)), Body mass index (BMI) and complete lipid profile were measured in all subjects. (Conventional risk factors are BMI and Lipid profile while Body Fat Composition calculated by BF% & VFR) Groups were compared by one way analysis of variance (ANOVA) and the significance of difference between means was done by Tukey's post hoc test.

Results:

BMI and BF% were significantly higher ($P < 0.05$) in female of CAD patient (26.05 ± 0.96 vs 23.48 ± 0.35 & 37.58 ± 1.51 vs 22.65 ± 0.65 respectively) and CAD risk group (29.05 ± 0.55 vs 27.05 ± 0.40 & 33.54 ± 0.98 vs 28.43 ± 0.78 respectively) when compared to the male counterparts while VFR was significantly elevated in males when compared to the females of CAD patient (11.71 ± 0.43 vs 9.50 ± 0.68). There was no significant difference in the lipid profiles of the males and females in their respective groups.

Discussion & Conclusion:

BMI and BF% might be important risk factors among females while VFR among males in relation to CAD therefore BF% and VFR should be recorded along with BMI and lipid profile and there is need for more targeted and gender specific interventions to control and prevent CAD.

OP-CR-02

**Treatment Methods for Acute and Chronic Pain Syndromes in a Private Acupuncture Clinic
(Chania – Crete - Greece)**

FAZAKIS GEORGIOS¹

¹*Others*

Background & Hypothesis:

Treatment methods: In most of the cases we have used a combination of treatment methods: A) Main methods: Classic acupuncture with syndrome differentiation using the divergent and sinew channels; Ear acupuncture using the 3 phases of degeneration according to Nogier; Electroacupuncture using special circuits especially for sciatic pain; Ozone intramuscular or intraarticular injections according to the protocols of the Italian scientific association of ozone therapists (Milano Italy); Laser point therapy ETPS neuropathic acupuncture B) Adjunctive methods: Master Tung's acupuncture points; Dry needling and medical acupuncture using special homeostatic, symptomatic and paravertebral points; Ryodoraku (Japanese acupuncture); Abdominal acupuncture; Prolontherapy; Neuro-acupuncture techniques; Koryo hand therapy.

Results:

Two hundred and sixty cases between the years 2006 and 2012. Complete cure: The disappearance of symptoms with radiological (radiography-Ct-Mri) evidence, recovery of normal activity and no recurrence of symptoms 6 months later. Results categories marked effect: The fundamental disappearance of symptoms, the ability to generally function and the ability to sleep at night. Positive changes: There is a slight improvement in symptoms but there is a recurrence of fatigue and an exacerbation of symptoms when exposed to wind, cold, or dampness. No results: Lack of any improvement in symptoms. 33, 33% marked effect (86 cases) 10% positive changes (26 cases) 6, 77% no results (18 cases) Overall good results 260 cases 93, 33%.

Discussion & Conclusion:

A combination of various acupuncture methods and related techniques is the best way to treat cases of acute and chronic pain. Chania Crete pain center www.fazakis-acupuncture.gr

OP-CR-03

Ramadan-fasting and Metabolic Changes in Type 2 Diabetes

ESTER YEOH¹, SUEZIANI ZAINUDIN², CHIN LIAN CHUA¹, SHARON FUN¹, WIN NIE LOH¹, TAVINTHARAN SUBRAMANIAM¹, CHEE FANG SUM¹, SU CHI LIM¹

¹*Khoo Teck Puat Hospital, ²Singapore General Hospital*

Background & Hypothesis:

Millions of Muslims with diabetes mellitus fast during the month of Ramadan. Despite its world-wide practice, metabolic changes among these individuals remain under-studied. We aimed to study the changes in body composition and metabolic profile in this group of patients.

Methods:

Twenty-nine patients with type 2 diabetes were followed-up. Study variables were weight change, body composition (analysed by multi-frequency bio-impedence method InBodyS20 [Biospace, Seoul, South Korea], blood pressure (BP), HBA1c, fasting lipid profile, detailed caloric intake assessment pre- and mid-Ramadan using FoodWorks® nutrient analysis software (Xyris Software, Brisbane, Australia).

Results:

Twenty-three subjects (80%) fasted for at least 15 days; mean age (SD) 57 (11)years, 52% males. Baseline parameters were: systolic BP 152(21) mmHg, diastolic BP 83(8) mmHg, LDL-cholesterol 2.72 (0.75) mM, HDL-cholesterol 1.19 (0.34) mM, triglyceride 2.05 (1.11) mM, lean-mass 27.3 (6.4) kg, daily dietary calories 1533 (557) kcal (percentage from carbohydrates: 55[6]%). At the end of Ramadan, HBA1c improved significantly [8.6(2.4) to 8.1(2.4)%, $P = 0.017$] with reduction in body fat mass (BFM) [30.9(11.0) to 29.2(12.2) kg, $P = 0.013$]. There was significant reduction in visceral adiposity (visceral fat area [VFA]) amongst females [138.4(27.2) to 132.5(25.7) cm², $P = 0.017$]. There was similar total caloric intake between the fasting [1518(508) kcal] and non-fasting period [1533(557) kcal, $P = 0.89$]. There were no significant changes in systolic BP, lipid profile and body weight. There was no incidence of severe hypoglycaemia based on home glucose monitoring and review of symptoms.

Discussion & Conclusion:

Fasting during Ramadan appears to confer benefits on glycaemia and body composition (without appreciable change in total caloric intake) especially among females. These benefits may be attributable to changes in circadian rhythm and physical activity inclusive of multiple prayer activity performed during Ramadan.

OP-CR-04

Evaluation of How Continuous Support during Labour Affects the Duration of Labour and Rate of Caesarean Delivery

KASHANIAN MARYAM¹, FARAHROOS JAVADI², MALEKTAJ MOSHKHBID HAGHIGHI²

¹Others, ²Tehran University of Medical Sciences

Background & Hypothesis:

Labor and delivery are one the most important experiences of a women's life and have a very deep physical, emotional and psychological influence on her. Lowering any negative effects of labor and creating a happy environment for delivery has always been a serious concern. The purpose of the present study is to evaluate the way that continuous support during labor affects the duration of different stages of labor, and rate of cesarean delivery. The study was performed on women who had not participated in any childbirth educational classes.

Methods:

The study was conducted as a randomised clinical trial. One hundred eligible nuligravida were randomly assigned into 2 groups. In the case group (n = 50), continuous support during labor was supplied, the control group did not have this support. The duration of the different stages of labour, rate of cesarean deliveries, oxytocin usage and neonatal Apgar Score were compared in the 2 groups.

Results:

The women of the two groups did not have any statistically significant differences according to age, whether employed, educational level, gestational age, economic status, and neonatal weight. The mean duration of active phase of labor (167.9 ± 76.3 vs 247.7 ± 101 min, $P = 0.000$), second stage of labor (34.9 ± 25.4 vs 55.3 ± 33.7 min, $P = 0.003$) and the number of cesarean deliveries [4 (8%) vs 12 (12%)] were significantly less in the case group. The rate of oxytocin usage showed no difference between the 2 groups. Apgar Score less than 7 in minutes 5 have not been observed in either of these 2 groups.

Discussion & Conclusion:

Continuous support during labor may reduce the duration of labor and cesarean deliveries, therefore it is suggested that this opportunity should be available to all women.

OP-CR-05

Human Papilloma Virus (HPV) Genotyping of Genital Warts in a Sexually Transmitted Infection (STI) Clinic in Singapore—Will the Quadrivalent HPV Vaccine be Useful in our Population?

YIK WENG YEW¹, PRIYA SEN¹, MARTIN CHIO¹, EVELYN KOAY², ROY CHAN¹
¹National Skin Centre, ²National University Health System

Background & Hypothesis:

Worldwide, 90% of genital warts are caused by Human Papilloma Virus (HPV) types 6 and 11. An HPV vaccine targeting HPV 6 and 11 is available. This study aims to evaluate its potential benefits, we aim to characterise the prevalence of the HPV genotypes in genital warts in Singapore.

Methods:

We evaluated the HybriBio HPV GenoArray test that is able to identify 21 HPV types including 5 low-risk types (6, 11, 42, 43, and 44). This is a pilot study of 5 male and 5 female patients with no prior treatment to their genital warts. DNA samples extracted from scrapings of the warts were analysed. Information on demographics, sexual history and clinical findings were collected with a self-administered questionnaire.

Results:

The average age of the patients was 28.3 years and 80% were single and heterosexual, with an average of 5 lifetime sexual partners. Eighty percent of them did not use condoms consistently in the last 3 months. HPV genotypes were characterised in 7 out of 10 patients. Either HPV 6 and/or HPV 11 were detected in all 7 patients.

Discussion & Conclusion:

From our preliminary findings, the HybriBio HPV GenoArray test is effective in evaluating HPV genotypes in our population. The HPV genotypes characterised in all genital warts with readouts were either HPV 6 or HPV 11, and an HPV vaccine targeting HPV 6 and 11 may be useful in the prevention of genital warts in Singapore. A larger study of 100 patients will be conducted to better characterise the local prevalence of HPV genotypes in genital warts.

OP-CR-06

Percutaneous Mitral Valve Repair with MitraClip Restores Exercise Capacity In Patients With Heart Failure Due To Severe Functional Mitral Regurgitation Post-Coronary Artery Bypass Graft

DANIEL POH SHUAN YEO¹, KHUNG KEONG YEO²

¹*Tan Tock Seng Hospital,* ²*National Heart Centre, Singapore General Hospital*

Background & Hypothesis:

Functional mitral regurgitation (FMR) is common in ischaemic cardiomyopathy due to left ventricular remodeling or residual ischaemia. The EVEREST II Trial showed outcomes of percutaneous mitral valve (MV) repair using the MitraClip were comparable with surgery. In patients with prior cardiac surgery, re-do sternotomy entails increased risk. Without correction, severe FMR leads to progressive left ventricular dysfunction and heart failure (HF).

Methods:

The MitraClip entails an “Alfieri-stitch” like repair delivered wholly percutaneously. We used the MitraClip in 2 patients with previous CABG, significant FMR, and limited exercise capacity (6MWD 162m and 401m). Significant ischaemia was excluded with functional imaging. Surgery was deemed high-risk (EuroScore II 39.96% and 8.33%). MV anatomy was assessed by transthoracic (TTE) and transesophageal echocardiography.

Results:

Both patients underwent successful MitraClip procedures without complication. Patient 1 had 1 clip and was discharged on Day 2, while Patient 2 required 2 clips and was discharged on Day 3 post-MitraClip. Follow-up TTEs at 3 months show residual MR is mild-to-moderate (Fig. 1.) and mild respectively. Patient 1’s 6MWD at 6 months was 314m, and she was able to shop at the mall again. Patient 2 now swims 300m thrice a week. They remain on standard pharmacotherapy for ischaemic heart disease, heart failure, and AF.

Discussion & Conclusion:

MitraClip is safe and effective in restoring exercise capacity for selected patients with severe FMR in whom surgical repair is high risk.

OP-CR-07

Multiple Predictors of Arterial Stiffness in Type 2 Diabetes

**JIAN-JUN LIU¹, LIM SU CHI², SUBRAMANIAM TAVINTHARAN², YEOH LEE YING²,
NG XIAO WEI², SUM CHEE FANG²**

¹*Khoo Teck Puat Hospital*, ²*Alexandra Health Khoo Teck Puat Hospital*

Background & Hypothesis:

Type 2 diabetes (T2DM) is associated with increased arterial stiffness. However, the underlying risk factors are not fully understood. We hypothesised that metabolic risk factors (RFs) might be related to arterial stiffness. Therefore, we aim to explore the relationship between multiple metabolic RFs and arterial stiffness in a large group of T2DM individuals (n = 757).

Methods:

Pulse wave velocity (PWV), measured by applanation tonometry (SphyMoCor), was used to estimate aorto-iliac arterial compliance (i.e. arterial stiffness). Multi-frequency bio-impedance method (InbodyS20) was used to analyse body composition, including visceral adiposity i.e. visceral fat area (VFA). Correlation analysis and follow-up multi-variate analysis using stepwise multiple-linear regression were performed.

Results:

Age for the study subjects was (mean \pm SD) 57 \pm 11 years; 49.4% male; 53.5% Chinese, 25.2% Malays and 21.4% Indians. Mean PWV was 9.9 \pm 5.7 m/sec, which was independent of gender, ethnicity and smoking status. PWV correlated significantly with age ($\beta = 0.20$), systolic blood pressure (SBP) ($\beta = 0.18$), HbA1c ($\beta = 0.10$), urinary albumin/creatinine ratio ($\beta = 0.31$), estimated glomerular filtration rate (eGFR) ($\beta = -0.17$), VFA ($\beta = 0.16$), skeletal muscle mass ($\beta = -0.13$) (all $P < 0.01$) and LDL-cholesterol ($\beta = -0.07$) ($P < 0.05$). Multiple-linear regression revealed that the following were independent predictors of PWV: age (standardized $\beta = 0.30$), SBP ($\beta = 0.18$), HbA1c ($\beta = 0.17$) and VFA ($\beta = 0.10$) and eGFR ($\beta = -0.17$) (all $P < 0.01$). Collectively, these factors accounted for ~26% of the variation in PWV ($P < 0.01$) suggesting the presence of other unobserved factors.

Discussion & Conclusion:

Multiple RFs significantly predicted arterial stiffness in T2DM. Some of these factors (blood pressure, glycaemic burden, central obesity and renal function) may be amenable to clinical interventions.

OP-CR-08

Does Serum Sodium Level at Presentation Impact Clinical Decision to Hospitalisation in Elderly?

WAN YEE KONG¹, LI LING WOO², RAJAT TAGORE²

¹*Others,* ²*Alexandra Hospital (JHS) Singapore*

Background & Hypothesis:

Hyponatremia is a common admitting problem in the elderly. It has various negative impacts. We piloted the utility of measurement of serum sodium in optimising admission of hyponatremic patients to hospital.

Methods:

Relevant history were recorded for patients admitted with serum Sodium of 125 to 128 mmol/L between January and December 2011. Blinded summaries of every 5th and the last patient were sent to 2 senior clinicians. Questions were 1 "Admission to hospital or managed in community?" After recording the response, their serum sodium value was disclosed. Response to question "2 Would this value alter your previous response?", was then recorded.

Results:

Of 145 patients, age 73 ± 15 yrs, 48% male, 75, 14, 9 and 3% were Chinese, Malay, Indian and other races. Both adjudicators answered questions 1 and 2, for all 30 cases. Adjudicator 1 and 2's agreement to admission was 21:16. Decision to admit or offer community care did not alter (29:23) when serum sodium value was given. Responses to the questions were compared with Fishers exact (2 sided) test that returned *P* values of 0.288 and 0.052 respectively. Thus adjudicators agreed with the original decision to admit the patient, similarly.

Discussion & Conclusion:

Despite mild hyponatremia, adjudicators concurred only a few patients could have been safely managed in community due to their comorbidities and poor social support. In our pilot study, serum sodium test, just prior to admission did not help in clinical decision making to optimise or 'right site' their care to community or hospital.

OP-CR-09

Elderly Patients with Abdominal Pain—What are the Atypical Diagnoses?

CHEE KHEONG OOI¹, EILLYNE SEOW¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Abdominal pain in the elderly is a common presentation at the emergency department. It is important to recognise that not all abdominal complaints are related to the gastrointestinal system.

Methods:

This was a retrospective descriptive cohort study of patients aged 65 years old and above who presented with abdominal pain between 1 August 2011 and 31 January 2012.

Results:

Nine hundred and sixty-nine patients presented with abdominal pain to ED during the study period. 12.2% (118 cases) had an atypical diagnosis. They were predominantly Chinese females, with a mean age of 76.9 years old. Among them, 71.2% were designated patient acuity score (PAC) of 2 at triage. Thirty-seven patients (31.3%) had a diagnosis of cardiac origin, of which 17 patients had non specific chest pain and 6 patients were diagnosed with acute myocardial infarction. Twenty-five patients (21.2%) were diagnosed with sepsis of non-abdominal in origin. 75.4% of patients with atypical diagnoses were admitted for further management. For admitted patients, 10.7% required specialty consult at ED, 7.4% required airway or cardiac support initiated in ED, and 9.8% were admitted to telemetry bed, high dependency or intensive care unit.

Discussion & Conclusion:

In elderly patients who presented with an abdominal complaint to the ED, there is a significant minority whose complaint was cardiac in origin.

OP-CR-10

The Impact of Increased Body Mass Index on Brain White Matter Integrity in Adults with Remitted First Episode Mania

KUSWANTO CARISSA NADIA¹, MIN YI SUM¹, GUO LIANG YANG³, YIH YIAN SITO², WIESLAW LUCJAN NOWINSKI⁴, KANG SIM¹

¹Institute of Mental Health, ²National Neuroscience Institute, ³Singapore Bioimaging Consortium, A*STAR

Background & Hypothesis:

Obesity is increasingly prevalent in bipolar disorder (BD) and has been associated with decreased total brain and white matter volumes as well as poorer clinical outcomes. Using diffusion tensor imaging (DTI), we hypothesise that increased body mass index (BMI) is associated with decreased white matter integrity (measured by fractional anisotropy, FA) in the cortical brain regions early in the course of BD.

Methods:

Twenty six euthymic adults (12 normal weight and 14 overweight/obese) with remitted first episode mania (FEM) and 28 healthy controls (13 normal weight and 15 overweight/obese) matched for age, handedness and years of education underwent structural MRI and DTI scans.

Results:

Significant effects of diagnosis by BMI interactions were observed in the right parietal lobe ($P = 0.030$), occipital lobe ($P = 0.002$) and temporal lobe ($P = 0.007$). Specifically, decreased FA was found in the right parietal ($P = 0.023$) and occipital lobes ($P = 0.047$) within overweight/obese patients compared with normal weight patients with FEM. Compared with overweight/obese controls, decreased FA was observed in right parietal ($P = 0.015$), temporal ($P = 0.003$) and occipital ($P = 0.005$) regions in overweight/obese patients with FEM.

Discussion & Conclusion:

Our results suggest that increased BMI affects temporo-parietal-occipital brain white matter integrity in FEM. Further elucidation of the impact of obesity on these and other brain white matter substrates in BD may clarify brain circuits subserving the association between obesity and clinical outcomes in BD and potentially offer better strategies for prevention and management.

OP-CR-11

cIg-FISH Enhances Sensitivity of Detecting Chromosomal Abnormalities as Compared to Conventional FISH In Patients with Multiple Myeloma

ADELINE LIN¹, CONSTANCE CHUA¹, SOK PENG CHUA¹, HUI BAO MA¹, WEE JOO CHNG¹, LEENA GOLE¹

¹*National University Hospital*

Background & Hypothesis:

Chromosomal abnormalities associated with unfavourable prognosis in multiple myeloma patients include involvement of the TP53, FGRFR3 and MAF genes. It is important to accurately detect these chromosomal abnormalities to aid clinicians in the decision of therapeutic plans. Chromosomal abnormalities are not detected by traditional karyotyping due to low proliferation rate of myeloma cells. Conventional Fluorescence In-situ Hybridization (FISH) enhances the sensitivity but lacks the specificity as it does not distinguish plasma cells (PC) from the other haematopoietic cells. This can be overcome by identification of PCs by cytoplasmic immunoglobulin staining followed by FISH (cIg-FISH).

Methods:

Bone marrow samples from 16 suspected multiple myeloma patients were analysed using traditional karyotyping, conventional FISH and cIg-FISH.

Results:

Conventional FISH was able to pick up the chromosomal abnormalities, but at a lower percentage as compared to cIg-FISH, especially for samples with lower percentages of PCs. For 3 samples, cIg-FISH detected chromosomal abnormalities which were missed out by conventional FISH.

Discussion & Conclusion:

In summary, cIg-FISH consistently detected higher percentages of chromosomal abnormalities as compared to conventional FISH. cIg-FISH ensures that only cells of interest are analysed and gives a more accurate reflection of the PC population. cIg-FISH is a tedious and costly process due to the additional step of antibody tagging. Selection of samples that should be targeted for this test is important. However, more samples need to be analysed to determine the ranges of PC percentages to appropriately route the patient sample towards a particular FISH test.

OP-CR-12

Genome-Wide Supported Psychosis Risk Variant in Neurogranin Gene Affects Cortico—Limbic White Matter Integrity in Schizophrenia

SUM MIN YI¹, CARISSA KUSWANTO¹, LIU JIAN JUN², YANG GUO LIANG², WIESLAW NOWINSKI², SIM KANG¹

¹*Institute of Mental Health, ²A* STAR*

Background & Hypothesis:

Genome wide association and meta-analytic studies have highlighted neurogranin (NRGN) as a susceptibility gene for schizophrenia (SCZ). As NRGN gene is involved in calcium-calmodulin signaling pathway and learning and memory, we examined its genetic effect on brain white matter integrity in SCZ. Based on extant data, we hypothesised that NRGN risk variant rs12807809 is associated with lower brain white matter integrity (lowered fractional anisotropy, FA) in relevant cortico-limbic brain regions, namely, frontal, parietal, medial temporal lobes, cingulate gyri and thalamus in SCZ.

Methods:

A total of 155 Chinese participants (92 schizophrenia patients and 63 healthy controls) were genotyped using blood samples and also underwent structural magnetic resonance imaging and diffusion tensor imaging.

Results:

There are significant effects of diagnosis (medial temporal lobe: $P = 0.002$; parietal lobe: $P = 0.004$; cingulate gyrus: $P = 0.009$; thalamus: $P = 0.002$) and diagnosis-genotype interactions (medial temporal lobe: $P = 0.004$; parietal lobe: $P = 0.002$; cingulate gyrus: $P = 0.001$). Specifically, we found that patients with SCZ who are risk T carriers have lower FA in the medial temporal lobe, parietal lobe, and cingulate gyrus compared with non risk CC genotype.

Discussion & Conclusion:

Our findings suggest that NRGN risk variant influence white matter integrity involving cortico-limbic brain regions in schizophrenia which may underlie the learning and memory impairments in SCZ. This study underscores the importance of imaging genetics approach in investigating the impact of genome wide supported risk factors on intermediate neuroimaging phenotypes with the potential to shed light on the neurobiology of SCZ.

OP-CR-13

Brain Subcortical Shape and Cortical Thickness Abnormalities in First-Episode Schizophrenia and Mania

TOR PHERN CHERN¹, GAN SWU CHYI², CARISSA NADIA KUSWANTO¹, SUM MIN YI¹, QIU ANQI², SITO H YIH YIAN³, SIM KANG¹

¹Institute of Mental Health, ²National University of Singapore, ³Tan Tock Seng Hospital

Background & Hypothesis:

Abnormalities in cortical thickness and subcortical structures have been studied in schizophrenia, but less is known about corresponding changes in mania early in the course of illness. This study aims to compare cortical thickness and shape of the hippocampal-amygdala complex in first episode schizophrenia (FES) and mania (FEM). We hypothesised that cortical thinning will be evident in both FES and FEM patients, being more widespread in FES. In view of previous volumetric MRI findings, we also hypothesised that the hippocampus will be deformed specifically in the FES group, while amygdala deformities are found in both FEM and FES.

Methods:

Structural magnetic resonance imaging was performed on 28 first-episode schizophrenia patients (FES), 28 first-episode mania patients (FEM) and 28 healthy control subjects who were matched for age, gender and handedness.

Results:

Overall, the shape of the amygdala was deformed in both patient groups, relative to controls ($P < 0.001$). Compared to FEM patients, FES patients had significant inward shape deformation in the left hippocampal tail ($P < 0.001$), right hippocampal body ($P < 0.05$). Cortical thinning was more widespread in FES patients, with significant differences found bilaterally in the temporal brain regions when compared with FEM ($P < 0.05$) and controls ($P < 0.01$).

Discussion & Conclusion:

These results highlight that brain structural changes are present early in the course of schizophrenia and mania. Examining these brain structural abnormalities may help to determine whether these cerebral changes exist and worsen with illness progression, and may eventually facilitate the identification of brain biomarkers that precede illness onset.

OP-CR-14

Is Routine Chest X-ray after Tracheostomy Necessary: A Review of Existing Practice and Current Literature

YEO WEI XIN^{1,3}, PHUA CHU QIN², STEPHEN LO DICK CHUNG²

¹National University of Singapore, ²Tan Tock Seng Hospital, ³Yong Loo Lin School of Medicine, NUS

Background & Hypothesis:

Tracheostomy is a common procedure in medicine, and it can be done either via surgical or percutaneous approach. For many years, routine chest radiography has been the standard of care for patients after tracheostomy. However, recent evidence suggests that a selective choice of patients for post-tracheostomy chest X-ray may be more cost effective.

Methods:

We reviewed the practice and the algorithm of post-tracheostomy chest radiography in Tan Tock Seng Hospital (Singapore) and in the literature.

Results:

Routine post-tracheostomy chest X-ray is of low yield. Out of a combined 1382 surgical and 1152 percutaneous tracheostomies in the literature, there were a total of only 30 and 39 chest radiograph-detectable complications respectively, which works out to be a low yield of 2.17% and 3.39%. Furthermore, chest X-ray findings do not usually lead to significant changes in patient management, and significant findings usually correlate well with clinical signs and symptoms that can be elicited through a thorough cardiopulmonary examination. Indications for post-tracheostomy chest radiography, such as (1) in patients with post-procedural clinical signs and symptoms of possible complications, or (2) in patients with higher risk of post-procedural complications such as in emergent tracheostomies, or (3) in 'difficult' or 'complicated' tracheostomies, are clinically sufficient and safe to cover almost all (2073/2074) significant cases of complication that may occur. Potential cost savings range from about US\$100 to \$300 per patient worldwide.

Discussion & Conclusion:

Routine post-tracheostomy chest radiography is unnecessary. Selective choice of patients using the above algorithm is more appropriate and cost-effective.

OP-CR-15

Can Complicated Acute Cholecystitis be Accurately Diagnosed Preoperatively? Development of a Scoring System Using Clinical and Computed Tomography Features

CHUA MELISSA¹, THAN NAING TUN², WILSON LOW CONG JIN², TAN CHER HENG²

¹SingHealth HQ, ²Tan Tock Seng Hospital

Background & Hypothesis:

Preoperative diagnosis of complicated acute cholecystitis (CAC) remains a diagnostic challenge, with most cases diagnosed only at surgery. We identify various clinical and computed tomography (CT) findings significant for CAC, so as to construct a scoring system that can be used preoperatively.

Methods:

Patients who underwent cholecystectomy for acute cholecystitis between January 2010 and December 2011 were retrospectively reviewed. Those who did not have CT performed within 3 days prior to surgery were excluded. CTs were separately reviewed for predefined variables by 2 radiologists blinded to the diagnoses. CAC was defined by gallbladder perforation or gangrene at surgery or histology. Univariate logistic regression analysis was used to determine variables predictive for CAC. Multivariate logistic regression analysis was then applied to construct the scoring system.

Results:

Of 137 patients studied, the male:female ratio was 1.6:1 and mean age was 58.6 (range, 22 to 91). Three clinical and 3 radiological variables were found to be independent predictors of CAC on multivariate analysis and used to construct the scoring system: age (>60), Diabetes Mellitus, white cell count (>18000cells/mm³), absence of mucosal enhancement, wall defects, and presence of gallstone at infundibulum. Significant variables on univariate, but not multivariate analysis, were: albumin (<3.3g/dL), submucosal thinning, and liver abscess. Interobserver agreement for CT interpretation was very good (median k-value, 0.88; range, 0.70 to 0.98). The area under receiver operating characteristic curve was 0.826 (95% CI, 0.753 to 0.899).

Discussion & Conclusion:

Preoperative diagnosis of CAC can strongly aid operative planning and improve patient outcomes. A combined clinical-radiological scoring system that can reliably predict for CAC is feasible.

OP-CR-16

Demographic Profile and Extent of Healthcare Resource Utilisations of Patients with Severe Traumatic Brain Injury: Still a Major Public Health Problem

WEE JING ZHONG¹, RUTH LEE QIANYI³, CHONG CHIN TED², JASMINE YANG YUNRUI²

¹Ministry of Health (MOH), ²Tan Tock Seng Hospital, ³Yong Loo Lin School of Medicine, NUS

Background & Hypothesis:

Trauma is the fifth principal cause of death in Singapore, with traumatic brain injury (TBI) being the leading specific subordinate cause.

Methods:

This 8-year retrospective review of adult patients with severe TBI admitted to the neurointensive care unit (NICU) of TTSH-NNI between years 2004 and 2010 reports the demographic profile of severe TBI in the local context, with implications in the management of severe TBI, particularly the utilisation of critical care resources.

Results:

Of the 700 severe TBI patients admitted during the study period, the majority (74%) were males. The ages ranged from 13 to 93, with a mean age and standard deviation of 50.4 ± 20.3 years. There was a bi-modal preponderance of severe TBI cases in young adults (age 21 to 40) and elderly (age >61) patients. Motor vehicle accidents (43.0%) and falls (48.0%) were the main mechanisms of injury. Invasive line monitoring was frequently employed in severe TBI patients; arterial blood pressure monitoring was used in 527 (75.3%) patients; central venous pressure monitoring in 353 (50.4%) patients and 282 (40.3%) patients required intracranial pressure (ICP) measurement. Continuous end-tidal capnography was used in 12.3 % of patients to supplement arterial CO₂ measurement. The incidence of the use of tiered therapy such as sedation, osmotherapy with mannitol, cerebrospinal fluid drainage, mild hyperventilation and barbiturate coma to control ICP converged with international practices.

Discussion & Conclusion:

High-risk groups identified were young adults and the elderly involved in mainly vehicular accidents and/or falls; and the healthcare burden of these patients extend beyond the acute critical care phase.

OP-CR-17

Takotsubo Cardiomyopathy Precipitated by Physical Stressors in a Southeast Asian Population

YEO POH SHUAN DANIEL¹, KOK KEONG RAYMOND LEE², QUEK WEI YONG¹

¹*Tan Tock Seng Hospital,* ²*Novena Heart Centre, Singapore*

Background & Hypothesis:

Takotsubo Cardiomyopathy is provoked by intense emotional or physical stress, with electrocardiographic (ECG) changes suggestive of acute myocardial infarction and limited myocardial biomarker release. Coronary angiography shows no haemodynamically significant lesions. Left ventriculography shows apical ballooning with basal hypercontractility. To date, emotional stressors predominate in Caucasian series, while physical stressors are the main precipitant in Japanese series.

Methods:

Patients were identified retrospectively from the outcome of coronary angiography and left ventriculography from April 2005 to March 2006 in a major public hospital in South-East Asia. Left ventriculography showed the characteristic Takotsubo pattern. We excluded those with significant coronary artery disease.

Results:

We identified 6 patients with Takotsubo cardiomyopathy. Five were post-menopausal women. All had significant physical stressors and new anterior ST elevation (STE) on ECG. Three died. The first patient had acute urinary retention relieved by urinary catheterisation. ECG showed anterior STE and raised Troponin I. Coronary angiography was normal, left ventriculography showed Takotsubo-type WMA. Urothelial malignancy was diagnosed and she died a year later of metastatic disease. The second was hit by a vehicle. A third had pneumonia, and succumbed the next day. The fourth had neuroleptic malignant syndrome. The fifth was the only female who had chest pain. The sixth and only male patient presented with lung malignancy and cardiac tamponade which was successfully drained. He developed chest pain with anterolateral STE and cardiogenic shock, and succumbed on the fourth day.

Discussion & Conclusion:

Takotsubo cardiomyopathy in our experience in Asia usually occurs in post-menopausal women and is precipitated by intense physical stressors.

OP-CR-18

Exploring the Lay Public's Understanding and Perception of Dementia in Singapore

TAN WAI JIA¹, **SONG-IEE HONG**⁴, **NAN LUO**⁴, **TONG JEN LO**³, **PHILIP YAP**²

¹National Healthcare Group HQ, ²Khoo Teck Puat Hospital, ³Ministry of Health, Singapore,

⁴National University of Singapore,

Background & Hypothesis:

Research in pre-clinical detection of dementia aims to improve treatment outcomes. However, poor perception and understanding of dementia are barriers to successful screening. We aim to investigate the public's understanding of dementia, and identify variables associated with the different profiles of public perception.

Methods:

A custom-designed questionnaire was used to assess the lay person's knowledge and perception of dementia during a health fair at a public hospital in Singapore. Out of a sample of 370 subjects, 28 declined to participate (response rate = 91.4%). Latent class analysis (LCA) was used to identify meaningful subgroups of subjects from significant associations with multiple indicators of dementia awareness. Multi-nominal logistic regression was performed exploring variables associated with each of the subgroups derived from LCA.

Results:

Majority of the study participants were female (66.9%), 65 years or older (71.1%), and ethnic Chinese (88.1%). LCA classified the study participants into 3 subgroups: Class1 (Good Knowledge, Good Attitude), Class2 (Good Knowledge, Poor Attitude) and Class3 (Poor Knowledge, Poor Attitude) in proportions of 14.28%, 63.83% and 21.88% respectively. Compared to other classes, participants with good knowledge and good attitude towards dementia (Class1) were more likely to know someone with dementia and understand the effects of the disease, be married, live in private housing, receive higher monthly income, and not profess belief in Buddhism, Taoism and Hinduism.

Discussion & Conclusion:

The public does not appear ready for screening initiatives and early diagnosis of dementia. Education efforts should be targeted at lower socio-economic groups, singles and those from certain oriental religions.

OP-CR-19

Incidence of Postoperative Nausea and Vomiting in a Tertiary Hospital in Singapore

LEE QIANYI RUTH¹, LEE YUN ZHI², KYU KYU THINN², EUGENE LIU HERN CHOON², POON KEAH HOW²

¹Ministry of Health (MOH), ²National University Health System

Background & Hypothesis:

Postoperative nausea and vomiting (PONV) is a common adverse event following anaesthesia and can result in significant patient distress. The reported incidence of PONV ranges from 20% to 30%. However, there is no similar local published data. Knowledge of the local incidence of PONV will guide resource allocation on its prevention and management. The primary outcome measure is to determine the incidence of PONV. The secondary outcome measures include establishing relative risks of known risk factors for PONV amongst our study population and validation of a common PONV risk score.

Methods:

This prospective survey was conducted on 205 patients who were admitted after elective surgeries over a 2-week period. A questionnaire nested within a standard audit form was administered on postoperative day one. PONV rates and relative risk ratios were calculated.

Results:

The incidence of PONV was 46.3%. This was higher than international incidence rates. The relative risks of PONV for females, intraoperative morphine use, smoking and previous history of PONV were 1.31, 1.14, 1.57 and 2.17 respectively. These findings were generally consistent with some of the published data. Based on the APFEL scores of 1, 2, 3, and 4, the corresponding PONV rates amongst our study population were 27%, 46%, 53% and 100%. These are similar to the reported rates.

Discussion & Conclusion:

The incidence of PONV was high amongst our study patients. Knowledge that the risk factors for PONV amongst our patients are similar to known risk factors and validation of the APFEL score should guide prevention and management of PONV.

OP-CR-20

Arterial Stiffness in Diabetic Nephropathy is Associated with Endothelial Dysfunction

**NG XIAOWEI¹, LIM SU CHI¹, TAVINTHARAN SUBRAMANIAM¹, YEOH LEE YING¹,
AMIZAH ASRAP¹, MAWARNI AROF¹, OU YAO¹, JERLYN CHEOK¹, NOREFA
RIFFIN¹, LIEW YITING¹**

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Diabetic nephropathy (DN) is associated with increased arterial stiffness. However, the underlying mechanisms are not well understood. We hypothesised that arterial stiffness in DN is associated with impaired endothelial function. We aimed to study the relationship between arterial stiffness and endothelial function in a large group of diabetic individuals (n = 730) across a range of renal function.

Methods:

Pulse wave velocity (PWV), measured by applanation tonometry (SphyMoCor), was used to estimate aorto-iliac arterial compliance (i.e. arterial stiffness). Endothelial function was assessed using 2-Dimensional Laser Doppler flowmetry (percentage increase in perfusion over baseline) over the forearm with and without trans-cutaneous iontophoretic delivery of acetylcholine (endothelial-dependent vasodilation) and sodium nitroprusside (endothelial-independent vasodilation). Subjects were grouped as 1 = normal renal function; 2 = microalbuminuria and estimated glomerular filtration rate (eGFR) ≥ 60 mls/min; 3 = macroalbuminuria and/or eGFR < 60 mls/min. Both uni-variate (ANOVA) and multi-variate analysis (General Linear Model) were performed.

Results:

Age for the study subjects was (mean \pm SD) 57 ± 11 years; Systolic BP: 141 ± 19 mmHg; diastolic BP: 79 ± 9 mmHg; HbA1c: $7.8 \pm 1.3\%$; 49.4% male; 53.5% Chinese, 25.2% Malays and 21.4% Indians. Mean PWV was 10.0 ± 5.8 m/sec, which was independent of gender, ethnicity and smoking status. PWV increased with worsening renal function: Group 1 = 9.0 ± 2.4 ; Group 2 = 9.8 ± 2.6 ; Group 3 = 11.7 ± 10.1 ($P < 0.01$). This difference remained significant after adjustment for age, blood pressure, HbA1c and lipids ($P = 0.032$). There was also progressively impaired endothelial dependent (Group 1 = $132 \pm 99\%$; Group 2 = 127 ± 91 ; Group 3 = 97 ± 74) and independent (Group 1 = $79 \pm 61\%$; Group 2 = 87 ± 59 ; Group 3 = 60 ± 46) vascular reactivity across the groups (both $P < 0.01$), which remained unattenuated after similar statistical adjustment.

Discussion & Conclusion: Arterial stiffness in DN is associated with endothelial dysfunction. Interventions targeting endothelial dysfunction may have clinical implication in diabetic individuals.

OP-CR-21

Pictorial Essay of Imaging in Bariatric Surgery Patients: Our Initial Experience

TRISHNA R SHIMPI¹, HUI SEONG TEH¹, ANTON CHENG KUI SING¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Modernisation has brought along the unwelcome problems of morbid obesity due to change in lifestyles. However, the advances at the surgical front found the remedial surgical solutions such as: "Bariatric surgeries" to combat obesity. With more and more people opting for the various bariatric surgeries, radiological evaluation of post banding patients is gaining increasing importance. The purpose of this article is to review the various bariatric techniques and the associated imaging findings of normal postoperative anatomy and of common complications.

Methods:

Until date, 22 patients of various postoperative durations have been evaluated with barium swallow technique. They were assessed for the following parameters: maximum distal esophageal diameter (AP & Lateral), stomal diameter, gastric pouch dimensions (height and width), esophageal emptying time and contrast extravasation, if any.

Results:

Until date, 22 patients of various postoperative durations have been evaluated with barium swallow technique. They were assessed for the following parameters: maximum distal esophageal diameter (AP & Lateral), stomal diameter, gastric pouch dimensions (height and width), esophageal emptying time and contrast extravasation, if any.

Discussion & Conclusion:

With the progress in surgical techniques and surgical experience in adjustable gastric banding the complications are minimal. However, because various complications may have the same clinical presentation but require different treatment, the radiologist must be aware of the appearances of normal postoperative anatomy and imaging appearances of various complications to give a definitive diagnosis.

OP-CR-22

Criminal Behaviour in Voluntary Psychiatric In-patients in a Tertiary Mental Hospital in Singapore

YAO FENGYUAN¹

¹*Institute of Mental Health*

Background & Hypothesis:

Although the rate of violence by mentally disordered offenders is known to be higher than that in the general population, there is little data on the rates of violence by non-offender psychiatric patients in Singapore.

Methods:

This audit aims to assess the frequency and severity of violence amongst patients in a tertiary mental hospital in Singapore. A retrospective analysis of admissions to a ward for physically aggressive patients was carried out, using a structured questionnaire prepared for this purpose.

Results:

The results revealed high rates of violence in patients with mental disorders. We found that these are either not reported to the police or that their charges are not pressed, leading to lack of prosecution.

Discussion & Conclusion:

The need for appropriate forensic risk assessments, legal sanctions for violent behaviour and implications for risk management are some aspects highlighted by this work.

OP-CR-23

Coblation Assisted Upper-Airway Procedure for Treatment of Snoring

LAU LINUS¹, STEPHEN DC LO², CHONG YAW KHIAN²

¹National University Hospital, ²Tan Tock Seng Hospital

Background & Hypothesis:

To evaluate the outcomes of Coblation Assisted Upper-Airway procedure (CAUP), a new technique for treatment of snoring in patients with primary snoring and mild obstructive sleep apnea.

Methods:

We retrospectively surveyed all patients who underwent CAUP at TTSH from 2010 to 2011. We excluded patients with apnea-hyponea index >15, BMI $\geq 30\text{kg/m}^2$, patients undergoing concomitant procedures and history of previous palate surgery. Patients underwent CAUP, comprising coblation channelling to the soft palate and uvulopalatoplasty, performed by one surgeon (CYK). Study outcomes include snoring severity rated by bed partner on a snoring scale and Epworth Sleepiness Scale (ESS) before and after the procedure, as well as postoperative complications and overall satisfaction with procedure.

Results:

We achieved a response rate of 91% and sample size of 30 patients. Mean snoring scale was reduced from 7.55 ± 1.65 to 3.35 ± 2.29 ($P < 0.001$) after the operation. Twenty-seven (90%) patients reported an improvement in snoring scale and 20 (67%) patients achieved a satisfactory postoperative snoring score ≤ 3 which is widely considered as successful treatment of snoring. Mean ESS was reduced from 7.3 ± 4.7 to 6.4 ± 3.2 after the procedure, but this was not statistically significant ($P = 0.292$). Postoperatively, 1 patient had secondary haemorrhage. The number of patients complaining of globus sensation, dry throat, throat irritation and hypernasal speech was 1, 3, 1 and 1 respectively. Twenty patients (67%) were generally satisfied with the procedure.

Discussion & Conclusion:

CAUP leads to a significant and clinically relevant reduction in snoring with minimal complications. Our success rate of 67% is comparable to that in the literature. Additional follow-up is required to establish its efficacy in the long term.

OP-CR-24

Predictive Value of the Area of Peripheral Retinal Non-Perfusion on Treatment Response in Branch and Central Retinal Vein Occlusion

**TAN COLIN¹, MILTON CHEW CHER YONG¹, LOUIS LIM WEI YI¹, M. SINGER³,
DARREN BELL², SRINIVAS R. SADDA²**

¹Tan Tock Seng Hospital, ²Doheny Eye Institute, ³Medical Center Ophthalmology Associates

Background & Hypothesis:

The aim was to evaluate the extent of peripheral retinal non-perfusion in patients with branch or central retinal vein occlusion (BRVO & CRVO) and to determine its effect on the severity of macular oedema and response to treatment.

Methods:

Thirty-two consecutive patients with BRVO or CRVO were treated with intravitreal injections of anti-vascular endothelial growth factor (anti-VEGF) and dexamethasone intravitreal implant. At all visits, patients underwent 200-degree widefield fluorescein angiography (FA), color fundus photography and spectral domain optical coherence tomography (OCT). Areas of ischemia were mapped out and calculated as a percentage of the total visible retina.

Results:

The mean area of retinal ischemia was 14.8%. Overall, the area of non-perfusion was larger when macular oedema was present compared to when the oedema had resolved (15.0% vs. 9.8%, $P < 0.001$). Compared to patients with smaller areas of ischaemia, those with ischaemia >10% had thicker mean central subfield on OCT (535.3 μm vs 425.1 μm , $P = 0.094$) and worse visual acuity (VA) (69 letters vs 56.3) with macular oedema present and experienced larger decrease in OCT (296.1 μm vs 165.3 μm , $P = 0.019$) and gain in VA (12.4 letters vs 1.1, $P = 0.036$) in response to treatment. The time to recurrence of macular oedema was longer for those with areas of ischemia >10% (3.1 vs 2.8 months).

Discussion & Conclusion:

The area of peripheral retinal non-perfusion in patients with BRVO and CRVO affects the clinical course of BRVO and CRVO. The increased areas of peripheral retinal non-perfusion may result in greater VEGF production, resulting in increased retinal oedema and worse VA.

OP-CR-25

New Insights into Diabetic Retinopathy—Risk Factors for Prevalence, Incidence and Progression in Asians

TAN SH COLIN¹, **NGO WEI KIONG**², **HON KIAT WONG**², **FRANCINE P YANG**²

¹National Healthcare Group HQ, ²Tan Tock Seng Hospital

Background & Hypothesis:

Diabetic retinopathy (DR) is a leading cause of blindness. There are few studies on its risk factors in Asian populations and none on its rate of progression. We evaluate the risk factors associated with the prevalence, incidence and rate of progression of DR.

Methods:

A cohort study of 250 consecutive patients with diabetes mellitus was examined annually by trained ophthalmologists over a 5-year period. Multivariate logistic regression analysis was performed on the demographic and clinical risk factors.

Results:

The prevalence of DR at baseline was 54.2%. On multivariate analysis, risk factors were age (odds ratio [OR] 0.92, 95% confidence interval [CI], 0.90 to 0.95, $P < 0.001$) and DM duration (OR 1.05, 95% CI, 1.01 to 1.08, $P = 0.005$). The 5-year incidence was 35.8%, with 11.9% developing moderate or severe non-proliferative DR (NPDR). Other risk factors include Malay race (19% vs 4.6% other races, $P < 0.001$), higher HbA1c (8.815 vs 6.95%, $P < 0.05$) and treatment type (OR 1.4, $P = 0.015$). Progression time between stages of DR shortened with increasing severity—normal to mild NPDR: 3.7 years; mild to moderate NPDR: 2.9 years; moderate to severe NPDR: 1.4 years. Stratifying by age, the youngest cohort (<60yrs) progressed at the fastest rate compared to older cohorts (2.8 years vs 3.6 [60 to 69 years] vs 4.2 [≥ 70 years]). The presence of macular edema at baseline was a significant risk for the incidence and progression of DR.

Discussion & Conclusion:

The rate of progression of DR has not previously been described. DR progression accelerates with increasing severity, and is fastest in younger patients with a longer duration of disease. Younger age and duration of DM are important risk factors for both prevalence and incidence.

OP-CR-26

Prognostic Factors for Open Globe Injuries and Correlation of Ocular Trauma Score at a Tertiary Referral Eye Care Centre in Singapore

AGRAWAL RUPESH¹, STEPHEN C TEOH¹, SUE WEI HO²

¹Tan Tock Seng Hospital, ²Ministry of Health Holdings

Background & Hypothesis:

We aimed to evaluate the factors influencing final vision outcome after surgical repair of open globe injuries and to correlate the Ocular trauma score.

Methods:

Retrospective case analysis of patients with open globe injuries at a tertiary referral eye care centre in Singapore was performed. Preoperative factors affecting final vision outcome in patients with open globe injury and correlation of ocular trauma score in our study with international ocular trauma scoring system was performed.

Results:

Case records of 172 eyes with open globe injury were analysed. Mean age was 36.67 yrs. Mean follow-up was 12.26 months. Males were predominantly affected. Initial visual acuity was $\geq 20/40$, $20/50 < 20/200$, $20/200$ - CF, HM- PL and NLP in 24 (14%), 39 (22.7%), 16 (9.3%), 66 (38.4%) and 27 (15.7%) eyes respectively. Final visual acuity was $\leq 20/40$, $20/50 < 20/200$, $20/200$ - 1/200, HM- PL and NLP in 76 (44.2%), 28 (16.3%), 11 (6.4%), 30 (17.4%) and 27 (15.7%) eyes respectively. Ocular trauma score in our study correlates with international ocular trauma scoring system.

Discussion & Conclusion:

The present study showed preoperative variables such as mode of injury, preoperative visual acuity, traumatic cataract, hyphaema, relative afferent papillary defect, vitreous loss, vitreous hemorrhage to be adversely affecting the final vision outcome. Our study showed a good synchrony with international ocular trauma score (OTS) and based on this study we were able to validate application of OTS in Singapore population. Recognising these factors can help the surgeon in evidence based counseling.

OP-CR-27

RFLP Analysis of Hepatitis B Risk Groups in Sindh Pakistan

KAZI YASMEEN¹, KULSOOM³, SHAHID²

¹*Others,* ²*NIBGE,* ³*SAL University*

Background & Hypothesis:

In Pakistan studies have shown that the prevalence of HBV infection is about 8%. Hepatitis B is also the leading cause of chronic hepatitis, cirrhosis and hepatocellular carcinoma. Based on complete nucleotide sequence and inter diversity, HBV has been classified into 8 genotypes designated as A to H. Genotyping of HBV is very important tool before therapy as all genotypes show different responses to antiviral drugs. The objective of present study was to identify different risk groups for HBV in the Khairpur city of Sindh Province and identification of different genotypes and their molecular characterisation.

Methods:

Blood samples were collected from the 4 risk groups and presence of HbsAg was determined by 'Rapid Chromatographic-Immunoassay'. HBV DNA was extracted using standard molecular biology techniques and amplification of Hepatitis B. Surface antigen was performed by PCR. PCR products was analysed on agarose gel to determine the fragment of correct size. Restriction analysis was performed by PCR-RFLP Method.

Results:

A total 100 samples were collected from paramedical staff. The positive samples accounted 75% by immunoassay and 68% positive by PCR. House contacts (n = 50), 40% were positive by immunoassay and 30% were positive by PCR. Out of 50 samples collected from barber shops, 38% were positive by immunoassay and 40% by PCR. Samples collected from dentist clinic (n = 60), 25% samples showed positivity by immunoassay and 27% showed positivity by PCR.

Discussion & Conclusion:

From the results, it is evident that hepatitis B is a health risk in risk groups tested in Sindh. The RFLP results will be presented in the presentation.

OP-CR-28

Relationship Between Cortical Silent Period and Functional Performance in Patients with Parkinson's Disease

CHUNG LAU HA¹, **HA SOK MAN**³, **LAI KA YING**²

¹National Healthcare Group HQ, ²General Changi Hospital, ³Macau Hospital

Background & Hypothesis:

Parkinson's disease (PD) is a movement disorder related to the loss of dopaminergic neurons in basal ganglia which has shown to cause some abnormalities of the cortical excitability of the motor circuitry. One of the consistent findings regarding cortical excitability abnormalities in PD is the decrease in excitability of cortical inhibitory circuit as reflected by shortened cortical silent period (CSP). The CSP refers to a period of silence of variable length in electromyogram (EMG) on a voluntarily contracting muscle elicited by transcranial magnetic stimulation (TMS). In the current study, we tested the hypothesis that the duration of CSP is associated with functional performance of patients with PD. The result from this study will provide us with an insight of the clinical use of CSP in monitoring the effect of intervention, and provide the background to examine whether improvement in the patients' function will lead to restoration of CSP in patients with PD.

Methods:

Design: Cross-sectional exploratory study. Participants: Eighteen community-dwelling subjects with idiopathic Parkinson's disease with a predominant rigid-akinetic form, at Hoehn & Yahr Scale stage I to III and during the on stage of anti-Parkinsonian medications completed the study. Measurements: Resting motor threshold (RMT), cortical silent period (CSP), Movement Disorder Society-Unified Parkinson's Disease Rating Scale (MDS-UPDRS), finger tapping, Jebsen Hand Function Test (JHFT) and Timed Up and Go test (TUG).

Results:

Results: No significant correlation was found between CSP and MDS-UPDRS ($r = 0.18$, $P = 0.48$), finger tapping ($r = -0.06$, $P = 0.81$), JHFT ($r = 0.29$, $P = 0.25$) and TUG ($r = 0.22$, $P = 0.38$).

Discussion & Conclusion:

Conclusion: The clinical and functional significance of changes in CSP duration is still not clear in people with Parkinson's disease (PD) on long-term dopaminergic medication. CSP can be used to monitor the effects of intervention but not functional changes over time and hence other functional outcome measures should be included in the evaluation of treatment efficacy in people with PD.

OP-CR-29

Primary Hyperaldosteronism: Comparing Outcomes of Medical and Surgical Treatment in Singapore

LUM GRACE¹, CHOW MINYANG¹, RINKOO DALAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Primary hyperaldosteronism is a common cause of secondary hypertension, accounting for up to 5% of cases locally. Laparoscopic adrenalectomy is indicated in unilateral hyperaldosteronism, whereas medical therapy with spironolactone and/or amiloride is recommended for bilateral hyperplasia. Many patients decline imaging procedures and elect medical therapy. This study evaluated the outcomes of medical vs surgical treatment in patients with primary hyperaldosteronism, with regards to blood pressure control and potassium levels. We hypothesised that surgical treatment results in better clinical outcomes.

Methods:

We retrospectively reviewed records of 54 patients who were diagnosed with primary hyperaldosteronism by a saline suppression test. Forty-six were treated medically and 8 were treated surgically. Outcome measures were taken at 1 year post treatment, and analysed by multivariate analysis.

Results:

The surgical group was younger (mean: 47.25) compared to the medical group (mean: 54.25 $P < 0.05$). They were otherwise similar. One year post-treatment, the surgical group had higher mean potassium levels than the medical group ($P < 0.05$), and were on fewer anti-hypertensive drugs ($P < 0.05$). Blood pressure was controlled and did not differ significantly between the 2 groups.

Discussion & Conclusion:

Both medical and surgical therapies result in good control of blood pressure at 1 year post-treatment. However, the medical group required fewer anti-hypertensive drugs. Both groups achieved normokalemia, though the surgical group had higher potassium levels. Patients wishing to avoid surgery and can tolerate the medications could do as well as patients who undergo surgery. This knowledge can help patients make informed decisions on the treatment that would be most suited for them.

OP-CR-30

Increased Framingham 10-Year Risk of Cardiovascular Disease in Chinese Patients with Schizophrenia

TAY YI HANG¹, MILAWATY NURJONO², JIMMY LEE CHEE KEONG²

¹National University Hospital, ²Institute of Mental Health

Background & Hypothesis:

Schizophrenia is associated with increased mortality rates, and this has been attributed to the greater incidence of cardiovascular disease (CVD). The Framingham risk score (FRS) is a widely-used age- and gender-specific algorithm to estimate 10-year CVD event risk. The main aim of this study was to determine the risk profile in schizophrenia. We hypothesised that patients with schizophrenia have an increased 10-year risk of CVD.

Methods:

Eighty-three Chinese patients with schizophrenia and 243 Chinese community controls were recruited. Their medical history and smoking history were obtained, and anthropometric parameters measured. All subjects provided fasted venous blood samples for lipid and glucose measurements. Ten-year CVD risk for each participant was computed using the FRS and compared between patients and controls.

Results:

Schizophrenia patients had a significantly greater mean 10-year risk of CVD of 4.6%, as compared to 3.1% in controls. Smoking was more prevalent in patients over controls (24% vs 7%), as was metabolic syndrome (MetS) as defined according to the American Heart Association and the National Heart, Lung and Blood Institute criteria (45% vs 17%). Factors not in the FRS identified to have the greatest significant effects on CVD risk were triglycerides, diastolic blood pressure and blood glucose.

Discussion & Conclusion:

Our study showed an increased 10-year risk of CVD and a high prevalence of smoking and MetS in Chinese patients with schizophrenia. The top 3 risk factors not incorporated into but significantly associated with the FRS are components of MetS, highlighting the importance of screening for and managing MetS, particularly in the schizophrenia population.

OP-CR-31

Plasma Exchange for Steroid-Refractory Optic Neuritis in Neuromyelitis Optica

IAN LIANG EN WEE¹, **KEVIN TAN**²

¹National University Hospital, ²National Neuroscience Institute, Singapore

Background & Hypothesis:

Neuromyelitis optica (NMO) is an autoimmune, inflammatory disorder characterised by severe and selective involvement of the optic nerve and spinal cord. Acute NMO attacks are treated with pulsed steroids or plasmapheresis (PLEX) rescue therapy in steroid-refractory attacks. We aimed to compare outcomes of PLEX-treated with pulsed steroids-treated NMO-optic neuritis (ON) attacks.

Methods:

We retrospectively reviewed all treated NMO-ON attacks between May 1991 and May 2011 at the National Neuroscience Institute, Singapore. We measured change in visual-acuity (VA) and colour-vision (CV) from baseline vision and visual nadir, up to 6 months after attack. To determine whether PLEX had any additional benefit, we compared PLEX-treated attacks with steroid-refractory attacks.

Results:

Twenty-two patients (33 eyes; 58 attacks) were analysed; 27.6% (16/58) of attacks were treated with intravenous methylprednisolone (IVMP) followed by PLEX; the rest had IVMP only. Evaluating initial response to IVMP, 6.3% (1/16) IVMP-PLEX-treated attacks compared to 45.2% (19/42) IVMP-only treated attacks had improved VA; 23 IVMP-only treated attacks were steroid-refractory. Following IVMP-PLEX treatment, 87.5% (14/16) had improved VA; 25.0% (4/16) had improved CV. At 6-months, 93.8% (15/16) IVMP-PLEX-treated attacks compared to 82.6% (19/23) steroid-refractory attacks maintained/improved VA over visual nadir (OR = 3.16, 95%CI, 0.32 to 31.29, $P = 0.384$); 43.8% (7/16) vs 13.0% (3/23) maintained/improved VA over baseline vision (OR = 5.19, 95%CI, 1.09-24.79, $P = 0.05$). Complications were reported in 81.3% (13/16) of PLEX treatments; hypotension being the commonest ($n = 5$). There were no fatalities.

Discussion & Conclusion:

Patients with NMO-ON attacks improve regardless of treatment, but PLEX significantly improve VA up to 6 months post-treatment. Administrators of PLEX must be aware of the potential treatment complications.

OP-CR-32

Correlation Between Insulin Resistance and Severity of Ischaemic Heart Disease

**ULLAL AISHWARYA¹, CHAKRAPAIN M², PADMANAB KAMAT², POORNIMA²,
UNNIKRISHNAN², MOHAMMED FAHEEM KOTEKAR²**

¹*Others,* ²*Kasturba Medical College*

Background & Hypothesis:

Insulin resistance is associated with ischemic heart disease along with other components of metabolic syndrome. Exact extent to which it contributes to ischaemic heart disease is not yet established. Hence the aim of the study was to study the strength of this association by evaluating the correlation between these factors.

Methods:

Thirty-six consecutive diabetic patients who underwent coronary angiogram for the evaluation of ischaemic heart disease were recruited in the study. Insulin resistance was measured by HOMA2 IR computerised method 2 weeks after the coronary angiogram and severity of ischaemic heart disease was assessed by Gensini scoring done by a cardiologist, who was blind to other parameters. Correlation between these 2 parameters was assessed by calculating Spearman correlation coefficient. $P < 0.05$ was considered statistically significant.

Results:

Mean age of the subjects was 57.6 ± 10.38 . Mean duration of diabetes was 5.58 ± 2.85 years. Median HOMA IR was 1.4763 (Interquartile range: 0.99). Median Gensini score was 26.00 (Interquartile range: 36.75). There was a statistically significant positive linear correlation between HOMA IR and severity of ischaemic heart disease as assessed by Gensini score ($r = 0.34$ and $P = 0.039$).

Discussion & Conclusion:

Previous studies have shown an association between these 2 parameters. The observation of a statistically significant linear correlation, which has not been studied so far, highlights the importance of insulin resistance being a major risk factor for ischaemic heart disease. Since insulin resistance remains fairly constant through out the course of diabetes mellitus, assessment of insulin resistance in the beginning of diabetes mellitus might help us in identifying high-risk individuals.

OP-CR-33

Brain Morphometry and White Matter Integrity of the Corpus Callosum in Chronic and First Episode Schizophrenia: A Combined Magnetic Resonance Imaging (MRI) and Diffusion Tensor Imaging (DTI) Study

TOR PHERN CHERN¹, SWU-CHYI GAN⁴, CARISSA NADIA KUSWANTO¹, MIN-YI SUM¹, SIMON COLLINSON⁴, YIH-YIAN SITO³, GUO-LIANG YANG², WIESLAW NOWINSKI², SIM KANG¹

¹*Institute of Mental Health*, ²*A-STAR*, ³*National Neuroscience Institute*, ⁴*National University of Singapore*

Background & Hypothesis:

Abnormalities in the corpus callosum (CC), which serves as the primary pathway for interhemispheric communication, have been shown in patients with schizophrenia (SZ). To date, there is a paucity of studies comparing CC differences between early onset and chronic SZ. We hypothesised that structural and white matter abnormalities of the CC are found in SZ (lower CC area, volume and fractional anisotropy, worse in chronic versus first episode cases) compared with healthy controls.

Methods:

Using Magnetic Resonance Imaging (MRI) and Diffusion Tensor Imaging (DTI), we investigated the overall size (area, volume), microstructural abnormalities (mean fractional anisotropy, FA) and presence of sex differences of the CC and its five constituent segments within 120 patients with SZ (52 chronic and 68 first episode SZ) and compared with 76 age- and sex-matched healthy controls.

Results:

We found that both the area and volume of the CC were significantly reduced in SZ relative to controls, with chronic patients demonstrating the smallest volumes, followed by first-episode patients and healthy controls. No significant FA differences were observed between the comparison groups.

Discussion & Conclusion:

The shrinkage of the CC in schizophrenia appears to be an important feature of the disorder and may offer an explanation for putative interhemispheric information transfer deficits observed in schizophrenia. Our findings suggest that brain structural abnormalities worsen with illness progression and argue for better evaluation of brain structural markers to track illness onset and progression with treatment.

OP-CR-34

Multi-Wavelet Transform Based Epilepsy Seizure Detection

AKAREDDY SHARANREDDY¹, PK KULKARNI²

¹*Others,* ²*P.D.A.College of Engineering*

Background & Hypothesis:

About 1% of the people in the world suffer from epilepsy and 30% of epileptics are not helped by medication. Careful analyses of the EEG signals can provide valuable insight and improved understanding of the mechanisms causing epileptic disorders and helps in identifying epilepsy seizures. Manual analysis of the EEG signals for detection epilepsy is very time consuming, hence researchers are looking towards automatic detection of epilepsy seizures from EEG signals recordings. This paper proposed a Multi-Wavelet based epilepsy seizure detection using ANN as a classifier.

Methods:

Artificial Neural Network (ANN), Multi-wavelet transforms (MWT).

Results:

The proposed technique is implemented, tested and compared with existing methods based on sensitivity, specificity, accuracy parameters, obtained promising results. Sensitivity: 0.78, Specificity: 0.88, Accuracy: 0.83, Precision: 0.90.

Discussion & Conclusion:

In this paper, we proposed an MWT based epilepsy seizures identification technique from an EEG signal. The proposed technique is the combination multi-wavelet transform and neural network. Using multi-wavelet transform, the EEG signal is decomposed into low frequency and high frequency components. Then the decomposed signal is applied to approximate entropy (ApEn) process, epilepsy seizures are classified using FFNN. The proposed method uses the standard database for testing the performance, obtained results promising. Work is in progress improve the performance by adopting improved Entropy methods.

OP-CR-35

Accessory Sinus Ostia: Rethinking Surgical Management

TAN CHARMAINE¹, MARK THONG KIM THYE¹

¹*National University Hospital*

Background & Hypothesis:

With a reported incidence varying from 4% to 50%, accessory maxillary sinus ostia has been postulated to cause chronic rhinosinusitis (CRS) via a recirculation phenomenon. This refers to the circulation of mucus between the natural and accessory maxillary ostia in the course of mucociliary drainage. Surgical linkage of these 2 ostia is therefore commonly recommended. However, no literature to date supports this management dogma. The aim of this study is to present an alternative view in surgical management of accessory sinus ostia (ASO).

Methods:

A retrospective review of patients who underwent first-time endoscopic sinus surgery for CRS or recurrent sinusitis from September 2009 to January 2012 was performed. Patients who had ASO diagnosed intraoperatively were identified and analysed.

Results:

A retrospective review of patients who underwent first-time endoscopic sinus surgery for CRS or recurrent sinusitis from September 2009 to January 2012 was performed. Patients who had ASO diagnosed intraoperatively were identified and analysed.

Discussion & Conclusion:

Five patients with ASO diagnosed intraoperatively were identified. Three of them did not have their natural and accessory ostia surgically linked, but were instead left alone as per senior author's alternative management view. Postoperative endoscopic pictures and CT scans will be presented, which will demonstrate that they neither suffered from persistent sinusitis nor recirculation phenomenon postoperatively. The remaining 2 patients underwent surgical linkage of the ostia specifically for access to Haller cells.

OP-CR-36

Qualitative and Quantitative assessment of Retinal Morphology in Patients with Diabetic Macular Edema and Its Association with Clinical Outcomes After Treatment

LI KELVIN¹, TAN SIANG HUI, COLIN²

¹*Khoo Teck Puat Hospital,* ²*Tan Tock Seng Hospital*

Background & Hypothesis:

We aim to assess the qualitative and quantitative anatomic features of diabetic macular edema (DME) and correlate them with clinical outcomes after treatment.

Methods:

This is an interventional cohort study of patients with newly-diagnosed clinically significant macular edema undergoing laser photocoagulation. Optical coherence tomography (OCT) was performed before and after treatment. OCT features were categorised as: Type I (sponge-like retinal thickening), Type II (macular edema with cystic changes) and Type III (serous retinal detachment). The central retinal thickness (CRT) was assessed on OCT. Both qualitative and quantitative features were correlated with clinical outcomes and visual acuity (VA).

Results:

Of 46 eyes, 73.9% were OCT Type I, 23.9% Type II and 2.2% Type III. Following laser photocoagulation, macular edema resolved in 51.4%. Clinical resolution occurred in 64% with OCT Type I compared to 18.2% of OCT Type II ($P = 0.025$). Visual acuity after 1 year remained unchanged or improved from baseline in 34 cases (73%). Of these, 70% were of OCT Type I and 30% OCT Type II ($P = 0.003$). Visual acuity correlated with CRT at presentation, (correlation coefficient 0.322, $P = 0.004$). Improvement in visual acuity corresponds to reduction in retinal thickness. Those with Type I macular edema showed a much stronger correlation (correlation coefficient 0.852, $P < 0.001$) between improvement in VA and change in retinal thickness.

Discussion & Conclusion:

Qualitative and quantitative OCT features of DME correlates with clinical response to photocoagulation, and can serve as prognostic markers. Type I DME shows a much stronger correlation compared to other types.

OP-CR-37

Bariatric Surgery: Tan Tock Seng Hospital's Initial Experience

AUNG MYINT OO¹, AARYAN KOURA¹, JAIDEEPRAJ RAO¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Obesity is the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. In Singapore, the National Health Survey (NHS) 2010 findings indicate a 0.65% annual increase in the prevalence of obesity over the past 6 years, from 6.9% in 2004 to 10.8% in 2010. The objective of this study is to review the initial series of bariatric surgeries done in Tan Tock Seng Hospital, Singapore's second largest acute care general hospital with 1400 beds.

Methods:

A retrospective review of patients who underwent bariatric surgeries from November 2008 to March 2012 was done using a prospectively collected database and medical records.

Results:

Among 50 bariatric surgical patients, 34% (n = 17) were male and 66% (n = 33) were female. The mean age of the patients was 43 years old. The average length of stay was 4.6 days. All patients underwent laparoscopic surgeries and only 1 patient (2%) was converted to open surgery. Fifty-two percent had (n = 26) sleeve gastrectomies, 30% (n = 15) Roux-en-Y gastric bypass, 14% (n = 7) gastric band removal and gastric bypass, 2% (n = 1) duodenal switch and 2% (n = 1) biliopandreatic diversion. Mean operative time was 167.5 minutes. Thirty days morbidity rate was 8% (4% (n=2)) anastomotic leak, 2% (n = 1) hematamesis and 2% (n = 1) wound infection.

Discussion & Conclusion:

Morbidity and mortality rates of our institution's initial series of bariatric surgeries are comparable to those reported in the literature.

OP-CR-38

Evaluation of Reasons for Non-Compliance with Continuous Positive Airway Pressure in the Singaporean Population and Patient Satisfaction following Uvulopalatopharyngoplasty—Audit of Practice

CHIA MEI FEN¹, PHUA CHU QIN²

¹Tan Tock Seng Hospital, ²National Healthcare Group

Background & Hypothesis:

Our aims are: (i) To investigate reasons for CPAP non-compliance in the Singaporean population in order to facilitate and plan interventions to improve CPAP compliance. (ii) To evaluate patient satisfaction following uvulopalatopharyngoplasty for obstructive sleep apnea.

Methods:

We conducted a retrospective study via a standardised telephone questionnaire of 55 patients who had undergone uvulopalatopharyngoplasty at Tan Tock Seng Hospital between 2009 and 2011, after failing a trial of CPAP. Pre- and postoperative polysomnography parameters were compared and correlated with patients' subjective perception of functional outcome following surgery.

Results:

Mean age of participants was 44.6 with a mean body mass index (BMI) of 25.6, apnoea-hypopnoea index (AHI) of 38.7 and Epworth Sleepiness Scale (ESS) score of 10.3. The top 5 reasons for CPAP non-compliance were perception of CPAP as non-curative and requiring long-term use (85.5%), restriction of movement during sleep (83.6%), high cost of CPAP mask and machine (67.3%), unable to fall asleep wearing CPAP device (52.7%) and uncomfortable CPAP headgear (49.1%). Postoperatively, the mean ESS and AHI scores on repeat polysomnography improved, in congruence with patients' perception of symptom alleviation and preference for surgery over CPAP use.

Discussion & Conclusion:

In establishing the reason for non-compliance, we are now able to strategise interventions to improve compliance. Uvulopalatopharyngoplasty does provide subjective and objective improvement in functional outcomes.

OP-CR-39

A Multi-Centre, Placebo-controlled, Double-blinded, Randomised Study on the Effects of Intracameral Lignocaine on Pain and Fear During Cataract Surgery

LIM WEI YI LOUIS¹, **COLIN TAN SIANG HUI**³, **FAM HAN BOR**³, **HENG WEE JIN**³,
SAW SEANG MEI²

¹National Healthcare Group HQ, ²National University of Singapore, ³Tan Tock Seng Hospital

Background & Hypothesis:

Cataract surgery may be painful and frightening to patients. It has been suggested that the use of intracameral lignocaine can reduce this. We aimed to evaluate the effect of supplemental intracameral lignocaine on pain and fear experienced during phacoemulsification.

Methods:

In a multi-centre placebo-controlled, double-blinded, randomised study, 506 consecutive patients undergoing cataract surgery (phacoemulsification) under topical anaesthesia were randomised to receive supplemental intracameral injection of either 0.5 mL 1% lignocaine or balanced salt solution (BSS). Postoperative assessments were performed by a trained interviewer using a standardised questionnaire and visual analogue scales. Multiple logistic regression was performed to assess risk factors for pain and fear.

Results:

Both groups were comparable in terms of demographics and duration of surgery. Intracameral lignocaine significantly reduced the proportion of patients experiencing pain (45.1% vs 53.7%, multivariate odds ratio [OR] 0.68, 95% confidence interval [CI], 0.47 to 0.97, $P = 0.034$), the median pain score ($P = 0.039$) and the mean grade of fear (2.7 vs 4.6, $P = 0.032$) compared to the placebo group. Among them, 69.7% of the lignocaine group experienced minimal pain compared to 57.6% of the placebo group ($P = 0.005$). Risk factors for pain included non-Chinese (OR 2.13, 95% CI, 1.25 to 3.64, $P = 0.005$) and females (OR 1.56, 95% CI, 1.09 to 2.24, $P = 0.016$). Pain and fear scores were well correlated ($P = 0.004$) and younger age was a significant risk factor for fear (OR 0.93, $P < 0.001$).

Discussion & Conclusion:

This randomised-control demonstrates a significant reduction of pain and fear with the use of supplemental injection of intracameral lignocaine during cataract surgery. This intervention improves safety and increases patients' satisfaction with surgery.

OP-CR-40

Molecular Prospective Study for Vertical Transmission of Hepatitis C Virus in Iraqi Pregnant Women

ALKUBAISY WAQAR¹, AMJAD NIAZI², QAIS KUBBA²

¹National University Hospital, ²AL-Nahrain Faculty of Medicine

Background & Hypothesis:

What has been published about the risk of mother-to-infant transmission of hepatitis C virus (HCV), shows variation according to the population studied and the test used. Polymerase chain reaction (PCR) was used for the first time in Iraq in a prospective study to assess the risk of vertical transmission in an unselected population of Iraqi pregnant women. Our objective was to detect the existence of HCV transmission from mother to infant.

Methods:

HCV antibodies (Abs) were sought with third generation enzyme immunoassay (EIA-3) in 3491 sera of pregnant women. A positive reaction was then confirmed by a third-generation immunoblot assay (LiaTek-III). This last test was confirmed positive in 112 serum samples. A prospective study was carried out in which we followed and subjected 26 babies of 25 anti-HCV positive mothers at first month of life for the detection of HCV-antibodies and RNA seropositivity. Then after, only 8 of these children could be followed up for 6 months postnatally for the detection of HCV-antibodies and RNA.

Results:

All the neonates were positive for HCV Antibodies (with EIA-3 and Lia Tek-III) during the first month of life and it completely disappeared within the following 6 months. HCV RNA was consistently negative in 22 sera (14 infants at first month and 8 of repeated at 6 months later) regardless of the hepatitis C virus polymerase chain reaction status (HCV RNA positivity) of their mothers (9 of whom were positive for HCV RNA).

Discussion & Conclusion:

The study showed the absence of vertical transmission of HCV from pregnant Iraqi women to their offspring.

OP-CR-41

A Prospective, Multi-Center Study on the Characteristic Features of Polypoidal Choroidal Vasculopathy on Fluorescein Angiography Imaging

TAN COLIN¹, NIKOLLE TAN¹, LIM TOCK HAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Polypoidal choroidal vasculopathy (PCV) and age-related macular degeneration (AMD) are distinct clinical entities with different visual prognoses, but are believed to be indistinguishable using fluorescein angiography (FA) alone. We aimed to describe the characteristic features of PCV on FA and the predictive value of these features in the diagnosis of PCV.

Methods:

A prospective, multi-center, randomised controlled study of 78 patients with PCV and AMD was carried out. All patients underwent dilated fundal examination and angiography using standardised protocols. The angiographic features were identified by masked graders using standardised diagnostic algorithms. Predictive features for PCV were analysed using multiple logistic regression and classification and regression tree (CART) analyses.

Results:

The mean area of choroidal neovascularisation (CNV) was significantly smaller in PCV (0.09 vs. 0.65 mm², $P = 0.005$). The presence of a nodular hyperfluorescent area on FA, which corresponded to the clinical location of the polyp, was highly predictive of PCV (80.0% vs 16.7%, $P < 0.001$). Blockage of fluorescence on FA occurred more frequently in PCV (61.7% vs 16.7%, $P = 0.001$). Occult CNV was seen more commonly in PCV (90.0% vs 73.3%) while classic CNV was less frequent (5.0% vs 22.2%). Using logistic regression analysis, the most predictive features for PCV were nodular hyperfluorescence ($P = 0.001$) and blocked fluorescence ($P = 0.018$).

Discussion & Conclusion:

Fluorescein angiography identified several distinguishing features which are highly predictive of PCV compared to AMD. In situations where other confirmatory investigations are not available, it is possible to identify patients who are likely to have PCV using FA characteristics alone.

OP-CR-42

A Novel Classification of Peripheral Clinical and Autofluorescence Findings in Age-related Macular Degeneration

TAN COLIN¹, **FLORIAN HEUSSEN**², **SRINIVAS SADDA**²

¹Tan Tock Seng Hospital, ²Doheny Eye Institute

Background & Hypothesis:

Peripheral abnormalities in colour and autofluorescence (AF) images of retinal diseases have not previously been described. We characterise the patterns of colour and AF peripheral abnormalities in wet and dry age-related macular degeneration (AMD).

Methods:

In a prospective study of 100 consecutive AMD patients, widefield 200-degree colour and FAF images were obtained by the Optos 200Tx Ultra-Widefield device using a standardised protocol. Images were graded independently by 2 masked graders. Colour and AF abnormalities were correlated with the type and severity of AMD.

Results:

Of 200 eyes, peripheral AF abnormalities were evident in 157 (78.5%), with several distinct AF patterns identified: granular (52.0%), mottled (40.5%), and nummular (20.5%). A 90% concordance of AF patterns was observed between both eyes. Mottled decreased AF was more common in wet compared to dry AMD (37.2% vs 22.8%, $P = 0.042$). Colour photograph abnormalities were detected in 82% of patients with 85% concordance. Clinical findings included: peripheral drusen (38.5%), retinal pigment epithelium depigmentation (22.5%), reticular pigmentation (14.0%), and cobblestone degeneration (7.0%). There was a high correlation between specific clinical and AF findings: granular with drusen ($P < 0.001$), mottled with both depigmentation ($P < 0.001$) and reticular pigmentation ($P = 0.001$).

Discussion & Conclusion:

Using a new widefield imaging technology, several distinct patterns of previously unknown peripheral AF abnormalities have been identified and classified. Widefield AF is a sensitive modality for the monitoring of AMD, with the AF abnormalities correlating strongly with specific clinical features of AMD. The high concordance between eyes suggests a genetic basis to these abnormalities, which may serve as markers for prognosis of the disease.

OP-CR-43

Epidemiology of Postoperative Endophthalmitis over 11 Years—Results of an Intervention Using Intracameral Antibiotics

TAN COLIN¹, HON KIAT WONG¹, FRANCINE YANG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Endophthalmitis is a devastating ocular infection which causes significant visual impairment and blindness. We describe the incidence of postoperative endophthalmitis following cataract surgery in a multi-ethnic Asian population over an 11-year period. We also evaluated the efficacy of a new antibiotic regime (intracameral injection of cefazolin) on the rates of postoperative endophthalmitis.

Methods:

A review of 50,177 consecutive cases of cataract surgery took place at Tan Tock Seng Hospital over an 11-year period (1999 to 2010) was performed, assessing the risk factors, microbiological cultures, and outcomes of endophthalmitis. Up to June 2006, the standard antibiotics were administered by subconjunctival injection. From July 2006, intracameral injection of 0.1 mL cefazolin (1 mg/mL) was used. Risk factors for endophthalmitis were assessed using multiple logistic regression.

Results: From 1999 to June 2006, the overall rate of postoperative endophthalmitis was 64.3 per 100,000. After the introduction of intracameral antibiotics, there was a 6-fold decrease in the rate of postoperative endophthalmitis to 9.7 per 100,000, with only 2 cases of endophthalmitis out of 29,520 surgeries performed. Intracameral antibiotics significantly reduced the rate of endophthalmitis (multivariate odds ratio [OR] 13.6, $P < 0.001$). Other significant risk factors were male gender (OR 2.51, $P = 0.025$) and age (OR 1.05, $P = 0.025$). The left eye infection rate was twice that of the right eye (71.4% vs 28.6%, OR 2.96, $P = 0.055$).

Discussion & Conclusion: The use of intracameral antibiotics has reduced the rate of postoperative endophthalmitis 6-fold and demonstrated reliable results over a period of 4 years. Intracameral antibiotic use, age and male gender were independent risk factors.

OP-CR-44

Charles Bonnet Syndrome (Formed Visual Hallucinations) Amongst Asian Patients in a Tertiary Ophthalmic Center

TAN COLIN¹, LOUIS LIM¹, NG BENG YONG², AU EONG KAH GUAN³

¹Tan Tock Seng Hospital, ²Singapore General Hospital, ³Khoo Teck Puat Hospital

Background & Hypothesis:

This study aims to describe (i) the epidemiology of Charles Bonnet syndrome (CBS) among patients in an Asian tertiary ophthalmic center and (ii) the characteristics of the hallucinations experienced.

Methods:

One thousand and seventy-seven consecutive patients aged 50 years and above were asked a standardised question to determine if they had ever experienced any form of visual hallucinations. All patients who experienced these symptoms were further interviewed using a detailed, standardised questionnaire to ascertain if they met the diagnostic criteria established for CBS.

Results:

There were 491 males (45.6%) and 586 females (54.4%). The best-corrected visual acuity ranged from 20/20 to light perception in the better-seeing eye and from 20/20 to no light perception in the worse-seeing eye. Four patients (0.4%) were diagnosed to have CBS. Two were males and 2 were females. There were 2 Chinese and 2 Indians. The average age of the CBS patients was 76.3 years (range, 65 to 90 years). Two patients had cataracts, one had glaucoma and one had both cataracts and glaucoma. There were a wide variety of visual hallucinations reported. Three out of 4 patients experienced a negative reaction to their hallucinations. Only one patient had discussed his symptoms with a doctor.

Discussion & Conclusion:

This is the first report on the epidemiology of CBS in Asian patients. The prevalence rate of CBS (0.4%) is slightly lower than in comparable studies in non-Asian populations. The nature of the hallucinations experienced was similar to those previously reported.

OP-CR-45

Prevalence of HCV Specific Antibody, RNA and Genotypes Among HIV-Infected Iraqi with Haemophilics

AL-KUBAISY WAQAR¹, KHALID AL-NAIB², MANAL HABEEB²

¹National University Hospital, ²AL-Nahrain Faculty of Medicine

Background & Hypothesis:

Clotting factor administration has resulted in better life quality for coagulopathic patients. However, the rise in viral hepatitis was observed following its use, therefore rate of transmission of Hepatitis C virus (HCV) in haemophilic patients was reported as 100%. HCV and HIV coinfection in haemophilic patients is common. The risk of developing liver failure in HCV and HIV co-infection has increased 21 folds. Liver biopsy is essential in deciding who would benefit from HCV treatment, but it is a hazardous procedure for haemophilic patients. Hence, the knowledge of other variables, such as HCV genotype may be helpful. Therefore, we conducted this study in order to identify the prevalence of HCV among HIV patients, and also to detect the most prevalent genotypes among this group.

Methods:

Samples obtained from 47 HIV-infected haemophilic patients were screened for anti-HCV antibodies using a third generation enzyme immunoassay. Positive results were then confirmed by third generation immunoblot assay. By performing polymerase chain reaction (PCR) and DNA enzyme immunoassay (DEIA), HCV-RNA was detected with subsequent genotyping.

Results:

The seroprevalence of anti-HCV antibodies was 65.96%. Out of 31 HCV/HIV coinfecting patients, 21 (67.7%) were lacking history of blood transfusion. Four HCV genotypes were detected (1a, 1b, 3a and mixed 3a & 4) in 15.38%, 61.53%, 15.38% and 7.69% respectively.

Discussion & Conclusion:

HCV-1b was found to be the most frequent detected genotype among HCV positive Iraqi haemophilics coinfecting with HIV. Moreover, contaminated factor VIII seems to be responsible for the disease acquisition. More details are interpreted in the text.

OP-CR-46

Robotic Gastrectomy in Gastric Cancer: First Successful 3 Cases in Southeast Asia

LEE SEAN¹, AUNG MYINT OO², JAIDEEPRAJ RAO²

¹National University of Singapore, ²Tan Tock Seng Hospital

Background & Hypothesis:

Gastrectomies are performed worldwide via open or conventional laparoscopic access as the standard of care in the surgical treatment of gastric cancer. Since 1985, robotic technology was implemented into neurosurgery and since 1994, it has been used for intra-abdominal surgery. Our institution has begun to perform robotic-assisted gastrectomies recently on selected patients with gastric cancer. The objective of our study is to review the technical feasibility, safety and efficacy of 3 cases of robotic-assisted gastrectomies done in Tan Tock Seng Hospital, Singapore's second largest acute care general hospital with 1400 beds.

Methods:

Our study is a small retrospective case series. From November 2011 to April 2012, one surgeon from our institution, Tan Tock Seng Hospital, has conducted robotic-assisted subtotal gastrectomies on 3 patients. Their case notes have been reviewed, with their clinicopathologic characteristics and surgical outcomes analysed.

Results:

One female and 2 male patients were included with a mean age of 71.0 years (range, 64 to 78 years). They were diagnosed with T1 gastric adenocarcinoma without nodal and distant metastases. Mean operative time was 373.2 min (range, 350 to 400 min). Mean estimated intra-operative blood loss was 100.0 mL (range, 50 to 200 mL). Mean length of hospital stay was 7.3 days (range, 6 to 8 days). There were no perioperative complications and the 30-day mortality and morbidity rates are zero percent.

Discussion & Conclusion:

Our study illustrated that robotic-assisted gastrectomy promises fast patient recovery and good surgical outcome for patients with gastric cancer. Further randomised controlled trials with more patients should be conducted to improve the level of evidence.

OP-CR-47

Comparing Pneumatic Retinopexy with Scleral Buckle for the Treatment of Retinal Detachment in Asian Myopes

NGO WEI KIONG¹, COLIN TAN SIANG HUI¹, LIM TOCK HAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

The treatment of retinal detachment (RD) usually requires extensive surgery with associated systemic and ocular complications and morbidity. Pneumatic retinopexy (PR) is a low-cost alternative that can be performed as an outpatient clinic procedure. This study aimed to evaluate the efficacy, safety and complication rates of pneumatic retinopexy (PR) in the treatment of rhegmatogenous retinal detachment (RD).

Methods:

A 7-year review of 32 consecutive eyes with rhegmatogenous RD who were treated with PR by a single surgeon compared with 36 eyes treated with Scleral Buckle (SB). Perflouropropane gas was injected into the vitreous to tamponade the retinal detachment, allowing adhesion formation. Single procedure success was defined as retinal reattachment with a single attempt.

Results:

One-procedure success rate for PR was 90.6% (29 of 32 eyes) compared to 97.2% in SB. In the remaining 3 eyes, the retina was successfully reattached with a second procedure. The success rate was significantly higher in eyes with 2 or fewer tears ($P = 0.003$). There was no significant association between a successful outcome and the age, duration of symptoms, lens status, or size of tear. Patients with RD involving the macula had a poorer final visual acuity (mean LogMAR 0.44, SD ± 0.25) compared to those who presented with the macula still attached (mean LogMAR 0.19, SD ± 0.13) ($P = 0.002$). Failure of PR did not adversely influence the outcome of subsequent procedures. No serious adverse effects of PR were reported.

Discussion & Conclusion:

PR has comparable success rates to more extensive surgery (SB) and is safe for the treatment of RD.

OP-CR-48

Minimally Invasive Technique in the Treatment of Submacular Haemorrhage Using Tissue Plasminogen Activator and Pneumatic Displacement

NGO WEI KIONG¹, COLIN TAN SIANG HUI¹, LIM TOCK HAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Submacular haemorrhage is a common sight-threatening complication in various retinal diseases. Surgical management carries a high risk of complications. This study aims to evaluate the safety and efficacy of a minimally invasive technique to treat submacular haemorrhage using tissue plasminogen activator (tPA) and pneumatic displacement.

Methods:

A 10-year cohort study of consecutive patients presenting with submacular haemorrhage was performed. Intravitreal injection of 0.05 mL tPA was given, followed by pneumatic displacement using 0.3 mL perfluoropropane gas. Risk factors for long-term success and visual outcomes were assessed using multivariate analysis.

Results:

Sixty-three patients, mean age 63.5 years, had a single-treatment success rate of 89.3% (66.1% with blood displacement; 23.2% with blood dispersion). Age-related macular degeneration was the cause of submacular haemorrhage in 23 patients (36.5%) and Polypoidal choroidal vasculopathy (PCV) accounted for 36 (57.1%). Forty-seven patients (74.6%) had improved or no deterioration of visual acuity (VA), with 35 (55.5%) gaining ≥ 2 Snellen lines of vision after treatment. Good visual outcomes (final VA $\geq 6/12$) were achieved in 69% (45.9% of patients who had clinical displacement; 23.1% with dispersion; none in those without displacement or dispersion). Patients with blood displacement consistently had better VA than those with only dispersion throughout the follow-up duration. Peak mean VA was achieved within 12 months after treatment. Good long-term visual outcome was associated with age ≤ 65 years ($P = 0.001$). No serious adverse event was reported.

Discussion & Conclusion:

tPA and pneumatic displacement of submacular haemorrhage is minimally invasive, efficacious and safe. Good visual outcomes can be achieved, especially in younger patients.

OP-CR-49

A Prospective, Randomised Clinical Trial Comparing the Efficacy of Sodium Hyaluronate with Hydroxypropylmethylcellulose in the Treatment of Dry-Eye Symptoms after Lasik

TAN COLIN¹, HUNG MING LEE¹, ALEX LAU¹, HENG WEE JIN¹, FAM HAN BOR¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

This study aims to evaluate and compare the efficacy and tolerability of preservative-containing lubricants with preservative-free lubricants in the treatment of dry eye symptoms after LASIK.

Methods:

A prospective, randomised clinical trial of 77 patients who underwent standard LASIK surgery. Subjects were randomised to receive either sodium hyaluronate preserved with stabilised oxychloro compound (Blink Contacts [BC]) or preservative-free hydroxypropylmethylcellulose lubricants (Tears Naturale Free [TNF]) to both eyes for 3 weeks. Clinical parameters evaluated preoperatively, at 1 week, and 3 weeks were corneal staining (CS) using the Oxford grading scheme, conjunctival hyperemia (CH), Schirmer test (ST) and tear break-up time (TBUT).

Results:

Of the 77 patients, 39 eyes (50.6%) received BC and 38 (49.4%) received TNF. There was no significant difference between the 2 groups preoperatively except for CH. Postoperatively, both groups were comparable in terms of CS, CH or ST at 1 and 3 weeks respectively. The BC group showed a greater improvement for TBUT over the TNF group after 1 week (3.3s vs 2.7s, $P = 0.043$) and higher tolerability over the TNF group after 3 weeks (3.6 vs 3.3, $P < 0.001$).

Discussion & Conclusion:

Both sodium hyaluronate and hydroxypropylmethylcellulose artificial tears are effective and safe in treating dry eye symptoms after LASIK. BC is comparable with TNF in terms of ST and outperforms TNF in terms of TBUT and tolerability.

OP-CR-50

Visual Experiences During Different Stages of Laser In-Situ Keratomileusis (Lasik): A Randomised, Matched-Eye Study of Zyoptix Xp Microkeratome Versus Intralase Femtosecond Laser

TAN COLIN¹, AU EONG KAH GUAN¹, KELVIN LI¹, LEE HUNG MING¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

This study aims to describe the loss of light perception and other visual experiences encountered during different stages of LASIK and to compare patients' experiences between LASIK performed using the Zyoptix XP microkeratome and Intralase laser.

Methods:

In a prospective, randomised, self-matched clinical study, 41 patients (82 eyes) had bilateral LASIK with the corneal flap fashioned by Zyoptix XP microkeratome in one eye and Intralase laser in the other. They were interviewed postoperatively using a standardised questionnaire on their intraoperative visual experiences, including light perception and ability to see the red fixation light.

Results:

During both vacuum suction & corneal flap fashioning, a higher proportion of eyes in the Zyoptix XP microkeratome group lost light perception compared to the Intralase group (85.4% vs 39.0% and 90.2% vs 61.0%; $P < 0.001$ & $P = 0.004$ respectively). Patients also saw flashes, various colors, movement, the surgeon's hands or fingers and the surgeon intraoperatively and there was no difference in these visual experiences between the Zyoptix XP microkeratome and Intralase groups. Overall, 8 of 41 patients (19.5%) were frightened by their intraoperative visual experiences during LASIK.

Discussion & Conclusion:

Patients retain light perception during most stages of LASIK except during suction and fashioning of the corneal flap, when some are temporarily unable to see. Many also experience various visual sensations intraoperatively and 19.5% of patients are frightened by their visual experiences.

OP-CR-51

Angiographic Characteristics and Their Relationship with Clinical Outcomes in Polypoidal Choroidal Vasculopathy

TAN COLIN¹, **NGO WEI KIONG**¹, **LIM WEI YI LOUIS**², **LIM TOCK HAN**¹

¹Tan Tock Seng Hospital, ²Singapore General Hospital

Background & Hypothesis:

Polypoidal Choroidal Vasculopathy (PCV) is an important condition, especially in Asians, that commonly leads to impaired vision and blindness. We aimed to examine the relationship between angiographic characteristics and clinical outcomes in patients with PCV.

Methods:

A review of 107 eyes of 101 patients diagnosed with PCV was performed. All dynamic and still images were captured using confocal scanning laser ophthalmoscope technology and graded independently by 2 Consultant ophthalmologists.

Results:

The mean age of the patients was 66.4 years, of which 63 (62.4%) were males and 38 (37.6%) were females. Twenty-four eyes (22.4%) demonstrated inter-connecting channels (ICC group) while 83 (77.6%) demonstrated branching vascular network (BVN group). Lesion area was significantly larger in the BVN group (8.3mm²) compared to the ICC group (1.7mm²; $P = 0.001$). The vascular (23.7s vs 20.9s) and polyp (26.3s vs 22.4s) filling times were longer in the BVN group when compared to the ICC group respectively. The mean number of polyps in the BVN and ICC groups was 5.0 and 3.4 respectively. More lesions in the BVN group demonstrated angiographic leakage (68.8% vs 0%; $P < 0.001$) when compared to the ICC group. Clinically, patients in the BVN group demonstrated higher proportion of worse visual acuity (VA worse than 6/12) outcomes up to 5 years follow-up when compared to the ICC group (68.7% vs 4.2% at 1 year; $P < 0.001$).

Discussion & Conclusion:

We observed that angiographic characteristics had good correlation with clinical outcomes. Angiographic characteristics may have implications in the understanding of PCV pathogenesis and prognostication.

OP-CR-52

Epidemiology of Pterygium and Its Relationship to Environmental Risk Factors

LIM WEI YI LOUIS¹, **COLIN TAN SIANG HUI**⁴, **LIM TOCK HAN**⁴, **KOH WOON PUAY**²,
LIEW GEOK CHENG⁴, **HOH SEK TIEN**³, **TAN CHI CHIU**⁴, **AU EONG KAH GUAN**⁴

¹National Healthcare Group HQ, ²National University of Singapore, ³Singapore National Eye Institute, ⁴Tan Tock Seng Hospital

Background & Hypothesis:

Pterygium is a fleshy growth on the conjunctiva which may cause visual impairment. Prevalence rates vary according to geographical location and demographics. We aimed to describe the epidemiology of pterygium in Indonesia and to examine the roles of age and gender as determinants of bilaterality and severity of the disease.

Methods:

Voluntary eye screening was performed using a portable slitlamp and pterygia were graded according to standard photos.

Results:

The response rate of the 550 subjects was 86.7%, with an overall prevalence rate of 17.0% (95% CI, 13.9% to 20.6%). The prevalence rate was significantly higher in males (22.7%, 95%CI, 17.6% to 28.9%) compared to females (12.4%, 95% CI, 9.0% to 16.9%) of all ages ($P = 0.003$). Adjusted for age, the risk of disease was 3.1 fold higher among the males (95% CI = 1.72 to 5.61). Both eyes were equally affected, and 71.6% of subjects had bilateral disease. Subjects with pterygium were older (mean age 42.9 years) compared to those without (mean age 18.7years) ($P < 0.001$). The prevalence rates in males increased from age 20 to reach a plateau of 63.6% at age 35 and remained stable thereafter. In the females, the rates also increased with age, albeit at a slower rate, from age 20 to reach a plateau of 46.7% at age 55 and remained stable thereafter.

Discussion & Conclusion:

There is a high prevalence rate of pterygium in Indonesia, with the rates increasing rapidly with age. The majority had bilateral disease, and most develop by the third decade, suggesting the possible role of genetics or early exposure to risk factors such as UV radiation.

OP-CR-53

Factors Affecting the Use of Hearing Aids in Elderly Patients

LIM JIESHENG¹, TAN EE CHONG¹, HO EU CHIN²

¹National University of Singapore, ²Tan Tock Seng Hospital

Background & Hypothesis:

Hearing impairment in elderly patients is common and may cause significant handicap and disability resulting in depression, cognitive decline and social isolation. This study seeks to determine if elderly patients use their hearing aids, and identify factors associated with non-usage.

Methods:

One hundred and six patients above the age of 65 were prescribed a hearing aid at the ear, nose, throat (ENT) Department of Tan Tock Seng Hospital in 2010. Ninety patients were recruited into the study in 2012 via telephone interview (10 were non-respondents, 5 had passed away, 1 refused interview). A questionnaire was administered, and information on subjects' demographics, current hearing aid usage status and associated factors was collected. Demographic information for 5 subjects was not available. Users were defined as those who used their hearing aids consistently daily.

Results:

Twenty-seven (30%) subjects were users and 63 (70%) were non-users. Subjects with severe to profound hearing loss of pure tone audiogram (PTA) average >70dB at hearing aid evaluation were less likely to be using their hearing aid on follow-up at 2 years ($P = 0.03$). Non-users were more likely to complain of significant background noise ($P = 0.003$), perceived lack of benefit ($P = 0.008$), and discomfort or pain ($P = 0.015$) as reasons for ceasing hearing aid usage.

Discussion & Conclusion:

PTA average at hearing aid evaluation may be an independent factor in predicting consistent hearing aid usage in elderly patients. Alternatives (e.g. cochlear implant) should be considered in PTA average >70dB. Focused patient education and close follow-up to facilitate early detection of identified problems with using hearing aids may improve consistency of usage.

OP-CR-54

Pain Experienced during Diabetic Ophthalmic Laser Procedures

FOO LYNN¹, COLIN TAN²

¹*Khoo Teck Puat Hospital, ²Tan Tock Seng Hospital*

Background & Hypothesis:

Patients commonly experience pain during ophthalmic laser treatment for diabetic retinopathy. Laser parameters are variable. We aim to describe pain experienced during laser-photocoagulation and determine the relationship between pain characteristics with laser parameters.

Methods:

Seventy-one consecutive patients undergoing laser-photocoagulation (panretinal photocoagulation [PRP], focal/grid lasers) for diabetic retinopathy were interviewed following the procedure using a standardised questionnaire. Types of pain (sharp, dull, constant and throbbing) experienced during the procedure were scored on a visual analogue scale of 0 to 10, where 0 represents no pain and 10 represents the most severe pain. This was analysed against demographics and laser parameters.

Results:

The mean age of the 71 patients was 57.9 years (range, 34 to 81, SD ± 9.0). Thirty-three of 37 patients (89.2%) undergoing PRP experienced pain, compared to 14 of 34 patients (41.2%) undergoing focal/grid laser. The mean score for pain experienced for PRP were 3.0 (sharp), 1.43 (dull), 0.30 (throbbing) and 0.14 (constant). There was no significant difference between the pain scores of patients with more than 1000 laser burns (PRP) compared to those with less. The mean scores for pain experienced in focal/grid laser were 0.52 (sharp), 0.96 (dull), 0.26 (throbbing) and 0.17 (constant). Sharp pain correlated with power of the laser ($P = 0.003$) while throbbing pain correlated with number of laser burns ($P < 0.001$). There was no significant difference between the pain scores of patients with previous laser procedures compared to those undergoing their first laser procedure.

Discussion & Conclusion:

A higher proportion of patients undergoing PRP experienced pain compared to those undergoing focal photocoagulation. Pain score correlated with the power and number of laser burns.

OP-HPE-01

Association of Pass-Fail Outcome with Stress, Anxiety and Depressive Symptoms of First-Year Medical Students in a Medical School

YUSOFF MUHAMAD SAIFUL BAHRI¹

¹*Others*

Background & Hypothesis:

The demanding and intense environment of medical training created excessive pressures on medical students that eventually lead to unfavourable consequences either at personal or professional level such as poor academic performance and impaired cognitive ability. This study was designed to explore on the associations between pass-fail outcome and psychological health parameters (i.e. stress, anxiety and depression symptoms) of a cohort of first-year medical students.

Methods:

A cross-sectional study was conducted on a cohort of first-year medical students in Malaysian medical school. The Depression Anxiety Stress Scale 21-item (DASS-21) was administered to the cohort of medical students, right after the final paper of the first year final examination. Their final examination outcomes (i.e. pass and fail) were traced by using their ID through the USM academic office.

Results:

A total of 194 (98.0%) medical student responded completely to the DASS-21. Independent-t test showed that students who passed had significantly lower stress, anxiety and depression symptoms than those who failed in the first year final examination ($P < 0.05$). These results indicated that students who failed in the examination experienced higher degree of stress, anxiety and depression symptoms during the examination period.

Discussion & Conclusion:

Medical students who failed in the final examination had higher psychological distress than those who passed in the examination. Reducing psychological distress of medical students prior to examination may help them to perform better in the examination.

OP-HPE-02

Multidisciplinary Introduction to Clinical Education Program: A Pilot in Collaborative Learning for Clinicians in Queensland

ROBERTS KAREN¹

¹*Others*

Background & Hypothesis:

Clinical Education and Training Queensland (ClinEdQ) has developed a number of educational initiatives with funding from Health Workforce Australia's Clinical Supervisor Support Project. One of the initiatives is the Multidisciplinary Introduction to Clinical Education (MICE) program. This workplace-based program aims to assist junior clinicians, or clinicians new to the educator role to: (i) incorporate beginning level educational knowledge and skills into their clinical practice to support the learning of students and other learners, and (ii) contribute to the learning with, from, and about other health professionals through an increased awareness of inter-professional teamwork. The target audience is junior clinicians who work alongside students/learners in their everyday roles. The MICE program has 4 components: 10 on-line introductory modules; a one day workshop; a return to work mentored educational role experience activity, and a review of learning final submission. The program has been piloted at 6 facilities. The inclusion of Oral Health staff classifications has presented new connections for clinicians from the more traditionally identified multidisciplinary team.

Methods:

Participants completed questionnaire evaluation of the online modules and the workshop at the end of the workshop day. Participants will be followed up with 3 and 9 month survey questionnaires in 2012 regarding their educational practices.

Results:

Initial evaluation of the first 2 components has been very positive.

Discussion & Conclusion:

The challenge for the program has been to capture a perspective of increased educational support capacity and capability in the clinician-participants' practice. Discussion of the initial findings and challenges of the follow-up evaluation will be presented.

OP-HPE-03

A Unique Presentation of a Cavernous Carotid Aneurysm as Epistaxis

**LEE YI JIE¹, LIU JIA YING¹, JULIAN LEE CHEOW YEW¹, MANISH TANEJA²,
CHRISTOPHER GEOFFREY LAWRENCE HOBBS¹**

¹Tan Tock Seng Hospital, ²Singapore General Hospital

Background & Hypothesis:

Cavernous carotid aneurysms (CCA) are rare, benign and asymptomatic lesions with low risk of life threatening complications. There are a total of 37 reported cases presenting as epistaxis in the literature with a mortality rate of 21.6%.

Methods:

Conventional method like nasal packing was first attempted to arrest the bleeding but was unsuccessful. Endoscopic surgery was also performed but failed to isolate the bleeding point. The patient subsequently had computed tomography (CT) angiography which revealed the diagnosis of a left CCA which had ruptured and was bleeding out into the right nasal cavity through a defect in the sphenoid sinus.

Results:

The lesion was successfully treated with endovascular coils which stopped the bleeding immediately. There were no further bleeding 6 weeks after the procedure on follow-up.

Discussion & Conclusion:

Most CCAs are considered benign lesions with low risk of life threatening complications. Conservative management with regular serial imaging is usually the main treatment protocol. These aneurysms can become symptomatic with presentation depending on location and orientation of the aneurysm. Imaging is extremely helpful in diagnosis and subsequent management. This case reminds ear, nose, throat (ENT) specialists to consider this diagnosis in patients presenting with massive epistaxis, particularly those who failed to respond to endoscopic management and packing.

OP-HPE-04

Promoting Interprofessional Collaborative Practice at Work

CHUA ANGELIA¹, GOH POH SUAN¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

This study aims to develop and promote an interprofessional process for communication and decision making that enables the separate and shared knowledge and skills of care providers to synergistically influence the patient care provided. This study also aims to develop and strengthen the well functioning team in patient care, especially in chronic case management. Many doctors are not referring appropriately and timely to the other team members, especially nurses/ care managers, dietitians whenever applicable. This sometimes may be due to a lack of awareness of the services or not too sure of the other team members's role in value adding towards patient care.

Methods:

A regular inter professional collaborative practice case discussion will be held once every 2 to 4 weeks. The 1-hour lunchtime case discussion will be attended by all doctors and nurses as well as respective team members, such as dietitian, psychologist, medical social worker, acupuncturist, pharmacist, financial counsellor whenever applicable. The clinic key trainer will plan a duty roster and assign the topic for discussion for each session. The trainer will facilitate each session. The rostered doctor will present the case and the rest of team member(s) will contribute their parts on the patient's management.

Results:

After each discussion, the facilitator will enter into the electronic notes of the patient the learning points and recommendations concluded from the team discussion.

Discussion & Conclusion:

This process has established clear understanding of the roles and responsibilities held by each team member, a platform for regular communication, mutual trust, support and respect, and appreciation of the team members' contributions. Feedbacks from the participants had been very positive and encouraging.

OP-HPE-05

Improving Confidence of Medical Students in Rheumatology: Assessment of Attitudes and Intervention

CHIA FAITH¹, TAY JUN YANG²

¹Tan Tock Seng Hospital, ²National University Hospital

Background & Hypothesis:

Musculoskeletal (MSK) disease is a common complaint brought by patients to family physician and specialist clinics with great impact worldwide. A strong set of clinical skills in the assessment of musculoskeletal complaints is crucial, but inadequate priority has been given to this system in many medical schools. We aim to describe the attitudes and confidence of final year medical students regarding rheumatology and joint examination, and assess if a rheumatology workshop improves their confidence.

Methods:

Final year students in the Yong Loo Lin School of Medicine attended a rheumatology workshop focusing on arthritis and joint examination. Participants were invited to complete pre and post workshop questionnaires looking at their current attitudes and self-rating of confidence in rheumatology and joint examination on a 5-point Likert scale.

Results:

Fifty-five (80.9%) and 62 (91%) participants answered the pre and post workshop questionnaires respectively. Of the participants, 83.6% had been taught the gait-arms-legs-spine screen and 10.9% had done a rheumatology elective. Prior to the workshop, the mean confidence ratings were as follows: rheumatological knowledge (2.27 ± 0.78), examination (2.45 ± 0.84), diagnosis (2.56 ± 0.74); lower than those for cardiology, pulmonology and gastroenterology. Rheumatology was rated as the most difficult subject. Medical school was judged to have prepared them poorly for rheumatology (2.56 ± 0.79). Post workshop, confidence in knowledge, examination and diagnosis increased to (3.55 ± 0.78), (3.79 ± 0.70) and (3.74 ± 0.63) respectively.

Discussion & Conclusion:

Confidence in rheumatology in final year students is poor. Focused workshops should be considered to improve this.

OP-HPE-06

"Being Thick-skinned": The Habitus of Third-Year Medical Students

BAHAROM ADZAHAR FADZLI¹, FADZLI BAHAROM ADZAHAR², ISSAC LIM², LOIS HONG³, ABEL CHEN³, BENJAMIN DING³, KEITH TAN³

¹National Healthcare Group HQ, ²National Healthcare Group, ³National University of Singapore

Background & Hypothesis:

Clinical rotations represent a critical transition from lecture-based to patient-based learning. Although different learning environments might suggest that dispositions and behaviours expected out of medical students could be different, this issue has received little attention in the literature. This study explored students' clinical experiences in adapting to the rarely articulated expectations of healthcare workers.

Methods:

We interviewed doctors (n = 12) and nurses (n = 8) of varying levels of seniority who interacted with students regularly in a public hospital in Singapore, and third-year medical students (n = 12) doing their final rotations there.

Results:

Students' expectations of learning, which were shaped by their pre-clinical interactions, were sometimes at odds with the healthcare workers' expectations. Through initial struggles, students discovered the need to overcome fears in their interactions and be self-directed in learning in an intense clinical environment. These dispositions and behaviors were manifested in the form students described as "being thick-skinned" in their desire to learn.

Discussion & Conclusion:

"Good medical students," as perceived by healthcare workers, are those who successfully balance their academic workload and adapt to the demands of the clinical environment. The struggles these students faced resonated with Bourdieu's concept of habitus. Habitus is a set of dispositions and practices that are influenced by interactions in the environment. For these students, the transition from the educational to clinical environment gave rise to a habitus of "being thick-skinned." This study has shown the importance of habitus in understanding students' learning and professional socialisation. Further attention is needed to examine how "being thick-skinned" guides students in their future actions.

OP-NA-01

Evaluating the Effectiveness of an Interactive Phone Communication Programme in Enhancing Asthma Control for Patients Post-Acute Asthma Exacerbation in Primary Care: A Pilot Quasi-Experimental Study

BIAN LI¹, CHIA WAI PENG³, MICHELLE LEE CAI FENG³, SHAO YAN LI², KEK LAY KEE⁴

¹SingHealth HQ, ²Khoo Teck Puat Hospital, ³National Healthcare Group Polyclinic, ⁴National University Health System

Background & Hypothesis:

Asthma is a chronic disease which affects 140,000 people in Singapore and it poses a significant burden on the nation's healthcare expenditure. Frequent asthma exacerbations impact on individuals in several aspects such as loss of productivity and increased healthcare consumption. A total of 36,054 patients in the year 2011 received asthma care in National Healthcare Group Polyclinics (NHGP), and of which, 7336 patients required nebulisations for acute asthma exacerbation. Despite asthma management initiatives in NHGP, 10% to 13% of asthmatic patients still made unplanned clinic visits for acute attacks.

Methods:

This study was conducted in 3 NHGP. Fourteen participants were recruited from control clinics and 18 participants from intervention clinic. The control group received usual care, while the intervention group received an interactive phone communication programme over three months. Participants' Asthma Control Test (ACT) Score, Peak Expiratory Flow Rate (PEFR) and medical consumption of the previous 3 months were used as primary outcome measurements.

Results:

Significant improvement in mean ACT score ($P = 0.01$) was found in intervention group. Non-significant improvements in percentage of participants with absolute ACT score improved, in percentage of REFR improved, and in mean REFR improvement were found. However, the difference in the above outcomes was insignificant between groups ($P \geq 0.05$). Both groups did not show any significant reduction in medical consumptions.

Discussion & Conclusion:

Interactive phone communication programme provided additional opportunities for primary care nurses to encourage, guide and empower asthmatic patients to actively participate in their asthma self management. It potentially enhances asthma control post-acute exacerbation in primary care.

OP-NA-02

Transdisciplinary Approach Improves Nursing Outcomes in Elderly Colorectal Surgery Patients

TAN PHYLLIS¹, TAN KOK YANG¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

We hypothesised that a transdisciplinary collaborative approach plays an important role in improving nursing outcomes of elderly colorectal surgery patients.

Methods:

We studied the nursing care of 130 consecutive patients above the age of 75 years who underwent major colorectal resections from January 2007 to March 2012. A review of a prospectively collected database was performed. Nursing failures during the course of care were identified and confirmed by 2 independent nurse clinicians not involved with the management of the patients. These included inaccurate documentation, delayed recognition of deterioration, non-compliance to orders and improper discharge planning. Patients managed using a transdisciplinary approach were compared to patients managed by a standard approach. Statistical analyses were performed using chi square and t-tests. Multivariate analysis was performed using logistic regression analysis.

Results:

Forty-one patients managed perioperatively using a transdisciplinary approach were compared to 89 patients under standard approach. There were no significant differences in the mean age, ASA scores, Comorbidity Index and Barthels scores in both groups. Overall nursing failures were lower in the transdisciplinary group at 9.8% compared to 41.6% in the standard group. ($P < 0.001$) Multivariate analysis revealed that patients not managed perioperatively using a transdisciplinary approach had 5.7 times higher risk of nursing failure (Risk Ratio 5.662, 95% CI, 1.685 to 19.027). Nursing failures were independently associated with Clavien 2 and above perioperative complications. (Odds ratio 3.136, 95% CI, 1.043 to 9.430)

Discussion & Conclusion:

Transdisciplinary approach reduces nursing failure which is independently associated with morbidity.

OP-NA-03

Coping, Self-Efficacy and Quality of Life of Asian Caregivers of Dementia Patients

TAY KAY CHAI PETER¹, CHUEN CHAI DENNIS SEOW², CHUNXIANG XIAO¹, HUI MIN JULIAN LEE², SALLY WAI-CHI CHAN¹

¹National University of Singapore, ²Singapore General Hospital

Background & Hypothesis:

Dementia is a global issue that affects caregivers substantially. There continues a paucity pertaining to the understanding of dementia caregiving in Asian context, where the family is the primary party responsible to care for ageing parents. The current study examines the coping strategies, self-efficacy and the quality of life of caregivers of dementia patients.

Methods:

Structured interviews were conducted, using the Family Crisis Oriented Personal Evaluation Scale (F-COPES), General Self-Perceived Efficacy (GPSS) and the WHO Quality of Life (WHO-QoL) questionnaires. A convenience sample of 75 participants was recruited from an outpatient clinic at the Singapore General Hospital.

Results:

We observed positive correlations between the F-COPES, GPSS and WHO-QoL subscales. Particularly, significant positive correlations were observed between the participants' psychological health and the coping strategies. However, no significant relationship was observed for the participants' physical health and the coping strategies. Reframing is the most common strategy used and has a positive relationship with psychological health, environment and self-efficacy. Participants' self-efficacy was associated with all domains of their quality of life except physical and psychological health. In addition, older caregivers used more passive appraisal coping strategy. We did not observe any significant associations between the participants' gender, ethnicity and religion with the scales.

Discussion & Conclusion:

In light of the significant role of coping in quality of life in the current sample, caregivers' well-being can be improved by empowering them with specific coping strategies. In addition, caregiving techniques that enhance caregivers' self-efficacy can be considered in caregiver intervention programs.

OP-NA-04

A Mixed Methods Study Examining the Predictions of Personal Strengths on Recovery in Adults with Serious Mental Illnesses

XIE HUITING¹

¹*Institute of Mental Health*

Background & Hypothesis:

Stigma often led to people with mental illnesses being viewed negatively and their personal strengths neglected. In the general population, strengths self-efficacy (confidence applying personal strengths) and resourcefulness (ability to perform daily tasks independently or with help) are examples of personal strengths linked to positive outcomes but these strengths have neither been examined in people with mental illnesses nor in relation to a positive outcome like mental health recovery. It is hypothesised that strengths' self-efficacy, resourcefulness and stigma influence mental health recovery.

Methods:

A cross-sectional, predictive, mixed methods study was conducted in USA using a convenience sample. One hundred and two community-dwelling adults with serious mental illnesses completed 4 scales measuring strengths self-efficacy, resourcefulness, stigma and mental health recovery. Participants also spoke about use of personal strengths in a qualitative interview. Correlations, regressions and thematic analysis were used for analysis.

Results:

Strengths self-efficacy and resourcefulness correlated with and predicted recovery, $R^2 = 0.72$, $F(3,98) = 84.05$, $P < 0.001$. Even though stigma correlated with recovery, its influence diminished in the presence of strengths self-efficacy and resourcefulness. This suggests that personal strengths may overcome the negativity of stigma. Participants' personal strengths helped them cope with mental illnesses by maintaining a positive outlook and allowing them time to recover.

Discussion & Conclusion:

Approaching mental illnesses positively may reduce the stigma associated with mental illnesses and expand the knowledge base for positive concepts in the field of psychiatry, paving the way for the development of strengths based interventions to aid mental health recovery.

OP-NA-05

The Effectiveness of Therapeutic Play Intervention on Outcomes of Children Undergoing Inpatient Elective Surgery: A Pilot Randomised Controlled Trial

**WEE CELESTINE YAN HUI¹, CHAN WAI CHI SALLY³, HO CHEUNG WILLIAM LI⁴,
JOANNE LIAM LI WEE², HE HONG-GU³**

¹*Khoo Teck Puat Hospital*, ²*KK Women's and Children's Hospital*, ³*National University of Singapore*,
⁴*The Chinese University of Hong Kong*,

Background & Hypothesis:

Children undergoing inpatient elective surgery commonly experience significant stress and anxiety. Up to 50% develop preoperative anxiety, which may result in lack of cooperation and negative postoperative outcomes. This study aimed to examine the effectiveness of therapeutic play on lowering children's state of anxiety, emotional manifestations and postoperative pain in children undergoing inpatient elective surgery.

Methods:

In a prospective randomised controlled trial, 17 children aged 6 to 14 years undergoing inpatient elective surgery were recruited over a 3-month period and randomised into intervention or control groups. The intervention group received an additional validated therapeutic play intervention compared to routine preoperative care in the control group. Children's state anxiety was assessed at 3 time points: baseline, post-intervention, and postoperatively. Children's Emotional Manifestation Scale (CEMS) and postoperative pain score were also assessed.

Results:

Compared to baseline, children receiving therapeutic play had a reduction in state anxiety of 9.46% preoperatively and 35.09% postoperatively. The control group had an increase in anxiety of 14.83% preoperatively and a reduction of anxiety of 11.74% postoperatively. This difference between the 2 groups was significant at 24.00% ($P < 0.05$) preoperatively. The intervention group also had a significantly lower CEMS score (8.00 vs 13.25, $P = 0.016$), and a lower postoperative pain score (1.33 vs 4.25, $P = 0.129$). Children's preoperative anxiety score correlated significantly with CEMS ($r = 0.779$, $P < 0.01$) and postoperative pain ($r = 0.694$, $P < 0.01$).

Discussion & Conclusion:

Therapeutic play intervention significantly reduces preoperative anxiety and negative emotional manifestations for children undergoing surgery. This study provides useful information for tertiary hospitals to utilise for a more holistic pediatric care.

OP-NA-06

Development of a Composite Spiritual Care-Giving Scale

TIEW LAY HWA¹, DEBRA KAY CREEDY², CHAN MOOI FAI²

¹*Alexandra Hospital,* ²*Alice Lee Centre for Nursing Studies, National University of Singapore*

Background & Hypothesis:

Spiritual care is a central element of holistic and multidisciplinary care, but is not often integrated into education and practice. However, there is little exploration of student nurses' perceptions and attitudes towards spirituality and spiritual care.

Methods:

This study tested the reliability and validity of a locally developed instrument, Spiritual Care-giving Scale (SCGS), to measure these effects. Psychometric analysis was done using construct, and concurrent validity and reliability, and exploratory factor analysis tests.

Results: Concurrent validity with 2 other instruments, Spirituality and Spiritual Care Rating Scale (SSCRS) and Student Survey of Spiritual Care (SSSC) showed significant correlation ($r = 0.587$, $P < 0.01$; $r = 0.507$, $P \leq 0.01$) respectively. The SCGS demonstrated good internal consistency ($\alpha 0.96$) and test-retest reliability ($r = 0.811$, $P < 0.01$). Factor analysis supported the 5-factor structure of SCGS.

Discussion & Conclusion:

This scale is developed with students' inputs, literature reviews and existing scales. Additionally, it is a composite scale which explores perceptions and attitudes of nurses towards spirituality and spiritual care. Therefore, it will be ideal for nurse leaders in practice and education to use it to assess nurses' spiritual perspectives and attitudes towards spiritual care. The findings can help them to take actions to address spiritual care-giving issues. The outcome of this study was the development of a new composite scale, Spiritual Care-Giving Scale (SCGS), to measure nurses and students' perceptions of spirituality and spiritual care in practice. And it was developed in an ethno-culturally diverse society.

OP-NA-07

A Qualitative Research Study Investigating ICU Nurses' Perceptions and Experiences of Providing End Life Care in Surgical Intensive Care Unit

YANG LING¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Most intensive care unit (ICU) nurses did not enter their specialty because they enjoyed caring for patients that have no hope of recovery, and now they find themselves being called on to provide end-of-life care in what is often the worst possible setting. It has been this author's experience that many ICU nurses feel that they have not provided their patients with the best possible death for a variety of reasons. Many felt unprepared to give end-of-life care if it does not involve resuscitation, and feel unsupported in their attempt to provide quality palliative care in the high-tech environment of the ICU. This author is proposing a research study that would investigate the experiences and perceptions of critical care nurses about providing end-of-life care in the ICU environment.

Methods:

The research method chosen and best suited to this study is descriptive qualitative research. The proposed method for data collection is open-ended semi-structured interviews which will be audio taped to maintain accurate accounts of information given.

Results:

It is hoped that the results of the study will ascertain nurses' perceptions and experience in providing care of the dying in SICU Khoo Teck Puat Hospital Singapore and indicate what interventions are needed through education, training and management. It is hoped that the research findings will also highlight the necessity for planning ongoing education and training for nurses in care of the dying.

Discussion & Conclusion:

Following this proposed study, a report will be compiled discussing all aspects of the research process including the results, limitations and benefits. It is anticipated that the results of the study will give an indication of nurses' attitude, knowledge and experience in the domain of providing end life care of the dying in SICU and indicate where interventions are needed through education, training or management. It is also anticipated that the findings of the research study will reveal if other factors such as attitude or experience impact on the effective delivery of care of the dying patient. It is anticipated that these results will contribute to recommendations in future nursing practice, nurse education and research and that this will in turn move ICU end life care higher up on the agenda of the nursing profession in general.

OP-PCR-01

Enhancing Hand Hygiene in a Polyclinic in Singapore

OH EVON¹, **HAMHA BINTE MOHD HAMZAH**², **YAN CHAU CHAIN**², **ANG EMILY**³

¹National Healthcare Group HQ, ²National Healthcare Group Polyclinic, ³National University Health System

Background & Hypothesis:

Healthcare associated infections can be acquired by patients from the contaminated hands of healthcare workers. Healthcare workers need to perform good hand hygiene at the right moments to prevent microorganisms from spreading from one point of contact to another. Despite the importance of hand hygiene in preventing healthcare associated infections, hand hygiene compliance rate by healthcare workers remains relatively low. This study aims to show that compliance in hand hygiene can be enhanced through educational awareness regarding the concept of the 5 moments of hand hygiene.

Methods:

Researchers in this study utilised the 5 audit criterions from the Joanna Briggs' Institute Practical Application of Clinical Evidence System (PACES) to conduct the intervention. A quasi-experimental pre-post test design was used to conduct a preliminary baseline audit based on the 5 criterions on the compliance of hand hygiene practices on nurses in a Polyclinic (n = 23). A trained auditor conducted the pre and post hand hygiene audit at 1 month and 5 months later. The intervention consists of an educational session and mentoring nurses on the five moments of hand hygiene.

Results:

The fisher exact test indicates statistical significance between the pre and post audit data on hand hygiene compliance rate ($P < 0.005$) for 4 of the 5 criterions. Although criterion 4 was not statistically significant, it showed an improvement of 37.6% in comparison to the baseline audit.

Discussion & Conclusion:

Overall, this study highlights that the provision of information and clarity on the application of 5 moments of hand hygiene in educational session and mentoring are effective means for improving compliance rate on hand hygiene.

OP-NA-09

Social and Psychological Factors Affecting Eating Habits among University Students in a Malaysian Medical School: A Cross-Sectional Study

AL-DUBAI SAMI¹, KURUBARAN GANASEGERAN⁴, AHMAD M QURESHI³, AL-ABED AA AL-ABED², MOHD RA MANAF⁶, SYED M ALJUNID⁵

¹Others, ²Universiti Kebangsaan Malaysia (UKM), ³Cyberjaya University College of Medical Sciences, Cyberjaya, Selangor, Malaysia, ⁴Management and Science University (MSU), ⁵United Nations University- International Institute for Global Health, ⁶Universiti Kebangsaan Malaysia (UKM),

Background & Hypothesis:

Eating habits have been a major concern among university students as a determinant of health status. The aim of this study is to assess the pattern of eating habits and its associated social and psychological factors among medical students.

Methods:

A cross-sectional study was conducted among 132 medical students of pre-clinical phase at a Malaysian university. A self-administered questionnaire was used which included questions on socio-demography, anthropometry, eating habits and psychosocial factors.

Results:

Mean (\pm SD) age of the respondents was 22.7 (\pm 2.4) years and (the age) ranged from 18 to 30 years. More than half had regular meals and breakfast (57.6%, 56.1% respectively). Majority (73.5%) consumed fruits less than 3 times per week, 51.5% had fried food twice or more a week and 59.8% drank water less than 2 liters daily. Eating habits score was significantly low among younger students (18 to 22 years), smokers, alcohol drinkers and those who did not exercise ($P < 0.05$). Four psychological factors out of 6, were significantly associated with eating habits ($P < 0.05$). In multivariate analysis, age and 'eating because of feeling happy' were significantly associated with eating habits score ($P < 0.05$).

Discussion & Conclusion:

Most of the students in this study had healthy eating habits. Social and psychological factors were important determinants of eating habits among medical students.

OP-NA-10

Quality of Care of Patients with Chronic Kidney Disease in National Healthcare Polyclinics from 2007 to 2011

ANG YEE¹, **LIEW SENG TECK, ADRIAN**⁴, **CHONG PHUI NAH**³, **HENG BEE HOON**²
¹National Healthcare Group HQ, ²National Healthcare Group, ³National Healthcare Group Polyclinic, ⁴Tan Tock Seng Hospital

Background & Hypothesis:

Chronic Kidney Disease (CKD) is a major public health problem with majority of patients managed in the primary care. This study describes the quality of care of patients with CKD in National Healthcare Group (NHG) Polyclinics from 2007 to 2011.

Methods:

The study was carried out using data from NHG Chronic Disease Registry. Patients were included if they had CKD stages 3 to 5 (estimated Glomerular Filtration Rate less than 60 mL/min/1.73m²).

Results:

Overall, the number of CKD patients increased more than 2 fold from 4734 in 2007 to 10,245 in 2011. In 2011, majority belonged to stages 3A (39.6%) and 3B (37.6%), had hypertension (98.2%), dyslipidemia (97.2%) and diabetes mellitus (68.7%). From 2007 to 2011, among those with hypertension, the use of Angiotension-Converting-Enzyme Inhibitors and/or Angiotension Receptor Blockers increased from 78.4% to 84.1%; and the percentage with good systolic blood pressure control (<130mmHg) improved from 18.7% to 36.3%. Among those with dyslipidaemia, the use of statins increased from 81% to 87.1%; and the percentage of patients with Low Density Lipoproteins (LDL) <2.6mmol/L increased from 40% to 54.7%. However, among those with diabetes mellitus, mean HBA1c increased from 7.4% to 7.6%; and the percentage of patients with HBA1c ≤7.0% decreased from 44.5% to 39.4%.

Discussion & Conclusion:

The number of CKD patients in NHG Polyclinics has increased from 2007 to 2011 at an average annual rate of 21.3%. Majority of patients in 2011 were in stage 3A and stage 3B. Blood pressure and LDL control are encouraging but glycaemic control can be further improved.

OP-NA-11

An Assessment of 'Out of Pocket' Expenditure on Childbearing Process Post Janani Suraksha Yojana (Financial Scheme): A Case from India

GOVIL DIPTI¹, NEETU PUROHIT², SHIV DUTT GUPTA², VRINDA MEHRA²

¹Others, ²Indian Institute of Health Management Research, Jaipur, India,

Background & Hypothesis:

After 5 years of intervention, Janani Suraksha Yojana (JSY) in India has been recognised as the largest cash transfer program in world which aimed to improve health seeking behaviour during child bearing. JSY led to phenomenal increase in institutional delivery. The cash incentive provided under JSY helped, especially the poorer section of society, in meeting 'Out of Pocket Expenses (OPE)' on child birth. This paper assesses OPE incurred by beneficiaries in accessing maternal health services and extent to which JSY addressed financial barrier.

Methods:

The study was conducted in 4 districts of Rajasthan, India. Sample was selected through multi-stage sampling. Four hundred and twenty-four women, who delivered (JSY beneficiaries and non-beneficiaries) during April 2010 to March 2011, were interviewed. Data were entered in CSPro and analyzed using SPSS. The study was funded by UNFPA-Bangkok.

Results:

The proportion of institutional deliveries was 83%. Out of which, 75% were conducted in public facilities; 96% were JSY beneficiary. OPE per home delivery (antenatal and natal care) was INR1330; INR3350 in public facility and INR7181 in private facility.

Discussion & Conclusion:

Based on official records, the Government was paying an average INR1595 as incentive to beneficiary directly. Actual expenditure (OPE) born by a beneficiary, after deducting direct incentive from OPE, for public facility was INR1755; for normal delivery (without any complication) new OPE was INR437 and for complicated delivery it was INR5324. On average, the Government shared 55% of total cost per delivery. In case of normal delivery, it shared 83% of the total cost; whereas for complicated delivery it shared 29% of the total cost.

OP-NA-12

A Study of Early Bedside Evaluation of Cognitive Impairment in HIV Positive Individuals

BANSAL VIVEK¹, COLONEL SP GORTHI²

¹National Healthcare Group HQ, ²Armed Forces Medical College, Pune, INDIA

Background & Hypothesis:

The number of older patients with chronic HIV infection is likely to increase with the advent of new therapeutic agents, which necessitates investigation into the impact of increasing age on the disease. Cognitive impairment is an invariable occurrence in HIV positive individuals in the natural course of the disease. Simple bedside tests can be used for evaluation of this cognitive impairment.

Methods:

Five simple bedside tests (Digit Symbol, Trail b, MMSE, CDT 1 & CDT 2) were used to evaluate the cognitive impairment in 36 asymptomatic HIV seropositive subjects. Thirty-six normal adults as control subjects were also taken.

Results:

Mean Digit Symbol score of HIV Group was (28.25 ± 7.25) which was found to be lower than the control group (32.89 ± 13.05) ($P = 0.06$). Mean Trail b test timing of HIV Group was (104.78 ± 33.45) which was slower than control group (96.44 ± 27.81 sec), ($P = 0.25$). Mean MMSE score of HIV Group was (29.14 ± 1.20) which was lower than the control group (29.86 ± 0.35). ($P = 0.001$). Mean CDT 1 score of HIV Group was (5.56 ± 0.61) which was lower than control group (5.81 ± 0.40), ($P = 0.043$). Mean CDT 2 score of HIV Group was (5.81 ± 0.40) which was lower than Control Group ($6 \pm 0.$) ($P = 0.05$). There was no correlation found between CD4 counts and the scores obtained by test subjects.

Discussion & Conclusion:

Simple bedside tests can be performed within 10 minutes and can be used to screen and identify people with cognitive impairment and further refer them for detailed neuropsychological assessment.

OP-NA-13

Improving Diabetic Nephropathy Management in Primary Care through Nephrology Evaluation, Management and Optimisation

LIM CHEE KONG¹, VATHSALA ANANTHARAMAN², LOH PING TYUG², ONG SHI HUI²

¹National Healthcare Group Polyclinics, ²National University Hospital

Background & Hypothesis:

Diabetic nephropathy (DN) is the leading cause of end stage renal disease (ESRD), reported at 63.5% based on data from the 7th Singapore Renal Registry. Singapore has the second highest incidence of ESRD due to DN in the world. Treatment with angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) is the mainstay of treatment to prevent progression of nephropathy. Nephrology division at NUHS, in collaboration with NHGP, proposes Nephrology Evaluation, Management and Optimization (NEMO) programme in NHGP, using trained coordinators to support the care of patients with DN through optimisation of ACEI/ARB therapy.

Methods:

Coordinator examines the NHGP's data and recruits patients with DN based on criteria of eGFR >60 mL/min and urine albumin creatinine ratio (UACR) >2.5 mg/mmol x2 for male and >3.5 mg/mmol x2 for female or urine protein creatinine ratio (UPCR) >15 mg/mmol or total urine protein (TUP) >0.15 g/24hr. IT alert system placed by coordinator prompts the doctor when he sees the patient to optimise ACEI/ARB therapy for them. Follow-up investigations are tracked and telecare is provided.

Results:

Seven polyclinics had started NEMO since November 2011. Seven hundred and fifteen patients have either started or increased dose of ACEI/ARB therapy as of May 2012. At 1 clinic, 8 patients with DN had their ACEI/ARB optimised with normalisation of albuminuria.

Discussion & Conclusion:

NEMO addresses the chronic disease with major health and economic implications. It leverages on the use of IT to identify patients with early stage of disease at primary care setting. It utilises skills of coordinators to enhance patient care and it empowers patients by educating them at early stage of their disease.

OP-NA-14

Survey of Internet Use Among Secondary School Students in Singapore

LEE RICHARD MENG KAM¹, GOH LEE GAN²

¹National Healthcare Group HQ, ²National University Health System

Background & Hypothesis:

Information on excessive Internet use in Singapore amongst secondary school students is not available.

Methods:

A cross-sectional pilot study among 227 secondary school students from 2 schools was done. The response rate is 98.2%. A standardised questionnaire including the 19 questions of the Internet Addiction Questionnaire (IAQ) was developed and administered by their school teachers. High-risk users are defined as having scored 80 to 100 points; at-risk users are those who scored between 50 to 79 points. Low-risk users are those who scored 20 to 49.

Results:

Seventy students (30.8%) were at risk of internet excessive use. Profiles of high-risk users were: daily use, use of internet 2 to 6 hours a day, or Internet café use of more than 2 times a week. Gender and frequency of logging on to internet were not risk factors ($P = 0.572$, $P = 0.084$, respectively). Duration of internet use ($P = 0.004$) and the use of Facebook/Twitter/checking of emails ($P = 0.016$) were significantly associated with high-risk use. Students who admitted lack of success in cutting online usage were 3 times more likely to be at high risk, compared to those who disagreed (OR = 3.17, 95% CI, 0.47 to 21.43). Students who sought friends for help when they had a problem on Internet usage were more likely to be at high risk (OR = 4.18, 95%CI, 1.22 to 14.23).

Discussion & Conclusion:

The prevalence of students in this study in Singapore classified as high risk of excessive use of the Internet was 30.8%. The proportion using Internet excessively was 1.3%.

OP-NA-15

Clinical Outcomes in Primary Care Post-Hypoglycaemia Discharge

SEAH DARREN¹, ANDREW LIM HSIEN LENG¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

NHGP has collaborated with NUHS to implement a discharge workflow for type 2 diabetics who are hospitalised for hypoglycaemia. Patients discharged via this workflow are given further education from trained diabetes nurses. Usual care involves patients returning to NHGP without a pre-booked appointment to our diabetes nurses. We hypothesise that glycaemic outcomes are different for patients adhering to the workflow as compared to patients receiving usual care.

Methods:

A retrospective comparative review is performed for 2 groups of patients discharged back to NHGP from NUHS from December 2008 to April 2010. Data are extracted from the electronic medical records to determine HbA1C and educational advice outcomes. The mean HbA1C level in the 2 groups is compared using the Mann-Whitney U Test to determine any significant difference in glycaemic outcome.

Results:

One hundred and sixty-one patients were included for analysis. One hundred and five patients were discharged via the workflow and 56 patients received usual care. The top 3 areas of education received by the patients in the workflow group were; Hypoglycaemia Education (79%), Medication Adverse Events (70.4%) and Sick Day Management (51.4%). Mean HbA1C in the Workflow Group was 7.58%. Mean HbA1C in the Usual Care Group was 7.17%. There was no significant difference between the workflow group as compared to those who received usual care ($P = 0.27$).

Discussion & Conclusion:

Diabetes care managers gave appropriate advice to patients post discharge which did not result in a significantly elevated HbA1C. A further study looking at the incidence of recurrent hypoglycaemia between the 2 groups can be conducted to determine the efficacy of care manager advice.

OP-NA-16

Early Direct Access to Musculoskeletal Physiotherapy Services at a Primary Care Setting in the National Healthcare Group Polyclinics

YEE YIU WAH¹, TUNG YEW CHEONG², KHALID ANUAR¹

¹*Tan Tock Seng Hospital,* ²*National Healthcare Group Polyclinics*

Background & Hypothesis:

Currently in Singapore, patients with a musculoskeletal complaint usually consult a doctor at primary care setting (e.g. polyclinics). Patients are frequently then referred on to orthopaedic specialists in restructured hospitals (RH) for further management, which frequently contains a course of physiotherapy. This indirect access to physiotherapy services results in unnecessary delay for patients commencing treatment. The objective of this study was to report on the one-stop musculoskeletal physiotherapy services available within National Healthcare Group Polyclinics (NHGP).

Methods:

Data were extracted from Electronic Polyclinic Outpatient System from August 2011 to May 2012 for 3026 patients who attended physiotherapy at Physiotherapy Centres located in Toa Payoh, Bukit Batok and Woodlands polyclinics. Data analysed included patient demographics such as age, gender, referring condition, number of sessions and wait times for first visits.

Results:

Wait time to commence physiotherapy at NHGP was 4 weeks for 71.7% of all new referrals of which 47.0% were within 2 weeks. The average wait time for patients to see an orthopaedic specialist in a RH was 5.14 weeks at 50%, and 12.57 weeks for 95% of all patients.

Discussion & Conclusion:

The wait times to commence musculoskeletal physiotherapy at NHGP are notably shorter than the general total wait time to see an orthopaedic specialist followed by that to see a physiotherapist at a RH. With the aging population, future right siting of services should ensure appropriate level of physiotherapy expertise and adequate resources to handle non-complex musculoskeletal conditions at primary care settings. This would enable better capacity for RHs to handle complex cases.

OP-NA-17

Evaluation of a Structured Self-Management Programme on Glycaemic Control Among Patients on Insulin with Type 2 Diabetes Mellitus

HARON NOR SHAWIYAH¹, NG SOH MUI¹, CHARIS NG WEI LING², TAN WOAN SHIN²
¹National Healthcare Group Polyclinics, ²National Healthcare Group HQ

Background & Hypothesis:

The Empowerment Self-Management Initiative (ESI) is a structured self-management programme. This study was piloted in National Healthcare Group Polyclinics in 2007. The aim of this study is to determine whether patients who have completed the ESI programme improved their glycaemic control.

Methods:

A prospective observational cohort study design was used. The study started in July 2009 and completed in April 2011. Patients with Type 2 Diabetes Mellitus starting on insulin therapy were offered ESI programme. The care manager will educate patients on care of diabetes; prevention of hypoglycemia, self-administration of insulin and self-monitoring of blood glucose. Patients who preferred to be in the Non-ESI programme did not receive education on self-monitoring of blood glucose. Data on clinical outcomes, hypoglycemia episodes and quality of life were collected at baseline and 3- months.

Results:

A total of 229 patients were recruited. One hundred and eighty-two (79.5%) patients completed the study. Of patients, 39.2% were aged between 55 to 64 years old. Majority were male, Chinese and 86.6% received secondary education and below. There were no significant differences in the mean HbA1c readings between the intervention and control group ($P = 0.78$). Both groups showed an increased of patients able to recognise symptoms of hypoglycaemia and did something to prevent it at 3-months. The number of hypoglycaemia episodes in intervention group compared to control group was not significant.

Discussion & Conclusion:

Patients in the ESI programme did not improve their glycaemic control, despite they were educated on how to moderate their dietary intake based on their blood glucose readings. Further study is required to look at possible factors that could influence change in behavior in this group of patients.

OP-NA-18

The Prevalence of Smear-Positive Pulmonary Tuberculosis in Hyderabad Sindh

QURESHI MOHAMMAD ALI¹, SAIRA BALOCH²

¹*Others,* ²*Liaquat University of Medical & health Sciences, Jamshoro, Pakistan*

Background & Hypothesis:

We have studied 276 cases in Hyderabad to investigate the prevalence of tuberculosis (TB) and possible risk factors for contracting TB, within which positive family history of TB was a significant risk factor for TB either. Poor adherence of previously diagnosed patients to anti-TB treatment was found. Our study spotlights the vulnerability of inmates to TB due to the presence of highly infectious cases. This study sturdily specified the necessity of an effective treatment program in the broad-spectrum community.

Methods:

This study was conducted in medical units of Liaquat University of Medical & Health Sciences (LUMHS) Jamshoro, Pakistan.

Results:

Two hundred and seventy-four patients were studied, and majority of the patients were from poor, deprived and lower social class.

Discussion & Conclusion:

It has been confirmed by our study that smear-positive pulmonary tuberculosis has been found on individuals of low socioeconomic group and in females. The patient's family is being always on the risk of transmit the tuberculosis infection. Early diagnosis of the disease and starting its treatment under the supervision is very important to control this infection.

OP-NA-19

Plantar Fasciitis in the Public Primary Care Setting in Singapore

TAN LIANG SHENG¹, SIM YU FAN¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

Plantar fasciitis is a common musculoskeletal foot problem among adults and may cause significant mobility issues if not resolved. This study aims to investigate the factors associated with plantar fasciitis in primary care.

Methods:

Patients, who were diagnosed with plantar fasciitis between 3 January 2012 and 31 March 2012, were identified through the polyclinic database by ICD10 code: M72.2. The gender, age, race and chronic diseases of these patients extracted from the database were compared.

Results:

Nine hundred and sixty-nine patients were diagnosed with plantar fasciitis over the 3-month period and this accounted to 0.20% of total polyclinic attendances. Overall, 55.0% of the patients were female, 55.6% were Chinese and the mean age was 47.0 (SD 13.2). Of the patients, 32.2% were obese, which was significantly higher than the general Singapore population ($P < 0.001$). When comparing between gender, males were significantly younger than female patients ($P < 0.001$). While the proportion of patients having chronic diseases among both gender was the same, the proportion of males having diabetes mellitus was significantly higher than females ($P < 0.05$).

Discussion & Conclusion:

The results align with numerous studies that patients with plantar fasciitis were more likely to be middle-age and obese. However, it appears to affect more females than males in the Singapore population. Age and the presence of diabetes mellitus may be contributory factors towards the lower incidence among the males. Further study will be needed to determine if other factors such as occupation, footwear and level of athletic activity account for the higher incidence in females.

OP-NA-20

Perceptions of Healthcare Professionals Towards the Role of a Podiatrist in the Primary Care Setting in Singapore

TAN LIANG SHENG¹, SIM YU FAN¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

Podiatry services have been introduced in 2 of the National Healthcare Group (NHG) polyclinics since April 2011. This study describes the perceptions of healthcare professionals towards the role of the podiatrist in a primary care setting in Singapore.

Methods:

An anonymous cross-sectional survey was administered online over a period of 3 weeks in June 2012. All medical, nursing and allied health professionals in the 9 NHG Polyclinics were invited to participate. The participants were asked on the importance of 5 podiatrist's job scopes and on the podiatrist's competency in 5 key areas in the management of diabetic foot ulcers.

Results:

One hundred and fifty-three out of 164 completed surveys had sufficient information for analysis. The respondents gave an average rating of 3.53 (SD = 0.57) out of 5 for the importance of podiatrists' role. 'Diabetic footcare' had the highest average rating of 4.20 (SD = 0.72) and 'plantar warts' had the lowest rating (Mean = 3.48, SD = 1.05) ($P < 0.001$). The respondents also rated that podiatrists were more proficient in providing patient education and advice (Mean = 3.89, SD = 0.72) as well as offloading pressure (Mean = 3.87, SD = 0.73), as compared to working with other healthcare professionals (Mean = 3.48, SD = 0.87) ($P < 0.001$).

Discussion & Conclusion:

Team-based care enhances the efficiency and quality of healthcare. The results of the study demonstrate that healthcare professionals recognise the importance of the podiatrist in providing diabetic footcare in primary care. However, there appears to be barrier to teamwork between the podiatrist and the rest of the healthcare team in the polyclinics. System reform and transformation in organisational culture and professional culture may be necessary to improve teamwork.

OP-QHSR-01

Healthcare Utilisation by Emergency Department (ED) Elders—ED Visit as a Geriatric Screening Opportunity

TAN TSE LING¹, FOO CHIK LOON¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

A quarter of Emergency Department (ED) attendance comprises patients aged 65 and above. An ED visit may be an opportunity to provide geriatric screening. This is especially so if ED elders are found to be newcomers to the healthcare system and thus unlikely to have received geriatric screening before. This study determines the proportion of ED elders who are 'newcomers' and not on follow-up with either hospital or polyclinics.

Methods:

This was a retrospective study of 2000 consecutive ED elderly patients presenting in May 2011. Electronic medical records (EMR) were used to determine patients' healthcare utilisation. 'Newcomers' were defined as no ED visits or hospital admissions in the past year. 'On follow-up' was defined as having two-or-more visits with two-or-more prescriptions of similar medications from the Polyclinic or Hospital in the past year.

Results:

Two thousand patients aged 65 and above were included in the study. Of these, 1036 (51.8%) were female. Median age was 76 years (range, 71 to 83). Nine hundred (45.0%) of the patients in this study were newcomers (have not visited ED or been admitted in the past year). There were more patients on follow-up with hospital clinics compared to polyclinics (57.9% vs 51.4%). Of all patients, 18.2% were not on follow-up with either polyclinics or hospital clinics.

Discussion & Conclusion:

Almost half of ED elders are newcomers to the healthcare system. One-fifth of patients are not even on follow-up at a public outpatient setting. We recommend that opportunistic screening be offered to these patients who are unlikely to have received geriatric screening before they are discharged and potentially lost to system again.

OP-QHSR-02

Clinical Determinants of Hospital Length of Stay in Elective Surgical Patients

**WU DAN¹, EDWIN SEET CHUEN PING¹, JOSELO MACACHOR¹, PAMELA CHIA¹,
IYER UMA SHRIDHAR¹, QUAH WEI LING¹**

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Hospital length of stay (HLOS) determines patient load in a hospital that is stretched by maximum bed capacity. We attempted to identify demographic and clinical predictors of HLOS in our 2011 elective surgery cohort from our electronic database.

Methods:

Nineteen demographic and comorbidities variables were extracted. A multivariate linear regression model was built using SPSS to determine independent predictors of increased HLOS.

Results:

The mean HLOS of 5432 surgical patients was 4.1 days (SD = 11.5). Independent predictors of longer HLOS included increasing age ($P = 0.009$), ASA physical status ($P < 0.001$), history of stroke ($P < 0.001$), orthopaedic surgery ($P < 0.001$) and general anaesthesia (GA) ($P = 0.001$). The regression model was insufficient to account for the variance in HLOS (adjusted $R^2 \geq 23.0\%$). Patients who were ≥ 65 years old stayed 1.2 and 2.1 days longer than those between 40 and 64 years old and < 20 years old respectively. Patients with ASA scores II, III and IV stayed 3.3, 9.9 and 47.1 days longer respectively than those with ASA score I. Patients with a history of stroke stayed 4.7 days longer. Patients undergoing orthopaedic surgery stayed 3.7, 4.6, 5.3 days longer than those undergoing general, otolaryngology, and oral and maxillofacial surgeries respectively. Patients requiring GA stayed 0.8 and 2.2 days longer than those requiring regional anaesthesia (RA) alone and GA with RA respectively.

Discussion & Conclusion:

Five independent demographic and clinical predictors were identified for longer HLOS. Neither psycho-socioeconomic factors nor diagnostic related groups were taken into account although they may play a role in determining average HLOS.

OP-QHSR-03

An “Ultra-low” Dose Imaging Protocol Offering More than Thirty Percent Radiation Dose Reduction in Cardiac Catheterization Laboratory

ARASARATNAM PUNITHA¹, HO HEE HWA¹, WILSON LOW¹, DAVID FOO¹, PAUL ONG

¹Tan Tock Seng Hospital

Background & Hypothesis:

This study evaluated the reduction in radiation dose during interventional cardiology procedures utilising an “ultra -low” dose X-ray imaging protocol, compared to “standard” protocols.

Methods:

Study population consisted of subjects undergoing coronary angiography (CA) and percutaneous coronary intervention (PCI) in two angiographic suites. The first phase compared “standard” X-ray imaging protocols using the Receptor Dose Limited (RDL) setting in both suites (n = 556) for CA plus PCI. The second phase compared “standard” and “ultra-low dose” protocols during CA (n = 220) and CA plus single vessel PCI (SV-PCI) (n = 171). RDL setting was changed from “standard” baseline normal detail setting to an “ultra-low” low detail setting for cardiac record (cine) imaging.

Results:

In the 1st phase, there was no significant difference in the measured radiation dose parameters between the 2 angiographic suites. In the 2nd phase, “standard” and “ultra-low” DAP (26.6 ± 20.4 vs 16.5 ± 12.3 Gy.cm², $P < 0.001$) and total dose (357.9 ± 263.5 vs 249.2 ± 186.0 mGy, $P = 0.0004$) were significantly different during CA. For CA plus SV-PCI, “standard” and “ultra-low” DAP (76.0 ± 47.7 vs 53.4 ± 49.6 , $P = 0.0001$) and total dose (1417.5 ± 890.6 vs 1007.9 ± 922.9 , $P = 0.0002$) were significantly different. The “ultra-low” dose protocols reduced DAP by 38% and 30% in CA and CA plus SV-PCI, respectively. No significant differences were observed in procedural success or 30-day major cardiovascular events for CA plus SV-PCI.

Discussion & Conclusion:

The “ultra-low” dose protocol reduces the DAP by more than 30% without compromising image quality or procedural success. No changes in operator practice and implementation costs are incurred.

OP-QHSR-04

A Simple Checklist to Ensure Polyclinic Doctors Are Fully Competent in Performing Pap Smear

CHUA ANGELIA¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

Women aged 25 to 69 years, eligible under the cervical screen Singapore programme will be seen by trained and certified competent nurses to perform their Pap smears. Cases that will be performed by doctors include those with gynaecological complaints, failed attempt by nurses to perform the Pap smear after 2 tries to locate the cervical os, any abnormal findings during speculum examination and Pap smear result that required early screening.

Methods:

For the newly joined doctors in the Polyclinic, it is important that they are assessed to make sure they are confident, competent and trained in performing the Pap smear since the cases referred to them tend to be the more complex ones. The checklist is designed with the help from the Gynaecology department from National University Hospital, whom they used to audit the Family Medicine residents. The checklist includes the steps in identifying the patient, pre-procedure, procedure and post procedure requirements. A senior doctor will be assigned to do the observation and competency checklist for the newly joined doctor who does the Pap smear for the first time in the polyclinic within his first month of reporting to work. If necessary, the senior doctor will recheck till he deems the junior doctor fully competent before he can perform the Pap smear independently.

Results:

All the 8 doctors who had been audited were assessed competent and benefited greatly from this process.

Discussion & Conclusion:

With the competency checklist, it helps to standardise the training and assessment across all the 9 polyclinics.

OP-QHSR-05

A Study on Products Containing Panax Species or “Ginseng” in Singapore

GHAEMINIA MEHDY¹, KLARA HESS², GOH SOK HIANG¹, KOH HWEE LING¹, TAN CHAY HOON¹

¹National University of Singapore, ²Swiss Federal Institute of Technology

Background & Hypothesis:

Products containing Panax species or different types of “ginseng” have different indications and are popular worldwide. Many such products are sold over the counter and the public may buy them based on what is displayed on the product package. Therefore, it is important to evaluate the information provided on the product package. Hence, this survey was conducted to collate and assess the information from commercially available health products in Singapore containing the word “Panax” or “ginseng” in their labels.

Methods:

We visited 2 pharmacies, a Chinese medical hall, a healthfood store and a supermarket to collate information on products with the words “Panax” or “ginseng” on their packages. The information included name, brand, manufacturer, expiry date, batch number, ingredients, indications, actions, usage, side effects, cautions, contraindications, and price.

Results:

Three hundred and eleven products were categorised into Chinese Proprietary Medicines (189), health-supplements (86) and food (36). Most of the products had Panax ginseng (Chinese/Korean ginseng) as one of their ingredients, followed by Panax notoginseng (Sanqi/Tianqi) and Panax quinquefolium (American ginseng). Thirty products were labelled to contain “ginseng” but the specific plant name was not evident. Twenty-four products had alluded to one or more of claims prohibited by legislation. Most of the products in this study complied with their respective labeling requirements.

Discussion & Conclusion:

This survey of 311 products having the word “Panax” or “ginseng” on their packages showed that while most of the information provided was adequate and complied with legislations, more public awareness is needed to ensure safety and appropriate usage of the products.

OP-QHSR-06

Transition from Regular Drinking to Disorders and Remission in an Adult Population in Singapore: Prevalence and Risk Factors

ABDIN EDIMANSYAH ABDIN¹, EDIMANSYAH ABDIN², MYTHILY SUBRAMANIAM², JANHAVI AJIT VAINGANKAR², SIOW ANN CHONG²

¹National Healthcare Group HQ, ²Institute of Mental Health

Background & Hypothesis:

Overconsumption of alcohol is one of the leading preventable causes of death across the world. Few studies have examined the transition from alcohol use to disorders in an Asian population. This paper describes the prevalence rates and predictors of alcohol transition from alcohol use to disorders and remission among the adult Singapore resident population.

Methods:

The Singapore Mental Health Study was a cross-sectional epidemiological study that was conducted from December 2009 to December 2010. Information on alcohol use was assessed using the Composite International Diagnostic Interview. Sociodemographic information was also collected.

Results:

Of the 6166 respondents, more than half (66.6%) reported that they had ever had an alcoholic drink at some time in their life and less than half of them (46.8%) progressed into regular drinkers. Of the regular drinkers, 9% progressed into alcohol abuse and 1.5% developed alcohol dependence. Of those alcohol abuse and dependence, 17.3% and 7.1% of those with history of alcohol abuse and dependence subsequently reported remission. Being younger, of Indian ethnicity, and an early age of onset of drinking alcohol consistently predicted transitions from ever drinkers to regular drinkers and from regular drinkers to alcohol abuse and dependence.

Discussion & Conclusion:

We found higher rates of transition from alcohol use to regular use but lower rates of transition from regular use to alcohol abuse and dependence. The study highlights the importance of socio-demographic predictors across stages of alcohol use especially that of younger age of onset of drinking that should be used to develop future intervention programs and guide targeted preventive strategies in Singapore.

OP-QHSR-07

Compliance with Hospital Acquired Pneumonia (HAP) Prevention Bundle in Tan Tock Seng Hospital

TUN MON HNIN¹, SS SATHAPPAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Hospital acquired pneumonia (HAP) is an infection in the lung that is acquired in hospital by a patient who was admitted for a reason other than that infection. HAP is the second most common hospital acquired infection (HAI) and the most common cause of death among HAIs. HAP prevention workgroup adopted a group of prevention strategies called “HAP Prevention Bundle” to reduce the chance of getting HAP. This study aims to evaluate the compliance with the components of HAP prevention bundle recommended by HAP prevention workgroup.

Methods:

A pilot study was conducted in Tan Tock Seng Hospital (TTSH) Ward 7C & 7D from 16 April to 11 June 2012. A data collection sheet was designed consisting of patients’ demographic, regular verification of the feeding tube placement, elevation of the head of bed between 30 and 45 degree, and encouragement of deep breathing and assisting with ambulation to be done by physiotherapists if there is no contraindication.

Results:

A total of 512 cases were admitted to the wards during the 8-week study period. There was 100% compliance in verification of feeding tube placement. In 95% of patients head of bed were raised between 30 and 45 degree. Fifty-nine percent of patients were referred to physiotherapists and deep breathing and ambulation were carried out accordingly by physiotherapists.

Discussion & Conclusion:

This study reflected a good compliance with HAP prevention bundle recommended by HAP prevention workgroup in the verification of feeding tube placement; but the recommendations in terms of raising head of bed between 30 and 45 degree was slightly lesser than the latter. The bundle can be implemented hospital wide for the prevention of HAP.

OP-QHSR-08

Assessment of Health Human Resource Information System and Its Use at Operational and Strategic Levels in Pakistan

KUMAR RAMESH¹, JAMIL AHMED², DR BABAR TASNEEM SHAIKH², ZULIFIQAR KHAN³

¹National University Hospital, ²Health Services Academy, ³World Health Organization

Background & Hypothesis:

During the last decade, enormous investment has gone into health information systems but in a fragmented manner. Due to the lack of a clear vision, policy and strategy, the results of these efforts have not been much visible. None of the information portals capture the state of human resource present in the health sector. World Health Organization (WHO) has provided technical support for assessment of existing systems and development of comprehensive Human Resource Information System (HRIS) in Pakistan.

Methods:

The questions in the WHO-HRIS Assessment tool were distributed into 5 thematic groups. Stakeholders were identified for each group based on their programmatic interest. Representatives from the government, private sector and development partners participated in the assessment.

Results:

Most of the organizations and departments have an independent HR section managed by establishment branch, fully equipped with functional computers and internet facility and had HR rules and regulations and a coordination mechanism, but not fully functional. There is no HR data available due to the lack of trained professional and a meager budget. Data reporting is mainly in paper form. Data analysis is not being done. Data were transmitted mainly from the district facility to the provincial head office. Most of the organizations did not have proper feedback mechanism on the improvement of HR data.

Discussion & Conclusion:

Pakistan is lacking an appropriate HRIS management; robust HRIS to manage their respective provincial health systems and the programs to meet the targets of millennium development goals (MDGs).

OP-QHSR-09

Compliance to Surgical Antibiotic Prophylaxis During Surgery

YEO SOO HOON, LYNN¹, KYU KYU THINN¹, POON KEAH HOW¹, EUGENE LIU¹

¹*National University Hospital*

Background & Hypothesis:

Appropriate antibiotic prophylaxis is a key part of the bundle to reduce surgical site infections. We evaluated the compliance to NUH surgical antibiotic prophylaxis guidelines. These guidelines were written in October 2010 with input from all the surgical departments.

Methods:

Copies of the guidelines were provided in every operating room. The audit was carried out over 3 months, from September to November 2011, for adult patients undergoing emergency and elective operations. The audit forms were completed by anaesthetists, and were tabulated electronically for analysis.

Results:

Our audit showed an overall compliance rate of 92%, for 4641 patients. For nearly all the other 8%, there was uncertainty as the operations were not addressed by the guidelines. Specific questions were the need for gentamicin in orthopaedic patients who have urinary catheters inserted intraoperatively, use of antibiotics for operations such as laparoscopic gynaecology surgery, dental extractions and implant removal. Vancomycin use was appropriate, which was either for patients allergic to penicillins or cephalosporins, and for treatment of methicillin-resistant *staphylococcus aureus* (MRSA) infections.

Discussion & Conclusion:

There is good compliance to the NUH surgical antibiotic prophylaxis guidelines. The guidelines are not entirely based on medical literature but are planned for local practice, which improves their relevance and applicability. The audit helped us identify questions to enhance the guidelines. These were addressed following the audit and the guidelines updated. This audit only evaluated intraoperative prophylaxis, usually the first dose. Future work should look at the continuing use and stoppage of prophylactic antibiotics in the postoperative period.

OP-QHSR-10

Emergency Department Disposition of Suspected Appendicitis after 5 Years of Observation Medicine: Can We Do Better?

NG WEI MING¹, BEMA BUNIYA¹, FOO CHIK LOON¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

This study aim to determine if the emergency department's appropriateness of 'suspected appendicitis' admissions to the general surgical (GS) department has improved since the emergency department 24-hour observation unit (EDTC) was set up in 2006.

Methods:

This is a retrospective study of patients with suspected appendicitis admitted to GS pre- (2006) and post- (2011) EDTC. Apart from appendicitis, other 'non-benign' conditions (e.g. diverticulitis, abscess) were considered appropriate. Conditions that should be right-sited to the EDTC (e.g. gastroenteritis, cystitis) were classified as 'benign'. We also examined variables that were associated with a 'benign' condition.

Results:

Two hundred and forty-five pre- and 538 post-EDTC admissions to GS for suspected appendicitis were recruited. There was a significant improvement in diagnosis of appendicitis from 38.4% to 47.6% ($P = 0.016$). When non-benign conditions were included, the improvement remained significant at 60.4% vs 68.4% ($P = 0.029$). In the post-EDTC group, 68.8% had a CT scan done. Benign conditions had a significantly lower length-of-stay (LOS) of 2.3 days vs 3.8 days in the non-benign group. Variables significantly associated with benign conditions were female gender ($P = 0.045$), and triage Patient Acuity Category (PAC) score ($P = 0.012$).

Discussion & Conclusion:

Although there has been a significant improvement in the admission of suspected appendicitis to GS, one-third still turn out to be benign, non-appendicitis conditions. Right-siting these patients to EDTC would result in further patient bed-days saved. Further analysis is needed to determine if female patients triaged at lower acuity (i.e. PAC3) can be predictors to reduce unnecessary GS admissions.

OP-QHSR-11

To Reduce Default Rate for New Cases at Clinic B Referred from Emergency Services at Institute of Mental Health/ Woodbridge Hospital (IMHWH) to 20% Within 6 Months

PHU HUI HUANG¹

¹*Institute of Mental Health*

Background & Hypothesis:

The Emergency Service refers new cases to Clinic B for first appointments. Monthly default was high at 57 (42%) out of monthly average of 137 new patients. Default rate in 2011 was 67%. Precious resources like time, appointed slot are wasted besides delayed in treatment for those in urgent need. A clinical improvement project (CPIP) was conducted from February 2012 to April 2012 in Specialist Clinic B to bring down the default rate.

Methods:

Clinical Practice Improvement Project methodology (Plan-Do-Study-Action [PDSA]) was used. (i) Cause-and-effect analysis to identify the root causes. (ii) Data from phone contact reminders revealed that out of the 51 calls, 25 (49%) patients will come for their appointments, 16 (31%) patients were uncontactable and remaining 10 (20%) indicated cancelling their appointments. (iii) Two PDSAs were implemented (leaflet with Call Centre contact details [highlighted to create attention] and reminder call information) targeted the uncontactable patients and those who agreed to come but did not. Patient education was also provided at the Emergency Department.

Results:

Default rate decreased from 42% to 35% in the month of April. Full utilisation of appointment slots from cancelled appointments.

Discussion & Conclusion:

Mental illness is stigmatising and this could be the reason for default. With continual monitoring, public education, awareness creation, use of appointment hotline, these have a positive impact on default rate.

OP-QHSR-12

To Reduce the Number of “Walk –in” Patients in “B” Clinic for Medication-Related issues from 51% to 20% in 6 Months at the Outpatient Clinic

**THAMBYRAJAH VAMADEVAN¹, GOH YEN LI¹, ALEX SU HSIN CHUAN¹,
RAVICHANDRAN NIGILA¹, ZHAO ZHIEN RU¹, ESTHER QUEK SOK HOON¹, NG PING PING¹, V THAMILSELVI¹, LELAVATHY DO GANAPATHY¹**

¹*Institute of Mental Health*

Background & Hypothesis:

In 2010, the Community Psychiatry Department Clinic registered 65,000 out of 156,503 visits. Schedule is often disrupted by patients who “walk in” without appointment. This team from the Clinical Practice Improvement Programme (CPIP) chose to concentrate on patients who “walk-in” for medication-related issues.

Methods:

Data were collected from July to September 2011 and February to April 2012. Walk-in patients were counselled by case manager who listened to their problems and needs. They were educated on not to take more medications than the prescribed dosage. Patients were also encouraged to call in for appointment if they ran out of medications. Patients’ adherence to follow-up was monitored through the integrated patient assessment and continuous engagement (iPace) tracking system. Doctors and clinic staff were reminded to advise patients not to walk in. The CPIP team conducted numerous brainstorming sessions.

Results:

Retrospective data (July to September 2011) indicated that out of the 999 walk-in cases, 509 (51%) patients walked in due to medication issues. After implementation, data collected from February to April 2012 showed that, out of 861 walk-in cases, 156 (18%) walked-in due to medication-related issues.

Discussion & Conclusion:

Patients require various forms of support upon follow-up. Telephonic case management is one of the strategies that can be used to attend to the needs of these patients. Consistent phone calls will reduce the number of default and walk-in which ultimately boost the morale of the patients. Fewer walk-in patients means better managed staff workloads, in turn, leading to better services for the patients.

OP-QHSR-13

To Reduce the Noise Level in Intellectually Disabled (ID) Female Long Stay Ward (Ward 62A) Institute of Mental Health Woodbridge Hospital During the Day by 50% in 6 Months

SUYAT KATHERINE¹

¹*Institute of Mental Health*

Background & Hypothesis:

The Regulations of Occupational health & safety in 1997 states that noise level of 85 dB(A) or above an 8-hour workday is hazardous to health. Average noise level in Ward 62A is 120dB where 70% of the patients are diagnosed as intellectually disabled (ID). There is a correlation between the noise level and the behaviour of patients in the ID ward.

Methods:

This project uses the Clinical Practice Improvement Methodology. Data collected through the noise indicator, showed that about 20 ID patients in the ward had noise level of 120dcb -- above the acceptable level. Using the Plan-Do-Study-Action, 4 interventions were developed and implemented from March to May 2011.

Results:

Over 3 months, the noise level reduced significantly that staff, allied health, visitors and patients were able to enjoy their day. We sustained the project with consistent managing the patients: behaviour and collaboration with Multi Discipline Team (MDT)

Discussion & Conclusion:

Using PDSA interventions are as follows: (i) Identify the entire noisy patient and attend to their "special needs". (ii) Assigning one "activity nurse". (iii) Improve staff knowledge in caring for ID patients. (iv) Collaboration with MDT to titrate patient's medication. The noise level has reduced from a means of 92% pre-intervention to 80%, this is an achievement of 30% over our set target of 50%. Knowing the patients and their behaviour and having "special needs" met are important. Not only are we able to reduce the noise level, there was no assault related to the high noise level. To date, the ward noise level has been sustained.

OP-QHSR-14

Resource Planning for an Urgent Short Stay Ward for Stroke Patients

MENG FANWEN¹, **R. K. PALVANNAN**², **TEOW KIOK LIANG**², **THOMAS W. K. LEW**³,
HENG BEE HOON²

¹ National Healthcare Group HQ, ²National Healthcare Group, Singapore, ³Tan Tock Seng Hospital

Background & Hypothesis:

Systematic reviews show that stroke patients who receive a package of organised inpatient care in a dedicated acute stroke ward (ASW) have improved health outcomes. As such, Tan Tock Seng Hospital commissioned 36 beds to manage all stroke patients after a pilot trial with smaller capacity. To meet the stroke patients' demand, we attempt to study the minimum requirement on beds in ASW based on a protocol of care. The desired result could be used as a guideline for the management in resource planning.

Methods:

In this study, we assume the arrivals of stroke patients follow Poisson distribution and their lengths of stay (LOS) follow phase-type distribution. We develop an optimisation model, based on Erlang loss formula, to evaluate the size of ASW. In the analysis, we use stroke patients' LOS data of the hospital in the year of 2009.

Results:

With the maximum LOS of 6 days, we derive that the beds needed in ASW equals to 26. If we consider the ward partition by gender, the total capacity of male and female sub-wards becomes 32. In addition, the estimated bed occupancy rate is relatively low as around 65% which ensures sufficient capacity in ASW to allow immediate admission.

Discussion & Conclusion:

This analysis provided assurance to the management that the tentative 36-bed capacity was sufficient to implement ASW and the size of ward could be further reduced. Our contribution was that we developed a model using Phase-type distribution to better fit the real data.

OP-QHSR-15

To Ensure All Ward 22A Patients on Atypical Antipsychotics Are Monitored According to Protocol

KONG XIANGJUN¹

¹*Institute of Mental Health*

Background & Hypothesis:

Ward 22A (IMH) is a general psychiatric male B2 class ward. There is a high number of (80%) patients in ward 22A on atypical antipsychotics and 87.5% of them did not receive consistent monitoring. Systematic review shows that atypical antipsychotics are associated with weight gain, risk for diabetes mellitus and worsening for lipids profile.

Methods:

This project uses the Clinical Practice Improvement Methodology. Using the Plan-Do-Study-Act cycle, 2 interventions were developed and implemented from May 2011 to December 2011. PDSA1: Re-organise preparing of needed forms; do daily ward role call; staff to introduce the new, workflow for the monitoring process and update progress weekly. PDSA 2: Audit on compliance weekly by Ward Champion; remind staff to put up the monitoring form by pop-up window in EIMR system by Ward pharmacist and Doctor's ordering blood investigations upon medication reconciliation.

Results:

Non-conformance rate for monitoring Ward 22A patients on atypical antipsychotics was reduced from average 87% to 2.5%. It improves our patients' quality of life, saves our staff time through better work-flow and improves staff knowledge on atypicals and job satisfaction.

Discussion & Conclusion:

Project has been sustained through daily role calls, regular auditing and feedback to team, and weekly visual management of performance on quality board. Every staff new to the ward is oriented to the workflow of the monitoring program.

OP-QHSR-16

Promoting Integrated Care by Reducing Patient Rejection Referrals to the Community Mental Health Services

HENDRIKS MARGARET¹, LEONG JERN YI², TEY JUN YUAN², NG SIN LIANG²

¹National Healthcare Group HQ, ²Institute of Mental Health

Background & Hypothesis:

In 2007, the Community Mental Health Team (CMHT) was formed under the National Mental Health Blueprint (NMHB). It is beneficial for patients to accept CMHT services because CMHT can support patients who have histories of frequent relapses and admissions (often referred to as the “revolving door syndrome”). However, it was noted that in Ward 35A, an acute psychiatric ward, 45% of 34 patients who were referred to CMHT from January to August 2011 rejected such services.

Methods:

Both staff and patients were included in the implementation of this project. Patients’ inputs were included in a customer survey which seeks to consolidate factors that would enhance acceptance on CMHT services. Evidenced-based quality tools and LEAN principles were used to conduct our project.

Results:

The team developed pocket-sized information leaflets which illustrate CMHT services for easy reference by patients and caregivers. They also developed checklists to assist case managers in assessing patients’ suitability for referral so as to prevent the selection of unsuitable patients, posters and handouts for patients and their caregivers to improve the relay of messages from IMH to our target audience. The team also orientated the ward’s multidisciplinary team on CMHT services. Referring the right patient for the appropriate service led to a decrease in rejection rate. To date (April 2012), the percentage of patients rejecting CMHT service is at 22%, more than 50% reduction from the pre-project implementation rate.

Discussion & Conclusion:

The networking, close collaboration and a better understanding between the ward team and CMHT on the aspects of CMHT services, benefitted the patients.

OP-QHSR-17

Application of Discrete Event Simulation on Western Region Acute Inpatient Flow Analysis

ZHU ZHECHENG¹

¹*National Healthcare Group HQ,*

Background & Hypothesis:

Due to the growing and aging population, National University Hospital is facing more pressure in coping with the increasing acute inpatient demand with their current bed capacity. The objective of this project is to identify system constraints and key resources to meet the anticipated growth of acute inpatient load within NUH and the western region in Singapore.

Methods:

A Discrete Event Simulation (DES) model was constructed to quantify the relationship among different departments within an institution, and among different institutions. The model had 2 layers. The first layer modelled the relationship among different institutions, and also functioned as a dashboard by displaying the summarised information of each institution. The second layer modelled the detailed patient flow within an institution. Departments related to acute inpatient flow such as emergency department, inpatient departments, operating theatres and outpatient clinics were included in the second layer. As illustrated in Figure 3, each department can be modelled in further detail as necessary. For instance, the inpatient departments were further segregated into different clusters and disciplines.

Results:

The DES model of the western region acute inpatient flow can be used to performing various what-if analyses regarding future capacity planning. For instance, what is the impact of building more operating theatres on the bed occupancy rate? How a new nursing home will help to solve the bed problems in the hospitals?

Discussion & Conclusion:

The DES model of the western region acute inpatient flow can be used to perform various what-if analyses regarding future capacity planning.

OP-QHSR-18

Home Care for Emergency Department (ED) Elders: Out-Of-Pocket Costs is a Major Barrier to Both Service Uptake and Continuation

TOH ZHENG JIE¹, **FOO CHIK LOON**², **TAN TSE LING**²

¹National University of Singapore, ²Tan Tock Seng Hospital

Background & Hypothesis:

Post-acute care at home (PACH) is a home medical and nursing service. We describe our experience with emergency department (ED) referrals to PACH, and examine if out-of-pocket expenses pose as an impediment to service adoption and continuity.

Methods:

This was a retrospective study conducted between March 2010 and June 2012. The early referrals (Group A) did not receive any subsidies. Later, to stimulate referrals, ED initially absorbed the first PACH visit (Group B) and subsequently the first 5 visits (Group C) through a grant. Baseline demographics, days between referrals (adoption) and number of PACH visits (continuation) were compared, with ED re-attendance and hospitalisation at 4 weeks.

Results:

There were 5, 74 and 28 patients in groups A, B and C respectively. The 'number of days between referrals' was significantly longer before visit-waivers were introduced (Group A: 15.2 days vs Groups (B + C): 6.08 days; $P < 0.01$), suggesting that patients were more receptive to PACH when there was a fee exemption. Patients who enjoyed 5 visit-waivers were more likely to continue PACH beyond the first visit (Group C: 73.9% vs Group B: 43.1%; OR = 4.8, CI, 1.47 to 15.85). This was accompanied by a trend towards lower 4-week ED re-attendance (Group C: 21.6% vs Group B: 35.1%; $P = 0.70$) and hospital admission (Group C: 25.0% vs Group B: 28.4%; $P = 0.93$), but these were not statistically significant.

Discussion & Conclusion:

Elderly patients are highly sensitive to out-of-pocket expenses. They are more likely to accept, and continue with home care services if this barrier is removed.

OP-QHSR-19

Socio-Demographic and Clinical Profile of Adults with Intellectual Disabilities in Singapore: A Descriptive Study

WEE LIANG EN IAN¹, GERALD CHOON HUAT KOH¹, LINDA S AUYONG², CHEONG ANGELA³, THANT THANT MYO², LIN JINGYI²

¹National University Hospital, ²Movement for the Intellectually Disabled of Singapore, ³National University of Singapore

Background & Hypothesis:

Little is known about the socio-demographic and clinical profile of adults with intellectual disabilities (ID) in Singapore. We studied the socio-demographic and clinical profile of adults with ID and investigated factors associated with caregiver availability and identity in this population.

Methods:

The study population involved all adults with ID aged ≥ 40 years receiving services from the Movement for the Intellectually Disabled of Singapore (MINDS), the largest such provider in Singapore. Information on socio-demographic and clinical profiles, functional status, and availability of caregivers were collected via interviewer-administered questionnaires from guardians of adults with ID. Descriptive characteristics were computed and chi-square test and logistic regression were used to identify the predictors of caregivers' availability and identity.

Results:

The participation rate was 95.0% (227/239). There were differences in client age, gender, and caregiver availability between recipients of residential and non-residential services (all $P < 0.05$). Common comorbidities included hyperlipidaemia (17.6%), hypertension (15.9%), psychiatric diagnoses (16.3%) and epilepsy (10.6%). The majority of the patients were fully independent in basic daily activities, but only 21.1% were fully communicative. Only a small minority (6.6%) were exercising regularly. The majority (73.5%) of patients had a primary caregiver, relying on parents or siblings. Greater functional dependence, medical problems, and older client age were all associated independently with the lack of a primary caregiver. Parent-caregivers were more likely to be older, unmarried and using non-residential services in this population of adults with ID ($P < 0.05$).

Discussion & Conclusion:

Adults with ID have multiple medical, functional, and social issues. More can be done to support the care of this unique group of adults with special needs.

OP-QHSR-20

Screening for Cardiovascular Disease Risk Factors at Baseline and Post-Intervention amongst Adults with Intellectual Disabilities in an Urbanised Asian Society

**WEE LIANG EN IAN¹, ESTHER LIM², SERENE TAN², SUNDRAMURTHY SRIDEVI²,
KOH CHU WEN², RAMAKRISHNAN PRABHA²**

¹National University Hospital, ²Movement for the Intellectually Disabled of Singapore

Background & Hypothesis:

Adults with intellectual disabilities (ID) face significant barriers to screening participation. We determined the predictors for regular cardiovascular health screening at baseline amongst adults with ID in Singapore; and evaluated the effectiveness of a 3-month screening intervention.

Methods:

The study population involved all adults with ID aged ≥ 40 years receiving services from the Movement for the Intellectually Disabled of Singapore (MINDS), the largest such provider in Singapore. Over 3 months in 2011, adult clients not screened regularly at baseline for hypertension, diabetes and dyslipidaemia were offered free and convenient blood pressure, fasting blood glucose and lipid testing; data on other cardiovascular disease risk factors were also collected. Chi-square and logistic regression identified predictors of regular screening at baseline.

Results:

Participation was 95.0% (227/239). At baseline, amongst adults with ID, 61.8% (118/191), 24.8% (52/210), and 18.2% (34/187) had gone for regular hypertension, diabetes and dyslipidaemia screening, respectively; post-intervention, rates rose to 96.9%, 89.5% and 88.8%, respectively. Prevalence of cardiovascular disease risk factors (22.5% with hypertension, 10.6% with diabetes, 34.8% with dyslipidaemia, 10.7% were obese, 93.4% lack regular exercise) was high compared against the general population. While receiving residential services was associated with regular hypertension screening, receiving non-residential services and being independently mobile were associated with regular participation in fasting blood tests (all $P < 0.05$).

Discussion & Conclusion:

Cardiovascular disease risk factors are common amongst adults with ID and clinicians should proactively screen such populations. Provision of free and convenient screening for cardiovascular disease risk improved the screening participation.

OP-QHSR-21

Prevalence of Cardiovascular Risk Factors in Adults with Intellectual Disability in an Urbanised Asian Society

IAN LIANG EN WEE¹, **GERALD CHOON-HUAT KOH**³, **LINDA S AUYONG**², **ANGELA CHEONG**³, **AARIYAPILLAI RAJAGOPAL REENA**², **VAIDYNATHAN SELVAMUTHU HEMAMALINI**², **KHIN MA MA**², **THANT THANT MYO**², **LIN JINGYI**², **ESTHER LIM**²

¹National University Hospital, ²Movement for the Intellectually Disabled of Singapore, ³National University of Singapore

Background & Hypothesis:

Adults with intellectual disabilities (ID) have significant health problems. Cardiovascular disease is a common cause of morbidity and mortality, however the prevalence of risk factors for cardiovascular disease amongst adults with ID in Singapore is unknown. We sought to investigate the prevalence of hypertension/diabetes/dyslipidaemia in adults with ID in Singapore.

Methods:

The study population involved all adults with ID aged ≥ 40 years receiving services from the Movement for the Intellectually Disabled of Singapore (MINDS), the largest such provider in Singapore. Over a period of 3 months in 2011, the hypertensive/diabetes/dyslipidaemia status of all adult clients was determined. Those without pre-existing hypertension/diabetes/dyslipidemia were screened for these conditions via BP measurements and fasting blood tests. Caregivers of those with pre-existing hypertension/diabetes/dyslipidemia were also asked about their wards' compliance with medical treatment. Logistic regression identified factors associated with prevalence and awareness of hypertension/diabetes/dyslipidaemia.

Results:

The participation was 95.0% (227/239). At baseline, the prevalence of hypertension/diabetes/dyslipidaemia was 33.0%, 13.0%, and 42.8%, respectively. Of these, 48.0%, 65.4%, and 46.5% were aware of their hypertensive/diabetic/dyslipidaemic status, respectively. Of those who were aware, 77.8%, 82.4% and 70.0% were compliant to treatment for their hypertension/diabetes/dyslipidaemia. Of those treated hypertensives, 42.9% (12/28) achieved control. The majority had low 10-year risk of coronary-artery-disease (CAD), with only 1.8% (4/227) having intermediate risk. Impairment in activities-of-daily-living (ADL) was associated with decreased awareness of hypertension/diabetes/dyslipidaemia ($P < 0.05$).

Discussion & Conclusion:

Compared against national estimates, prevalence and awareness of hypertension/diabetes in this population of adults with ID were similar, but dyslipidaemia prevalence was high and awareness low. Dyslipidaemia screening should be encouraged especially amongst those with ADL-limitations.

OP-QHSR-22

The Role of Team Work in Improving the Efficiency of Laparoscopic Surgery in a New Hospital

SEOW CHOON SHEONG¹, ANGIE NG², JENNIFER AUTOR MANALO², ROHANI BINTE KAMSANI², MASWATI BINTE AMAT², HWANG CHI HONG²

¹*Alexandra Hospital,* ²*Jurong Health Service*

Background & Hypothesis:

The presence of novice in a surgical team is associated with increased operative time and conversion rate in a general laparoscopic surgery. Using tools from the CPIP (Clinical Practice Improvement Project), the set-up time is chosen as a marker of efficiency of laparoscopic general surgery in our institution. A setup time of 3 minutes was chosen arbitrarily as a marker of satisfactory performance/improvement.

Methods:

The set-up time of cases of general laparoscopic surgery was measured. In cases where delays in set-up were identified, root cause analysis and suggestion for change were made.

Results:

Twenty cases were included (May to June 2011). The mean set-up time was 4.6 minutes (range, 3 to 12 minutes). Eighty-five percent of the cases took > 3 minutes. Root cause analysis identified 3 factors for change: (i) lack of cross-discipline training among nursing staff; (ii) different surgeon preference; (iii) regular change of junior surgeons. Measures proposed for change included: increasing training for operating theatre nursing staff; improving communication between surgeons and nursing team before surgery. A second period study (January to March 2012) conducted prior to implementation revealed that in 40% of the cases; the set up time has reduced to ≤3 minutes. However, there were 3 cases with significant delay attributed to: (i) device malfunction with replacement needed (n = 2); (ii) trouble-shooting in audio-visual stack system (n = 1).

Discussion & Conclusion:

The improvement in set-up time is attributed to multiple factors including concerted efforts in staff training and improvement of work flow. With new measures implemented, continuous effort is required to improve efficiency in the operating theatre.

OP-QHSR-23

Hand-held Ophthalmic Camera System for Early Detection and Mass Screening of Eye Diseases: A Flagship Project of the Distributed Diagnostic Home Healthcare (D2H2) Strategic Research Initiative

AGRAWAL RUPESH¹, TJIN SWEE CHUAN², STEPHEN C TEOH¹, VU LONG²

¹*Tan Tock Seng Hospital,* ²*Nanyang Technological University, Singapore*

Background & Hypothesis:

Currently, to obtain good quality ophthalmic images and to arrive at proper diagnosis, the patient is obliged to visit an eye clinic or hospital with ophthalmic diagnostic tool which are far costly and require an extensive set-up. Some of the diseases which can be diagnosed based on community-based screening are cataracts, glaucoma, diabetic retinopathy, age-related macular degeneration (AMD). With this background, we aimed to develop a portable low cost handheld camera system to acquire retinal images as a mass screening device.

Methods:

The image acquisition system is developed using off-the-shelf camera system but tailored to the specific requirements, incorporating lenses and light source for retina imaging. The invention is add-on device fitted to any current high resolution digital camera. The illumination system uses high brightness white Light Emitting Diode (LED) as the light source. The circuit to control the brightness of the LED and the duration of strobe plays an important role to ensure sufficient amount of light is incident on the retina.

Results:

The portable device to connect to the off-the-shelf camera system was designed and tested for proof of concept of image acquisition. Retinal images were acquired using the portable attachment. All the merits and demerits of the ophthalmic imaging system will be discussed in the paper.

Discussion & Conclusion:

The handheld screening device can be a useful tool to screen potentially blinding eye diseases at the doorstep of an individual. Risks involved non-clear images in patients with media opacity and limited view of only central 30 to 45 degrees of fundus in non-mydriatic patients.

OP-QHSR-24

Screening for Methicillin-Resistant *Staphylococcus Aureus* (MRSA) Colonization at Hospital Admission: The Most Cost Effective Strategy by Decision Modelling

SUN YAN¹, PALVANNAN R. KANNAPIRAN¹, KELVIN WS TEO¹, HENG BEE HOON¹, BRENDA ANG²

¹National Healthcare Group HQ, ²Tan Tock Seng Hospital

Background & Hypothesis:

Methicillin-Resistant *Staphylococcus Aureus* (MRSA) is one of the most common causes of nosocomial infections and it significantly contributes to poorer clinical outcomes and increased hospital costs. Screening for carriage of MRSA upon hospital admission and isolation of identified MRSA carriers has been proposed as a strategy to prevent nosocomial spread of MRSA. The goal of this study is to provide an evidence-based decision support tool for identifying the most cost-effective MRSA screening strategy.

Methods:

Markov disease modeling and cost effectiveness analysis from hospital perspective were applied. All patients admitted to Tan Tock Seng Hospital (TTSH) were simulated as study cohort. The total modeled state transition time is about 168 hours, which is an average length of stay of 7 days in the hospital. The main outcome measure was the cost per infection prevented. The 5 strategies compared included: universal PCR screening for all; polymerase chain reaction (PCR) screening for selected high-risk patients only; universal culture screening; culture screening for selected high-risk patients only; no screening at all.

Results:

The current prevalence of MRSA at admission was about 8.4%. Universal PCR screening achieved the best quality adjusted life year (QALY), minimum numbers of infections and deaths. Sensitivity analyses showed that the most cost-effective screening strategy was determined by the cost of infection treatment, MRSA prevalence rate, the incidence rate of hospital acquired infection, the sensitivity and specificity of predicting high-risk patients.

Discussion & Conclusion:

The study provides a scientific basis to evaluate the most cost effective strategy for identifying MRSA patients and reducing MRSA transmission in hospitals.

OP-QHSR-25

Individual and Area Level Socioeconomic Status and Its Association with Depression Amongst Community-Dwelling Elderly in Singapore

WEE LIANG EN IAN¹, **CHEW SHI HAO**², **AMELIA YEAP**², **KALPANA VIJAYKUMAR**², **JULIA ONG**², **KOH ZONG JIE**², **GERALD CHOON HUAT KOH**², **SHEN HAN MING**²

¹National University Hospital, ²National University of Singapore

Background & Hypothesis:

Neighbourhood socioeconomic status (SES) can affect depression. We assessed depressive symptoms amongst community-dwelling elderly in a multi-ethnic low area-SES Asian neighbourhood, comparing against a higher area-SES neighbourhood.

Methods:

The study population involved all residents aged ≥ 60 years in 2 housing estates comprising owner-occupied housing (higher area-SES) and rental flats (low area-SES) in Singapore, in 2012. Depressive symptoms were defined as ≥ 5 on the Geriatric-Depression-Scale-15 (GDS) or having a history of depression. Those with depressive symptoms were referred to local polyclinics; the rest were offered free mental-wellness programs. Multivariate-logistic-regression determined predictors of depressive symptoms, referral-acceptance and wellness-program participation.

Results:

The participation rate was 61.5% (559/909). In the low area-SES community, 26.2% (104/397) had depressive symptoms, compared with 14.8% (24/162) in the higher area-SES community. After adjusting for other socio-demographic variables, staying in a low area-SES community (rental flats) independently associated with depressive symptoms (adjusted odds ratio, aOR = 1.68, CI = 1.02 to 2.84). Within the low area-SES community, not being married (aOR = 2.27, CI = 1.35 to 3.70), falls in the past year, visual impairment, and smaller social network (aOR = 3.70, CI = 1.96 to 7.14) associated with depressive symptoms. Amongst those with no depression at baseline (low-SES community), 11.7% (45/383) had prior screening for depression. Of those GDS ≥ 5 (n = 121), 41.3% (50/121) accepted referral. Staying in a low-SES community (aOR = 19.48, CI = 3.93 to 96.60) and medical comorbidities were associated with referral acceptance. Of those GDS < 5 (n = 438), 11.4% (50/438) wanted to participate in mental-wellness programmes; non-Chinese ethnicity and individual-SES associated with participation.

Discussion & Conclusion:

Staying in a low area-SES community independently associated with depressive symptoms. Depressed residents in low area-SES communities were more accepting of referrals for treatment.

OP-QHSR-26

Associations between Body Mass Index and Mental Disorders in Singapore

PICCO LOUISA¹, MYTHILY SUBRAMANIAM¹, VINCENT HE¹, JANHAVI VAINGANKAR¹, EDIMANSYAH ABDIN¹, SIOW ANN CHONG¹

¹*Institute of Mental Health*

Background & Hypothesis:

Obesity and mental disorders both pose large public health concerns and recent research exploring the association between the 2 has reached little consensus. This paper examines the association between body mass index (BMI) and mental disorders in Singapore, whilst investigating the effects of gender and age on this association.

Methods:

Data were collected as part of the Singapore Mental Health Study, a nationally representative household survey, which used the Composite International Diagnostic Interview (CIDI) to generate diagnoses of mental disorders. Socio-demographic information and height and weight data were self-reported. World Health Organisation (WHO) recommended BMI cut-offs to be used to classify respondents.

Results:

The majority (60.3%) of the 6616 participants were in the normal BMI range. Of the females participants, 12.2% were underweight as compared to 4.4% of males. After adjustment for socio-demographic variables, being underweight was significantly ($P < 0.0001$) associated with 12-month obsessive compulsive disorder (OCD) (OR: 4.47), whilst obesity was significantly associated with 12-month alcohol dependence (AD) (OR: 12.14). Associations between BMI and mental disorders were significantly ($P < 0.0001$) stronger among males. For males, being underweight was significantly associated with OCD (OR: 9.21) and bipolar disorder (OR: 4.00), while obesity was significantly associated with anxiety disorder (AD).

Discussion & Conclusion:

This is one of the first community studies to identify an association between BMI and OCD. An association was also found between obesity and AD, which can be attributed to alcohol's high calorie content and the short-term stimulation of appetite following ingestion. It has also been suggested that disordered eating and alcohol misuse are both associated with high levels of reward sensitivity, which may provide common vulnerability.

OP-QHSR-27

The Relationship between Demographic Variables and Diabetes Self Management in Diabetic Patients in Amman City, Jordan

NAJJAR YAHYA¹, MEZYED ABDEL-KARIM AL-ADWAN²

¹*Others,* ²*Al-Balqaa Applied University*

Background & Hypothesis:

Diabetes mellitus (DM) is a devastating chronic disease. Since diabetes is a chronic disease, diabetic patients must be equipped with the information necessary to implement adequate self-care, which is routine and complicated. The aim of this study was to examine the relationship between clients' demographic variables and diabetes self management in diabetic patients.

Methods:

The data were collected through a self-administered questionnaire developed by the researchers and were combined with the perceived diabetes self management scale (PDSMS). The sampling of the investigation comprised 178 diabetes clients from Amman city, Jordan. Pearson correlation Coefficient (Pearson r) were used to test the correlation between demographic variables and diabetes self management

Results:

There was proportional little relationship between income level and diabetes self management, and reversely proportional low relationship between duration of diabetes and diabetes self management. Other variables had no relationship with diabetes self management.

Discussion & Conclusion:

As income level increases, diabetes self management become better, and thus, the longer the duration of diabetes, the worse is diabetes self management. Further research is recommended to detect the relationship between other demographic variables (e.g. age, gender, marital status, education level, diabetes type, insurance coverage, job) and diabetes self management in clients who have high income level and long duration of diabetes to detect if there is any relationship between diabetes self management and other variables.

OP-QHSR-28

Reducing Incompletion and Error Rates in Nutrition Screening

LIM SU LIN¹, EMILY ANG¹, NG SOW CHAN¹, TONG CHUNG YAN¹, MAREE FERGUSON², LYNNE DANIELS³

¹National University Hospital, ²Princess Alexandra Hospital, Australia, ³Queensland University of Technology, Australia

Background & Hypothesis:

Nutrition screening identifies those at risk of malnutrition to facilitate early intervention. Studies have reported screening error rates of 30% to 90%. The authors previously developed and validated the 3-Minute Nutrition Screening (3-MinNS), now used hospital-wide. This study aims to determine the incompleteness and error rates of 3-MinNS in a large university hospital and the effect of quality improvement tools.

Methods:

Annual audits were carried out since 2008 on 541 to 968 patients per audit cycle. Value Stream Mapping and Plan-Do-Check-Act cycle were applied. Root cause analysis was used to determine the action plans, including (i) nutrition screening training as part of nurses' orientation, (ii) empowering nurses to refer online to dietitians for cases of nutrition risk, and (iii) removing a component of the tool that caused the most errors without compromising the sensitivity and specificity.

Results:

Nutrition screening error rate was 33% and 31% in 2008 and 2009 respectively, with 5% and 8% of blank or missing forms. Ten percent of patients scored as at risk of malnutrition were not referred to a dietitian. After implementation of quality improvement action plans, the error rates were reduced to 25%, 15% and 6.8%; while blank or missing forms were 1.1%, 0.7% and 1.0% in 2010, 2011 and 2012 respectively. Dietetics "drop referral" rates for such patients were reduced to 6.9% (2010), 4.3% (2011) and 2.8% (2012).

Discussion & Conclusion:

Quality improvement tools are effective in reducing the incompleteness and error rates of nutrition screening, and this in turn led to sustainable improvements in the escalation process of patients at nutritional risk.

PP-AH-01

Warfarin Therapy: An Evaluation on the Extent of INR Fluctuations and Incidence of Adverse Events

KNG KWEE KENG¹, WEE ZHEN YANG², JOYCE YU-CHIA LEE²

¹Tan Tock Seng Hospital, ²National University of Singapore

Background & Hypothesis:

This study aims to evaluate the extent of International Normalized Ratio (INR) fluctuations associated with appetite changes, herbal and drug interactions, alcohol intake and non-compliance, and to determine the incidence of warfarin-related adverse events.

Methods:

This was a retrospective, longitudinal cohort study which involved the evaluation of patient data from the pharmacist-managed Anticoagulation Clinic database at Tan Tock Seng Hospital in Singapore. Stable patients ≥ 21 years with INR recorded prior and after exposure were reviewed. Types of exposures examined include dietary changes, drug uses, alcohol intake, and non-compliance. Within-persons comparisons between pre-exposure and post-exposure INRs and incidence of major and minor warfarin-related adverse events were evaluated.

Results:

Mean INR increased significantly for decreased appetite (INR $+0.63$, SD ± 0.73), alcohol consumption ($+0.46 \pm 0.69$), CYP1A2 and/or 3A4 inhibitors ($+0.50 \pm 0.64$), CYP2C9 inhibitors ($+0.5 \pm 0.62$), CYP2C9 + 1A2 and/or 3A4 inhibitors ($+1.16 \pm 0.64$), and antiplatelets ($+1.53 \pm 1.88$). Mean INR decreased significantly for increased appetite (-0.5 ± 0.38), and patients who missed one dose (-0.58 ± 0.41) or more than one doses (-0.90 ± 0.47) of warfarin. INR decrease for herbal consumption (-0.09 ± 0.82) was not significant. Three hospitalisations (2.7%) (one due to subconjunctival haemorrhage and 2 others due to over anticoagulation for monitoring) were reported in drug uses. No major adverse events were reported in dietary changes and non-compliance.

Discussion & Conclusion:

Drug interactions contributed to the greatest INR increase while non-compliance resulted in the greatest INR decrease. Drug interactions were also the most common cause of warfarin-related major adverse events.

PP-AH-02

Clinical Outcomes and Patient's Satisfaction of Pharmacist-led Cardiovascular Risks Management Clinic

GOH CYNTHIA¹, FU SHIHUI CLARA¹, SEOW SEOK HWEE STACY¹, WILSON LOW CONG JIN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

The first pharmacist-led cardiovascular risks management clinic (CVMP) was set up under the cardiology department of Tan Tock Seng Hospital. The aim is to aid cardiologists to optimise control of the modifiable cardiovascular risk factors (mainly diabetes, hypertension and hyperlipidaemia). The objective of this study was to evaluate CVMP by the clinical and health outcomes and satisfaction of the patients referred to the clinic.

Methods:

A retrospective study was carried out in a total of 56 patients to determine the control of the risks factors. The changes in HbA1c, systolic blood pressure (SBP) and low density lipoproteins (LDL) were determined at baseline and the subsequent visits to CVMP. A prospective study in the form of a survey (relating to “friendly explanation” and “managing therapy”) was administered to patients to determine their satisfaction.

Results:

LDL was significantly lowered ($P = 0.04$). Significant changes were observed in HbA1c and fasting blood glucose post-intervention from 8.1% to 7.5% and 8.2 mmol/L to 6.8 mmol/L, respectively ($P = 0.02$). Proportion of patients who adhered to their therapeutic goals post-intervention for HbA1c (from 50% to 84%), SBP (from 36% to 60%) and LDL (from 52% to 79%) also improved significantly. Mean change in Framingham score was -0.95. No significant association was found between hospital admissions and adverse effects or inherent cardiovascular risk factors. Patients were generally satisfied with CVMP with average scores for friendly explanation and therapy management being 3.92/5 and 3.97/5, respectively.

Discussion & Conclusion:

CVMP appeared to be effective in controlling the risk factors. Patients are satisfied with the services of CVMP.

PP-AH-03

Effectiveness of the Inpatient Smoking Cessation Program at Tan Tock Seng Hospital

TANG JANET¹, KNG KWEE KENG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

The inpatient smoking cessation program had generated positive results but data on the effectiveness of such program in the local setting are limited. This study evaluated the effectiveness of the inpatient smoking cessation program at Tan Tock Seng Hospital (TTSH) and identified factors associated with successful quit attempts.

Methods:

Patients who were current smokers at the time of admission and agreed to receive smoking cessation counselling in years 2005 and 2010 were included. Those who refused counselling and patients with incomplete information were excluded. Patients' data were then stratified and analysed.

Results:

The 6-month quit rates for the inpatient smoking cessation program were 46.1% and 29.1% for 2005 and 2010 respectively. Patients in 2010 were less likely to quit smoking than those in 2005 (OR = 0.481, $P < 0.001$). Ethnic group and type of treatment received were found to be independent significant predictors for smoking cessation. Chinese were observed to be more likely to succeed in quitting compared to Malays (OR = 0.592, $P = 0.039$) and Indians (OR = 0.531, $P = 0.040$). Cold turkey method was found to be a powerful smoking cessation aid compared to the reducing method (OR = 0.527, $P = 0.010$).

Discussion & Conclusion:

The quit rates were comparable to those reported in other studies. The inpatient smoking cessation programme is an effective way to reach out to more smokers to help them stop smoking. With the known significant predictors affecting smoking cessation outcomes, smoking cessation counselling can be individualised and tailored according to the smoker's profile.

PP-AH-04

Relationship of Perceived Stigma and Interference with Help-Seeking Behaviour for Mental Disorders

SAMBASIVAM RAJESWARI¹, VINCENT HE YAO FENG¹, JANHAVI AJIT VAINGANKAR¹, MYTHILY SUBRAMANIAM¹, EDIMANSYAH ABDIN¹, CHONG SIOW ANN¹

¹*Institute of Mental Health*

Background & Hypothesis:

Perceived stigma of mental disorders interferes with the treatment participation in affected individuals; people may avoid or discontinue treatment prematurely due to stigmatisation and discrimination. This paper examines the relationship between perceived stigma and interference with help-seeking behaviour for mental disorders in a population-wide study.

Methods:

The Composite International Diagnostic Interview was used in a Singapore population-based study that comprised 6616 adults, aged 18 years and above. Respondents were asked if they had delayed, quit or not sought treatment because they were worried about what people would think of them receiving treatment. Respondents with significant disability due to health problems were asked to report feelings of embarrassment and discrimination to assess perceived stigma.

Results:

Five hundred and thirty-four respondents answered questions on embarrassment and discrimination; of which 12.3% had perceived stigma. Among respondents with major depressive disorder (MDD) and any mood disorders (MDD or bipolar disorder), interference with help-seeking behaviour was significantly higher among those with perceived stigma (MDD: 28.1%; any mood disorders: 33.8%) compared to those without (MDD: 1.2%; any mood disorders: 5.1%). For respondents with any mental disorders, perceived stigma was associated with a higher rate of interference in help-seeking behaviour (17.6% vs 3.3% among those without stigma, $P = 0.03$), specifically with respondents quitting treatment prematurely (2.8% vs 0.3%, $P = 0.03$).

Discussion & Conclusion:

Perceived stigma contributes to interference with help-seeking behaviour among those with mental disorders. Addressing stigma remains crucial for engagement with mental health services and specific programmes should focus on reducing stigma and discrimination, and encourage help-seeking behaviour for those with mental disorders.

PP-AH-05

Gender Differences in Mental Disorders in the Adult Singapore Population

SHAFIE SALEHA¹, VINCENT HE YAO FENG¹, MYTHILY SUBRAMANIAM¹, JANHAVI AJIT VAINGANKAR¹, EDIMANSYAH ABDIN¹, CHONG SIOW ANN¹

¹*Institute of Mental Health*

Background & Hypothesis:

Previous epidemiological studies have found gender differences in certain mental disorders such as anxiety and mood disorders (higher in females) and alcohol use disorders (higher in males). This paper aims to examine gender differences in lifetime prevalence of selected mental disorders in the Singapore adult population.

Methods:

A population-based study of 6616 adult Singapore residents, aged 18 years and above, was conducted in 2010 through face-to-face interviews. Diagnosis of mental illnesses was generated using the Composite International Diagnostic Interview (CIDI), and the severity of disorders was assessed with the Sheehan's Disability Scale.

Results:

Lifetime prevalence for major depressive disorder (MDD) was higher among females (OR = 1.8); alcohol use disorders (AUD) was lower in females (OR = 0.3). Mean age of onset for AUD was significantly lower in females (22.1 versus 26.5); there was no significant difference between the genders for MDD. More females reported 'mild' severity related to MDD (25.5% versus 4.6%); the reported 'moderate' and 'serious' MDD severity were comparable for both genders. There was no association between severity and gender for AUD. Treatment gap for females with MDD was lower (OR = 0.5); there was no association between gender and treatment gap for AUD.

Discussion & Conclusion:

Males have higher prevalence for AUD and are less likely to seek help for MDD. Females are more likely to be depressed, and develop AUD earlier. Clinicians need to be aware of these gender differences when assessing patients. Policy makers should consider these in policy formulation and service development, and plan focused campaigns to raise awareness on help-seeking for mental disorders among males.

PP-AH-06

Nurse Me Happy: Piloting a Positive Psychology Program

CHOO LISA¹, TERESA FOONG LI MING¹, YANG WEIWEN¹, HUANG ZHANG JIN¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

The emergence of Positive Psychology has shifted the focus from mental illness to mental well-being. This approach centres on building enduring happiness in one's life by developing positive emotions, enhancing involvement in life and using one's strengths to accomplish more meaning to life (Seligman & Csikszentmihalyi, 2000). It has been used in various settings (e.g. families, schools, workplaces, community, corporate, military and government organisations) to enable people to flourish and achieve high productivity. The authors conducted an 8-week pilot program centred on positive psychological interventions with hospital nursing staff. The aim of the study was to enhance well-being in each individual and on a community-level.

Methods:

Thirty-two general ward nurses underwent a scientifically-validated Positive Psychology program adapted from Australia (Grant & Leigh, 2010). They have attended 8 weekly 1.5-hour sessions conducted by Clinical Psychologists where interventions included identifying personal goals and values, gratitude and forgiveness, mindfulness exercises, performing altruistic acts and strengths-based coaching. Pre- and post-outcome self-report measures included the Positive Mental Health Instrument and the World Health Organisation's Quality of Life scale as part of a composite assessment of well-being.

Results:

The overall results are summarised and presented. It was hypothesized that through participants' completion of the program, they would experience increased levels of happiness and life satisfaction.

Discussion & Conclusion:

Improving mental well-being has a lasting positive impact on individuals and our society at large. Happier people tend to contribute more to their workplace and community. The implications of this are discussed further.

PP-AH-07

Seeking Help for Emotional and Psychological Problems from Alternative Therapies: Results from the Singapore Mental Health Study

ZHANG YUNJUE¹, VINCENT, HE YAO FENG¹, MYTHILY SUBRAMANIAM¹, JANHAVI AJIT VAINGANKAR¹, EDIMANSYAH BIN ABDIN¹, CHONG SIOW ANN¹

¹*Institute of Mental Health*

Background & Hypothesis:

The use of alternative therapy is widespread across the world. Studies suggest gender and educational level as leading predictors for the use of alternative therapy in various countries. This study was aimed at examining the prevalence and predictors of use of alternative therapy in Singapore.

Methods:

A representative population sample of 6616 participants aged 18 years and above was recruited for the study. Data on mental disorders and socio-demographic characteristics were collected using the Composite International Diagnostic Interview (CIDI) and a structured questionnaire.

Results:

The overall prevalence of use of alternative therapies for “problems with emotions, nerves, or mental health or use of alcohol or drugs” was 6.8%. Female gender (OR: 1.87) and Malay ethnicity (OR: 1.41) were significantly associated with the use of alternative therapies. The most frequently used alternative therapies were prayer or other spiritual practices (3.3%) and massage therapy (2.1%). Three hundred and forty-five (4.4%) of the 6616 respondents, had a 12-month mental disorder. Among respondents with a 12-month mental disorder, 27.1% had used alternative therapies. Age ranged 35 to 49 years (OR: 3.25) and university educational level (OR: 22.03) were significantly associated with the use of alternative therapies among those with a 12-month disorder.

Discussion & Conclusion:

A considerable portion of people with mental disorders are likely to seek help from alternative therapies, especially those in their middle age and/or with a high educational level. This is a potential public health concern as the appropriateness of such therapy is unknown as currently little evidence base is available on their effectiveness.

PP-AH-08

Profiles of Children and their Families with Attrition from a Randomised Controlled Trial among Children with Disruptive Behaviour Disorder (DBD)

LIM-ASHWORTH NIKKI¹, OOI YOON PHAIK¹, DANIEL FUNG¹

¹*Institute of Mental Health*

Background & Hypothesis:

Attrition is a concern in clinical research and practice. Lesser attention has been placed on attrition research in the child population. Reported data are inconsistent and differentiation exists between children with externalising or internalising disorders. Here, we describe the profiles of participants and their families who prematurely terminated their involvement in a randomised controlled trial of disruptive behaviour disorder (DBD).

Methods:

Children who attended a local outpatient psychiatric clinic and were satisfied the diagnostic criteria for a DBD on the Diagnostic Interview Schedule for Children (C-DISC) were referred. Fifty-four participants prematurely terminated their involvement and were included in this sample.

Results:

Attrition was 20.8% (n = 54) of the enrolled sample (age = 11.4 years, SD = 2.31). Of which, 90.7% were boys and 64.8% were attending primary school. In terms of family attributes; 80.5% lived in a HDB flat, 65.7% were Chinese, 19.4% of the parents were divorced, and 38.2% of the families have more than 2 children. Clinically, 46.3% were rated “Moderately Ill” on the CGI-Severity scale and had a mean GAF score of 53.3 (SD = 8.73). Child rated Physical Aggression at baseline (using Aggression Questionnaire) was 25.46 (SD = 7.66) and Verbal Aggression was 13.91 (SD = 4.93). Parents completed the Connors’ Parent Rating Scale. Oppositional subscale was 9.03 (SD = 4.91), Inattentiveness was 12.86 (SD = 4.72), Hyperactivity was 7.81 (SD = 3.95), ADHD index was 24.31 (SD = 7.38).

Discussion & Conclusion:

The profiles suggested the significance of these characteristics as plausible predictors of attrition in the studies and in DBD population. Efforts aimed at identifying risk factors for attrition in early stages may be beneficial to maximise the retention rates and outcome data analysis.

PP-AH-09

Self-Regulation Strategies of Singapore Mainstream Children with Emotional Disturbances

LOH HANNAH¹

¹*Institute of Mental Health*

Background & Hypothesis:

Children with emotional disturbance frequently have difficulty regulating their classroom behaviours. School-aged children with emotional disturbances, ranging from 6 to 10 years old, were grouped for Alert program training during school time. Changes from pre- to post-test indicated that children who received the Alert Program demonstrated a small improvement in classroom behaviours. These preliminary results indicate programs that target self-regulation skills may be useful in helping to improve self-regulation of children with emotional disturbance

Methods:

This pre-and post-test design were used for each group. The study examined the effectiveness of the Alert Program on the behaviors of the children in class. Each 1 hour sessions were attended by 4 to 8 children in mainstream schools over 8-weeks during school hours. Two parent sessions were organised and handouts provided information of strategies learnt for children, parents and teachers. The outcome measures were the CGI and SDQ. Qualitative feedbacks from school counsellors on the programmes were collected.

Results:

Eighty percent of the children's CGI-Severity ratings were rated showing improvement to some degree. Sixty percent of the children's SDQ scores showed improvement in classroom behaviours. School counsellors and parents gave positive feedback about the strategies taught. Furthermore, in class support of the self-regulation strategies were suggested.

Discussion & Conclusion:

The results suggest that self-regulation and sensory processing interventions, such as the Alert Program can be viable classroom interventions used by occupational therapists and teachers. While there were improvements noted in the children's behaviours, the sample size was limited. More clinical research is needed to confirm the value of Alert Program in strengthening classroom self-regulations skills.

PP-AH-10

A Profile Study on Males with Intellectual Disabilities Remanded for Psychiatric Assessment in Singapore

TAN ROGER¹, JOHN BOSCOE LEE¹, MARGARET HENDRICKS¹, BENJAMIN TAY CHING POH¹, SANTHIA DO SASIDARAN PILLAI¹

¹*Institute of Mental Health*

Background & Hypothesis:

Persons with intellectual disabilities (ID) face several challenges in navigating the criminal justice system and they are considered more vulnerable than those without ID. There are limited studies on ID offenders in Singapore.

Methods:

Information was gathered from a clinical audit done on case sheets of males remanded in 2008 in the Institute of Mental Health for psychiatric evaluation. Those having a full-scale IQ score of less than 80 were selected. Data were elicited on demographic characteristics, types of charges faced, previous imprisonment and prevalence of Axis 1 diagnoses among the sample. SPSS was used in the data analysis.

Results:

Of the 533 cases identified, 20.5% (n = 109) involved a diagnosis of ID. Thirty-one had borderline ID, 74 had mild ID and 4 had moderate ID. Majority were aged 41 to 50 (43.1%), single (77%), unemployed (45.9%), and stayed with their family (71.6%). Almost half were financially dependent on their family. The most common charge faced was theft (35.8%), followed by violent offences (16.5%) and sexual offences (11.9%). Only one was charged with fire-setting. Seven-three (66.9%) had previously been to prison. Thirty-nine (35.8%) had a concurrent Axis 1 diagnosis while 41 (37.6%) had a substance-related diagnosis.

Discussion & Conclusion:

The study showed theft and violent offences to be the most frequent offence types by ID offenders, which concurs with other studies in similar settings. The low rate of fire-setting also concurs with recent research. The finding of high psychopathology and high rates of previous conviction is consistent with the literature.

PP-AH-11

Reliability of the Assessment of Balance in Sitting (ABS) Scale

GHAZALI FAEZAH¹, TEE LEE HUAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

At present, there is no standard tool or scale used to assess the sitting balance of patients in our clinical setting. The aim of the study was: (i) to develop a standardised and reliable scale for assessing sitting balance, and (ii) to establish the inter-rater reliability of the new scale. The hypothesis is that the new Assessment of Balance in Sitting (ABS) scale would provide good reliability in assessing a patient's sitting balance.

Methods:

Thirty-two physiotherapists and occupational therapists in Tan Tock Seng Hospital (Singapore) participated in this study. The Assessment of Balance in Sitting (ABS) scale was developed for this study as a guideline for assessing both static and dynamic sitting balance. Inter-rater reliability was evaluated by comparing ratings of videotaped performances of sitting balance between the therapists. A pre- inter-rater reliability test was done based on the existing understanding of assessing sitting balance. The ABS scale was subsequently introduced to the therapists, followed by a post- inter-rater reliability test.

Results:

The pre- reliability test showed that there was fair to good agreement ($\kappa = 0.59$) based on the existing understanding of assessing sitting balance, whereas the ABS scale demonstrated good agreement ($\kappa = 0.82$) among the 32 therapists.

Discussion & Conclusion:

The standardised use of the ABS scale provided good reliability when determining sitting balance in patients.

PP-AH-12

Successful Right-Siting of Stable Heart Failure Patients Attending Heart Failure Clinic in Tan Tock Seng Hospital to National Healthcare Group Polyclinics

GOH CHEE¹, AMANDA KOH¹, WENDY KWA¹, LEE HWEE HWEE¹, GAO JUAN¹, HO CHIA YEN¹, JENNIFER WONG¹, CHRISTINE TAN², DANIEL YEO POH SHUAN¹

¹Tan Tock Seng Hospital, ²National Healthcare Group Polyclinics

Background & Hypothesis:

It is projected that by 2030, 19% of the population in Singapore will be ≥ 65 years old (Inter-Ministerial Committee on Aging Report, 1999). To meet the challenges and demands on finite healthcare resources, it is essential to right-site patients to the healthcare setting which is most appropriate according to their medical needs. Heart Failure (HF) disease management program in Tan Tock Seng Hospital (TTSH) managed > 3000 HF patients since 2002, with approximately 300 new patients every year. In 2010, only 13 patients were right-sited. This project aims to appropriately right-site 50% of stable HF patients to National Healthcare Group polyclinics (NHGP).

Methods:

Using Continuous Practice Improvement Project approach, existing processes of right-siting to NHGP is reviewed and improved. 4 main barriers to right-siting were identified. Measures to overcome these barriers were implemented in stages from January 2011 to January 2012.

Results:

Of the 371 stable HF patients identified to be fit for right-siting from January 2011 to June 2012, 192 (52%) agreed to be right-sited. One hundred and twenty-four (86%) out of 145 patients who were right sited from January to December 2011 had attended their first appointment at NHGP. Patient satisfaction surveys performed on 20 patients showed most (18) were satisfied with the quality of care, proximity to home, and cost-savings of transfer to NHGP.

Discussion & Conclusion:

The rate of right-siting stable HF patients has improved significantly. Limited HF Clinic slots are now made available to new and unstable HF patients, resulting in more appropriate utilisation of limited healthcare resources in the HF Clinic.

PP-AH-13

Outcome of Multidrug-Resistant TB among Singapore Citizens and Permanent Residents, 2000 to 2009

HAN KWEE YIN¹, LEO LIM KANG YNG¹, KHIN MAR KYI WIN¹, CYNTHIA CHEE BIN ENG¹, WANG YEE TANG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Tuberculosis (TB) is a notifiable disease in Singapore. All notified cases are tracked under a Treatment Surveillance Module until an outcome is reached. We report the outcome of Singapore citizens and permanent residents with MDR-TB for the decade 2000 to 2009.

Methods:

Data captured by the national TB notification registry and Treatment Surveillance Module were utilised for this analysis. Characteristics of MDR-TB patients with and without death as an outcome were compared.

Results:

There were 57 MDR-TB cases comprising 26 new and 31 previously treated cases, of whom, 20 relapsed with MDR-TB after having previously completed treatment for non-MDR-TB, and 11 acquired MDR-TB during treatment of pan-sensitive or mono-resistant TB. None had XDR-TB. The majority (89%) were treated under directly-observed therapy by the National TB Programme. There were 11 (19%) deaths; 5 occurred before MDR-TB treatment was started (in all of these the MDR result was known after death). Forty-two patients (72%) completed treatment, 2 (3%) left country and 2 (3%) prematurely ceased treatment (one abandoned treatment after 19 months; one ceased treatment due to drug reaction). None required surgery. The Infectious Disease Act was used to achieve treatment completion in 5 patients. Death was associated with older age ($P < 0.001$), HIV-positive status ($P < 0.03$), and non-commencement of MDR-TB treatment ($P < 0.001$). To date, there has been no re-notification of TB from this cohort.

Discussion & Conclusion:

Successful long-term outcomes were achieved in 42 (81%) of the 52 patients who commenced MDR-TB treatment. Death was associated with older age, HIV-positivity and non-commencement of MDR-TB treatment.

PP-AH-14

Impact of a Clinical Pathway on the Outcome of Inpatient Management of Chronic Obstructive Pulmonary Disease Exacerbation

TEOH KUI JIE¹, TEOH KUI JIE AMY¹, KALAISELVI DO PANCHANATHAN¹, ELLIOT LIM WEE HONG¹, ALAN NG WEI KEONG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Clinical pathways were shown to improve the quality of care delivered to patients requiring hospitalisation, to manage exacerbations of their existing chronic disease.

Methods:

Tan Tock Seng Hospital (TTSH) uses the clinical pathway to ensure all patients admitted with a principal diagnosis of an exacerbation of chronic obstructive pulmonary disease (COPD) are assessed, treated and educated in a timely and standardised manner. We reviewed COPD admissions in 2011 with respect to the utilisation of COPD clinical pathway and its impact on outcome of care.

Results:

There were 1068 admissions for COPD exacerbation in 2011, of which 73% were managed on the pathway. The most common reasons for exclusion are: (i) presence of comorbidities complicating stay (50%), (ii) missed diagnosis from the emergency Department (24%), (iii) admission to the intensive care unit (ICU) / non-invasive ventilation unit (NIVU) (11%). Patients managed on the pathway had a lower average length of stay (ALOS) of 3.6 days compared to 4.7 days in those who were not. Patients who dropped out of pathway (5%) due to deterioration or development of complications had the longest ALOS of 12 days. Readmission rate for patients on pathway was 28%. Most patients readmitted were aged >65yrs (65%), male (90%) and had advanced disease (FEV₁ <50% predicted).

Discussion & Conclusion:

In patients with episodes of uncomplicated COPD exacerbation, management following a clinical pathway resulted in a shorter LOS resulting in cost savings to the healthcare system. However, patients with complicated COPD have additional needs which require more attention and time.

PP-BSTR-01

Comparison between the Neuroregenerative Property of Haruan Traditional Extract (HTE), Tualang Honey and Vitamin C

MOHD SHAFRI MOHD AFFENDI¹, FARAHIDAH MOHAMED³, AMEERAH JAAFAR²
¹Others, ²International Islamic University, ³International Islamic University Malaysia

Background & Hypothesis:

Haruan, honey and vitamin C are popular dietary supplements and folk medicines in Malaysia. Increasingly, they are recognised for their antioxidant property due to the presence of polyphenols and polyunsaturated fatty acids, and hence may be useful for the treatment of neurodegenerative changes.

Methods:

To study the neuroregenerative properties of these agents, PC12 cells were seeded in 12-well plates containing 1 mL of complete growth media (10% foetal bovine serum in Eagle's Minimum Essential Medium (EMEM)) and left in incubator (5% CO₂, 25°C) for 48 hours. Complete growth media was then removed and replaced before loading each pairs of wells with 20 µL, 50 µL, 100 µL, and 200 µL of honey, vitamin C and haruan traditional extract (HTE). Cells were observed under inverted microscope (AX-80 Nikon) at 24 hours until 96 hours.

Results:

Cells attachment, growth behaviour, neurite projection and presence of polarity were documented and ANOVA statistical analysis ($P < 0.005$) significance. Data from this study showed that HTE, Tualang honey, and vitamin C have neuroregenerative property that is dependent on the type of formulation and its dose. Apart from the neurite outgrowth, the agents also exhibited influence over cell behaviour and cell morphology which are of values in normal cell growth and specialised functions.

Discussion & Conclusion:

HTE demonstrated the greatest neuroregenerative property and should be studied further for its neuromodulatory activities.

PP-BSTR-02

Pigment Epithelium-Derived Factor (PEDF) Regulates Apolipoprotein A-I (ApoA-1) Expression in a J-shaped Relationship

WOON KAING¹, SHARON PEK LI TING¹, LIN LIFANG¹, TAVINTHARAN SUBRAMANIAM¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Studies in men and women have demonstrated that risk for atherosclerosis is inversely associated with high-density lipoprotein (HDL) cholesterol. Pigment Epithelium-Derived Factor (PEDF) is a multifunctional protein involved in insulin resistance and is associated with atherosclerosis. In our previous clinical study, we found a negative relationship between serum PEDF and HDL, suggesting the potential link between PEDF and HDL metabolism. Our preliminary in-vitro study using mature adipocytes, showed HDL to reduce PEDF secretion. In this study, we hypothesised that PEDF affects HDL metabolism by regulating ApoA-1 expression, the major component of HDL, in human liver cell line.

Methods:

HepG2 cells were treated with different concentrations of recombinant human-PEDF (R&D Systems) for 24 hours in DMEM containing 0.5% FBS. Total RNA was extracted using RNeasy Mini kit (Qiagen) and treated with TURBO DNase (Ambion) according to manufacturer's protocol. RNA was then converted into cDNA using Improm-II Reverse Transcriptase (Promega). Apo-A1 mRNA expression was analysed by real-time quantitative PCR (RT-qPCR).

Results:

PEDF treatment at 5 nM and 10 nM, compared to control media, resulted in a 31% and 45% reduction in ApoA1 mRNA expression ($P < 0.05$). No significant difference was noted with 20 nM treatment, but relative quantification (RQ) at 30 nM. PEDF treatment was (1.36 ± 0.15) ($P = 0.006$), compared to control (RQ = 1). ApoA1 mRNA expression at 10 nM was significantly different compared to 20 nM ($P = 0.008$) and 30 nM PEDF treatment ($P < 0.001$).

Discussion & Conclusion:

To our knowledge, this is the first study demonstrating a link between PEDF and HDL metabolism. Interestingly, PEDF regulates liver ApoA1 expression in parabolic manner. Further studies are needed to understand the mechanism of PEDF on HDL metabolism and to explore its clinical significance.

PP-BSTR-03

TNF- α Induce Fractalkine Expression via Activation of NF- κ B in Human Adipocytes

TOY WAN CHING¹, LIU JIAN-JUN¹, CHENG KUI SING ANTON¹, WONG DING SHENG MELVIN¹, SYLVIA¹, TAN SI HUA CLARA¹, SUM CHEE FANG¹, LIM SU CH¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

Fractalkine, a novel adipocytokine, could act as leucocytes chemo-attractant. However, the underlying mechanism regulating fractalkine secretion is unclear. TNF- α (another adipokine): a potent activator of NF- κ B-induces inflammation powerfully. Studies demonstrated that fractalkine induction is NF- κ B-dependent. Using human adipose tissue (AT), we observed moderate correlation between TNF- α and fractalkine expression ($r = 0.34$; $P < 0.05$). Therefore, we hypothesised that TNF- α could induce fractalkine expression in a NF- κ B dependent manner. We aim to study in adipocytes whether (i) fractalkine expression is regulated by TNF- α ; (ii) this expression is NF- κ B dependent; (iii) adhesion to monocytes induced by TNF- α is mediated by fractalkine.

Methods:

Human omental AT explants and adipocytes were treated by TNF- α in-vitro. Changes in fractalkine, MCP1 and IL8 expressions were assessed using RT-PCR. Circulating fractalkine, MCP1 and IL8 were assayed by ELISA. Fluorescence-labeled-THP-1 monocyte was co-cultured with adipocyte treated by TNF- α with/without fractalkine neutralising antibody. Changes in monocytes-adipocytes adhesion were measured by Tecan. NF- κ B activity was knocked-down using specific NF- κ B-p65-siRNA followed by TNF- α -incubation for 4-hours. Fractalkine mRNA and protein were assayed after NF- κ B knock-down.

Results:

TNF- α induced the fractalkine mRNA expression and protein secretion in a time-dependent manner ($P < 0.05$). TNF- α significantly increased fractalkine secretion into culture supernatant ($P < 0.05$). Additionally, TNF- α -induced fractalkine over-expression contributed to increased macrophages-adipocytes adhesion. This chemotaxis was inhibited by the fractalkine-neutralising antibody dose-dependently (maximum inhibition ~55%). Silencing of NF- κ B-p65 by siRNA abolished TNF- α -stimulated fractalkine expression, suggesting the involvement of NF- κ B signaling.

Discussion & Conclusion:

In adipocytes, fractalkine expression induced by TNF- α is NF- κ B dependent. In turn, fractalkine mediates adipocytes-monocytes adhesion. Molecular insights into TNF- α /NF- κ B-fractalkine pathway may reveal therapeutic targets to ameliorate obesity-associated pro-inflammation.

PP-BSTR-04

Discovery of a Novel H126d Mutation on the Hepatocyte Nuclear Factor-1 α (Hnf-1 α) Gene Associated with Maturity Onset of Diabetes in the Young Type-3 (Mody3)

TAN CLARA¹, YEOH CHAI KHENG ESTER¹, TOY WAN CHING¹, SLYVIA¹, WONG DING SHENG MELVIN¹, AMIZAH BINTE ASRAP¹, SUMATHI DO GOVINDAN¹, CHEONG LI SACK¹, TAVINTHARAN SUBRAMANIAM¹, SUM CHEE FANG¹

¹*Khoo Teck Puat Hospital*

Background & Hypothesis:

We identify a pair of siblings with childhood-onset diabetes mellitus (DM) since 12 years of age with no history of diabetic keto-acidosis in spite of non-adherence to anti-diabetic therapy. Pedigree analysis suggested autosomal dominant inheritance of DM (mother and maternal aunt) suggesting possible monogenic DM (e.g. MODY). Maturity onset of diabetes in the young (MODY) is a heterogenous disorder due to heterozygous monogenic mutations in 1 of at least 6 genes. Mutation (especially in exon2) of the hepatocyte nuclear factor-1 α (HNF-1 α) gene (i.e. MODY type 3) is the most common cause of MODY.

Methods:

We performed bi-directional sequencing to investigate exon 2 of the HNF-1 α gene using following primers: 5'-CAGGACCGCAGCCCCACCTATG-3' and 5'-GGTAGGGTCATTACTTACGCT-3'. High-sensitivity C-reactive protein (hsCRP, transcriptionally dependent on HNF-1 α) was also measured.

Results:

We identified a novel coding-non-synonymous mutation found in the DNA binding domain of HNF-1 α for both siblings. This mutation caused a change in amino acid (pos.126) from histidine to aspartate acid (H126D). The function of the mutation was predicted to be detrimental using computational tools (PolyPhen2 and SIFT). Interestingly, hsCRP levels for both siblings were near-undetectable (0 and 0.1 mg/L), consistent with the diagnosis of MODY3.

Discussion & Conclusion:

We report a novel protein-changing HNF-1 α exon-2 mutation bio-informatically predicted to result in loss-of-function. Diagnosis of MODY3 prompted important change in anti-diabetic therapy from insulin to oral agents (sulphonylurea) with the potential of improving glycaemic control without increasing hypoglycaemic-risk, cost-saving and improved quality of life.

PP-BSTR-05

Role of Human Endogenous Retrovirus H in Colorectal Cancer

WOO WEE HONG¹, EVELYN KOAY³, LEONG SAI MUN²

¹*Singapore Polytechnic*, ²*National University Hospital*, ³*National University of Singapore*,

Background & Hypothesis:

Human endogenous retroviruses (HERVs) are a family of viruses within our genome, accounting for up to 8% of the human genome. Endogenous retroviruses, like the present-day exogenous retroviruses, are capable of converting viral RNA into a cDNA intermediary by means of a reverse transcriptase and integrating their proviral DNA into the host genome. Interestingly, it is assumed that HERVs have inserted themselves into the germline cells during the course of human evolution, and they are transmitted vertically as Mendelian genes. Recent studies have shown that several HERVs are implicated in certain cancers, autoimmune diseases and schizophrenia. Conversely, HERVs may also play a significant role in human placentogenesis. Of interest, HERV-H is selectively expressed in colon cancer but not in normal tissues.

Methods:

With a rising incidence of colorectal cancer in Singapore for the past 3 decades and a lack of western-style diet as the main contributory causal factor for the local population, we seek to establish the likely arcane relationship between the expression of HERV-H mRNA and colorectal carcinogenesis.

Results:

Here, for the first time, we report the finding on the distribution of HERV-H among 785 subjects from Singapore, including Chinese, Malays, Indians and other minorities. As compared to Chinese, the prevalence of Herv-H positivity was significantly higher in Malays (odds ratio [OR], 3.35; 95% CI, 1.42 to 7.89) and Indian (OR, 4.90; 95% CI, 1.76 to 13.7).

Discussion & Conclusion:

We have also established an in-vitro model to determine if perturbation of Herv-H overexpression can induce cancer-like phenotype.

PP-CR-01

Rupture of Cavernous Carotid Aneurysm Presenting as Epistaxis

**LEE YI JIE¹, LIU JIAYING¹, JULIAN LEE CHEOW YEW¹, MANISH TANEJA²,
CHRISTOPHER GEOFFREY LAWRENCE HOBBS¹**

¹Tan Tock Seng Hospital, ²Singapore General Hospital

Background & Hypothesis:

Cavernous carotid aneurysms (CCAs) are usually benign, asymptomatic lesions with low risk of life threatening complications. Since 1956, a total of 37 true aneurysms presenting with epistaxis has been reported in the literature with a mortality rate of 21.6%.

Methods:

We present a case of an 87-year-old female whose cavernous carotid aneurysm was revealed following massive epistaxis. Conventional techniques for achieving haemostasis were unsuccessful. The lesion was identified using angiography and successfully treated with endovascular coil embolisation.

Results:

The angiogram revealed a 6.8 mm x 5.1 mm left internal carotid artery aneurysm arising from its cavernous segment. The aneurysm had eroded through the bone into the sphenoid sinus pointing in an inferior and medial direction. There was a secondary rupture point at its apex. The presentation therefore was that of a right-sided epistaxis though with a left-sided lesion. The lesion was embolised successfully using endovascular coiling.

Discussion & Conclusion:

Most CCAs are considered benign lesions with low risk of life threatening complications. Conservative management with regular serial imaging is usually the main treatment protocol. These aneurysms can become symptomatic with presentation depending on the location and orientation of the aneurysm. Imaging is extremely helpful in diagnosis and subsequent management. This case reminds ear, nose, throat (ENT) specialists to consider this diagnosis in patients presenting with massive epistaxis, particularly those who failed to respond to endoscopic management and packing. ENT surgeons should also be mindful with unilateral epistaxis being a red herring as the pathology could still be from the contralateral side.

PP-CR-02

Case Series on the Use of Gelfoam as a Treatment for Intra-Nasal Adhesions Post Functional Endoscopic Sinus Surgery

LEE YI JIE¹, STEPHEN LO DICK CHUNG¹, SAMUEL YEAK CHOW LIN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

The formation of intra-nasal adhesions following functional endoscopic sinus surgery (FESS) is a well known cause of surgical failure. This arises from the raw wound edges which results in progressive nasal obstruction and can lead to closure of recess openings. The difficulty lies in maintaining airway patency postoperatively as adhesions recurrence rate is high.

Methods:

A retrospective study on all patients operated by the senior author who had FESS for chronic sinusitis or nasal polyposis between January 2011 and December 2011 revealed 16 nasal cavities who developed postoperative intra-nasal adhesions. Adhesiolysis was performed under local anaesthesia in the outpatient department. Gelfoam was placed over the raw edges as a haemostatic aid and to avoid reformation of adhesions. Repeated adhesiolysis and replacement of the Gelfoam was carried out on a weekly basis until the edges healed.

Results:

A total of 100% of the patients had their adhesions treated successfully with no recurrences after 6 months. The longest outpatient treatment was for 8 weeks with the average being between 5 and 6 weeks.

Discussion & Conclusion:

Adhesions are a well know complication following FESS reducing the efficacy of surgery. Repeated surgeries to remove these adhesions are usually unsuccessful as recurrences are common. This is the first study describing the use of Gelfoam for treatment of postoperative intra-nasal adhesion formation with 100% success rate and no recurrences. This procedure is easily performed under local anaesthesia in the outpatient setting. This avoids unnecessary inpatient admissions or the risk of general anaesthesia, providing safer and better quality care for patients.

PP-CR-03

Metastasis to the Breast: Three Case Reports and Literature Review

WONG KAR YONG¹, WONG KAR YONG¹, TAN ERN YU¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Metastasis to the breast from an extramammary site is a rare occurrence. It is therefore not uncommon for this to be found only on histological examination, particularly when the presenting complaint is that of a breast lump. The difference in prognosis and management makes it important, in spite of its rarity, to differentiate such tumors from the more common primary breast carcinomas. Here, we present 3 consecutive cases of extramammary metastasis to the breast over the last years in our institution.

Methods:

Three cases of extramammary metastasis to the breast were identified based on our breast surgery database. Case notes were reviewed. Radiological and histological results were obtained from Tan Tock Seng Hospital Computer Patient Record System.

Results:

Metastatic lung cancer to the breast were seen in 2 cases while metastatic colon cancer accounted for the third case. All 3 cases had surgery to the breast to enable a diagnosis of secondary breast tumor from an extramammary origin. All 3 patients died within 14 months from their diagnosis.

Discussion & Conclusion:

Extramammary tumor metastases to the breast are uncommon but its diagnosis is imperative to ensure best patient care. We are likely to see a continue rise in secondary breast tumour with improvement in systemic therapy. This group of patients carries a poor prognosis in view of metastatic nature of the disease. Accurate preoperative diagnosis can potentially avoid unnecessary surgery when palliative adjuvant therapy may be more appropriate. History, tissue histology of previous specimen, and immunohistochemistry may help when diagnosis is in doubt.

PP-CR-04

A Unique Presentation of Scrofuloderma after Incision and Drainage of a Necrotic Neck Node

LEE YI JIE¹, LEO YEE SIN¹, KEVIN CHONG YAW KHIAN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Tuberculosis (TB) is a common infectious disease caused by strains of mycobacteria, usually mycobacterium tuberculosis. Approximately a third of the world's population is infected by this bacterium which is worse in developing countries throughout the globe. Cutaneous TB occurs when there is a breakdown of skin overlying TB focus in the lymph nodes, bone or joints. It is a relatively uncommon form of extrapulmonary TB even in endemic countries.

Methods:

We present a 44-year-old gentleman who was found to have an exophytic growth on his right neck after having an incision and drainage of a necrotic right level 5 lymph node 2 months prior. He was known to be retroviral positive and was also on treatment for TB with a combination of rifampicin, isoniazid, pyrazinamide and ethambutol. This lesion was biopsied and sent for histological and microbiological investigations.

Results:

Despite being on anti-TB therapy, the histology revealed granulomatous inflammation with numerous acid fast bacilli (AFB) and the diagnosis confirmed with a positive AFB smear. He persisted with anti-TB treatment and was also followed up daily where his lesions were cleaned and dressed regularly. After 6 months, his lesions on the right had subsided and healed but unfortunately was complicated with TB related discharging cutaneous sinuses on the contra-lateral side.

Discussion & Conclusion:

Clinicians should be reminded that cutaneous transmission of TB through underlying structures may result in discharging sinuses, these can also present as exophytic lesions. Treatment remains mainly medical though in resistant cases, complete surgical excision may be necessary.

PP-CR-05

Colonic Architectural Change on Colonoscopy in Patients Taking Psychotropic Medications

TAN EU JIN¹, SOH KENG CHUAN³, NGIAM KEE YUAN²

¹National University of Singapore, ²Khoo Teck Puat Hospital, ³National University Hospital,

Background & Hypothesis:

Patients on psychotropic medications have been clinically observed to have higher rates of abnormal colonic architecture resulting in difficult colonoscopies. This study aims to determine if a correlation between use of psychotropic medications and colonic architectural change seen on colonoscopies.

Methods:

A retrospective case-control study was undertaken with 252 adults selected from the hospital endoscopy database between January 2006 and July 2008. Cases were selected if they had 'capacious', 'megacolon', 'redundant' and/or 'featureless' colonic architecture reported in their first completed colonoscopy (n = 63). Demographic information and medication records were collected for both cases and controls. Logistic regression analysis was performed for each of the medication groups.

Results:

Medication groups associated with increased incidence for colonic architectural changes observed during colonoscopy include: antipsychotic medications (OR = 7.79, CI, 2.59 to 23.41), drugs for extrapyramidal side effects (OR = 23.50, CI, 2.83 to 195.08) and iron tablets (OR = 2.97, CI, 1.39 to 6.33). Antidepressants, laxatives, benzodiazepines, gastroprotective medications and antihypertensive medications were not found to have any significant effect on changes to colonic architecture.

Discussion & Conclusion:

The use of antipsychotic medications is associated with changes to colonic architecture. This could predispose such a patient to a difficult colonoscopy and therefore increase colonoscopy-associated risks. Medication history should be elicited prior to a colonoscopy.

PP-CR-06

Single Modality Blue Dye Is Sufficient for Sentinel Lymph Node Localisation in Breast Cancer

ANG CHUAN HAN¹, **TAN MING YUAN**², **TAN ERN YU**², **CHEN JIA CHUAN, JULIANA**²,
SEAH DEE WERN, MELANIE², **CHAN MUN YEW, PATRICK**²

¹SingHealth HQ, ²National Healthcare Group

Background & Hypothesis:

Sentinel lymph node (SLN) biopsy is the standard of care for early stage breast cancers. Several groups have reported superior results with the use of dual modality (blue dye and radiocolloid). In our institute, we routinely use single modality blue dye. In this study, we evaluated the outcome of this practice and compared it with reported studies using dual modalities.

Methods:

A retrospective review was performed on 610 patients who underwent SLN biopsy using single modality blue dye at our institute from 1 January 2006 to 31 December 2010. Axillary lymph node dissection (ALND) was performed only when the SLN was positive.

Results:

The SLN was not identified in 12 patients (2.0%). One of these patients had involved nodes on ALND. Two patients had undergone wide local excision in the upper outer quadrant of the breast; 1 patient had undergone repeated debridement for hidradenitis suppurativa. Median number of SLNs identified during each surgery was 2. A single non-SLN present in the axillary tail of the mastectomy specimen was found positive for metastases in 2 patients in whom the SLN was negative. Axillary nodal recurrence occurred in 1 patient who had undergone SLN biopsy alone. Three patients developed an allergic reaction. Two patients developed hives and a transient drop in blood pressure; 1 patient developed anaphylaxis and surgery was terminated to allow for stabilisation.

Discussion & Conclusion:

SLN biopsy using single modality blue dye produced results comparable to those reported with dual modality. The rate of non-identification and regional control was acceptable and allergic reactions were uncommon.

PP-CR-07

Audit on Weight Management of Head and Neck Cancer Patients Undergoing Radiotherapy

LEE YI JIE¹, ZHENG LIFENG², JEEVE KANAGALINAGAM¹, CHRISTOPHER GEOFFREY LAWRENCE HOBBS¹, CHRISTOPHER GEOFFREY LAWRENCE HOBBS¹

¹Tan Tock Seng Hospital, ²Yong Loo Lin School of Medicine, National University of Singapore,

Background & Hypothesis:

Cancer is a disease that has a catabolic nature, fueled from the nutrition of the patient. The resulting patient would have experienced weight loss, and even sometimes malnourished. Treatment of cancer through surgical or non-surgical techniques is also of a catabolic nature where the body uses nourishment to repair and reconstruct itself. Malnutrition can lead to poor healing and impaired recovery.

Methods:

A retrospective study of 50 consecutive patients diagnosed with Head and Neck Cancer and treated with radiotherapy (RT) was carried out between January 2011 and December 2011. Using their weights as a surrogate for nutritional status, these were compared at diagnosis, before the 1st dose of RT and 3 months after RT. It was also monitored if they have had been reviewed by a dietician.

Results:

Seventy-eight percent of all patients showed to have between 2% and 30% decrease in weight during RT treatment. Those who had seen the dieticians had a smaller decrease in weight compared to those that did not. Sixteen percent regained their weight back to baseline after RT. The remaining 22% that were not found to have a decrease in their weights did not have their weights charted in their medical notes.

Discussion & Conclusion:

Cancer management involves working in a multi-disciplinary setting closely with our colleagues in radiation oncology and dietetics. A malnourished patient is less likely to tolerate full planned dose of RT and more likely to succumb to other illness while undergoing therapy. We aim to improve the nutritional status of our patients undergoing treatment, facilitating better tissue healing and faster recovery.

PP-CR-08

Influence of Resection Margin Widths on Outcomes of Hepatic Resections for Colorectal Liver Metastases

CHEN HUI LIONEL RAPHAEL¹, TEO JIN YAO², LEE SER YEE², WONG JEN SAN²

¹*Others,* ²*Singapore General Hospital*

Background & Hypothesis:

R0 margins of at least 1 cm have been associated with better survival in hepatic resection for colorectal liver metastases (CLM). However, recent studies have questioned its prognostic significance. The aim of this study is to evaluate the effect of the resection margin width on patients' outcomes.

Methods:

From 2001 to 2011, 201 patients who underwent liver resection for CLM were selected from the Singapore General Hospital. Patients with extrahepatic metastases prior to resection of CLM were excluded.

Results:

Overall median survival (OS), recurrence free survival (i.e. intra and extrahepatic recurrence) and intrahepatic recurrence free survival were 25, 10 and 14 months respectively. One hundred and sixty-five (85.1%) and 36 (17.9%) underwent R0 and R1/2 resection respectively. Among the R0 resections, 48 (29.1%), 48 (29.1%) and 69 (41.8%) had margin width of ≤ 1 , 1 to 5 and >5 mm respectively. On univariate analysis, multiple liver metastases, bilobar distribution and ≥ 3 segments resected were associated with narrower margin width. Multivariate analysis showed ≥ 3 segments resected was independently associated with ≤ 1 as compared to >5 mm resection margin (OR = 2.85, 95% CI, 1.26 to 6.43, $P = 0.012$). Wider margins of >5 as compared to ≤ 1 mm were associated with better intrahepatic recurrence free survival (HR = 0.544, 95% CI, 0.32 to 0.93, $P = 0.027$). However, margin width effect on OS and recurrence free survival were not statistically significant with P values of 0.298 and 0.484 respectively.

Discussion & Conclusion:

Wider resection margins are associated with lower intrahepatic recurrence. However, it has no influence on OS and recurrence free survival. Achieving a 1.0-cm margin is not necessary when resecting CLMs.

PP-CR-09

Implementation of a Proactive Nutrition Clinical Practice Increases the Proportion of Mechanically Ventilated Patients Achieving Enteral Nutrition Targets in the Adult Neuro-Intensive Care Unit (NICU)

LIM RUI CHUN, SEAN¹, LIM CHIN LING BEATRICE³, LIM RUI CHUN SEAN²
¹Ministry of Health (MOH), ²National University of Singapore, ³Tan Tock Seng Hospital

Background & Hypothesis:

The delivery of enteral nutrition (EN) is often late and insufficient despite evidence that enteral feeding reduces mortality, decreases the risks of gut atrophy, systemic infections, prolonged intubation and intensive care unit (ICU) stay, and may improve neurologic outcomes in head-injured patients. This study hopes to determine the effectiveness of an evidence-based proactive nutrition protocol in improving Neuro-ICU patients' nutrition.

Methods:

A review of case records of 83 intubated Neuro-ICU patients admitted to Tan Tock Seng Hospital (TTSH) from July to December 2010, revealed that only 25% of patients received at least 80% of their estimated energy requirements (pre-implementation). A nutrition support protocol was subsequently implemented from January to June 2011, including electronic nutrition charting, adopting best practice guidelines cut-off values for high gastric residual volumes, ICU dietician review for all new intubated admissions, standardised peri-procedural fasting times and the use of electronic nutrition advisory alerts. The impact of this protocol was evaluated prospectively in 88 consecutive intubated Neuro-ICU patients.

Results:

The time to initiation of EN was significantly improved. The percentage of adequately-fed patients significantly improved from 25% (pre-implementation) to 40% (post-implementation), $P < 0.05$. The incidence of underfeeding remained high despite proactive nutrition support initiatives and the causes were: (i) excessive peri-procedural fasting for surgery and diagnostic scans, (ii) excessive fasting for extubation, (iii) high gastric aspirates, (iv) delayed initiation in patients deemed too haemodynamically ill to safely commence EN.

Discussion & Conclusion:

Application of an evidence-based nutrition protocol, standardisation and strict enforcement of feeding/fasting protocols, continual education, frequent reminders and multidisciplinary collaboration can improve nutrition in intubated Neuro-ICU patients.

PP-CR-10

Outcomes of Radical Gastrectomy from a Prospective Database

CHEN HUI LIONEL RAPHAEL¹, **TAN WEE BOON**², **TAY YUH LING AMY**², **SOE MU YAR**², **ASIM SHABBIR**², **TAI BEE CHOO**³, **JIMMY SO BOK YAN**²

¹*Others*, ²*National University Hospital*, ³*National University of Singapore*

Background & Hypothesis:

Various regimens of peri- or postoperative adjuvant therapy have been shown to be effective for advanced gastric cancer. However, the choice of adjuvant therapy remains controversial in the management of gastric cancer. The study's aim is to evaluate the outcomes of patients who underwent curative gastrectomy with or without adjuvant therapy and study recurrence patterns.

Methods:

All patients who underwent radical gastrectomy with curative intent were selected from a prospective gastric cancer database at the National University Hospital from 2000 to 2010. Decision on adjuvant therapy was made at multidisciplinary tumour meetings.

Results:

Forty-three percent (274/645) patients with gastric cancer underwent radical surgery with curative intent. One hundred and ninety-five (71%) and 79(29%) underwent extended lymphadenectomy (D2 or D1+) or limited lymphadenectomy (D1) respectively. The overall median survival and recurrence free survival are 25 and 21 months respectively. Adjusting for stage, surgical approach (i.e. open versus laparoscopic), postoperative complications, the patients with postoperative chemo-radiotherapy had better overall survival as compared with surgery alone (HR = 0.46, 95% CI, 0.27 to 0.78, *P* = 0.004). Eighty-three patients had recurrences of which 46.9% were loco-regional, 31.3% peritoneal and 45.7% distant. Adjusting for stage, postoperative chemo-radiotherapy may have lower risk of loco-regional recurrence as compared to surgery alone. (HR = 0.57, 95% CI, 0.22 to 1.43, *P* = 0.229)

Discussion & Conclusion:

Postoperative chemo-radiotherapy had better overall survival as compared with surgery alone. More studies should be carried out to determine if postoperative chemo-radiotherapy reduces the risk of loco-regional recurrence.

PP-CR-11

Primary Endocrine Therapy for the Elderly with Breast Cancer

CHAN SHAUN¹, TAN ERN YU¹, MELANIE SEAH¹, CHEN JIA CHUAN, JULIANA¹, CHAN MUN YEW, PATRICK¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Surgery is the most effective form of locoregional control in elderly women with operable breast cancer. However, perioperative morbidity is higher because many have significant comorbidities. Tumours in elderly women are often hormone sensitive and slowly progressive, making primary endocrine therapy (PET) an attractive alternative. PET is particularly appealing to local women who are fearful and feel that they are 'too old' for surgery. In this study, we review the outcome of our experience with elderly patients receiving PET.

Methods:

Nineteen female patients above the age of 70 years were identified from records from 1 January 2002 to 31 December 2009. All tumours were operable and hormone responsive. None had associated metastatic disease. Median follow-up was 21 months (range, 1 to 60 months).

Results:

Median patient age was 84 years (range, 70 to 98 years). Seven patients were deemed medically unfit for surgery by their clinician; the remaining 12 patients were considered fit but declined surgery. All patients except 1 received tamoxifen as the initial hormonal agent. Local tumour control was achieved in 14 patients (73.7%). Tumour progression occurred in 2 patients; 1 received breast irradiation and another underwent total mastectomy. Three patients developed distant metastasis. No serious adverse event occurred. Seven patients defaulted treatment and follow-up

Discussion & Conclusion:

Although PET offers acceptable locoregional control and is well-tolerated, compliance to treatment and follow-up is often poor. PET has a role in patients with a limited life expectancy from significant comorbidities but should not be offered as an alternative to surgery in all elderly women.

PP-CR-12

Recurrent Unprovoked Venous Thrombo-Embolism in a Young Female Patient with High Levels of Homocysteine

SULE ASHISH ANIL¹, ENDEAN TAN¹, TAY JAM CHIN¹, LEE HWEI KHIEN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Hyperhomocysteinemia is a rare condition which predisposes to atherothrombosis. Recurrent venous thromboembolism with hyperhomocysteinaemia is known but extremely uncommon. We describe a middle-aged lady, community ambulant with recurrent venous thromboembolism (VTE) with intermediately high homocysteine levels and no other risk factors for VTE.

Methods:

Miss ABY is a 42-year-old Malay lady, community ambulant, married with 2 children, with no abortions in past, had past history of diabetes mellitus (DM), hypertension and hyperlipidaemia. She had a past history of left leg femoral and popliteal vein thrombosis with pulmonary embolism in May 2010 and was treated with warfarin for 6 months. She was admitted in September 2011 for right leg swelling.

Results:

Ultrasound Doppler scan showed deep vein thrombosis in right femoral and iliac vein. Her computed tomography (CT) thorax done on 16 September 2011 showed evidence of pulmonary embolism (PE). Investigations showed antithrombin 109%, protein C 77%, protein S 100%, lupus anticoagulant absent, activated protein C resistance 0.82 (normal range, 1 to 1.3), factor V leiden normal, anticardiolipin 1 gG 3 GPL U/mL, anticardiolipin 1gM 2 MPL U/mL, Homocysteine 36 umol/L (range, 5 to 15 umol/L). CT scan of the abdomen and pelvis no intra-abdominal or retroperitoneal mass lesion detected as per concern. She was started on clexane, warfarin. Folic acid was added due to high levels of homocysteine. Patient was discharged home and was well and stable.

Discussion & Conclusion:

Hyperhomocysteinemia in the intermediate range, especially in women between the age of 30 years and 50 years carry a high risk of venous thromboembolism.

PP-CR-13

A Cohort Study to Analyse Venous Thromboembolism in HIV Seropositive Patients Following up in Vascular Medicine Department, Tan Tock Seng Hospital, Singapore

SULE ASHISH ANIL¹, NIHAR PANDIT¹, ENDEAN TAN¹, TAY JAM CHIN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

HIV patients are at risk to develop thrombosis 10 times more likely than the general population.

Methods:

We analysed the HIV patients who followed up with our Vascular Medicine outpatient clinic with venous thromboembolism (VTE) over the last 3 years. Patients included were those who had minimum, regular follow up of 3 months, with a doppler scan in the beginning and last follow-up. Patients were analysed for age, gender, race, site of thrombosis, coagulation factors, lipid panel, type of antiretroviral treatment, past or present history of infections or malignancy, CD4 absolute and helper cell counts at the beginning of thrombosis, response to treatment and outcome.

Results:

Eight patients were analysed. The mean age was 49.87 years. All were male patients, 6 patients having lower limb thrombosis, 1 patient with upper limb thrombosis, 1 patient had pulmonary embolism. Two patients had deficiency of protein S, 2 had high homocysteine levels, 1 had deficiency of antithrombin 3, 1 had increase in anticardiolipin IgG antibody. The mean absolute CD4 counts were 383.25 cells/UL (range, 103 to 908 cells/UL) and helper CD4 counts were 22.5 cells/UL (range, 12 to 45 cells/UL). All were anticoagulated with warfarin or enoxaparin. There was complete resolution of deep vein thrombosis only in 2 patients with extension of clot in 1 patient and no resolution in the other.

Discussion & Conclusion:

Thrombosis in HIV patients is seen more commonly in middle-aged, community ambulant male patients. Most of these patients did not respond to therapeutic anticoagulation with no resolution or extension of thrombus.

PP-CR-14

A Cohort Study to Analyse Hypercoagulable State in HIV Seropositive Patients—Is It Difficult to Treat Even with Therapeutic Anticoagulation?

SULE ASHISH ANIL¹, NIHAR PANDIT¹, ENDEAN TAN¹, TAY JAM CHIN¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

HIV patients are at risk of developing thrombosis and are at 8 to 10 times more likely to develop thrombosis than the general population. This study aims to analyse the venous thromboembolism (VTE) in HIV seropositive patients who have been diagnosed with hypercoagulable states.

Methods:

Subgroup study of a larger cohort group of HIV seropositive patients with venous thrombo-embolism (VTE) followed up with our Vascular Medicine outpatient clinic. Patients included were HIV seropositive patients with hypercoagulable state, analysed over the last 3 years and followed up prospectively. These patients had minimum, regular follow up of 3 months, with a doppler scan in the beginning and the last follow-up. Patients were analysed for age, gender, race, site of thrombosis, coagulation factors, lipid panel, type of antiretroviral treatment, past or present history of infections or malignancy, CD4 absolute and helper cell counts at the beginning of thrombosis, response to treatment and outcome.

Results:

There are 5 patients included in this study from a larger group of 8 patients. The mean age was 47.8 years. All were male patients with lower limb thrombosis. Two patients had deficiency of protein S, 2 had high homocysteine levels, 1 had deficiency of antithrombin 3, 1 had increase in anticardiolipin IgG antibody. Mean absolute CD4 counts were 244 cells/UL (range, 103 to 392 cells/UL) and helper CD4 counts were 19.6 cells/UL (range, 15 to 30 cells/UL). All were anticoagulated with warfarin or enoxaparin.

Discussion & Conclusion:

Deficiency of protein S and hyperhomocystenaemia were the most common factors. Despite of therapeutic anticoagulation, 80% of these patients did not respond.

PP-CR-15

Prevalence of Chronic Pain Among Individuals with Alcohol Dependence Syndrome

ROHILLA JITENDRA¹, GEETHA DESAI², PRABHAT CHAND²

¹*Others,* ²*NIMHANS BANGALORE INDIA,*

Background & Hypothesis:

Prevalence of chronic pain is reported to be more common in substance dependent population. There are studies on chronic pain in opioid dependent population but the literature on alcohol and chronic pain is limited. This study examined the prevalence and correlation of chronic pain among individuals with alcohol dependence syndrome.

Methods:

Samples were chosen from patients attending outpatient services of Center for Addiction Medicine in National Institute of Mental Health and Neurosciences, Bangalore, India. Patients having both alcohol dependence syndrome and chronic pain were interviewed by following instruments: semi-structured proforma to collect details on demography, pain-related details and questions on the relationship of alcohol and pain, and brief pain inventory. This study was approved by the Institution ethics committee.

Results:

Chronic pain was prevalent in 18.3% (118) of subjects (646) with alcohol dependence syndrome with 53.8% of them reporting pain to be of severe intensity and mean duration of pain was 26.2 in months (SD = 33.7). Chronic pain was significantly more common among older patients [t: 2.46 (95% CI, 0.2 to 4.17) $P = 0.03$]. Use of other substances (nicotine, benzodiazepines, opioids and inhalants) were found in 97.8% with nicotine use being the most common. Use of alcohol to manage pain in last month was reported by 73.7% of patients while 61.5% reported pain as a reason to continue to use alcohol.

Discussion & Conclusion:

Use of alcohol to manage pain is common among subjects with alcohol dependence syndrome with the fact that chronic pain itself is common among this population. This study explains the need for assessing and addressing pain problems in effective way among subjects with alcohol dependence syndrome.

PP-CR-16

An Audit of Continuous Aspiration of Subglottic Secretions (CASS) in Neurology Intensive Care Unit (NICU) and Surgical Intensive Care Unit (SICU) patients

WONG YU-LIN¹, BEATRICE KOH²

¹Tan Tock Seng Hospital, ²Yong Loo Lin School of Medicine

Background & Hypothesis:

Ventilation-associated pneumonia (VAP) is a leading cause of morbidity and mortality in intensive care unit (ICU) and tracheal intubation is a major risk factor for VAP. Continuous aspiration of subglottic secretions (CASS) may reduce the risk of VAP. The objectives of this study are to perform an audit to evaluate the amount of secretions suctioned and complications associated with the use of Suction Above Cuff Endotracheal Tube (SACETT) in surgical intensive care unit (SICU) and neurology intensive care unit (NICU) patients are expected to require more than 72 hours of mechanical ventilation.

Methods:

Patients who require mechanical ventilation for more than 72 hours are identified and put on SACETT. Subglottic aspiration is carried out using a sterile 10 mL syringe each time. If the subglottic suctioning is negative for 4 hours, the patency is checked by injecting 5 mL of sterile saline into the evacuation lumen.

Results:

Twelve NICU and 18 SICU patients were assigned to receive CASS. Fifty-three percent were ventilated for ≥ 72 hours. The audit was carried out over a 3-month duration and no complication was observed with SACETT. The patients had an APACHE score between, and including, 7 to 42. Fourteen patients on the CASS required less than 72 hours of intubation. The average volume of secretions suctioned over 24 hours ranged from 0 mL to 10.3 mL. Thirty-three percent of NICU patients and 50% of SICU patients had more than 1 mL suctioned over 24 hours.

Discussion & Conclusion:

Our audit, though inadequate, suggests that CASS can be administered safely to patients requiring longer duration of mechanical ventilation.

PP-CR-17

Evidence-based Options for Treatment-Resistant Adult Bipolar Disorder Patients

POON SHI HUI¹, SUM MIN YI¹, CARISSA NADIA KUSWANTO¹, SIM KANG¹

¹*Institute of Mental Health*

Background & Hypothesis:

Many patients diagnosed with bipolar disorder (BD) respond incompletely or unsatisfactorily to the available treatments. Given the potentially devastating nature of this prevalent disorder, there is a pressing need to improve clinical care of such patients. We systematically review extant empirical studies for the management of treatment-resistant BD, summarise the main studies examining pharmacological and non-pharmacological options, discuss the key findings, limitations, clinical implications, and suggest future research directions.

Methods:

Systematic review of research findings related to treatment-resistant BD reported through June 2012.

Results:

Therapeutic trials for treatment-resistant bipolar mania are uncommon, and provide few promising leads other than use of clozapine. Far more pressing challenges are the depressive-dysthymic-dysphoric-mixed phases of BD and long-term prophylaxis. Therapeutic trials for treatment-resistant BD-depression have assessed anticonvulsants, antipsychotics, glutamate (NMDA) antagonists, dopamine agonists, calcium-channel blockers, and thyroid hormones, as well as behavioral therapy, sleep-deprivation, light-therapy, electroconvulsive treatment, transcranial magnetic stimulation (TMS), and deep brain stimulation—all of which are promising but limited in effectiveness. Several innovative pharmacological treatments (an anticholinesterase, glutamine antagonist, calcium-channel blocker, triiodothyronine, olanzapine and topiramate), electroconvulsive therapy (ECT), and cognitive-behaviour therapy have some support for long-term treatment of resistant BD patients, but most of their trials are methodologically limited.

Discussion & Conclusion:

Most studies identified were small, involved supplementation of typically complex on-going treatments, varied in controls, randomisation, and blinding, usually involve brief follow-up, and lack replication. Clearer criteria for defining and predicting treatment-resistance in BD, improved trial-design with better controls, assessment of specific clinical subgroups, and longer follow-up are needed.

PP-HPE-01

A Retrospective Audit Review of Histology Specimens Evaluated at the National Skin Centre

TAN SIYUN, LUCINDA¹, HO ZHUAN YI², LEE SIONG SEE, JOYCE¹, TAN SUAT HOON¹
¹National Skin Centre, ²Yong Loo Lin School of Medicine, National University of Singapore

Background & Hypothesis:

The quality and the adequacy of biopsy sampling are essential for histopathological diagnosis. Poor quality and inadequacy of biopsy material may impact on the clinical management, increase medical cost and laboratory workload. The aim of this audit is to establish a profile of specimens, investigating the indications, adequacy of biopsy specimens in suspected malignant lesions and the Clinico-Pathological Correlation (CPC) score against the seniority grades of doctors.

Methods:

We randomly selected 10% of all histological cases reported at the National Skin Centre for the year 2010, sampling 10% of cases per month. A total of 693 cases were audited.

Results:

The bulk of investigations were ordered by consultants (33.8%) and registrars (20.9%). Punch (50.1%) and shave biopsies (22.1%) constituted the majority. Inflammatory conditions (45.3%), benign growths (43.7%) and malignant conditions (11%) formed the bulk. Amongst the benign growths assessed in our study, 45% were non-medical or cosmetic lesions. There were 76 malignant specimens reviewed, of which 64.5% of specimens were considered inadequate, majority were due to the practice of obtaining a confirmed diagnosis by punch biopsy. Of these inadequate specimens, 12.2% were shave biopsies even though malignancy was clinically suspected in half of these cases. The CPC scores were good throughout all diagnoses.

Discussion & Conclusion:

Diagnostic procedures undoubtedly form the bulk of the histology specimens. We observed excellent CPC scores for all conditions, regardless of the grade of doctors. This is likely due to the practice of diagnostic or challenging cases being reviewed by a senior doctor.

PP-HPE-02

To Improve the Knowledge Deficits of Medical Officers in Geriatric Medicine

LIEU PING KONG¹, MARASIGAN, MA. ELOISA LUZ¹, CHAN PENG CHEW, MARK¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

This study aims to determine and improve the knowledge deficits of medical officers in geriatric medicine.

Methods:

Twenty medical officers underwent an assessment of their knowledge in geriatric medicine. They attempted a paper of 30 case vignettes each within an hour. The pre-study score of each medical officer was computed. All medical officers had to study a set of materials in Geriatric Medicine, complete an e-learning module, attend case-based teaching tutorials and teaching ward rounds. The weaker officers were given further assistance. After 3 months, all took the same paper again and the post-study score was computed.

Results:

Ten trainee medical officers and 10 non-trainee medical officers participated in the study. The mean pre-study score of all 20 medical officers was 20.7 and the post-study score was 22.9, $P = 0.0008$. The mean pre-study score of the trainee medical officers was 22.1 and that of the non-trainee medical officers was 19.3, and the difference was statistically significant with $P = 0.0009$. The mean post-study score of the trainee medical officers was 23.4 and that of the non-trainee medical officers was 22.5, $P = 0.27$. There was no statistical difference when the pre- and post-study scores of the trainees were compared with $P = 0.071$. However, there was statistical difference when the pre- and post-study scores of the non-trainees were compared with $P = 0.0011$.

Discussion & Conclusion:

The study showed that a targeted study programme could address the knowledge deficits of medical officers.

PP-HPE-03

Adaptive Curriculum: Reflective Learning in a Primary Care Practice Setting

KANNAN PREDEEBHA¹, LEE MUN TUCK², CHONG PHUI NAH²

¹Primary Care Academy, ²National Healthcare Group Polyclinic

Background & Hypothesis:

An adaptive curriculum is deemed to be learner-centred, practical and relevant in a primary care practice setting. A rigid prefixed curriculum limits the trainers' ability to deliver relevant learning in a constantly evolving practice setting

Methods:

The Doctor Patient Relationship and Communication courses at National Healthcare Group Polyclinic (NHGP) were adapted over the years to not just keep to the tenets of the original framework but also to contextualise to the evolving needs of the healthcare professionals. The curriculum evolved to include: (i) contextualisation, (ii) learner-centredness, (iii) adaptation to incorporate updated policies and guidelines, (iv) activity-based learning, (v) reflective learning, (vi) integrated with issues within practice, and (vii) timely updates incorporated.

Results:

Excerpts of the qualitative and descriptive reflections by participants will be shared to illustrate how it allows the trainer to identify if learning did take place and the learners' interpretation of the utility of the skills learnt.

Discussion & Conclusion:

An adaptive curriculum customised to the needs of the participants is pertinent in a practice setting where learning needs to be current, in alignment with the systems and policies in place. Besides a pre- and post-course evaluation, a series of reflective questions filled up by participants immediately after the workshop enabled the participants to reflect and document actively what they learnt, what they felt was applicable at work and anything they still did not understand. This reflective component is vital as it enables the facilitators to qualitatively evaluate the learning that took place and identify the knowledge gaps for immediate rectification.

PP-NA-01

Stress, Work Productivity and Intent to Stay Among Primary Care Nurses

LIM VOON HOOI¹, CHANG XIAOPEI¹, ADELENE HO PEI EE¹, YAP HWEE LUAN¹, TAN WOAN SHIN²

¹National Healthcare Group Polyclinic, ²National Healthcare Group

Background & Hypothesis:

The reasons for nursing shortage vary but the main factor is the unhealthy work environment. This study aimed to investigate the relationships between individual characteristics, work environment, job stress, and health (health problems and perceived overall health) to work productivity.

Methods:

A convenient sampling of nurses was surveyed. Participants completed a demographic data sheet. We adapted the Nursing Stress Index to measure the work stress level and work productivity was assessed using the Work Productivity & Activity Impairment Questionnaire: General Health (WPAI-GH). Data were analysed using SPSS version 16.

Results:

There was an 82% (n = 187) response rate. Respondents were predominantly female registered nurses (mean age = 41 years old). Twenty-one percent reported to have health problems, 95% perceived their health as good. The mean overall work impairment due to health measured by WPAI-GH was 22% (SD = 25). Work impairment (work productivity loss) is significantly associated with age and intention to stay in nursing. Dealing with patients and relatives was found to be the main stress factor with the highest mean score (13.8, SD = 4.24). Multivariate linear regression analysis determined the predictor of intent to leave variables explained 7% of the variance (t = 14.373, P < 0.001). Significant variables include fluctuations in workload, job versus home demand, and tasks beyond the level of staff competency.

Discussion & Conclusion:

The nurses in this study were older than the national average age. Older workers may be more susceptible to the effects of work stress. Workforce shortage required addressing the stress faced by nurses at their workplace and productivity loss at work due to health.

PP-NA-02

Asthma Education in Emergency Department: A Pilot Study

NEO LAY PING¹, LATHY PRABHAKARAN¹, ZHANG ZHI CHAO¹, JOHN ABISHEGANADEN¹, TAY SEOW YIAN¹, YAP WEE SEE¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

High re-attendance rates in asthma patients are common in Emergency Department (ED). Integrating education as part of the emergency care may reduce healthcare utilisation. This study aimed to compare the effectiveness of different modes of asthma education interventions at ED on re-attendance and hospital admissions over a period of 30 days.

Methods:

Patients treated and discharged from ED with primary diagnosis of asthma from February 2011 to August 2011 were enrolled either to a one-to-one or a telephonic counselling session. The control group included patients who received standard care with no educational intervention.

Results:

In total, 612 patients presenting with asthma were enrolled. Twenty-three percent were given one-to-one education intervention at ED, 37% received telephonic education and 40% received no intervention. Re-attendance rate for patients who received education at ED and via telephone were 11.6% and 11.7% respectively. Patients who did not receive any education had a higher re-attendance rate of 12.8%. While hospital admissions were lower with education delivered at ED (3.6%), and telephonic (2.6%), compared to no education (6.6%), the results were not statistically significant ($P = 0.094$)

Discussion & Conclusion:

Educational interventions delivered at ED or via telephone did not reduce ED re-attendance but may reduce hospital admission. Telephonic counselling can be used as an alternative platform to direct counselling at ED.

PP-NA-03

Nurses' Perceptions on Inter-professional Team-based Crisis Training Using Simulation in an Acute Care Hospital: A Cross-sectional Survey

TAN YEW HIANG¹, LIM SIEW GEOK¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Inter-professional team-based crisis training is critical for optimising patient care delivery. This study aims to explore the nurses' perception on inter-professional team-based training using simulation in a crisis situation.

Methods:

There were 68 nurses across multi-disciplinary participated in 21 simulated sessions over 2 days along with medical and allied health professionals comprises 4 to 5 nurses on each session. Nurses' performance was video-taped with team behaviours and skills discussed during debriefing. A self-administered survey containing 43 questions was administered before and after training to examine demography, perception of simulation, experience during simulation and usefulness of debriefing session. Data were collected and analysed using Microsoft Excel 2003.

Results:

A response rate of 100% was achieved with 38 (55.8%) were familiar with inter-professional training. All felt that their clinical knowledge and skills would be enhanced prior to the training. The results contradicted post-training with 31 (45.6%) felt that their clinical knowledge did not increase. In particular, only 61 (89.7%) believed they were competent and well trained in working as a team.

Discussion & Conclusion:

Almost half regarded inter-professional simulation training as ineffectual to increase clinical knowledge post-training although all felt that their clinical knowledge and skills would be enhanced before training. Unfamiliarity on simulation and environment, negative emotion and a lack of rapport among healthcare professionals could contribute to the outcome seen. Overall, inter-professional training is useful as it creates understanding and awareness on each individual's roles and responsibilities. Further studies to explore scope for better integration and clinical translations between healthcare professionals are recommended.

PP-NA-04

Depression Screening in Primary Care Setting

ER LIAN HWA^{1,2}, **COLIN TAN YONG HUI**²

¹National Healthcare Group Polyclinics, ²NHGP- Ang Mo Kio Polyclinic,

Background & Hypothesis:

Screening for depression is often not done routinely in primary care setting. Psychological issues often influence a patient's overall well-being and health. One in 3 diabetics has depression that would ultimately affect medication adherence and glycaemic control. This increases the risk of diabetes complications resulting in late diagnosis and a delay in treatment for their diseases.

Methods:

The aim of this study is to determine the prevalence and depression among patients with chronic diseases. Care Manager uses the Patient Health Questioning tools (PHQ9) to screen patients for depression. Patients will then be tiered according to the risk stratification based on the PHQ9 scoring. Inter-professional collaboration and management with a team-based care approach attempts to manage these patients from a holistic perspective.

Results:

A total of 421 patients were screened from January 2011 to April 2012. The findings showed that 46% (n = 226) of patients have some form of depression. Of these, 26% (n = 110) is suggestive of having minimal depression, 11% mild depression and 9% might have moderate to severe depression. Refusal of referrals to Health and Mind Care Team was reported as 42.7% (n = 35). Resource limitations coupled with patient's own social issues pose challenges to the referral uptake.

Discussion & Conclusion:

Using PHQ9 as a validated tool and with appropriate training, Care Managers and Allied Health professionals within polyclinic would have the capability to manage mild and moderate depression. The use of on-site psychologists would enhance the provision of such care in a Primary Care setting.

PP-NA-05

Inpatients Satisfaction with Behshahr Hospitals Service

KAZEMNEZHAD SEYED MAHMOOD¹

¹*Mazandaran University of Medical Sciences, Iran*

Background & Hypothesis:

Healthcare services have various dimensions which make its evaluation difficult. One of the major tasks of hospital managers is to assess the level of patients' satisfaction with hospital services. The patient's satisfaction is deemed as one of the important facets of care quality improvement. The aim of this study was to evaluate the inpatients' satisfaction with the services provided in shohada, Imam and Omidi hospitals of Behshahr city, Iran.

Methods:

The study is a descriptive, cross-sectional study of 185 inpatients in three other services. The questions were in 5-point likert scale ranging from completely satisfied = 5 to completely dissatisfied = 1. Data were analysed using descriptive and analytical statistical tests through SPSS.16 software.

Results:

Out of a total 185 patients, 44% were male and 56% were female. Eighty percent of the patients were satisfied with nursing services, while 75% were satisfied with medical services. Only 57% were contented with the health and sanitary services and 64% were satisfied with other sections. Patients with less educational and economical status were more satisfied with the hospitals services than that those with higher educational and economical conditions.

Discussion & Conclusion: C

Assessing patients' satisfaction with healthcare is a notable criterion for hospital managers to evaluate the quality of services in the hospital. Among the 4 major services in the hospital, our study suggests that health and sanitary services need more attention than the other services.

PP-NA-06

A Comparative Study on the Use of Resident Assessment Form and Trendcare Conducted in Tan Tock Seng Hospital (TTSH) Buffer Stepdown Unit

GAN ALICIA¹, PEH SUE CHENG¹, GAN POO LIAN¹, LEONG YOKE YIN¹, K PATMAWALI¹, NIRMALA BTE KARMAROON¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Resident Assessment Form (RAF) is an assessment tool used to assess the level of nursing care required by the patients. It measures the need of care for the resident on the basis of the measurement of their functional and cognitive ability. It has been a tool used to categorise the patients so as to determine the level of care required and also to predict the required manpower to care for the patients in the nursing homes.

Methods:

In recent years, trendcare data have been widely used in hospitals to determine the patient acuity and the patient-to-nurse dependency. Based on the data collated by the system, the recommended hours of care required by the patients are calculated based on Hours Per Patient Per Day (HPPD). This data can be translated into the required manpower of staff for the nursing unit involved.

Results:

A point prevalence comparison was done to compare both the RAF and Trendcare acuity that was conducted in Tan Tock Seng Buffer Stepdown Unit and the results showed that the RAF is still relevant to predict the level of care that is required by the patients.

Discussion & Conclusion:

Moving forward, the exploration of the use of trendcare in the manpower prediction is recommended as it will not only be able to predict patient acuity, it will also be able to predict the patient nurse dependency, thus, being useful in forward manpower planning.

PP-PCR-01

Characteristics of Falls in Primary Care Centres of the National Healthcare Group Polyclinics (NHGP)

LEW YIJEN¹, YEHUDI YEO¹, ADA PORTIA M. BATCAGAN-ABUEG¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

While falls among hospital inpatients have been extensively studied, there are limited studies done in primary care centres. The objective of this study is to determine fall rates and identify factors associated with falls in the National Healthcare Group Polyclinics (NHGP).

Methods:

A retrospective analysis of falls that occurred in the 9 polyclinics of NHGP from 1 January 2010 to 31 March 2012 was conducted. Information on staff/patient demographics, circumstances of the fall, and injuries were collected from the electronic Hospital Occurrence Reporting (eHOR) system.

Results:

Over the 27-month period, 133 falls were reported. The fall rate was 2.06 falls per 100,000 visits, which varied between polyclinics, from 1.02 (Bukit Batok) to 5.25 (Toa Payoh). Mean age was 51 years and 57% of falls were observed in females. Falls occurred most frequently in the 70 to 74 years group (12%). Majority (84.2%) of falls were observed in patients, and some were observed in staff (9.8%). Overall, 49% had experienced injury, mostly (30.8%) minor. The top 3 fall categories reported were trips, loss of balance, and slips (21.8%, 19.5% and 12.8%, respectively). Majority of the falls (64%) were potentially preventable. Gait/balance disorders, chair design and spacing, risky behaviour, and a lack of supervision of children were the top causes of potentially preventable falls.

Discussion & Conclusion:

Advanced age and gait/balance disorders largely contributed to the falls in NHGP. Results from this analysis will help in planning targeted interventions. Voluntary reporting should continue to be encouraged to provide more accurate data.

PP-PCR-02

A Descriptive Study of Patients Seen in National Healthcare Group Polyclinic Health and Mind Clinic

ZHENG MINGLI¹, COLIN TAN YONG HUI¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

There is a significant mental health burden in Singapore. Many mental health patients first present at primary care, sometimes indirectly as somatic symptoms. As part of National Healthcare Group Polyclinic's (NHGP) initiative to actively manage patients with psychiatric complaints in primary care, the Health and Mind Clinic (HMC) was set up at Ang Mo Kio polyclinic in 2008. This service was extended to Jurong polyclinic in 2010. Each HMC multi-disciplinary team consisting of doctors, nurses and allied health professionals, aims to provide holistic care for such patients within the community.

Methods:

This is a descriptive study of patients seen in both HMCs from April 2009 to November 2010. Information was obtained from NHGP patient electronic database.

Results:

In total, 339 patients were seen in both HMCs in the given period. Most patients were Chinese females (58.7%) and between 40 to 69 years old (39%). Top psychiatric conditions were depression (46.9%) and anxiety (33.6%). Most common psychiatric medications prescribed were Fluvoxamine (35.7%) and Fluoxetine (16.5%). In total, 54.6% of patients had at least one concurrent chronic disease. The most common of which include hyperlipidaemia (41.9%), hypertension (33.9%) and obesity (30.4%).

Discussion & Conclusion:

HMC has a significant role in the management of mental health patients in primary care. As many mental health patients have concurrent chronic diseases, the HMC sited in primary care is well poised to manage such patients holistically. Depression and anxiety form the majority of mental health burden in primary care. As such, more resources should be channelled to the prevention, screening and management of these 2 conditions.

PP-PCR-03

Evaluation of a Structured Self-Management Programme on Knowledge and Self-care among Patients on Insulin with Type 2 Diabetes Mellitus

TAN CHRISTINE¹, NG SOH MUI¹, TAN WOAN SHIN², CHARIS NG²

¹National Healthcare Group Polyclinics, ²National Healthcare Group HQ

Background & Hypothesis:

The Empowerment Self-Management Initiative (ESI) is a structured self-management programme. Patients initiated on insulin therapy were taught self blood glucose monitoring (SBGM). This study was piloted in National Healthcare Group Polyclinics in 2007. The aim of this study is to determine whether patients completed the ESI programme have better self-reported knowledge, self-efficacy and behaviour.

Methods:

A prospective observational cohort study design was used. The study started in July 2009 and completed in April 2011. Patients had the choice to choose between the 2 groups. Non-ESI patients received self-management education only without SBGM training. Self-reported data were collected using Michigan Diabetes Research and Training Centre's Brief Diabetes Knowledge Test (MDRTC DKT) and Summary of Diabetes Self-Care Activities (SDSCA) before intervention and 3 months post intervention.

Results:

A total of 229 patients were recruited into the study. A total of 182 (79.5%) patients completed the study; 39.2% of patients aged between 55 and 64 years old, majority are Chinese male, and 86.6% received secondary education and below. Both groups showed improvement in knowledge and self-care activities at 3 months. However, there was no significant increase in knowledge and self-care activities in the intervention group compared to the control group.

Discussion & Conclusion:

Both groups showed minimal increase in diabetes knowledge and self-care activities at 3 months. Education on SBGM did not influence the level of patients' knowledge and behaviour between the 2 groups. This could probably due to the lack of emphasis on the association between SBGM to lifestyle behaviour during education session. Further study on this aspect of education is required.

PP-PCR-04

A Retrospective Study of the Control and Characteristics of Asthma Patients Being Prescribed with only Salbutamol Inhalers in a Primary Care Setting

LEE KWANG HOW¹, SIM YU FAN¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

According to the Global Initiative for Asthma (GINA) guidelines, the use of salbutamol only (without preventors) in the management of asthma should be limited to patients with good control (Step 1 control). We have noticed a sizeable number of patients with asthma visiting our polyclinics being prescribed with only salbutamol. The aim of this study is to evaluate the control and characteristics of such patients.

Methods:

A retrospective clinical audit was done on a sample population of asthmatic patients who were prescribed with only salbutamol (n = 304) in 2011. Step 1 control was defined as Asthma Control Test score of more than 20 while on salbutamol only or having fulfilled the criteria listed in GINA. Data obtained were analysed using SPSS.

Results:

Out of 304 patients, 219 were followed up with NHGP for asthma. Of which, 58% (n = 127) were at Step 1 control and 6.4% (n = 14) were not well controlled. Ten patients who were not well controlled defaulted followed up while 4 patients were incorrectly treated as Step 1 control. The remaining patients either had no proper assessment done for their asthma control (26%) or there were doubts to the diagnosis (9.6%). Patients without nebulisation were 3 times less likely to have proper assessment of their asthma control than patients with nebulisation.

Discussion & Conclusion:

Although most patients had been correctly treated, a substantial number of patients were not properly assessed before being treated as well controlled asthma.

PP-PCR-05

Nurse-initiated Inhaled Bronchodilators for Acute Exacerbations in a Primary Care Clinic

SEAH HUI MIN¹, ROSNA BINTE SABANI¹, DONG LIJUAN¹, EVAN SIM¹, TANG WERN EE¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis:

Patients presenting with acute exacerbations are assessed by physicians before receiving bronchodilator therapy at primary care clinics (PCCs). This may cause a delay in the initiation of bronchodilators. This study aims to determine the impact of trained nurses to initiate bronchodilators for patients with exacerbations of asthma/ chronic obstructive pulmonary disease (COPD) at a PCC in Singapore.

Methods:

This prospective case control study was conducted in a single PCC. A group of 8 nurses were trained and certified competent in initiation of bronchodilators. The time taken for the patients with asthma/ COPD exacerbations from registration at the clinic to time of bronchodilator initiation was compared between the intervention group (n = 24), nurse initiated bronchodilators and control group (n = 24), patients were assessed by physicians before referral to nurse for treatment. The patients in control group were selected retrospectively through convenience sampling before the intervention.

Results:

The average waiting time to receive treatment was 65.79 minutes (SD29.51) for Doctor Group and 19.83 (SD10.08) for Nurse Group. The difference in waiting time was statistically significant (*P* value and *LT*; 0.001). The linear regression model was built to study if there were other factors associated with the waiting time. Gender, race, age, diagnosis were found to be not associated with the difference in waiting time.

Discussion & Conclusion:

Nurse-initiated bronchodilators shorten the time from which the patient receives treatment for their exacerbations. The limitation of this study is that it was conducted in a single PCC with a small sample size. Nurse-initiated bronchodilator therapy in the treatment of patients presenting with asthma/COPD exacerbation benefits patients in the primary care.

PP-PCR-06

Transforming Primary Care through Creating Supportive Health-promoting Environment—A Tailored Evaluation on Nutrition-based Initiatives Implemented in Polyclinics

YUEN WING TING¹

¹*National Healthcare Group Polyclinics*

Background & Hypothesis

Poor lifestyle practices, among other factors, lead to the increase of non-communicable diseases. Committed to excellent primary care, we implement a variety of health-promoting initiatives that empower staff, patients and local communities to adopt a healthier lifestyle. Progress of public health interventions has been hampered by a lack of consistent, comprehensive evaluation framework appropriate to these programmes. This submission evaluates the process/impact of our nutrition-based initiatives incorporating elements of RE-AIM framework, and aims to create further evidence in health promotion.

Methods

The evaluation consists of 2 components that answer 6 research questions designed based on the principles of process/impact evaluation and RE-AIM framework: (i) 3 surveys for staff and clinic-visitors were completed to evaluate awareness, satisfactory level of our initiatives, (ii) work processes were evaluated against objectives; targeted activities were evaluated to assess the intermediate impact.

Results

More than 90% of the staff and clinic-visitors were satisfied with the initiatives while the staff had better awareness than visitors. Some initiatives were not fully adopted in all locations and these gaps were identified. There were both health-gain and positive impact from targeted activities. Successful adoption/implementation relies on collaboration of internal and external stakeholders to create supportive environment—dietitians play a key role.

Discussion & Conclusion

Best evidence-based health promotion includes: (i) best evidence, (ii) staff expertise (e.g. dietitian), (iii) patient preference (so as to increase engagement). Changing risk factors in the community rather than focusing on specific high-risk individuals is a more holistic disease-prevention approach. It is cost-effective to make full use of work/clinic environment for conveying health messages. Required support includes large-scale surveys, health risk-profiling for sustainable programme development, and involvement from all levels within the organisation.

PP-QHSR-01

Does Size Matter? A Review of Evidence for Effects of Practice Size on Quality of Care in Primary Care

NG CHARIS¹, NG KOK PING¹

¹*National Healthcare Group HQ*

Background & Hypothesis:

There is a trend towards consolidating small primary care practices into larger practices, which have economies of scales for staff employment and use of information technologies. However, the effects of practice size on quality of care remain unclear. The objective of this review was to appraise the effects of practice size on the quality of care in primary care.

Methods:

All studies that focused on primary care practices or practitioners were considered. Independent variables were team or list size; outcome variables were measures of clinical processes, clinical outcomes, or patient-reported outcomes. Databases were searched for studies in the English language from 1990 to 2010. A narrative synthesis was conducted.

Results:

Thirteen studies were included in the review. Of 10 studies on clinical processes, 3 found larger practices to have higher specialist referral rates for eating disorder, better adherence to guidelines, and better pneumococcal vaccination coverage. Three found associations in selected process measures, while 4 found no association between practice size and clinical processes. Two studies on clinical outcomes found no association with practice size. Of 3 studies on patient-reported outcomes, 1 reported smaller practices to have better satisfaction with access; 2 found associations in selected patient-reported outcomes.

Discussion & Conclusion:

There is limited evidence to support an association between practice size and quality of care in primary care. Although larger practices performed better in certain process measures, smaller practices have better satisfaction in certain patient-reported outcomes. With the trend towards larger primary care practices, there may be a trade-off between quality clinical care and interpersonal care.

PP-QHSR-02

To Reduce The Number of Wetting Episodes in Ambulatory Patients With Urinary Incontinence (UI) in a Long Stay Psycho-geriatric Ward (Ward 66B) in Institute of Mental Health Woodbridge Hospital (IMHWH) by 50% in 6 Months

YONG KIT KIT¹, CHOO WEI YEE², CHEOW ENQUAN¹, MAY THU KYAW¹, FOO SOON BUAY¹, SULISNA BINTE HARON¹

¹*Institute of Mental Health* ²*National University Hospital*

Background & Hypothesis:

A total of 10 elderly ambulant patients in the ward had urinary incontinence (UI), having an average of 10 to 12 episodes of UI per day. UI in elderly can be improved.

Methods:

Clinical Practice Improvement Project using the Plan-Do-Study-Action (PDSA) methodology was used. Flow chart was used to illustrate patient's daily routine activities. Cause and effect diagram was used to identify the root causes: PDSA interventions: scheduled 2 hourly toileting (daytime). Prompted voiding – for uncommunicative patients. Visual cues were used to guide patients to pass urine in toilet. Staff education on the management of UI in elderly was conducted.

Results:

Six months data on the numbers of wetting episodes per week showed improvement: from 79.1 to 36.4 per week, i.e. a reduction of 54%. Total cost savings inclusive of mean nursing time saved, mean laundry and diapers saved per year amount to \$28,105. Continuing monitoring was done and to date, the ambulant patients with wetting episodes had been further reduced by 2%. Patients felt happier. Staff had better job satisfaction. Caregivers feel satisfied as nurses have shown a caring touch to the elderly patients.

Discussion & Conclusion:

To sustain and spread the project, we had commitment and the buy-in of all grades of staff. Regular post continence reassessment and reviewing the strategies were done to seek further improvements.

PP-QHSR-03

Reduce the Duration of Safety Restraints in a Long-Stay Psycho-geriatric Ward in Institute of Mental Health (IMH)

TANG JOANNA¹

¹*Institute of Mental Health*

Background & Hypothesis:

Ward 64B is a 48-bedded long-stay male psycho-geriatric ward with more than half of the patients in the ward put on safety restraint almost all the time. This project aims to reduce the duration of safety restraints in a long-stay psycho-geriatric ward (Ward 64B) by 30% within 6 months without an increase in the number of falls.

Methods:

Data collected showed that 22 (51%) out of the 43 patients were put on safety restraint for safety-related issues for a duration of approximately 23 hours per day. Using the PDSA cycle, 3 interventions were developed and implemented from November 2011 to January 2012: (i) Conduct daily patient education on fall risk every morning before the commencement of structured activity. (ii) Conduct frequent pre-planned physio exercises (different exercises for different categories of patients) with safety restraints removed during activities. (iii) Assign a designated nurse to supervise patients in groups according to their level of independence on a structured routine.

Results:

The average duration of safety restraint reduced significantly from 23 hours to 15.5 hours which is an achievement of 32.6% exceeding our set target of 30% without an increase in the number of falls. The ward staff achieved a sense of satisfaction in reducing the duration of safety restraint while the patients were happy that they have more freedom to move about.

Discussion & Conclusion:

The project was sustained with the support and involvement of all ward staff, effective communication amongst the staff and a consistent approach with continual feedback from staff, patients and caregivers for improvement.

PP-QHSR-04

Cost Impact Analysis of End-of-Life Programme on Nursing Home Residents in Singapore

TEO WEE SHENG KELVIN¹, ANUSHA GOVINDA RAJ², CHARIS NG WEI LING², HENG BEE HOON², IAN LEONG³

¹National Healthcare Group HQ, ²National Healthcare Group, ³Tan Tock Seng Hospital

Background & Hypothesis:

The routine care among nursing home (NH) residents in their final stage of life is hospital admission, which incurs high healthcare costs. Project CARE, an end-of-life care programme was introduced in 7 NHs. It provided palliative care and advance care planning for residents who had a risk of dying within one year. Our objective was to evaluate the cost impact of Project CARE on NH residents compared to routine care.

Methods:

The intervention group consisted of residents enrolled in Project CARE while a retrospective cohort was chosen as the control group. We adopted the health system perspective by including the costs of Project CARE services, length of hospitalisation, NH days, emergency department visits, specialist visits and primary care visits. Per-resident costs between the 2 groups measured in 2011 Singapore dollars were analysed over their last 3 months and final month of life. Incremental costs were estimated using recycled predictions from the multivariate generalised linear model.

Results:

The final sample comprised 96 Project CARE cases and 242 controls. In comparison to the Project CARE group, the control group had less comorbidities, higher nursing needs and longer duration of observation. Project CARE demonstrated per-resident cost savings of \$3728 over the last 3 months of life and \$2161 over the final month of life.

Discussion & Conclusion:

Results of this study demonstrated savings in healthcare resources of an end-of-life care programme. With a significant proportion of the population requiring NH care in the future, these results could assist governments and healthcare providers in their budgetary policy decision-making.

PP-QHSR-05

New Way of Dispensing Diabetic Medicine Reduces Hypoglycaemia Related to Patient Taking Diabetic Medicine before Fasting Blood Test

ZHANG MIN¹, CHAN KWAI PENG¹, SERENA SOOSAY¹, JEN PEI HSUAN³, SEE SZE BING¹, ROHANA BINTE THAMBI²

¹National Healthcare Group Polyclinics, ²National Healthcare Group-Diagnostic, ³National Healthcare Group-Pharmacy

Background & Hypothesis:

Taking diabetic mellitus (DM) medicine without food, prolonged fasting, and intensive glycaemic control are risk factors for hypoglycaemia during the blood test. This study aims to (i) determine the major cause of hypoglycaemia during fasting blood test, and (ii) evaluate the effectiveness of new workflow on reduction of hypoglycaemic patients taking DM medicine before fasting blood test.

Methods:

All DM patients with FVG <4 mmol/L in Clementi Polyclinic from July to September 2011 (n = 32) were interviewed while under observation in treatment room. Taking DM medicine while fasting contributes 59.4% of all hypoglycaemia during fasting blood test compared to prolong fasting 28.1% and others 12.5%. After determining the main cause, a new workflow of dispensing DM medicine was implemented in October 2011. A post intervention interview of all hypoglycemic patients with FVG <4 mmol/L (n = 33) in Clementi Polyclinic was conducted from November 2011 to February 2012.

Results:

After new workflow implementation, among all hypoglycaemic patients during fasting blood test, only 27.3% took DM medicine. There is a significant decrease of 32.1% of hypoglycaemic patients taking DM medicine before fasting blood test.

Discussion & Conclusion:

Taking DM medicine, while fasting, is the major cause of hypoglycaemia during the blood test. The new workflow on dispensing DM medicine reduces hypoglycaemia related to taking DM medicine before fasting blood test. Other factors contributing to hypoglycaemia ought to be addressed in future studies and CPI projects.

PP-QHSR-06

Knowledge of Chronic Obstructive Pulmonary Disease (COPD) in the General Population

LIM FONG SENG¹

¹*National Healthcare Group Headquarter*

Background & Hypothesis:

Chronic Obstructive Pulmonary Disease (COPD) is an important public health problem. One of the aims of the study is to determine the knowledge of COPD of the general population.

Methods:

Questionnaire interviews were conducted in 2009 at 10 geographically-spread locations near MRT/Shopping areas. Participants' sampling proportions were determined based on the general population's distribution in terms of gender, age and ethnicity.

Results:

In total, 402 respondents were surveyed: 49% were male while 51% were female. Of them, 76% were Chinese, 13% were Malay and 11% were Indian and others. Sixteen percent were 15 to 19 years old, 17% were 20 to 29 years, 21% were 30 to 39 years, 20% were 40 to 49 years, 16% were 50 to 59 years and 9% were 60 years old and above. Only 10% of respondents have heard of COPD. Of those who have heard of COPD, 9% heard of COPD from TV, 17% from newspapers, 14% from schools, 6% from radios and 14% from medical institutions. A total of 72% responded that smoking was the main cause of COPD but only 56% thought the most important thing one could do to prevent COPD was quitting smoking or not smoking. Sixty-six percent however responded incorrectly; COPD only affected those aged 40 years and above. Seventy-six percent thought there were various ways to manage COPD if detected early, but only 54% thought quitting smoking could be done to manage COPD. Seventy-six percent responded that breathlessness was one major symptom of COPD.

Discussion & Conclusion:

The general population's knowledge of key aspects of COPD can be further improved with relevant public health education.

PP-QHSR-07

Response of Patient with Excessive Perspiration to Home Iontophoresis: A Case Study

LIM BRENDA¹, TAN YOKE CHOO¹, CHONG WEI SHENG¹

¹*National Skin Centre*

Background & Hypothesis:

The home iontophoresis (HI) can be used to treat excessive perspiration on hands, feet and axillae, but it is not widely use by patients. This case study aims to provide awareness of healthcare professionals on HI for people with hyperhidrosis (excessive perspiration).

Methods:

A 44-year-old Chinese male patient with hyperhidrosis for 22 years on hands and feet, with regularly visits to clinic for iontophoresis with glycopyronium bromide 0.04% was invited to use the HI (Idromed® PS) with tap water for 30 days. The nurse clinician provided training on HI device and the record sheets to capture data on the day, time, duration, intensity of treatment and number of days that keep patient's hands and feet free from perspiration before the next treatment. The intensity of treatment dose for HI was set at 25 mA and at 15 minutes.

Results:

The patient reported responding to the HI after the 5th day of treatment, and gradually reaching up to 3 consecutive days that were free from excessive perspiration on hands and feet. He increased the interval of treatment from daily to every 3 to 4 days after the 18th day onwards. HI with tap water in comparison with clinic iontophoresis with glycopyronium bromide 0.04% provides lesser dry days (2 days different based on the 18th day onwards).

Discussion & Conclusion:

Given that the effective treatment of home iontophoresis with water can dramatically reduce the demands of healthcare facility and resources, it is suggested that healthcare professionals should explore ways to facilitate HL for people with hyperhidrosis.

PP-QHSR-08

Walk-In Patients for Consultation Triage by Dermatology Nurses in National Skin Centre

LIM BRENDA¹, TAN KIM LIAN¹, JOEY LOH XIAO JIE¹

¹*National Skin Centre*

Background & Hypothesis:

Patients are allowed to walk-in (WI) for dermatology consultations without appointments. But little is known about WI patients' characteristics and presenting conditions in the dermatology clinics.

Methods:

A retrospective study was collected on patients for WI consultations at private clinics from January to May 2012. The data collection include patient's demographic, visit type, status of appointment, sign and symptoms, site of skin lesions, history of pre-existing dermatology and other medical condition.

Results:

A total of 63 patients (Male: 63%; Female: 37%) requested for consultations and 68% were Chinese, % were Malay, 11% were Indian and 16% of other ethnic groups. The age group of 21 to 30 years (20%) was the highest in numbers for WI and 34% were first visits. For the sites of skin lesions presented, 21% on body, 16% on face, 14% on lower limbs, 14% on genital, 11% on body and limbs, 10% on upper and lower limbs and 8% on other areas. Forty-nine percent of the patients were presented with rashes and itchiness. Forty-three percent of the patients with pre-existing dermatology conditions such as eczema and urticaria. Sixteen percent of the patients with other conditions related to metabolic, respiratory and mental conditions. Thirty percent of the patients were not provided with the same day consultations due to non-urgent or non-dermatology related conditions.

Discussion & Conclusion:

Higher numbers of WI male than female patients requested for consultation. Rashes and itchiness on body and face were the most complaints for WI. About a quarter of the referrals were non-urgent or non-dermatology related conditions. Greater public awareness is required to reduce the unnecessary requests for dermatology consultation.

PP-QHSR-09

Job Satisfaction of Health Workers at Shahre Kord and Koohrang Districts Health Network

SEFIDGRAN GHOLAMHOSEN¹

¹*Others*

Background & Hypothesis:

To use a suitable management and to promote quantity and quality of services are needed to acquire the satisfaction of personnel. Views of services reducers are used as base for obtaining confidence of the participants.

Methods:

This was a descriptive, analytic and cross-sectional study. The population study consists of 230 health workers "Behavars, ingenious, Experts" of farsan and Koohrang districts health network. The data were collected by perfecting a questionnaire (23 questions) by participants. The data were analysed using descriptive statistics and X2 test in SPSS programe.

Results:

The findings indicated that 71.3% of the participants were satisfied with administrative situation of their job; 40% were women and 31.3% were men. Also, 58.8% of the women believed that job satisfaction would increase with increasing wages and privileges; 24.2% believed that job satisfaction would be obtained by suitable conjunctions of liable; 7.35% believed that job satisfaction would be obtained by suitable contacts of people, and 8.08% believed that if these 3 factors exist, job satisfaction would definitely be obtained.

Discussion & Conclusion:

The results showed that the most of satisfaction was related to women as a Behvarz and the least of satisfaction was related to men as a ingenious.

PP-QHSR-10

Impact to Tan Tock Seng Hospital's Outpatient Physiotherapy Visits Post-Opening of Khoo Teck Puat Hospital

ANUAR KHALID¹, TEOW KIOK LIANG²

¹*Tan Tock Seng Hospital*, ²*National Healthcare Group HQ*

Background & Hypothesis:

The health delivery landscape in Singapore is continually evolving. As healthcare providers, it is important to provide the right siting of services with adequate resources to provide early access to services such as outpatient physiotherapy. The objective of this study was to look at the impact of outpatient physiotherapy visits at Tan Tock Seng Hospital (TTSH) post-Khoo Teck Puat Hospital (KTPH) Specialist Outpatient Clinic opening in March 2010.

Methods:

Actualised patient visits were extracted from Nauticus from the period of January 2009 to September 2011. Data extracted included patient demographics such as age, gender, class status, referral source and referring type. The patient district group postal code was computed using the Arcview GIS software.

Results:

There was a 22.3% reduction of actualised new and follow-up physiotherapy patient visits specifically from the northern regions of Yishun, Sembawang, Woodlands East, Mandai and Seletar. Patients from the central regions of Ang Mo Kio and Bishan did not see a great reduction in visits to TTSH post-KTPH opening. Both the central and northeast region of Seng Kang and Serangoon saw a general increase in the number of patient visits in 2011.

Discussion & Conclusion:

The opening of KTPH has reduced outpatient physiotherapy visits at TTSH mainly from those residing in the northern regions. However, there was no reduction of patients from the central regions. These regions showed continual patient growth. With the expected increase in the aging population around the older estates of the central region, future right siting of services and innovative primary-care partnerships should be explored.

PP-QHSR-11

Specialist Reviews for All Patients at the Institute of Mental Health (IMH) within 24 Hours of Admission

CHUA HONG CHOON¹, ALEX SU¹, KOK HAN SENG¹, SOMNATH SENGUPTA¹, YEN LI GOH¹, DANESH KUMAR¹, RAJESH JACOB¹, CHOY LIN TANG¹, SOON PENG LOW¹, WAN LING CHUA¹

¹*Institute of Mental Health*

Background & Hypothesis:

In early 2010, the Ministry of Health (MOH), in consultation with public healthcare institutions, decided that tertiary level care should be specialist-led and delivered. Baseline random audits revealed that Institute of Mental Health (IMH) has yet to achieve the strategic target of 100% of specialist reviews within 24 hours for admitted patients. This is therefore a problem worth solving in order to deliver better quality of specialist mental health care.

Methods:

Medical record audits of all admissions over 8 weeks to 4 acute-care wards were conducted pre- and post-intervention. The core measure was adopted from MOH's Technical Manual for Indicators. Root causes for non-compliance were identified and prioritised using Ishikawa and Pareto Diagrams. A Plan-Do-Study-Act (PDSA) model tested interventions for the top 3 causes. Senior leaders met with clinicians to address findings and buy-in for interventions vis-a-vis clarifying the covering specialist's responsibilities, specifying MOH's specialist review requirements in a policy statement and implementing a 'specialist-led on-call team' approach for weekend-calls.

Results:

There was significant decrease in the weekly rate of errors in specialist reviews (μ_0 pre-intervention = 0.372; μ_0 post-intervention = 0.260) from 37% to 26%. The new variation of the error rate is between 0.09 and 0.43. Statistical Process Control analysis showed the new process has less variation and therefore more predictability as a result of the interventions.

Discussion & Conclusion:

The target of 100% compliance rate is yet to be achieved. Another PDSA cycle will be introduced to adjust interventions and re-measure results. Strong senior leadership involvement and timely communication were critical in management of change in this project.

PP-QHSR-12

Monitoring Mental State Functioning Levels in Patients with Psychiatric Conditions under Intensive Case Management Using Global Assessment of Functioning (GAF) and Clinical Global Impression—Severity of Illness (CGI-S)

TAY BENJAMIN¹, YEO JOOI LEE¹, STEPHAN PHANG¹, GOH HERN YEE¹, MARGARET MARY HENDRIKS¹

¹*Institute of Mental Health*

Background & Hypothesis:

Psychiatric patients under an intensive case management program in the community are measured for improvements in their mental state using the Global Assessment of Functioning (GAF) and Clinical Global Impression – Severity of Illness (CGI-S).

Methods:

GAF and CGI-S was scored for each patient at baseline, 1st month and subsequent at 6 monthly intervals, from January 2011 to March 2012. Data collected were processed using Microsoft Excel.

Results:

Seventy-nine (35% female, 65% male) patients with psychiatric conditions aged 19 to 59 years old have been scored using GAF and CGI-S. Thirty-six patients had being assessed for the 6th month review. For GAF, 28% improved by 1 to 5 points, 25% improved by 6 to 10 points, 8.5% improved by 16 to 20 points, 8.5% improved by 21 to 25 points, 6% improved by 26 to 30 points, 3.5% improved by 30 or more points. Remaining 17% maintained at their baseline. For CGI-S, 46.22% improved by 1 point, 25% improved by 2 points, 5.56% improved by 3 points. Remaining 22.22% maintained at their baseline.

Discussion & Conclusion:

Overall, 83% of the patients had showed improvements in GAF and 77.78% showed improvements in CGI-S. Apart from pharmacology, intensive and continuous case management engagement does help to improve patient's function and illness. Evidence-based practices namely the use of scales and risk assessments such as GAF and CGI-S can be used to monitor the improvement and deterioration of function and illness in patients with psychiatric conditions.

PP-QHSR-13

Implementation of Continuous Rapid Molecular Screening for Methicillin-Resistant *Staphylococcus Aureus* (MRSA) at Tan Tock Seng (TTSH) Emergency Department (ED)

POH BEE FONG¹, PRABHA UNNY KRISHNAN¹, TAY SEOW YIAN¹, CHRISTOPHER SOH¹, SAMUEL TIANG¹, ONG POON KIN¹, KUM JIA QI¹, BRENDA ANG¹

¹*Tan Tock Seng Hospital*

Background & Hypothesis:

Tan Tock Seng Hospital (TTSH) is a 1200-bed hospital in Singapore with the second busiest emergency department (ED) in the country. Bed occupancy is high, ranging from 85% to 92% and 90% of inpatients are admitted through ED. Active surveillance cultures (ASC) for all inpatients was started in October 2010 with the aim of cohorting all positive patients. Infection Control Nurses (ICNs) checked results, notified wards and Bed Management Unit (BMU) of any MRSA-positive patients and initiated transfer to cohort wards. BMU had to re-assign beds, nurses and porters to transfer patients, and housekeeping to do terminal cleaning of beds and rooms. Transfers of care to other teams required written summaries and handovers. Refusal either by patients or their physicians to move contributed to inability to achieve >65% cohorting. Despite this, MRSA transmission was reduced, and we were keen to improve cohorting further, and reduce delays in getting MRSA-positive patients to appropriate wards.

Methods:

From January 2012, rapid MRSA screening was implemented for patients being admitted through ED with a satellite laboratory functioning round-the-clock. Results were validated and communicated to BMU which assigned beds in MRSA or MRSA-free wards/cubicles as appropriate.

Results:

The prevalence of MRSA was 9%. Turn-around-time for reporting was maintained at 90% within 2 hours from sample collection. Cohorting of MRSA patients improved substantially from mean of 67% to 84% over a 3-month period.

Discussion & Conclusion:

Continuous rapid molecular screening at ED reduced uncertainty about management of patients with history of MRSA, transfers after admission and resulted in improved cohorting.

PP-QHSR-14

“Time is Brain”—Diurnal Variation of Emergency Attendances for Acute Ischaemic Stroke

TU TIAN MING¹, SHERWIN JOY AGUSTIN¹, TIN AUNG SOE², OH HONG CHOON², LEE KIM EN¹

¹National Neuroscience Institute, ²Singapore Health Services Pte Ltd

Background & Hypothesis:

The availability of dedicated neurology stroke team for prompt assessment and treatment of acute ischemic stroke patients at the emergency setting greatly impacts on their prognosis and functional outcome. Identification of diurnal variation in emergency stroke attendances will assist in planning for health service allocation.

Methods:

Time of arrival at the emergency department and clinical information were recorded for all consecutive acute ischaemic stroke admissions from August 2010 to March 2011 at a tertiary hospital in Singapore. Diurnal distribution of time of presentation was analysed and co-relation analysis of stroke severity using NIHSS score was performed.

Results:

A total of 526 patients presented to neurology service through the emergency department for acute ischaemic stroke over an 8-month period. Peak stroke attendances occurred between 1000 and 1200 hours (96 patients [18.3%] over a 2-hour period) and a nadir of stroke attendances occurred between 0100 and 0800 hours (32 patients [6.1%] over a 7-hour period). There was no correlation with stroke severity.

Discussion & Conclusion:

Acute ischemic stroke attendance peaks in the late morning and decreases throughout the course of the day. Hospital administration can use this information to allocate appropriate resources to emergency stroke services.

PP-QHSR-15

Development of an Acute Stroke Care Pathway Following the FOCUS-PDCA Model

KIM YONG-JAE¹, KIM EUN-JUNG²

¹*Others,* ²*Ewha Womans University Mokdong Hospital*

Background & Hypothesis:

Care pathways (CP) are tools used for standardising the management of patients with certain diseases in a predictable course, and they have demonstrated usefulness in stroke care. Though there are few studies developing an integrated CP following FOCUS-PDCA model, in-hospital stroke CP have been implemented with the aim to develop a CP capable of organising and homogenising the stroke care, and integrating the quality standards, in a hospital with an acute Stroke Unit (SU).

Methods:

Our hospital is a tertiary teaching hospital with 860 beds including 8 beds SU. Members of the Stroke Quality Assurance and Improvement Committee (including Neurology, Emergency Medicine and Nursing) established scheduled meetings. Several documents that compounded the CP were elaborated following the FOCUS-PDCA model, according with the scientific evidence and the in force clinical guides.

Results:

The following documents were elaborated: scientific-technical framework which integrates all processes; information document for patient/relatives on-admission; nurses protocols (social risk, dysphasia, falling risk and pressure sore); stroke rehabilitation guidelines for staff; treatment, care and monitoring sheets; recommendations at discharge for patient/relatives; patient/relatives satisfaction survey and quality standard document.

Discussion & Conclusion:

A stroke CP in a hospital with SU, developed following the FOCUS-PDCA model, potentially promotes a more organised and efficient stroke care.

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