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EDITORIAL

Mohd Yusof Ibrahim¹, Sadia Choudhury Shimmi^{2*}

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Great scholar was asked "what is the fastest thing?". He answered "TIME". Yes time flies so fast that without realizing we are now moving into a new year, 2019. I guess it is not too late to wish everyone a very happy new year and to our Chinese readers, wishing you all "Gong Hee Fatt Choi".

We are also moving very fast in this journal. Previously, BJMS was published in two editions a year. However, since 2017 it was published three times a year. The number of articles we received was very encouraging. Thanks to those who have contributed endlessly to keep this journal as one of the top journals at our university (UMS).

In this edition, we have specially dedicated to articles which were the product of Sabah Research Day 2018. The Research Day was held during the 6th Sabah Medical Research and Scientific Conference on 12 – 13 September 2018 at Sabah Women and Children Hospital, Kota Kinabalu (HWKKS). We have selected 13 abstracts to be published in this issue.

We are also working very hard to uplift our journal to be listed as one of the top journals in this university and to get it indexed by this year. Some of the strategies which we have been doing are to get international editors in our editorial board and contributors to our journal. We will also introduce a special section called "Letters to the editors". We hope the comments from our readers can help us to improve our journal.

ABSTRACT

Cross-Sectional Study on Knowledge of Chronic Kidney Disease among Patients Attending Hospital Outpatient Clinics in Sabah

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Keywords: chronic kidney disease,
knowledge, questionnaire

Introduction: The number of new dialysis acceptance and dialysis prevalence rate in Malaysia has been increasing steadily for the past 10 years, and forecasting models predict that these numbers will continue to increase. Chronic Kidney Disease (CKD) awareness may slow progression of CKD. As CKD awareness is dependent upon general knowledge of CKD, assessing the knowledge of CKD of the local population is important, to direct future CKD education efforts. **Objective:** This study aims to assess the knowledge of CKD among outpatients attending hospitals in Sabah. **Methodology:** A cross-sectional, self-administered questionnaire study was performed in the outpatient clinic of 6 hospitals in the northwest region of Sabah, Malaysia. The questionnaire is adapted from a similar study from Singapore, and includes basic demographic information and 7 questions assessing the knowledge on CKD. **Results:** Out of 721 respondents, 654 (90.7%) completed the questionnaire. The study respondents originate from Hospital Tuaran ($n = 106$, 16.2%), Hospital Ranau ($n = 85$, 13%), Hospital Kota Belud ($n = 157$, 24%), Hospital Kudat ($n = 134$, 20.5%), Hospital Kota Marudu ($n = 80$, 12.2%), and Hospital Queen Elizabeth ($n = 92$, 14.1%). Most of the respondents are female (58.4%), mean age of 41 years old, attained secondary school education (55.2%), unemployed (43%), and have a family income of <RM1,000 per month (60.7%). The main ethnic group of the respondents is Sabahan *Bumiputera* ($n = 479$, 73%), with Kadazandusun ($n = 251$, 52%) as

the majority. The percentage of self-reported at least one medical comorbidity is 39.7%. Out of the 7 questions assessing knowledge, only 24.6% scored 4 or more. Mean score was 2.47 (out of 7). There was no significant difference in scores between centres. Respondents who have higher education status ($p < 0.001$), professional line of work ($p < 0.001$), and high

family income ($p < 0.001$) were significantly associated with higher knowledge score. **Conclusion:** The Sabah cohort being studied has limited knowledge on CKD. Much work needs to be done in CKD education, and effort should be targeted to the public with low income, less educated and non-professional line of work.

ABSTRACT

Appropriateness of Proton Pump Inhibitors (PPI) Prescribing Indication in All Wards of QEH in Accordance to the QEH PPI Prescribing Policy 2015 (APPI-QEH)

Carolyn Teo Ai Li^{1*}, Mohd Idzham bin Zainal¹, Jessica Olivia Francis¹, Lee Kah Seng¹, Kristine Lee Sheh Fuen¹, Jerry Liew Ee Siung¹

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Keywords: proton pump inhibitors,
appropriateness, indication

NMRR Research ID:
NMRR-17-2217-38185

Introduction: Widespread over-prescription of proton pump inhibitors (PPIs) without an appropriate indication has financial and potentially adverse clinical consequences.

Objective: This study aimed to characterize and determine the appropriateness of both intravenous (IV) and oral PPIs indication in all hospitalized patients in Queen Elizabeth Hospital (QEH), Kota Kinabalu (KK) in accordance to the QEH PPI Prescribing Policy 2015. The policy was developed based on clinical guidelines in 2015, however it has little impact on clinical practice and to date, little is known about the prescribing practice of PPIs in our tertiary hospital. **Methodology:** A 1-day point prevalence study was conducted on 29 January 2018 in all 25 wards of QEH KK. A total of 506 inpatient medication charts were screened and medical records of 110 patients receiving IV and oral PPIs were investigated. Appropriateness of PPIs indication was rated by compliance to the QEH PPI Prescribing Policy 2015. **Results:** Out of 110 PPIs prescribed, 73.6% ($n = 81$) patients received oral PPIs while 26.4% ($n = 29$) patients received IV PPIs. Pantoprazole was the commonest PPIs used for both oral and IV route of administration. Higher proportion of oral PPIs (60.5%, $n = 49$) was indicated for prophylactic purposes, which include gastrointestinal bleeding prophylaxis (GIP) and stress ulcer prophylaxis. The most frequently-prescribed indication for IV PPIs was upper gastrointestinal bleed (UGIB). Approximately 60.5% ($n = 49$) of oral PPIs indication were considered to be appropriate

as they complied with the policy. Over half, 57.1% ($n=28$) of PPIs indicated for prophylactic purposes were deemed inappropriate as PPIs were used as GI prophylaxis in low-risk patients. Oral PPIs indicated as primary GIP in corticosteroid users was the commonest reason for inappropriate indication. The appropriateness rate of IV PPI was 86.2% ($n = 25$) and the main reason of inappropriateness was the ability to switch from IV to oral in GI prophylaxis and dyspepsia which can reduce medication cost. **Conclusion:** Overall, the

appropriateness rate of oral PPIs indication in accordance to policy was just 60.5% and inappropriate oral prophylactic PPIs is a concern. This study finding helps to highlight a high prevalence of oral PPIs prescribed for prophylactic purposes in our tertiary hospital and the lack of appropriate guidelines for prophylactic purposes as a major contribution to the rise of inappropriate PPI prescribing. Revision of current policy with re-enforcement is needed to guide rational prescribing of PPIs.

ABSTRACT

Compliance and Barriers of Beta-Thalassaemia Patients towards Iron Chelation Therapy in Hospital Keningau, Sabah

Elfira Cassandra Enderik^{1*}, Syahrizal Azizi bin Shaharudin¹, Gan Siaw Yun¹, Tan Wei Chong¹, Arthur James Adong¹, Jackie Ho Chit Khong¹, Shamadevi Pasupathi¹, Maggie Low May Yee¹, Sivaraj Raman¹

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Keywords: thalassaemia,
compliance, knowledge, factor

NMRR Research ID:
NMRR-18-404-39581

Introduction: Long-term survival in beta-thalassaemia major is strongly influenced by adherence to iron chelation therapy. Identifying factors that influence the compliance remains the first step in improving iron chelation therapy. **Objective:** Due to increase in number of non-compliance to iron chelation therapy for patients in Hospital Keningau, Keningau, Sabah, we aim to evaluate the compliance, identify the factors and assess disease knowledge of patients so that preventive measurement can be formulated. **Methodology:** This was a cross-sectional study conducted in Hospital Keningau by a combination of self-administered and interviewer-administered survey. The survey consists of 3 domains – knowledge assessment based on 10 items, identifying factors for non-compliance and compliance to treatment. Percentage of compliance was measured based on amount taken reported by patients over the intended therapy. Association between knowledge and compliance was measured using Pearson's Chi Square. **Results:** A number of 52 patients completed the survey. The average age was 18 ± 4.77 years. The mean knowledge score was 6.15 out of 10. The percentage of compliance to desferrioxamine was $78.2 \pm 30.2\%$ while for deferiprone it was $72.4 \pm 32.6\%$. There were no association between knowledge score and compliance to desferrioxamine ($p = 0.893$) and deferiprone ($p = 0.874$). Lazziness and pain were the main reasons for non-compliance chosen by patients on desferrioxamine

(19.2%) while for deferiprone it was laziness (23.1%) and side effects (19.2%). The poor compliance was reflected on the high average ferritin levels of respondents (7573 ± 5749).

Conclusion: Even though most adolescents had knowledge about their disease, it did not affect patients' compliance to therapy. Laziness was the most prominent factor for

non-compliance in adolescents in our study. This might be because iron chelation therapy is usually seen as a hindrance to independence. Thus in order to improve compliances, further study is needed to investigate the association between compliance and the affecting factors identified in our study.

ABSTRACT

Factors Contributing towards Loss to Follow Up among Tuberculosis Patients in Sabah

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Keywords: tuberculosis patients, loss to follow up, risk factors

NMRR Research ID:
17-3216-39222

Introduction: Sabah is a high tuberculosis (TB) burden area with incidence rate of 120 – 138 per 100,000 population. Until now, TB is still unable to control due to high loss to follow up rates. Loss to follow up TB treatment can cause to increase notification rate, prolonged infection, recurrent TB infections, increase multiple drug-resistance, and increase morbidity and mortality rates. To know the factors that contribute towards loss to follow up will better understand the epidemiology of treatment outcome and guide for appropriate strategies planning to improve the situation. Previous study by Liew et al. indicated that, incidence rate for loss to follow up in 2012 in Malaysia was 10.5%. **Objective:** This study was designed to determine factors contributing toward loss to follow up among TB patients in Sabah. **Methodology:** This was retrospective cohort study. Socio-demographic, lifestyle, TB related characteristics and healthcare facilities characteristics data were analyzed. Loss to follow up included patients' loss to follow up from treatment and transferred out of the country. Other treatment outcomes included cured, completed treatment, death, failed treatment and ongoing treatment. A total of 14,168 patients who registered under National TB Information System (TBIS) from 1st January 2014 to 31st December 2016 in Sabah were included in the study. **Results:** The mean age was 39.5 years old, median age was 37 years old and 7% incidence rate was loss to follow up (2.4% loss to follow from treatment and 4.6% transferred out from the country). On

multivariate analysis, age ≤ 37 years old (AOR: 2.69, 95% CI: 2.19 – 3.28), male (AOR: 1.29, 95% CI: 1.02 – 1.62), non-Malaysian (AOR: 4.79, 95% CI: 3.79 – 6.07), rural (AOR: 0.62, 95% CI: 0.51 – 0.75), smoker (AOR: 1.72, 95% CI: 1.39 – 2.14), Tb-HIV co-infection (AOR: 0.35, 95% CI: 0.19 – 0.68), extra-pulmonary TB (AOR: 0.53, 95% CI: 0.38 – 0.84), chest X-ray finding with far advanced (AOR: 0.38, 95% CI: 0.22 – 0.65) and DOT (AOR: 138.44, 95% CI: 108.04 – 177.40) were independently associated with loss to follow up. **Conclusion:** The most important risk factor

led to patient loss to follow up was directly observed therapy (DOT). The proper education and health promotion programme must be done to increase patients' initiative to proper concern about their health. International collaboration must be strengthened due to the individual patient might be missing while move abroad. The intervention need to be focused on young adult age group patients like education and counselling. The DOT must be strengthened in all the healthcare facilities.

ABSTRACT

Lung Malignancy vs Pulmonary Tuberculosis: How Does Low Dose Plain Ct Thorax Help?

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Keywords: tuberculosis, lung malignancy, low dose plain CT thorax

Introduction: Lung cancer is by far the most lethal cancer, causing approximately 1.4 million deaths in 2008. Meanwhile tuberculosis (TB) presents a global threat. Various research and studies had been reported in correlation of pulmonary tuberculosis and lung carcinoma. These cause diagnostic challenges from the multi-faceted presentations and lesions in radiograph mimicking each other. **Objective:** To highlight the feasibility of low dose plain CT Thorax rather than going directly to CECT Thorax in differentiating between TB and lung malignancy. **Case description:** Chest radiographs and CT can reveal the precise size, location, and other features of pulmonary lesion. However, increased use of CT scans raises the potential in adding radiation burden to the general population. Therefore, we apply the feasibility of low dose plain CT Thorax as a better modality in differentiating these two pathologies. A total of 13 low dose plain CT thorax cases with sufficient data in Hospital Keningau, Sabah in 2018 with the indications to rule out lung malignancy were taken in this study. These were based on chest radiographs taken, in which features both mimicking the criteria of TB and lung malignancy where 92% of the examinations depicted features of infection rather than malignancy. **Discussion:** Low-dose helical chest CT produced satisfactory image quality and reduced the CTD, albeit this will cause a decrease of homogeneity and increase of noise level in images produced. The exposure dose received during acquisition of three/four low-dose chest

CT scans is equivalent to one routine chest CT scan, hence minimize patient exposure to ionizing radiation while maintaining sufficient image quality, especially in distinguishing TB and malignancy. **Conclusion:** This case reports highlighted the feasibility of low dose plain CT Thorax rather than going directly to CECT Thorax in differentiating between

TB and lung malignancy. In this study, it is proven that low-dose CT can significantly reduce the patient's radiation exposure and is superior to conventional chest radiography for discovering and identifying lung diseases, especially in diagnosing infection and lung malignancy, allowing commencement of correct treatment.

ABSTRACT

Percutaneous Balloon Valvuloplasty for Critical Aortic Stenosis in a 3.9-kg Infant in Sabah

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Keywords: critical aortic stenosis, ventricular outflow tract obstruction, balloon valvuloplasty

Introduction: Critical aortic stenosis (AS) is very severe narrowing at aortic valve in newborns, causing left ventricular outflow tract obstruction (LVOTO). It is lethal if not treated soon after birth. **Objective:** To determine whether percutaneous BAV is possible for urgent relief of critical AS in newborns with multiple high-risk conditions.

Case description: We report on a first case of transcatheter balloon aortic valvuloplasty (BAV) for critical AS and LVOTO in a 3-month old infant. Baby girl with left ventricular (LV) hypertrophy, severely stenosed bicuspid aortic valve and moderate ventricular septal defect was admitted for angioplasty. A 6-mm balloon was introduced via right femoral artery and hand inflation of balloon was repeated twice. Pre-ballooning LV pressure was 106 mmHg while end-diastolic pressure (EDP) was 7 mmHg, with gradient across aorta of 30 mmHg. Post ballooning LV pressure was 84 mmHg and EDP 7 mmHg, with gradient of 27 mmHg. Initial peak systolic gradient of 80 mmHg was reduced by as much as 50% to 40 mmHg. **Discussion:** Urgent intervention is recommended when LVOT gradient \geq 30 mmHg. There is controversy on the best approach to treat neonatal AS, either by surgery or BAV. The main goal is to preserve the native valve and LV function for as long as possible, before repair or replacement is necessary. Transcatheter BAV, as an initial treatment can reduce the degree of stenosis, and thus peak-to-peak systolic gradient by 50%. Improved catheter technology has reduced mortality.

Transarterial approach is technically easier but requires a larger catheter, complicated by a higher rate of thrombosis. Transvenous approach preserves the femoral arteries for later intervention, but can also be difficult and cause mitral valve injury. McCrindle et al. found that both BAV and surgical valvuloplasty achieved similar survival and re-intervention for restenosis outcomes. Restenosis, defined as peak-to-peak gradient ≥ 50 mmHg, may develop in nearly one quarter of patients. It can be rectified by repeat BAV or surgical valvotomy. Surgical replacement of aortic valve is reserved for severe stenosis in which BAV has

failed, or there is deterioration of LV systolic function. On follow up, baby was thriving well.

Conclusion: In Sabah, percutaneous BAV for urgent relief of critical AS in newborns with multiple high-risk conditions is possible. It is an excellent first line management, especially as surgery here is limited by resources for this young age group. Definitive surgery can be postponed until the low body weight has improved, allowing it to be done more safely. Early discharge is possible with BAV, but careful follow up is needed to detect any recurrence of stenosis and development of significant aortic regurgitation.

ABSTRACT

Visual Status and Prevalence of Refractive Error among Preschool Children from Amblyopia and Vision Impairment Screening (AVIS) Programme in Kota Kinabalu

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Keywords: amblyopia, preschool children, refractive error, visual impairment

NMRR Research ID:
NMRR-18-1716-43155

Introduction: Vision is an important requirement for learning and plays a critical role in the development of a child during the first three years of life. Little is known regarding the extent of visual impairment amongst preschool children in Sabah. **Objective:** To determine visual status among preschool children in Kota Kinabalu and to determine prevalence of refractive error among children who were referred by the programme. **Methodology:** A retrospective cohort study of clinical records was conducted at Department of Ophthalmology, Hospital Queen Elizabeth, Kota Kinabalu, Sabah from May to September 2017. Criteria for failed vision were VA 6/12 (0.3 LogMar) or worse. All records of referred children were selected for prevalence of refractive error. Data collected include basic demographic data, visual acuity and refractive error. Myopia was defined as spherical equivalent (SE) ≥ -1.00 DS, hyperopia SE $\geq +3.00$ DS and astigmatism ≥ -1.50 DC. **Results:** A total of 192 children age 4 to 6 years old were screened, comprised of 102 (53.1%) male and 90 (46.9%) female (mean age: 5.81 ± 0.41 years). Of the 192 students, 39 (20.3%) of them failed vision screening. Among the 39 children, only 17 children came for further eye assessment. Twelve (70.6%) of them had a binocular visual impairment (VI) while 5 (29.4%) children had monocular VI. Six years old children were found to have VI more compared to other age groups ($n= 14$, 82.4%) and majority of this age group having binocular VI ($n = 10$, 83.3%). Mean SE was -0.60 ± 0.94 . Astigmatism is the

commonest type of refractive error found with a prevalence of 41.4% followed by myopia, 27.6%. **Conclusion:** This study was the first attempt to investigate the visual status among

preschool in Kota Kinabalu. As most children were found with astigmatism, early detection of significant refractive error could help to minimize the effect of VI.

ABSTRACT

Comparison of Energy and Protein Adequacy between Closed and Open Enteral Nutrition System in Critically-Ill Adult Patients

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Keywords: enteral nutrition,
critically-ill patients, open system,
closed system, adequacy

NMR Registration number:
NMRR-16-1787-30683

Introduction: Critically-ill patients are commonly fed with EN via open system (OS) or closed system (CS). Several studies showed that patients on CS had received greater volume of EN compared to OS. **Objective:** As there was no study conducted in Malaysia, hence this study is conducted to compare the energy and protein adequacy of both systems.

Methodology: This cohort prospective study was conducted in GICU (OS) and NICU/NHDW (CS) in Hospital Kuala Lumpur. Patients aged ≥ 18 years and fed by feeding pump in OS were included. Patients who were moribund or not given EN were excluded. Patients' demographic data and disease severity score were collected on day 1 in ICU and followed for 5 days until decease or discharge. Adequacy was determined by percentage of energy/protein received from requirements. **Results:** Fifty-five patients were included (25 OS and 30 CS) with mean aged 45.41 ± 17.46 years old, 78.2% male and 65.5% Malay. The mean SAPS II, SOFA score and ICU LOS were 46.47 ± 10.65 , 8.60 ± 3.64 and 9.24 ± 7.91 days respectively. The ICU mortality was 20%. EN was started about 2.56 ± 2.89 days after ICU admission and the mean adequacy of energy was $74.56 \pm 32.23\%$, while protein adequacy was $69.15 \pm 35.78\%$. Compared with the CS, OS were significantly older than CS (51 years old vs 42.5 years old; $p = 0.035$) and had a higher SOFA score (10 vs 7.5; $p = 0.014$). No difference in ICU LOS and mortality between group were found. Energy (45.64% vs 96.71%; $p < 0.001$) and protein adequacy (38.78% vs 94.12%; $p < 0.001$) were significantly

higher in the CS than the OS. **Conclusion:** CS as compared with OS may improve nutritional adequacy as CS delivered more 108% energy and 141% protein than OS. The difference in

adequacy might be attributed to these factors; feeding method used in the system, patients' characteristics and condition rather than the feeding system itself.

ABSTRACT

Refractive Outcome after Cataract Surgery in Hospital Keningau, Sabah

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Keywords: post-operation, refractive outcome, cataract

Introduction: The success of cataract surgery is assessed by the improvement in visual acuity and accuracy of post-operation refractive outcome against the pre-operation refractive target. Hence, the benchmark of 85% of patients achieving a final spherical equivalent within 1D of the desired target is used to monitor the refractive outcome. Meanwhile, the unaided visual acuity threshold of 6/12 after cataract operation is chosen as a yardstick because it allows patients to perform instrumental activities of daily living (IADL) independently without relying on spectacles. **Objective:** The purpose of this study is to report the refractive outcome after phacoemulsification and intraocular lens implantation. **Methodology:** A cross-sectional study is conducted on the patient records of all cataract surgeries that have been performed in Hospital Keningau, Sabah from January to April 2018. This study includes all patients who had undergone immersion A scan, phacoemulsification cataract surgery and attended a session of post-operative refraction within 90 days from the operation date in Hospital Keningau. **Results:** We performed 140 cataract surgeries during the study period with 113 (80.7%) cases fulfilled the inclusion criteria. 84.1% of the included cases achieved a final spherical equivalent within 1D of the desired target. Meanwhile, there were only 46.9% of patients had acquired unaided visual acuity of 6/12 or better after cataract operation. There are no significant association between the refractive outcome and the cataract related

factors studied such as preexisting ocular comorbidity, intra-operation complication, accuracy of A constant, K reading and formula for intraocular lens (IOL) calculation used as well as IOL implanted. **Conclusion:** The post-

operation refractive outcome fell short of the benchmark. Further investigation should be performed to assess for other key factors that may improve cataract refractive outcome.

ABSTRACT

Impact of a Supplementation Policy (STOP) on Prescribing Pattern and Cost in a Rural Referral Hospitals of Sabah

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Keywords: supplementation policy,
cost, appropriateness

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Introduction: In Malaysia, there is an increase in both demand and prescribing of supplements. Such trend raises the likelihood of adverse events and treatment costs. Numerous prescribing policies have been suggested for better utilization of resources. However the adherence and improvement from such policies are yet to be fully characterized.

Objective: This study was conducted to determine the impact of a locally developed Supplementation Policy (STOP) on prescribing pattern and cost in Hospital Keningau, Sabah.

Methodology: This was a cross-sectional study. An adapted survey was given to all prescribers to investigate their beliefs, attitude and knowledge on dietary supplement. This was followed by implementation of STOP for a period of 2 months. Changes in prescribing pattern and drug cost were measured based on prescriptions collected for 2 weeks prior and after the intervention. Appropriateness of prescription was categorized based on the indication in the National Medication Formulary and agreement from expert panel.

Results: 100 prescribers from various disciplines completed the survey. Supplementation prescribing was mostly based on personal clinical experience (27.6%), practice (23.5%) and patient request (19.4%). Only 6.1% claim that their prescribing was based on the indication in National Formulary. Prior to STOP, 11.0% (SD = 2.8) of total prescription contains a supplement while 94.4% (SD = 5.3) of them were categorised as not in accordance to formulary. Implementation of STOP showed a significant reduction in

total prescriptions with supplements (40.3 vs 24.3, $p = 0.007$) and those with inappropriate supplementation (38.2 vs 22.2, $p = 0.003$). However, there were no significant changes in terms of supplementation cost (52.94 vs 46.75, $p = 0.617$). **Conclusion:** STOP was beneficial in reducing inappropriate prescribing and changing prescribing patterns. Inappropriate

prescribing may have been compounded by lack of availability of nutritional support services and pressure from beliefs and expectations for lower socio-economic population. These small improvements are important and significant by taking into consideration the high volume of annual prescribing.

ABSTRACT

The Impact of Sleep Quality on the Occupational Fatigue Outcome among Healthcare Shift Workers in Critical Care Setting

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Keywords: emergency department, healthcare workers, shift work, fatigue, sleep quality

Introduction: Occupation-related fatigue and sleep loss are common among shift workers in the emergency department (ED), who deliver round-the-clock critical care service to patients. These factors affect their performance and impose unnecessary hazard to patients, while also endangering themselves. **Objective:** The study objectives are to estimate the prevalence of poor sleep quality and severe occupational fatigue; and to investigate the contributing factors of occupational fatigue among shift workers in critical care setting. **Methodology:** This was a 6-month cross-sectional questionnaire-survey study conducted at ED, Hospital Universiti Sains Malaysia in 2014. Participants were asked to fill-in the self-administrated validated questionnaire. Quality of sleep and occupational fatigue were measured using Sleep Quality Index (SQI) and Checklist Individual Strength (CIS-20R) questionnaires respectively. A number of 116 respondents were recruited via simple random sampling technique, to achieve 5% precision in estimating the prevalence of occupational fatigue, which was 56.4% in previous study in similar population. **Results:** This study estimated that the prevalence of poor sleep quality among ED healthcare workers was 6%. The prevalence of severe occupational fatigue was about 21.5%. Logistic regression showed two independent factors that were significantly associated with occupational fatigue outcome – type of profession ($p = 0.032$) and quality of sleep ($p = 0.04$). Professional healthcare staff are 9.6 times

higher odds (AOR, 95% CI: 1.22 – 75.66) to have severe fatigue compared to supporting group. Those who did not have good sleep quality are 2.7 times higher odds (AOR, 95% CI: 1.04 – 7.15) to have severe fatigue. **Conclusion:** The low prevalence estimation of poor sleep quality and severe occupational fatigue in this study could invariably be limited by the

sampling technique, which was done in only one centre, due to limited research funding. In view of the strong evidence between sleep deprivation and fatigue among shift workers, further research should be invested by policy makers to implement a circadian rhythm-friendly schedule, on top of improving their work environment.

ABSTRACT

Diagnostic Dilemma of Intracranial Aneurysm in Neonatal Subarachnoid Haemorrhage (SAH)

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Keywords: neonatal, subarachnoid haemorrhage, intracranial aneurysm, non-accidental injury

Introduction: Cerebral aneurysm is an exceedingly rare aetiology of neonatal Subarachnoid Haemorrhage (SAH). Detailed history and pattern recognition of the SAH is crucial in suspecting aneurysm.

Objective: To determine diagnostic of intracranial aneurysm in Neonatal Subarachnoid Haemorrhage (SAH).

Case description: A 22-day-old baby boy presented with a 5-min generalized tonic-clonic fit 4 hours after a car-to-car motor vehicle accident. The baby fell down from his mother's arms and landed on the floor of the back passenger car seat. Urgent CT brain showed diffuse right-sided cerebral SAH with significant blood products in the right suprasellar cistern and the dilated ventricles. There was also presence of right tentorium cerebelli and posterior interhemispheric fissure subdural haemorrhage, right parietal skull fracture and diffuse cerebral oedema. Due to abundant right-sided suprasellar cistern haemorrhage and the extent of haemorrhages were disproportionate to the trivial trauma, with high level of suspicion of ruptured aneurysm, an urgent MRI brain was performed. It revealed a 0.7-cm saccular aneurysm at the bifurcation of right internal carotid artery. Surgical clipping was not done as CT angiogram subsequently showed the aneurysm thrombosed. It remained thrombosed in a repeated MRI 3 weeks later. The child was discharged with swallowing discordance and hypertonicity after one-month hospitalization. **Discussion:** Comprehensive literature reviews indicated

neonatal intracranial aneurysm differs from adult-type in terms of gender predominance, site, incidence of giant aneurysm, aetiology and clinical outcome. The neonatal aetiologies remain unclear since atherosclerosis is uncommon at this age group. Intrinsic factors including congenital or inherited genetic disorders should be sought. Pertaining to our case, with the given history of trivial trauma,

presence of skull fracture and extensive intracranial haemorrhages should raise the possibility of non-accidental injury and further investigations are warranted. Undetected negligence may lead to devastating consequences. **Conclusion:** Intracranial aneurysm is extremely rare among neonates. Relevant history and scrutinization of the pattern of SAH are the clues to its diagnosis.

ABSTRACT

Prevalence of HIV among Men who Have Sex with Men (MSM) and Its Associated Factors in Sabah

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Keywords: HIV infection, men who have sex with men (MSM), prevalence, associated factors

Introduction: Men who have sex with men (MSM) is one of the key populations affected by HIV epidemic with infection rates exceeding five percentages. Due to a strict and prohibitive socio-cultural and legal environment, male-to-male sexual practices are often misunderstood and highly stigmatised, thus creating barriers for MSM to access HIV prevention, treatment, care and support services. **Objective:** This study was to determine the prevalence of HIV infection among MSM. This study also sought to determine factors associated with HIV infection among MSM in Sabah. **Methodology:** A cross-sectional study was done from April to September 2017 in Sabah. A face-to-face questionnaire interview was conducted among 200 respondents of MSM who were recruited by the Respondent-Driven Sampling (RDS). Sample size was calculated using Epi Info 7 with design effect 2.0. Data was entered and analyzed by SPSS 16.0 using descriptive, univariate and multiple logistic regression analyses. **Results:** The mean of age was 23.1 (6.08) years with minimum age was 18 years and maximum age was 49 years. Majority was never married with 83.5% and 51.5% respondents completed secondary school while 7.5% received no form of schooling. The prevalence of HIV was 5.0% (95% CI: 2.0%, 8.0%). Logistic regression analysis showed that significant risk factors associated with HIV infection among men who have sex with men (MSM) were duration of years of high risk exposure (OR: 1.24; 95% CI: 1.09, 1.40; $p = 0.001$) and history of anal sex in

the past one month (OR: 16.07; 95% CI: 2.94, 87.81; $p = 0.001$). **Conclusion:** The prevalence of HIV among MSM was within concentrated HIV epidemic and increasing. Those who had history of anal sex in the past 1 month were 16 times more likely to exhibit HIV and longer

duration of high risk exposure was associated with an increased likelihood of exhibiting HIV. Targeted, tailored, and comprehensive interventions are urgently needed to prevent the HIV infection from MSM.

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Matos V, Drukker A, Guignard JP. (1999). Spot urine samples for evaluating solute excretion in the first week of life. *Arch Dis Fetal Neonatal Ed* 80: F240 – 2.

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