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New Frontiers in Health: Expecting the Unexpected

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ORAL PRESENTATION

Development of Loop-Mediated Isothermal Amplification (LAMP) for the Detection of *speB* Gene in Invasive *Streptococcus pyogenes* Clinical Isolates

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ABSTRACT

Introduction: Group A streptococcus (GAS) is responsible for high morbidity and mortality globally. Hence, the need to develop sensitive, reliable and cost-effective method of detection is crucial. In this study, we developed a visual detection method for the common virulence gene, streptococcal pyrogenic exotoxin B (*speB*) involved in invasive GAS diseases using loop-mediated isothermal amplification (LAMP) with fluorescent detection dye (calcein). **Methods:** The LAMP reaction was optimized at 63°C for 35 minutes using five sets of primer designed with LAMP primer V5 software. When the dye was added prior to amplification, samples with *speB* DNA developed a characteristic green color after the reaction, but no color reactions were observed in samples with DNAs of non-GAS isolates. Detection of *speB* by LAMP assay was done among 43 clinical isolates of blood, pus, wound, tissue and throat samples and ATCCs for controls. Our findings were further reconfirmed by subjecting the LAMP products to 0.5% gel electrophoresis. **Results:** The detection limit of this LAMP assay for *speB* was 10^{-7} ng/ μ l of genomic DNA per reaction, which was 10,000-fold more sensitive than conventional PCR 10^{-3} ng/ μ l. All 100 % samples were positive for *speB* gene by LAMP, and 93% by conventional PCR method. **Conclusion:** LAMP assay could offer remarkably high sensitivity, specificity, repeatability, reliability, affordability, and visibility; it is appropriate for rapid detection of *speB* in Group A streptococci (GAS) as a point of care testing.

Keywords: Loop-mediated isothermal amplification, Group A Streptococci, Streptococcal pyrogenic exotoxin B

Does Good Knowledge on Dengue Correlates to the Practice of Dengue Prevention? A Survey among a Rural Community in Negeri Sembilan

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ABSTRACT

Introduction: The persistently increasing number of dengue cases costs a significant amount of health financial expenditure by the government. Communities throughout the country should be equipped with adequate knowledge and have a good practice in the avenue of reducing dengue infection incidence. This study aims to describe the knowledge and practice levels on dengue fever and their associated factors among adults in a rural village in Negeri Sembilan. **Methods:** This cross-sectional study was conducted in a village of Tampin District using a pretested structured questionnaire. Face-to-face interview was conducted among participants whose houses were randomly selected. The questionnaire consisted of sections identifying the socio-demographic factors and assessing their knowledge and practice on dengue fever. Knowledge that was assessed includes the sign and symptoms of dengue fever, knowledge on the vector, preventive measures and legislation related to it while practice includes their routine action in preventing dengue fever. **Results:** A total of 221 respondents responded to the questionnaire. The prevalence of respondents ever had dengue fever was 10.4% (n=23). Out of 100, the mean (s.d.) knowledge and practice score was 77.2(13.1) and 75.8(16.7) respectively. Good knowledge and practice on dengue fever was found among 52.0% and 47.5% of the respondents respectively. Good knowledge was associated with being middle aged ($p=0.001$), married ($p=0.010$) and having higher household income ($p=0.037$). There was a significant but weak positive correlation between knowledge and practice of dengue fever ($r=0.237$, $p < 0.001$). **Conclusion:** Having good knowledge may contribute to good practice in preventing dengue, nevertheless, to depend on improving knowledge alone might not help much in the reduction of dengue cases. Enhancing the practice through practical and hands on approach might be beneficial in future dengue intervention.

Keywords: Dengue fever, Dengue knowledge, Preventive Practice

A Systematic Review: Public Health Policies on *Zika* Infection Surveillance for Malaysia

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ABSTRACT

Introduction: *Zika* infection was declared as Public Health Emergency of International Concern since year 2015. Despite of no new reported case via National Surveillance System for *flavivirus*, an underestimated seroprevalence might occur as the country contributes to the Asian lineage of the virus. **Methods:** Systematic literature search using PICO framework and PRISMA checklist across four databases for articles published from year 2013-2018 yielded 189 results, 37 articles accepted by titles following criteria were subjected to abstract screening, leaving 8 articles with clear risk proceed to full text analysis using Cochrane checklist and GRADE assessment. **Results:** There were four high quality articles and four low quality articles based on biases in studies. Blood product management and vaccination are strategies strongly recommended to be implemented as *Zika* response while vector control and family planning are public health measures to be proposed as policy if feasible. Successful factors to improve *Zika* surveillance and management includes developing algorithm for blood product management, anti-*Zika* vaccine research, algorithm for new-born screening, participation of policy makers, healthcare capacity building, raising healthcare and public awareness on the infection, international funding, utilization of technology in data management and biological control of vector. **Conclusion:** Implementation of *Zika* response as policy is timely, should be evidence-based and follow guidelines from WHO / CDC / FDA US after cost-effectiveness evaluation for Malaysia setting.

Keywords: *Zika* infection policy, *Zika* surveillance system, Public health policy, *Zika* infection Malaysia, Filariasis surveillance system

Spatial Analysis of Food Poisoning Cases and Its Environmental Relations in Sabah, Malaysia

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ABSTRACT

Introduction: Food poisoning usually occurs with the consumption of contaminated food. Some related factors are unsafe water supply, poor sanitation, unhygienic waste disposal and unhygienic practices or poor personal hygiene by food handlers. The purpose of this study is to describe the spatial epidemiology of food poisoning cases in the four districts of Sabah. **Methods:** This review consists of all food poisoning cases reported from 2011 to 2014 from Kota Kinabalu, Penampang, Putatan and Papar, Sabah. The coordinates used for locations of cases are based on home addresses. Tools such as SPSS v20, ArcGIS v10 and CrimeStat IV were used for data analysis and mapping. **Results:** A total of 1,787 cases of food poisoning were reported during this review period. In 2011, only Kota Kinabalu and Papar illustrated significant food poisoning clusters. Meanwhile, in the year 2012 to 2014, Kota Kinabalu, Penampang and Putatan had clustering of cases. Analysis of nearest neighbour hierarchical clustering analysis showed 32 food poisoning clusters. There were 4 food poisoning points at 500 meters radius around a market place, 2 food poisoning points near a sewage plant and 1 food poisoning point near a water treatment plant. No cases were near a municipal landfill. For rivers and coastline, there were 37 points of food poisoning cases in the proximity of 500 meters. **Conclusion:** Food poisoning usually occurs in clusters with possible associated environmental factors.

Keywords: Food poisoning, GIS, Spatial analysis, Clusters

Multiplex Real-Time RT-PCR Assay for Diagnosis of Dengue, Zika and Chikungunya Infections

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ABSTRACT

Introduction: Dengue virus (DENV), Zika virus (ZIKV) and Chikungunya virus (CHIKV) are Arboviruses that are transmitted by the same vector, *Aedes aegypti*. Dengue has become a global problem since the Second World War and is common in more than 110 countries. In Malaysia, dengue is a major disease burden as total economic costs to the country as a result of dengue is close to RM1.05 billion in 2010 and estimated to rise to 1.3 billion by 2020. Apart from Dengue, Zika and Chikungunya are the other important mosquito borne diseases in Malaysia. The aim of this study was to develop a multiplex real-time assay for simultaneous detection of DENV, ZIKV and CHIKV in clinical specimens. **Methods:** The published singleplex protocols were used with key modifications to implement a triplex assay. A one-step multiplex real-time RT-PCR assay was developed that can simultaneously detect RNA of DENV, ZIKV and CHIKV with good performance for a routine diagnostic use. The assay was evaluated for inter- and intra-reproducibility by mean CT value. The diagnostic sensitivity was tested with 135 archived samples which had been defined positive or negative by routine singleplex assays. Whole blood, plasma and urines were used in this study. **Results:** Intra- and inter-reproducibility and sensitivity varied from 0.10% to 4.73% and from 0.45% to 5.98% for each virus respectively. The specificity of detection was 100%. The multiplex real-time RT-PCR assay showed concordance with test results performed by routine singleplex assays. No cross reaction was observed for any of the clinical samples. **Conclusion:** The development of a rapid, sensitive and specific molecular assay for DENV, ZIKV and CHIKV infections will produce a greater diagnostic capacity in our laboratory. This multiplex approach is cost effective and robust with the concurrent detection of 3 viruses of public health concern.

Keywords: Multiplex rRT-PCR, Dengue virus, Zika virus, Chikungunya virus, Molecular assay

Looking at Alcohol Differently: Harm Reduction in Cultures with a Strong Cultural Connection to Alcohol

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ABSTRACT

Introduction: Alcohol has been shown to have significant negative impacts on communities across the world. This paper will discuss alcohol use and alcohol harm in the context cultures with traditional consumption of alcohol and where alcohol holds a strong place in traditional culture and custom. **Methods:** This descriptive review of the qualitative literature uses thematic analysis as a method to provide a broad description of this topic. An inductive approach was used to identify themes related to the phenomena after a comprehensive search for relevant published research. Purposive sampling was used to locate primary research articles related to the specific question for this synthesis. Additional papers were included from the reference lists of these studies. Specialists in the field were consulted for additional articles and unpublished papers. **Results:** The literature search found 6 academic papers relevant to the question for the study. The findings from the included studies suggest that, across the world in cultures where traditional production and consumption of alcohol are a feature, alcohol use and alcohol harm is increasing. This is reported to partly due to the availability of cheap, mass produced western style alcohol. Traditional alcohol has also been found to have increased production and availability as a source of income for some indigenous groups. **Conclusion:** The feature that stands out through much of the research looking at this topic is that the harm caused by alcohol is the primary focus. Although this is important, it is not the only aspect that needs to be considered if alcohol-harm reduction is the focus. The individuals and communities in the studies included in this review appear to have a strong connection to their traditional culture and a desire to keep this alive. Bringing to forefront the stories and narratives of the traditional culture may go some way to reintroducing the traditional cultural frames related to alcohol and help to preserve cultures that are perceived to be disappearing. Discussion will focus on how this can change our approach to harm reduction in these communities and how best we can begin to explore and address this in the local context.

Keywords: Alcohol, Traditional alcohol, Indigenous culture, Alcohol harm reduction, Sabah

The Correlation between Environment of Care, Patient Satisfaction and Willingness to Recommend in a Teaching Hospital Setting

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ABSTRACT

Introduction: The Environment of Care (EoC) is less being the highlight as one of the important components in hospital administration. The EoC is the interface between the patient and the organisation and it provides both a practical and safe area in which to provide patient care. The study aims to determine the correlation between the environment of care, patient satisfaction and willingness to recommend. **Methods:** This was a cross-sectional study conducted in one of the teaching hospitals in Malaysia. A Malay validated Hospital Consumer Assessment of Healthcare Provider and System (HCAHPS) questionnaire was used. The multistage sampling was applied. 13 wards represent medical, surgical and O&G based wards were selected randomly. Systematic random sampling method was used for patient selection. Number of samples for each ward was calculated proportionately based on the average number of discharge patient monthly. The global rating item in HCAHPS was used to determine satisfaction level. Data was collected and analysed using SPSS version 22.0. **Results:** 547 respondents were involved in the study with 61.6% of them were female. Majority of respondents were young adult less than 60 years old. 36.9% of the respondents had positive experience with cleanliness of the ward meanwhile 26.7% had positive experience with quietness of the ward. 57.6% of the respondents were satisfied with the services and 64.5% were willing to recommend the hospital to others. There was a significant correlation between environment of care, satisfaction level and willingness to recommend. **Conclusion:** The healthcare facility needs to concentrate on creating a positive experience on EoC component as this can influence satisfaction level and willingness to recommend the hospital.

Keywords: Environment of care, Patient satisfaction, HCAHPS, Patient experience, Teaching hospital

What are the Barriers and Solutions to Renal Transplantation in Malaysia? A Qualitative Key-Informant Study

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ABSTRACT

Introduction: Kidney transplantation (KT) is the preferred end-stage renal disease (ESRD) treatment because it provides a better survival rate, quality of life as well as a cheaper alternative. However, Malaysia's KT rates is consistently low considering that ESRD rates have been increasing exponentially. With only four hospitals performing KT, there's a gap to indicate a lack of evaluation in KT system of Malaysia. Qualitative study was undertaken to explore and describe the barriers and solutions improve the rates and service of KT in Malaysia. **Methods:** Semi-structured interviews adopted as qualitative methodological approach to explore current KT policy and service in Malaysia between March – May 2018 in Kuala Lumpur. Eight key-informants selected using stakeholder analysis and informed consent were obtained. Interviews were digitally audio-recorded, transcribed verbatim and analysed using thematic analysis. **Results:** Barriers and solutions of Malaysia's KT are the results of complex interplay of personal, cultural, and environmental factors that can be categorized and described using the five levels of influence conceptualized by the socio-ecological model (SEM). Guidance for developing culturally appropriate and sensitive interventional strategies was elicited from the key informants' experiences to improve KT rate and services in Malaysia. **Conclusion:** Malaysia is experiencing very low rate of KT compared to other countries. The use of SEM provided a framework to foster a better understanding of current practice, barriers and solutions to KT in Malaysia. Implications of these findings could prompt policy change for better KT service delivery model. Further stakeholder engagement and evaluation is required to align best practices to improve KT rates and service in Malaysia that is comparable to high-income countries.

Keywords: Renal transplantation, Access, Key-informants, Qualitative study, Low- and middle-income countries

Blood Cholinesterase Activity and Associated Factors among Pesticide-Exposed Vegetable Family Farmers in Sabah Malaysia

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ABSTRACT

Introduction: Chemical pesticide is commonly used among vegetable family farmers in Sabah. There is no system to monitor adverse health effects. This study is to determine the blood cholinesterase activity and associated factors among vegetable family farmers. **Methods:** A cross sectional study has involved 163 farmers aged 18-60 years old. Validated questionnaire was used to assess the associated factors. Lovibond AF267 Cholinesterase Kit was used to determine the blood cholinesterase activity. Chi square test was used to determine the association between blood cholinesterase activity and socio demographic factors and work practices. **Results:** Approximately 23.3% of study sample had low blood cholinesterase activity. There were significant associations between low blood cholinesterase activity with older age group ($p<0.001$), lower educational level ($p<0.05$), longer duration of pesticide exposure ($p<0.05$), did not attend pesticide safety training, use single pesticide ($p<0.05$), no specific storage place of pesticide ($p<0.05$) and not wearing PPE ($P<0.05$). **Conclusion:** Nearly one-fourth of vegetable family farmers has low blood cholinesterase activity which is associated with older age, lower educational level, prolonged exposure to pesticide, lack of training and unsafe work practices. There is a need to monitor blood cholinesterase activity and to do training on safe and proper handling of pesticide to protect the health of the farmers and their families.

Keywords: Pesticide, Organophosphates, Cholinesterase, Farmers

Analysing Practice for Prosthetic Restoration among Major Lower Limb Amputees with Diabetes: From Northern Borneo Perspective

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ABSTRACT

Introduction: Diabetes is high in the agenda of public health issues with significant prevalence of diabetic-related amputations. Prosthetic restoration post-amputation is imperative to reduce disability, but its success is influenced by several factors. This study analysed the practice, and the determining factors affecting prosthetic restoration among major lower limb amputees with diabetes in Sabah. **Methods:** Retrospective cross-sectional study among 65 major lower limb amputees with diabetes referred for rehabilitation medicine services at Queen Elizabeth Hospital from 1st January 2015 to 31st December 2017. Demographics data, pre-morbid diseases, levels of amputation and practice on prosthetic restoration (suitability for restoration, duration from prosthetic application to restoration, funding issue) are primary evaluated factors. **Results:** Forty-nine, fifteen and one amputees had below knee amputation, above knee amputation and hip disarticulation respectively. Forty-three amputees (66.2%) were deemed suitable for prosthetic restoration but only 27 were prosthetically restored, with mean duration from prosthetic application to restoration of 5.92 ± 2.189 months. Having additional pre-morbid diseases did not reduced the likelihood of suitability for prosthetic restoration compared to those only with diabetes ($p=0.082$). Funding issue is the key factor affecting prosthetic restoration with higher likelihood for restoration among those eligible through governmental agencies funding ($p=0.027$). **Conclusion:** In Sabah, low rate of suitability for prosthetic restoration is observed among major lower limb amputees with diabetes. A larger study is warranted to investigate causes of such low rate of suitability for prosthetic restoration among this specific population in the effort to reduce public health burden from major lower limb amputation-related disability.

Keywords: Lower limb amputations, Amputee rehabilitation, Prosthetic restoration, Diabetes-related amputations

Early Childhood Development and Play: A Review

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ABSTRACT

Introduction: Early childhood development (ECD) refers to cognitive, emotional and social development of young children. First three years of life are very crucial for ECD because during this time, brain grows fastest and is most responsive and receptive. Plenty of new connections (synapses) are formed in brain so that children acquire 85% of adult's brain volume by this age. Proper nutrition and positive stimulation are essential during this time. Play positively stimulates the brain and helps to create more, healthy inter-neuronal connections. The objective of this review was to make a constellation of research works and explore to learn the concept of ECD and its relationship with play. **Methods:** An extensive literature search was done using the key words: 'early childhood development and play'; 'play and brain development in children'; 'neuroplasticity and play'; 'how do children learn'; 'synaptic connections and early childhood development'; and 'can play make children intelligent'. The databases explored for the resources included Medline (PubMed), PsycINFO, Teacher Reference Center, Child Encyclopedia, Health & Education Advice & Resource Team (HEART) database, Catholic Relief Services database, UNICEF & World Bank databases, and Cochrane review. **Results:** The result of the review work showed that play has a temporal and linear relationship with cognitive and social development among preschool children. **Conclusion:** In this era of screen addiction, parents spend free time in social media and the kids playing or watching video games. It is contextual to propagate the concept of ECD and raise the awareness so that parents are motivated to spend more time playing with their children. No investment in human capital can be worth more than this.

Keywords: Early childhood development, Play, Intelligent, Neuroplasticity, Human capital

Needlestick Injuries – Incidence, Contributing Factors and Costs on Post Exposure Management at Tertiary Hospitals in Sabah

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ABSTRACT

Introduction: Needlestick injuries (NSIs) are common occupational hazards against healthcare workers (HCWs). NSIs led to serious economic burden as there were high costs for health system and the society, as well as the psychological impact on exposed workers post injury. **Methods:** A retrospective cohort study was conducted to determine the incidence, contributing factors of NSIs and to estimate the cost of PEM in Sabah's tertiary hospitals. Descriptive statistics were used to analyse and describe the trends of NSIs. Chi-Square test was performed to determine the association between variables, relative risk was calculated. **Results:** 145 cases out of 7075 employees were reported from 2017 to 2018. Results in this study showed that the highest incidence of NSIs was 2.4/100 employees in Hospital Queen Elizabeth. 1.1/100 employees in 2018, which was higher compared to year 2017. Most common among younger age group between 20-29 years old, among doctors, with median working experience of 2 years. NSIs occurred commonly at the wards, during blood taking, disposal of devices and common device used were hypodermic needles. There was a lack of awareness on NSI precaution guidelines among the doctors ($\chi^2=19.304$, $df=1$, $p<0.001$). The lack of awareness on NSI precaution guidelines was associated with recurrence of NSIs ($\chi^2=9.902$, $df=1$, $p=.002$). The risk of recurrent NSI was 2 times more likely to occur among those who were unaware of NSI precaution guidelines (RR=2.094, 95% CI 1.322-3.320). The estimated PEM cost ranged from RM143,840 to RM355,830 for the total of 145 cases in this study. **Conclusion:** We conclude that more aggressive preventive measures should be adopted to prevent NSIs and the high burden in PEM costs. Safety engineered devices are costly but might be a preferable choice to be invested as they may counterbalance the high cost on managing NSIs. Knowledge and compliance on standard precautions among the doctors should be monitored strictly.

Keywords: Needlestick injuries, Healthcare workers, Tertiary hospitals, Post exposure management, Safety engineered devices

A Review on Illegals and the Stateless in Sabah

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ABSTRACT

Introduction: Illegal immigrants refer to the migration of people into a country in ways that violates its immigration laws. A stateless person is a person who is not considered as a national by any state under the operation of its law. Interestingly, many who are stateless have never even crossed an international border. The term illegal is very loosely used in places like Sabah where it is interchanged with statelessness. As of 13 November 2018, it was estimated that there are about 12 million stateless people in the world. This review seeks to understand the current demographic situation in Sabah along with the public health repercussions of this demographic change and also to look into the success stories from around the world along with the recommendations from United Nation in solving this matter. **Methods:** The method used is reviewing of literature of previous studies conducted on statelessness and illegals. Local as well as international studies were reviewed. The data base used was ProQuest. **Results:** This review identified that one third of Sabah's population consists of non-locals and in the past 27 years, about half a million illegal immigrants have been deported from Sabah. These numbers pose major public health repercussions from the economic, crime and health point of view. The way forward involves incorporating the United Nation Action plan with the local requirements and settings. Despite challenges, Sabah is trying its best to curb this issue and the Public health repercussions through various initiatives. We have also identified that more public health actions can be taken to reduce the negative effects. **Conclusion:** Dealing with the stateless and illegals is a delicate matter and there is no one way to solve it. Every country and every state are unique therefore the methods used must be tailor made. This is not something that can be solved within a short period of time and therefore persistence and perseverance is very much needed to tackle this global issue.

Keywords: Sabah, Stateless, Illegals, Public health impact

Assessment of Practical Science Communication Skills as a Core Competency of Admission to Undergraduate Medical Programmes: Nationwide Outcomes and Associated Factors

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ABSTRACT

Introduction: Interprofessional scientific communication skills are an essential part of the medical profession. Multiple research suggests poor interprofessional communication has direct correlations with poor patient outcomes. As part of the inaugural Multiple Mini Interview (MMI) at Universiti Malaysia Sabah, a 5-minute station on science communication was introduced, assessed on three domains – logical thinking, communication skills, and general impression. This station featured a panicky nurse calling a doctor to get them to calculate doses of a medication, using only upper primary school-level arithmetic and knowledge of ratios. **Methods:** 255 candidates, grouped into 3 separate geographical groups – Klang Valley, non-Klang Valley, and Borneo – participated in the MMI featuring a science communication station. Candidates were graded in the abovementioned three domains, and correlations were calculated between scores and various sociodemographic factors, with an objective written basic science test, and with overall scores. Also, quantitative analysis was done of the “red flag” comments for candidates deemed unsuitable for the practise of medicine. **Results:** The average scores for West Malaysia for logical thinking scores were higher than Borneo, with non-Klang Valley scores (4.1) significantly higher than Klang Valley (3.6). Communication scores were also significantly lower in Borneo compared to West Malaysia. General impression scores hence also showed a discrepancy between West Malaysian and Bornean scores. There were a total of 8 red flags, with reasons ranging from gross miscalculation with misplaced confidence, to nervous breakdowns while performing calculations. **Conclusion:** The present study showed that there is a distinct separation of science communication scores between geographic regions. Also it illustrates the yawning gap between academic knowledge and “translational” scientific knowledge. The results illustrate the need for medical curricula to boost resilience and translational computational skills in medical graduates who will be working in environments that demand usual abilities under unusual and trying circumstances.

Keywords: Interprofessional communication, Logical thinking, Communication skills

Evaluating Clinical Waste Management Done by the Concessionaire Company in Accredited Non-Specialist Government Hospitals in West Coast Division and Interior Division of Sabah

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ABSTRACT

Introduction: Clinical wastes produced by health facilities were considered as scheduled waste listed in the First Scheduled of the Environmental Quality (Scheduled Waste) Regulation 1989. The management of clinical waste in all government hospitals in Sabah were outsourced to private concession company. Until now, there was no research being done in Sabah to evaluate it. **Methods:** This cross-sectional study was carried out on eight concessionaire companies located inside accredited non-specialist government hospitals in West Coast Division & Interior Division of Sabah. Data collected through Clinical Waste Management (CWM) Scores and Questionnaires. CWM scores adopt 5 elements of accreditation standard produced by Malaysian Society Quality in Health (MSQH). Questionnaires were used to collect concessionaire staff's basic personal data, services and activities related to clinical wastes according to MSQH standard. Response from questionnaires were used to compare and support result gained from CWM scores. Descriptive analysis was used to analyze the data. **Results:** Two concessionaire companies got overall CWM scores ranging between 86% - 90%, while the other six companies were above 95%. It happened because both companies gained 81% and 73.3% on Policies and Procedures element. Result from questionnaires answered by 67 concessionaire staffs showed 98% of staffs had attended meeting, 97% had received an orientation, 97% had received training related to clinical wastes, 95% agreed that their work was monitored and no occupational disease and injury recorded between January to April 2019. These result correlate with CWM scores gained under Organization Management element (99.6%), Human Resource Management element (90.1%), Facilities and equipment element (97%) and Safety & Quality Improvement element (100%). **Conclusions:** All concessionaire companies were implementing excellent clinical waste management in hospitals. CWM scores can be used to rank individual concessionaire company and provide pattern of uniformity or non-uniformity of the clinical waste management in Sabah.

Keywords: Clinical waste, Schedule waste, Accreditation

Factors Affecting Health Seeking Behavior among Male University Students in Universiti Malaysia Sarawak

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ABSTRACT

Introduction: Fewer men were engaged in taking responsibility of their own health. Previous evidence showed that the roles of masculinity, self-rated health status, social support and health literacy level affecting health seeking behaviour among men. However, there is still lack of evidence in Malaysia. The objective of this study was to determine the factors influencing health seeking behaviours among male university students. **Methods:** This was a cross sectional study conducted in Universiti Malaysia Sarawak. Recommended sample size was 360 respondents. Out of eight faculties, using EXCEL randomization technique, first 4 faculties were selected. The selected faculties were Faculty of Business and Economics, Faculty of Social Sciences, Faculty of Engineering and Faculty of Language and Communication. Based on the name list given from each faculty, alternate names were selected to participate. Data was collected using self-administered questionnaire. **Results:** 354 male students participated in this study. Total of 259(73.2%) students were reported to have low overall health seeking behaviour. Chi-square analysis showed of all the variables, there was correlation between health literacy level ($r = 0.149$, $n = 354$, $p < 0.01$) and perception of masculinity ($r = 0.181$, $n = 354$, $p < 0.01$), towards health seeking behaviour. Binary Logistic Regression further confirmed that, respondents who are having higher masculine sex trait were over 2.4 times less likely to report a good health seeking behaviour than those who have feminine traits. It also showed that respondent with poor health literacy level were 2.1 times less likely to report good health seeking behaviour. **Conclusion:** Perceived barriers to men's health are typical masculine traits and low health literacy level among men.

Keywords: Health seeking behaviour, Health literacy level, Masculinity, Health care knowledge and utilization, Self-reported health status

Diabetic Hidden Gem: High Amylose Content in Sabah's Traditional Rice Germplasm

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ABSTRACT

Introduction: Rice is classified as waxy, very low, low, intermediate and high based on its amylose content (AC). Most people prefer to consume intermediate AC rice because of its texture which tends to appear in between low (moist and sticky) and high (dry and less tender). Although rice with high AC appears dry and less tender, it usually possesses a low glycemic index (GI) i.e. a slower increase in blood glucose level after the consumption of food. Consequently, people with diabetes are recommended to eat low and intermediate GI foods. Although, rice is generally categorised as a high GI staple food there are some exceptions to it. For example, the premium Basmati aromatic rice possesses a low GI and is recommended for diabetic patients. The study aimed to identify Sabah's traditional rice germplasm with low GI via AC that may be used as a replacement to commercial rice varieties. **Methods:** A total of 110 traditional rice samples were obtained from rice fields located in the Tuaran and Kota Belud districts of Sabah. The AC in each sample was determined via I:KI method (ISO AACC-6647). **Results:** We found that 46 (41.8%), 51 (46.4%), 7 (6.4%) and 6 (5.5%) Sabah's traditional rice samples possess high, intermediate, low and very low AC, respectively. The intermediate AC type is predominant in Sabah's traditional rice germplasm as it is the preferred rice texture by the general population. We have identified 46 rice germplasm with high AC type (i.e. with low GI value). The AC content in these is comparable to the Basmati rice and may be suitable candidates for diabetic patients. **Conclusion:** The present study showed Sabah's traditional rice germplasm has the potential to be promoted as a low GI rice cultivar based on AC for diabetic patients in order to prevent spikes in blood glucose levels while still enjoying the staple food

Keywords: Traditional rice, Sabah, Amylose content, Glycemic index, Diabetes

The Determinants of Total Fertility Rate in Selected Asian Countries: An Empirical Study Using Panel Data

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ABSTRACT

Introduction: In recent years, the variation in total fertility rate (TFR) has sparked public interest for demographic concerns on the global population shift towards an older age structure. This study aims to investigate the determinants of total fertility rate among Brunei, Indonesia, Malaysia and Philippines East Asian Growth Area (BIMP-EAGA) region. **Methods:** Our empirical study consists of data collected from the United Nations Development Report of the UNDP, World Development Indicators (WDI) of the World Bank and World Health Organization (WHO) report 2018. We investigated the socio-economic determinants of fertility rate by analyzing a panel data set consisting of 28 years from 1990-2017 of the four countries. A statistical and econometric software EViews version 10 (HIS Global Inc., Irvine, CA, USA) were used to run a Pearson's Correlation and a multiple regression analysis by panel least squares method. To investigate the determinants of TFR we have selected five socio- economic factors, these are- Infant mortality rate (IMR), Gross National Income Per Capita, PPP (GNI), Human Development Index (HDI), percentage of population living in urban areas (URB) and lastly Female Labor Force Participation Rate (FLP). **Results:** Pearson's correlation showed that a statistically significant negative relationship exists between TFR and the 3 variables- GNI, URB and HDI. A statistically strong positive relationship exists between IMR and TFR. However, our results from the empirical multiple regression model indicates that there is a statistically significant negative relationship exists between TFR and two of the independent variables GNI and FLP. **Conclusion:** The results of present study showed that an increase in the national income and female labor participation rate in the workforce could result in a decrease in total fertility rate. These findings may have implications for countries national policy for planning, development and resource allocation.

Keywords: Total fertility rate, Asian, Socioeconomic

Factors Associated with Uncontrolled Hypertension among Hypertensive Patients in Tuaran, Sabah, Malaysia: A Cross-Sectional Study

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ABSTRACT

Introduction: Hypertension prevalence is increasing globally and has become a major issue of disease as it is a major cause for cerebrovascular, kidney and cardiovascular diseases. Even among treated patients, there is a disproportional of blood pressure control causing a major public health challenge. This study is aimed to decide on the prevalence of uncontrolled hypertension and its associated factors among hypertensive patient attending hypertension clinic at primary health clinics in Tuaran district. This study is justified by the fact that uncontrolled hypertension leads to high mortality, morbidity and even premature death. **Methods:** This study is a cross-sectional study among 460 hypertensive patients attending three primary health clinics in Tuaran district, Sabah. Data were collected using structured modified questionnaires through interviews, physical examinations and patient's medical records. Types of data collected include socio-demography, lifestyle behavior, physical examination, co-morbidity status and medical adherence. Data analysis done using SPSS version 24.0. **Results:** Prevalence of uncontrolled hypertension was 45.9%. The study found that factors significantly associated with uncontrolled hypertension with $p < 0.05$ were lower medication adherence (OR 1.834, 95% CI: 1.256, 2.678), presence of diabetes mellitus (OR 3.436, 95% CI: 2.104, 5.613), high BMI status (OR 1.975, 95% CI: 1.305, 2.990) and male gender (OR 2.1, 95% CI: 1.442, 3.061). **Conclusion:** The prevalence of uncontrolled hypertension was found in nearly half of the study population. The present of other associated factors such as lower hypertensive medication compliance, diabetes mellitus and obesity had a higher impact on uncontrolled hypertension patients in the study group. Further study is needed to address attitude change, extra guidance, coaching and empowerment issues in the treatment of hypertensive patients.

Keywords: Hypertension, Prevalence, Diabetes mellitus

Does Maternal Health Literacy Affect Childhood Vaccination? A Study Among Mothers in Asajaya Sarawak

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ABSTRACT

Introduction: Childhood vaccination is proven as the most effective intervention to prevent and reduce children mortality caused by Vaccine Preventable Diseases (VPD). It is a major public health concern globally as there are still existences of vaccine incompleteness. Despite good immunization coverage, outbreaks of VPD are still reported from time to time with serious implications. The aim of this study is to assess the association between maternal health literacy with completion of childhood vaccination. **Methods:** A cross-sectional study design was conducted among mothers with children aged 5 years and below using a face to face interview questionnaire. Data entered and analyzed using SPSS version 22. Chi square was used to look for association between two categorical data. **Results:** Majority of respondents were mother's aged 30's, Malays (76.1 %), completed secondary education (74.8 %) unemployed (63.8 %). Study showed (98.99%) children completed vaccination however (1.01 %) had incomplete vaccination. There was significant findings on association between maternal education and partner's education, main language, employment status and household income with health literacy. The mean health literacy score among the incomplete vaccination group was slightly lower (36.9) compared to the completed vaccination group (39.4). The problematic health literacy was seen at (17.4 %) and the sufficient health literacy was (82.6%). **Conclusion:** The finding indicated that there is an association between maternal education, partner's level of education with health literacy. The health literacy score among those who completed vaccination was slightly higher. Initiatives focusing on maternal health literacy could further improve vaccination completion among children.

Keywords: Health literacy, Childhood vaccination, Sarawak, Vaccine preventable disease, Cross-sectional

Vaccine Knowledge, Awareness, and Hesitancy among Malaysian Parents Attending Health Clinics in Sandakan, Sabah

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ABSTRACT

Introduction: There has been a resurgence of vaccine-preventable diseases in Malaysia over the recent years. In overcoming this issue, parents as the main caregiver of their children play a major role, which is to protect their children against diseases via vaccinations. This study aimed to examine the parents' vaccine knowledge, awareness, and hesitancy in relation to their children's immunisation status and to determine the association between the parents' vaccine knowledge, awareness, and hesitancy. **Methods:** A cross-sectional study with a sample size of 405 parents was conducted in the Sandakan health clinics from February 2018 to April 2018 by employing validated questionnaires adapted from two studies. **Results:** The median \pm IQR of the total vaccine knowledge and awareness scores (ranging from 0-10) were 7.00 ± 3.00 and 8.00 ± 4.00 , respectively. Meanwhile, the median \pm IQR of the total vaccine hesitancy scores (ranging from 0-100) was 16.67 ± 20.00 , with only 27 (6.8%) parents being vaccine-hesitant (scores >50). Most of the children ($n=376$, 92.8%) were immunised in the study. It observed a significant association between the children's immunisation status and the parents' vaccine knowledge scores ($p = 0.005$). Nevertheless, the children's immunisation status was not significantly associated with the parents' vaccine awareness and hesitancy scores. The positive Spearman correlation value ($r = 0.551$) signified that the parents' vaccine knowledge was positively associated with their vaccine awareness. On the other hand, both the vaccine knowledge and awareness were negatively correlated to the vaccine hesitancy as indicated by the negative Spearman correlation value ($r = -0.397$ and $r = -0.351$ respectively). **Conclusion:** The study established that the parents with a better understanding about vaccinations were more likely to keep their children's immunisation up-to-date. It was also revealed that improving the parents' knowledge and raising their awareness about the importance of vaccination are vital in reducing their vaccine hesitancy.

Keywords: Vaccine, Knowledge, Awareness, Hesitancy, Immunisation status

Mutations Causing Streptomycin Resistance in *Mycobacterium tuberculosis* Isolates of Sabah

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ABSTRACT

Introduction: Tuberculosis (TB) still remains a public health problem worldwide and the emergence of drug resistant TB (DR-TB) has worsened the situation as it is difficult and expensive to treat. The characterization of the genetic mutations underlying streptomycin resistance may be helpful in developing rapid detection methods which may guide clinicians in making therapeutic decisions. The aim of this study is to detect mutations causing streptomycin (STR) resistance in *Mycobacterium tuberculosis* isolates from Sabah. **Methods:** Susceptibility testing was carried out in MGIT system for 42 *Mycobacterium tuberculosis* clinical isolates. The drug resistant isolates were subject to whole genome sequencing and in-silico analysis was performed to detect the mutations in the sequence of the *rpsL* gene known to confer resistance to anti-tuberculous drugs. **Results:** Of the 42 positive isolates, 27 (64.3%) are shown to be susceptible towards first line drugs (FLDs) while 15 (35.7%) isolates were mono- and multiple resistant to the FLDs. Our findings reveal that the isolate 145 possess mutations at codon 43 within *rpsL* gene with amino acid change A to G (K43R). **Conclusion:** Findings from this study enable us to expand our knowledge of mutations causing drug resistance in *Mycobacterium tuberculosis* and the point mutations, which can be used as the potential marker for detection of drug resistant isolates.

Keywords: Streptomycin resistance, Mutations, *Mycobacterium tuberculosis*

Associated Factors for Lymphatic Filariasis in Beluran, Sabah

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ABSTRACT

Introduction: Lymphatic filariasis is a public health problem in Malaysia. In sub-district Tangkarason, Beluran the nine rounds of Mass Drug Administration (MDA) do not seem to work in reducing the microfilaria (Mf) prevalence below the 2% threshold that the World Health Organization (WHO) recommends for stopping MDA. The study aims to identify possible factors contributing to the transmission of lymphatic filariasis in the area. **Methods:** A total of 244 individuals from seven high risk localities, whom between the age of 19 and 99-year-old, were interviewed and tested for lymphatic filariasis antibody. The associated factors were analyzed using Chi-square test (Fisher exact test where applicable) and odds ratio (OR), and adjusted odds ratio (AOR) was estimated using logistic regression. **Results:** The median age was 40-year-old (interquartile range: 30-53). The prevalence of brugian filariasis in the studied population was 31.1% (95% CI 0.25, 0.37). Prevalence of brugian filarial infection is higher in males than in females (34.6% vs. 27.4%, $P = 0.219$); and in older adults (≥ 56 -year-old) than in young-and-middle-aged adults (46.3% vs 26.8%, $P = 0.006$). The older group is 2.4 times at higher odd of contracting the disease than the younger adults (95% CI 1.26, 4.38; $P = 0.007$). The prevalence of brugian filarial infection is higher among those who never receive prophylaxis treatment compared to those who had received medications (48.5% vs 28.4%, $p = 0.021$). Those who had received prophylaxis treatment have about 60% reduction in odd of lymphatic filariasis infection (OR 0.42; 95% CI 0.20, 0.89; $P = 0.023$). The proportion of the studied population who has outdoor jobs is 52.9%. The prevalence of brugian filarial is higher in this group compared to those with indoor jobs (38.0% vs 23.5%, $p = 0.015$). The older age group was significantly associated with brugian filarial infection after adjusting for other factors (AOR 3.20; 95% CI 1.63, 6.32). **Conclusion:** The older adults (≥ 56 -year-old), those who never involved in MDA and those with outdoor jobs are associated with lymphatic filariasis infection in Beluran.

Keywords: Lymphatic filariasis, Factors, Beluran, Sabah

Risk Factors of the Occurrence of Malaria *knowlesi* in Ranau: A Case Control Study

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ABSTRACT

Introduction: Malaria is a public health concern and still endemic in Malaysia particularly in Sabah. Malaria is due to plasmodium parasite which can be further divided into human malaria and zoonotic malaria. *Plasmodium knowlesi*, a zoonotic malaria species, is increasing in trend and alarming despite of ongoing prevention and control measures especially in Sabah. **Methods:** This is a case-control study involving a total of 169 respondents which comprises of 43 cases and 126 controls from Mukim Paginatan and Mukim Nalapak, Ranau. A simple random sampling were used to select subjects. **Results:** This study found male, forest related and doing outdoor activity has higher risk of contracting malaria. Village house is another significant risk factor. The specific risk factors with the strongest association with malaria is the presence of monkey near housing or farm area (OR 5.667; 95% CI: 2.429, 13.220), live near forest (OR 5.330; 95% CI: 1.209, 23.495), presence of pond or pool or river near house (OR 4.222; 95% CI: 1.552, 11.490), doing outdoor activity after 5 PM (OR 3.434; 95% CI: 1.522, 7.748) and ever overnight in the hut (OR 2.724; 95% CI: 1.334, 5.561). **Conclusion:** This study shows several risk factors that associated with malaria *knowlesi*. Based on the identified risk factors, preventive and control measure can be improved and optimized.

Keywords: Malaria, *Plasmodium knowlesi*, Ranau, Sabah

Stigma Related to Tuberculosis Interventions to Improve Treatment Adherence in Developing Countries: A Systematic Review

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ABSTRACT

Introduction: Despite considerable effort invested for tuberculosis (TB) control, the outcome has not been optimal due to several barriers. Stigma has been an important factor that hinders the completion of full course of TB treatment, i.e. it results in poor treatment adherence. This systematic review is aimed to review the interventions targeting tuberculosis related stigma in order to improve treatment adherence among tuberculosis patients in developing countries. **Methods:** A systematic electronic database search (PubMed, Google Scholar, ProQuest, Science Direct, Ovid, Spring and Cochrane) covering articles published between 2008 and 2019 had been conducted using truncated search words of “stigma related to tuberculosis”, “TB Stigma”, “Intervention”, “treatment adherence”, “treatment compliance”, and “developing countries”. Only English articles exploring stigma among TB patients and its anti-stigma intervention in developing countries were included. **Results:** A total of 846 articles were retrieved and 346 were excluded due to duplication while another 361 non-relevant articles at the stage of title screening were excluded. Subsequently, 119 articles were excluded for not fulfilling inclusion criteria and only 3 studies remained. **Conclusion:** From the three articles, TB treatment outcomes were improved with the use of stigma intervention, including health education and counselling, self-support, and psychological support interventions. Optimal implementation of stigma interventions may vary by setting, resources, and the local TB epidemiology. More controlled interventional research is needed in stigma reduction that leads to improve TB adherence in developing countries.

Keywords: Stigma, Tuberculosis, Anti-stigma intervention, Treatment adherence, Developing countries

Prevalence of Soil Transmitted Helminths among School Children in Northern Sabah

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ABSTRACT

Introduction: World Health Organization in 2019 reported that about 1.5 billion people are infected with soil-transmitted helminths (STH) worldwide. Infected children with STH might manifest signs of anaemia and impaired nutritionally or physically. This study aimed to look at the prevalence of STH in the area of North Sabah among rural primary schools and examine the associated factors. **Methods:** A cross-sectional study was conducted in four selected primary school in the district of Kudat of Sabah from 2014 to 2015. Tools used for the study were questionnaire and stool sampling. Questionnaire focused data on sociodemographic, hygiene and use of anti-helminths drugs. Stool samples collected were sent for microscopic examination for presence of STH ova. Written consents were obtained from parents/guardians. Chi-square was used to examine the association of having STH and factors on utilities facilities, hygiene and anti-helminths drug. SPSS version 23 was used for statistical analysis. **Results:** There was 433 school children aged 7 to 12 years old with 224 males and 209 females respondents. Three-quarters main source of water supply in the homes from treated water. Those with proper built toilet were 96%. Practices of washing hands after toilet and before eating were 96% as well. Almost 95% wear slippers when outside homes. Only 61% took their anti-helminths drug in the past 1 year while in the last 6 months the uptake was 38.7%. The prevalence of positive ova of STH in the stool sample was 57 out of 433 or 13.2%. STH infection was not statistically significant associated with the above factors. **Conclusion:** The prevalence of STH infection among primary school children in the district of Kudat although has lowered over the years is still considered higher than most states in Malaysia. Continuous public health intervention is necessary to further bring down the prevalence of STH infections.

Keywords: Soil transmitted helminths, Parasites, Prevalence, Children, Rural

The Prevalence of Anaemia and Associated Factors among Pregnant Women in Tongod and Kinabatangan Districts

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ABSTRACT

Introduction: Anaemia in pregnancy is a major cause of disability worldwide, with a prevalence of more than 20% in >80% countries worldwide. Of those affected, roughly 50% are due to iron-deficiency anaemia, but there is some variation across different populations due to local culture and practices. Anaemia affects 38% of pregnant women worldwide, while in Malaysia the prevalence is 35%. The study aim is to determine the prevalence of anaemia among pregnant women in 2 rural districts in Sabah as well as knowledge, attitude and practices towards anaemia in these women. **Methods:** This retrospective cross-sectional study was done in Tongod and Kinabatangan Districts involving 217 pregnant women at 35-37 weeks of gestation who attended antenatal check-up at 6 government clinics in these districts. An interview using a standardized questionnaire was conducted by community nurses at the respective clinics. Sociodemographic and antenatal details was collected, including information about knowledge, attitude and practices toward anaemia. The Chi-square test was used to compare anaemia at 36 weeks with selected sociodemographic and antenatal factors, as well as KAP factors. **Results:** The mean age of women in the study was 28.4 ± 5.9 years, and the mean haemoglobin level at around 36 weeks age of gestation was 11.0 ± 1.1 g/dL. Prevalence of anaemia in these women was 52%. Most of the answers in the KAP section reflected the relatively high awareness about anaemia in pregnancy and methods to lessen its effects. A significant association was found between anaemia at 36 weeks and monthly family income, defaulting on iron supplements, caffeine beverages taken with meals, and dietary restrictions ($p = 0.010, 0.001, 0.001, \text{ and } 0.017$ respectively). **Conclusion:** The high prevalence of anaemia among pregnant women in these 2 districts reflects the practices of these women despite high levels of knowledge of anaemia. More effort needs to be done to apply this knowledge to decrease anaemia in pregnant women in rural areas.

Keywords: Anaemia, Pregnancy, Knowledge, Sabah

Occupational Burnout and Its Influencing Factors among Primary Health Care Providers under Tuaran Area Health Office

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ABSTRACT

Introduction: Primary health care providers face a wide range of stressors and are at high risk of developing occupational burnout, which may cause ineffectiveness and reduce the productivity of the health care system. **Methods:** A cross-sectional study was conducted among the primary health care provider working in health facilities under Tuaran Area Health Office. A total of 199 of 604 providers randomly selected as respondents for this study. Self-administered questionnaire and the Maslach Burnout Inventory are used for data collection. Descriptive statistics were used to determine the prevalence and Chi-square test was used to determine the association of risk factors. **Results:** Prevalence of occupational burnout is 10.1% with high level of overall burnout (n = 20), 60.8% are having low to moderate level of overall burnout (n = 121) and 29.1% has no burnout (n = 58). A significant relationship was observed between burnout, high workload, out-of-scope workload and distance between home and workplace ($p \leq 0.01$). However, no significant relationship was observed between burnout and age, gender, marital status, financial status, education level, experience and income. **Conclusion:** This study shows that distribution of workload as well as the job scope may affect burnout. Further study can be conducted to identify home-workplace distance relation to burnout. With the identification of these factors, a counter measures and intervention can be implemented.

Keywords: Occupational health, Occupational burnout, Primary health care, Sabah

Application of Occupational Health Surveillance Program among Responder's During Chemical Incident at Pasir Gudang, Johor

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ABSTRACT

Introduction: Responder's action during mass environmental chemical incident involves collaboration of multiple agency. They clean the exposure site, control public safety and safe lives. The health of the responder is also as valuable as the public and always been neglected. Hence, this study is to highlights the method used and challenges during the incidents. **Methods:** A modified Occupational Health Surveillance Programme designed by Baker and Matte (Thirteen Steps in designing and implementing an Occupational Health Surveillance Programme) was implemented. These method full fill the criteria of impossible further reduce exposure to known hazards and uncertain health effect of the offending chemicals. Two core workplace namely the source of chemical contamination locale and victims' evacuation centre were identified. The exposed responder is identified and categorised according to their expected exposure. Offending chemicals identified were known hazardous to health. An electronic survey form was developed and the surveillance were conducted during the event and post-exposures of one, third and sixth months. Laboratory tests were performed as a grab sample randomly and strategically to represent responder exposure. **Results:** During the event, 1338 responders were surveyed and twenty percent had symptoms of cough, headache, sore throat, nausea and skin irritation. After one-month post-exposure, three percent of responder noted to have continue symptoms. Laboratory tests were performed randomly due to the sheer numbers of responders in action. Only sixty-one samples were collected and sixteen percent had positive metabolites for urine cyanide. Responders with abnormal laboratory result (FBC/LFT/RP/Urine) were interviewed and a repeat sample were performed. **Conclusion:** The health surveillance of the responder in mass environmental chemical incident is a great challenge when the exposure level is unsure and involve more than one chemicals. Likewise, reliability and validity adopting statistical test for health surveillance instruments is unattainable due to urgency. However, a proper method of occupational surveillance need to be devised and implemented to ensure the protection of worker's health is guaranteed.

Keywords: Occupational health surveillance, Responder, Chemical incident

Association of Smartphone Usage with Anxiety, Depression and Stress among Undergraduate Students in Universiti Malaysia Sabah

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ABSTRACT

Introduction: Smartphone addiction is a hotly debated public health issue and it affects every generation especially the youth and younger generation nowadays (Generation Z/ i-Generation) and contributes to the poor mental health status like stress, anxiety and depression. This study is carried out to determine the prevalence of smartphone addiction and its association with stress, anxiety and depression among the undergraduate students in Universiti Malaysia Sabah. **Methods:** A cross-sectional study was conducted among the undergraduate students in Universiti Malaysia Sabah. A total number of 456 undergraduate students in Universiti Malaysia Sabah with at least a smartphone device were enrolled in the study by stratified random sampling. A self-administered questionnaire, Smartphone Addiction Scale Malay Version (SAS-M) and The Depression, Anxiety and Stress Scale – 21 Items (DASS-21) Malay Version were used for data collection. The prevalence of smartphone addiction, stress, anxiety and depression among undergraduate students of Universiti Malaysia Sabah were determined. Simple linear regression was used to determine the effect of smartphone addiction to stress, anxiety and depression. **Results:** Prevalence of smartphone addiction among undergraduate students in Universiti Malaysia Sabah is 61.2% (95% CI : 56.5%, 65.7%). The prevalence of stress, anxiety and depression among undergraduate students in Universiti Malaysia Sabah are 34.9%, 58.6% and 42.5% respectively. The univariate analysis shows that smartphone addiction is significantly associated with stress (Regression Coefficient = 0.774, 95% CI 0.54, 1.01 ; P-value <0.001), anxiety (Regression Coefficient = 0.647, 95% CI 0.402, 0.892 ; P-value <0.001) and depression (Regression Coefficient = 0.576, 95% CI 0.344, 0.808 ; P-value <0.001). **Conclusion:** This study shows that there is a high prevalence of stress, anxiety and depression among undergraduate students in Universiti Malaysia Sabah as compared to the statistics from National Health and Morbidity Survey 2017. This study demonstrates the significant association between smartphone addiction with stress, anxiety and depression. Interventions shall be implemented with the identification of the smartphone addiction as the risk of poor mental health problem.

Keywords: Smartphone addiction, Stress, Anxiety, Depression, Mental health

The Effectiveness of Probiotics, Prebiotics, and Dietary Fiber on the Lowering of Cholesterol Level and Improvement of Full Lipid Profile

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ABSTRACT

Introduction: Coronary heart disease (CHD) has become the number one cause of death worldwide. Past studies have established the efficiency of prebiotics, probiotics, and their combination on lowering blood lipids. However, the mechanism(s) on the reduction of cholesterol involved is not fully understood due to limited in-vivo studies. Therefore, the reported hypocholesterolaemic potential of probiotics and prebiotics supplementations warrants further research. This study examined the effectiveness of the intervention products on improving lipid profiles, (total cholesterol (TC), HDL-C, LDL-C, TG). **Methods:** A randomized, single blind intervention involving 8 weeks of treatment followed by 4 weeks of washout period was carried out on 29 volunteers with TC 5.2-6.0 mmol/L who were screened from 517 volunteers. Exclusion criteria included chronic diseases, immune-compromised diseases, consumption of cholesterol-lowering drugs, and pregnancy if female. Informed consent was obtained before commencement of the study. Participants were randomly assigned to receive 2g/d Lactobacillus Acidophilus NCFM probiotic powder, 10g/d inulin, 10g/d dietary fibre, control intervention of 20mg/d statin, or control intervention of diet counseling. **Results:** No significant ($p>0.05$) changes were observed in the fasting blood glucose, physical activities and total nutrient intake of all the groups. Inulin reduced LDL-C by 12.13%. Probiotic reduced TC by 6.98%. Dietary fibre reduced TC by 8.6%, and LDL-C by 16.08%. **Conclusion:** Although the results showed no significant changes, it may be clinically significant as the intervention products improve the lipid profiles. It was concluded that the improvement in the lipid profiles may be attributable to the intervention products.

Keywords: Hypercholesterolaemia, Probiotic, Inulin, Dietary fibre, Cholesterol-lowering

Factors Associated with Occupational Exposure to Blood and Body Fluids among Healthcare Worker in a Government Hospital in Sabah

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ABSTRACT

Introduction: Healthcare workers (HCWs) are exposed to occupational blood and body fluid exposure (OBBE) that potentially cause blood-borne infection such as HIV, Hepatitis B and Hepatitis C, with risk of transmission 0.3%, 6 to 30% and 0-10% respectively. They are exposed to these infections through percutaneous injury, splash exposure of blood and body fluids to mucous membrane and non-intact skin. Aim of this study was to determine prevalence and risk factors associated with occupational exposure of blood and body fluid in a tertiary government hospital in Sabah.

Methods: A cross sectional study was conducted involving 10 places, was chosen by stratified random sampling and involved various job categories (specialist, medical officer, house officer, nurse, hospital assistant and Sedafiat worker). Self-administered questionnaire used as study tool. The data was analysed by using SPSS version 22.0. Association of risk factors and OBBE incidence were determined by Chi-square test and simple logistic regression.

Results: A total of 334 respondents involved in this study. Prevalence of OBBE was 25.2% with 95% CI of 20.6% to 30.2% and highest (41.3%) among HCWs working in medical ward. Nurses were less likely to have occupational exposure to blood and body fluids (Crude OR=0.33, 95% CI: 0.20, 0.57). Needle recapping (Crude OR=3.77, 95% CI: 1.99, 7.10) and never attend training in infection prevention (Crude OR=3.19, 95% CI: 1.69, 6.05) were associated with higher odds of OBBE. There was 76.3% of respondents adhere to universal precaution. HCWs who did not work in shift (Crude OR=3.04, 95% CI: 1.49, 6.21) and non-nurses (Crude OR=2.04, 95% CI: 1.06, 3.92) profession had better adherence to universal precaution. **Conclusion:** Prevalence of OBBE was 25.2%. Modifiable risk factors for OBBE were identified including needle recapping and training on infection prevention. Shift work is associated with adherence to universal precaution. Adequate training, increasing knowledge and awareness may help to reduce OBBE burden.

Keywords: Healthcare workers, Occupational exposure, Blood and body fluids

Impact of Socio-Economic Status on Access and Outcome of Kidney Transplantation in Malaysia

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ABSTRACT

Introduction: Low socio-economic status (SES) has been associated with poorer access and worse outcome in kidney transplantation (KT) for high-income countries. In contrast, relatively little is known about the KT access and outcome between the socio-economic gradient in Malaysia, which is a low- and middle-income country. The aim is to determine the association of SES with access and outcome of kidney transplantation in Malaysia. **Methods:** We examined the Malaysian National Renal Registry for kidney transplant candidates listed between 2002 to 2011. Cox's regression was used to assess associations of SES with transplant access and outcome (survival). **Results:** 1234 patients were transplanted in 2002-2011 after excluding pediatric patients and multiple transplantations. The mean age of patients was 42.3 ± 12.3 years, 789 (63.9%) were male and 797 (65.0%) were of Chinese ethnicity. After multivariate adjustment, the highest income group were 20% less likely to access KT compared the lowest income group (adjusted HR=0.80, CI: [0.62, 1.04] producing trend for P-Value = 0.001. While patient with highest education were 50% more likely to survive compared to patient with lowest education (adjusted HR=0.50, CI: [0.34, 0.73] producing trend for P-Value < 0.001. **Conclusion:** Even in a healthcare system that is almost achieving universal health coverage, disparities exist in both extremes of the socio-economic gradient for the access and outcomes for KT in Malaysia. Reducing the SES disparities in KT will require policy initiatives addressing the components of SES (income, education, and employment) as well as the pathways by which this affect the health of KT patient.

Keywords: Socio-economic status, Disparities, Kidney transplantation, Access to transplantation, Waiting time

POSTER PRESENTATION

Prevalence of Cigarette Smoking and Its Associated Factors among Male Adolescents in Malaysia

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ABSTRACT

Introduction: Smoking kills 5 million people a year and it is known to cause several types of cancer and chronic diseases. Majority of smokers started smoking during adolescence and therefore preventing tobacco use among adolescents is critical to prevent them from future smoking. Our study aims to investigate the prevalence of current cigarette smoking and its associated factors among male adolescents in Malaysia. **Methods:** Data was obtained from the National Health and Morbidity Survey (NHMS): Adolescent Health Survey (AHS) 2017 which was a cross-sectional study. A two-stage stratified cluster sampling design was used to select a nationally representative sample of school-going adolescents in Malaysia. Data collection was conducted using a validated self-administered questionnaire. Multiple logistic regression analysis was performed to identify the associated factors of current cigarette smoking among male adolescents in Malaysia. **Results:** Approximately one-fifth (22.4%) of male adolescents were current cigarette smokers. Male adolescents who aged 16-17 years, from rural schools, those whose parents were widowed/ divorced/ separated, those who had either one or both parents/ guardians who used tobacco product, those who were current illicit drug users and current alcohol users were more likely to be current cigarette smokers. **Conclusion:** A substantial percentage of Malaysian male adolescents were current cigarette smokers. Anti-smoking campaigns and tobacco prevention initiatives should be targeted at adolescents at risk to prevent them from becoming cigarette smokers.

Keywords: Tobacco, Adolescent, Cigarette smoker

A 3-Year Cross-sectional Study on Breast Cancer among Sandakan Indigenous Women: Do They Present Earlier?

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ABSTRACT

Introduction: Breast cancer is the commonest cancer in Malaysia, predominantly among women under age of 60 and they often presented late. Borneo is home to multi-racial indigenous with heterogeneous background and breast cancer profile can be absolutely unique. This study aims to examine the demographic characteristics and stage at presentation in Sandakan women with newly diagnosed breast cancer. **Methods:** This is a cross-sectional, retrospective study involving those women who were newly diagnosed with breast cancer from January 2016 to December 2018 in Duchess of Kent Hospital, Sandakan identified via hospital cancer registry and patient records. Only breast cancer with epithelial origin was included. Age, ethnicity and stages at presentation of breast cancer were analysed. Logistic regression was used to study their relationships. **Results:** 110 women were newly diagnosed as breast cancer. Mean age was 53.5 (SD 12.7), the youngest at 30 and the eldest at 97. Majority (64.6%) were local indigenous women, constituted by 25.4% Sungai, 14.1% Kadazan-Dusun, 12.7% Bugis and the minorities. Chinese women are the main local non-indigenous (32.7%) followed by 2.7% Malay. 52.1% presented at late stages (stage III/IV). Subgroup analysis of T-staging revealed 41.7% had advanced symptoms (T3/T4). Indigenous group was more likely to present at younger ages (OR 12.0; 95%CI 1.5-93.8) and with advanced symptoms (OR 3.1; 95%CI 1.2-8.0). **Conclusion:** Awareness on breast cancer remains inadequate particularly among indigenous women. Difficult healthcare accessibility and incline towards traditional medicine could attribute to late presentation. Outreach awareness programmes are warranted in addition to mobile screening services.

Keywords: Breast cancer, Borneo, Sandakan, Indigenous, Presentation stage

Identification of *Mycobacterium tuberculosis*-Specific DNA Marker Using MAMA-PCR

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ABSTRACT

Introduction: Tuberculosis (TB), commonly caused by *Mycobacterium tuberculosis* (Mtb), is one of the ten leading causes of death worldwide. The gold standard, microbiological culture for detection and differentiation of mycobacteria are time-consuming and laborious. The use of fast, easy and sensitive nucleic acid amplification tests (NAATs) for diagnosis of TB remains challenging because there is a high degree of homology within Mtb complex (MTBC) members and absence of target genes in the genome of some strains. This study aimed to identify new candidate genetic marker and to design specific primers to detect Mtb using *in silico* methods. **Methods:** Using Basic Local Alignment Search Tool (BLAST) program, Mtb H37Rv chromosome reference genome sequence was mapped with other MTBC members and a single nucleotide polymorphism (SNP) at Rv1970 was found to be specific only for Mtb strains. Mismatch amplification mutation assay (MAMA) combine with polymerase chain reaction (PCR) was used as an alternative method to detect the point mutation. MAMA primers targeting the SNP were designed using Primer-BLAST and the PCR assay was optimized via Taguchi method. **Results:** The assay amplified a 112 bp gene fragment and was able to detect all Mtb strains, but not the other MTBC members and non-tuberculous Mycobacteria. The detection limit of the assay was 60 pg/ μ l. **Conclusion:** Bioinformatics has provided predictive identification of many new target markers. The designed primers were found to be highly specific at single-gene target resolution for detection of Mtb.

Keywords: *Mycobacterium tuberculosis*, DNA markers, MAMA-PCR, Rv1970

Assessment of Risk Factors for Ovarian Cancer in UMS Students

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ABSTRACT

Introduction: Cancer is a major public health problem and the third leading cause of death in Malaysia. Ovarian cancers are the fifth most common cancer among women in Peninsular Malaysia. Our aim is to assess the risk factors in healthy young adult female students from UMS and will act as an input for further prevention of ovarian cancer.

Methods: Cross sectional, questionnaire-based study was done on total 278 Medical and Nursing students from Faculty of Medicine and Health Sciences and received the answers based on genetic assessment of ovarian cancers whether gives positive history of ovarian cancers in first degree, second degree and third-degree relatives. The lifetime risk of a woman who has a first degree relative with ovarian cancer is five percent (the average woman's lifetime risk is 1.4 percent). **Results:** Assessing the hereditary risk factor, total 1.8% gives positive results for ovarian cancer in first degree relatives. The lifetime risk of ovarian cancer among female mutation carriers was 39-46% for BRCA1 and 12-20% for BRCA2 mutation carriers. In our study, regarding physical activity, 63.7% is not meeting with WHO recommendation for Metabolic Equivalent Task (MET) and remaining 36.3% meets WHO recommendation. By using International Physical Activity Questionnaire (IPQA) Score Protocol, only 2.6 % of Medical students showed Health Enhancing Physical Activity (HEPA) active, 36.4 % showed minimally active and 60.9% showed inactive. Among nursing students only 5.5% showed HEPA active, 35.4% showed minimally active and 59.1% are inactive. **Conclusion:** Primary prevention through behavioural and lifestyle modification is a cost-effective means of preventing the large burden cancer has on societies world-wide.

Keywords: Risk factors, Ovarian tumours, BRCA 1, BRCA 2

Correlation of Mean Cycle Threshold Value of GeneXpert MTB/RIF and Time to Detection in Mycobacterium Growth Indicator Tubes for *Mycobacterium tuberculosis* Isolates of Kota Kinabalu, Sabah

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ABSTRACT

Introduction: Tuberculosis (TB) is the ninth leading cause of mortality in the world while it is the most prevalent infection which is ranked above HIV/AIDS. In Malaysia, tuberculosis is still a public health problem. Sabah State on Malaysian Borneo had 20-30% of total TB cases of the country. In Sabah, case notification rate of almost 200 per 100,000 population was still present in the last 10 years. Hotspots are defined as TB notification rate more than 100/100,000 in a district or TB notification rate more than 100/100,000 in the squatters' area. In this study, cycle threshold (ct) values in GeneXpertMTB/RIF (Xpert) were tried to be correlated with growth in Mycobacterium growth indicator tubes (MGIT) by measurement of time to detection (TTD). **Methods:** Sputum samples from six hotspots of Kota Kinabalu were studied by Xpert as well as MGIT culture after processing of sputum samples. The correlation between Mean ct value of Xpert and TTD in MGIT was analysed by using IBM SPSS Statistic 25 and the statistical test used was Pearson Correlation test. **Results:** The results of Xpert indicated 35 of 204 sputum samples were positive whereas only one sample was rifampicin resistant. The mean ct values were very low, low and medium in all the hotspots with sputum from one hotspot showed medium ct values predominantly. The sputum from remaining hotspots showed mainly very low and low ct values. MGIT results showed no growth in five samples with two very low, two low and one medium mean ct values. **Conclusion:** The finding indicated that there were correlations between mean ct values of Xpert and TTD in MGIT with a few exceptions.

Keywords: Mycobacterium tuberculosis, GeneXpert MTB/RIF, Mycobacterium growth indicator tubes, Cycle threshold value, Detection time

Knowledge and Utilization of Laboratory Services among Employees of University Malaysia Sabah

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ABSTRACT

Introduction: Laboratory screening tests are common elements of health care. Comprehensive care of patients is dependent on the results of laboratory investigations. Dissemination of knowledge and improving attitude of community for utilization of laboratory services are utmost important in community health care. This study aimed to assess the knowledge and utilization of the laboratory services among the employees of University Malaysia Sabah, determine their expectations of employees on the medical laboratory services. **Methods:** A total of 200 UMS staff participated. The data were collected using a cross-sectional self-administered questionnaires and descriptive data analysis was done. **Results:** 15% of the participants in this study agreed to have the health check and blood screening tests every year. Less than 10% of respondents agreed to do more frequent blood tests check if they are at high risk such as family history of cancer, hypertension and diabetes 181 out of 200 respondents do not agree that doing laboratory tests can help for early diagnosis of some diseases. The most used laboratory tests were plasma sugar (70.8%), blood grouping (60.4%), urine examination (50%) and serum lipid (46%). **Conclusion:** Based on the results, recommendations were made to improve the knowledge, attitude and utilization of the laboratory services and set up laboratory services easily accessible by the university community. This will lead to positive health benefits in people and improve associated health outcomes.

Keywords: Laboratory services, Knowledge, Utilization, Health services

Paddy, Piggy and Japanese Encephalitis in Kerian – A Case Series

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ABSTRACT

Introduction: Japanese encephalitis (JE) is a vector-borne zoonotic disease caused by the Japanese encephalitis virus (JEV). Paddy fields are high risk area for JEV transmission due the presence of *Culex tritaeniorhynchus* as vector and wild boar as an amplifier host. **Methods:** We presented case reports for three patients infected with JEV residing in paddy field area from 2015 to 2018 in Kerian, Perak; illustrating the symptoms and epidemiology trend of the disease. **Results:** All three cases live next to paddy field and were exposed during peak biting hours. They presented with fever and altered consciousness. IV Acyclovir was started as one of the treatments and all had lumbar puncture for CSF testing. Two cases (adult) were confirmed JE after they had passed away. Two cases occurred during fasting month where food wastes were abundance. The source of infection was probably from wild boars that came out at night to hunt for food. Presence of *C. tritaeniorhynchus* was demonstrated as the main vector in these areas. **Conclusion:** JE has no cure and human vaccination is the main prevention method. At the moment, vector control, environmental management, chemical control and personal protection are the main mitigation strategies for this area. Further study on JEV and wild board in Kerian will be most beneficial.

Keywords: Paddy field, Japanese encephalitis, *Culex*

A Case Series of Secondary Hemophagocytic Lymphohistiocytosis (HLH) Secondary to Dengue Infection Receiving Dexamethasone in a Tertiary Centre

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ABSTRACT

Introduction: Secondary Hemophagocytic Lymphohistiocytosis (HLH) is a condition seen in severe dengue that can be potentially fatal. Timely management using HLH-directed treatment such as steroids or etoposide have been seen to improve the outcome of patients however there is no protocol on how to manage the disease. Two criteria commonly used to guide the direction of treatment are namely the HLH-2004 criteria and the Hscore; with the latter being used more often. The best cut-off H score is 169 corresponding to a sensitivity of 93%, specificity of 86% and accurate classification of 90% of the patients. We described of five patients diagnosed with severe dengue complicated with HLH. **Methods:** 5 cases that were diagnosed with severe dengue with secondary HLH and received dexamethasone were reviewed retrospectively and clinical data extracted. **Results:** All patients had fever beyond critical or leaking phase. Four out of five cases had Hscore higher than 169 and had a mean score of 181 with only one bone marrow performed. Three patients had concurrent leaking and bleeding and three patients had fast progression of severe transaminitis during the critical phase. The mean peak ferritin level was 21077 micro/L. The only bone marrow aspiration done revealed increased macrophages and hemophagocytic activity. All patients received a short course of dexamethasone and discharged well. **Conclusion:** Short course dexamethasone is effective in treatment of HLH in dengue despite the concerns of administration of steroids in bleeding dengue patient. Secondary HLH in dengue remains a clinical diagnosis with no conclusive diagnostic criteria. It should be suspected in a severe dengue patient with hyperferritinemia and persistent fever. Technical difficulty of performing bone marrow during severe dengue makes conclusive diagnosis remains elusive.

Keywords: Dengue, Haemophagocytosis, HLH, Hscore, Dexamethasone

Leading Factors and Consequences of the Violence against Women in Myanmar-Hospital Based Study

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ABSTRACT

Introduction: Violence Against Women has increasingly been recognized in the international areas as an obstacle to women's development and it may have a myriad of devastating consequences on women's long or short-term health and wellbeing. The study explored the highlight the prevalence and health effects of Violence Against Women which might reflect the probable causes, the types of injuries, leading factors and consequences of the violence. **Methods:** Hospital based case study, which was referred to forensic department, Mandalay General Hospital from 1st Jan 2000 to 30th Sept 2000. Personal interview and medical examination of 50-100 victims, girls & women, who were physically and sexually violated was done. **Results:** Total 92 patients were interviewed and examined, prevalence of different age ranging from 5 to 56, were physically and sexually violated during the study period, 62 patients were physically assaulted, and 30 victims were sexually violated. 20-40 age group is more commonly conflicted by physical violence (69.3%) while 10-20 age group were commonly conflicted by sexual violence (56.6%). Pattern of different types of injury and locations are also recorded as a consequence of physical assault and commonest injury is bruise (47%). Commonest location is injury over head & neck (61.8%). Relationship to perpetrator were recorded, physical assaults were commonly by spouse (39%) while sexual assaults were acquaintance (58%). Events leading to violence at home are recorded as nuclear family and alcohol consumption is more common, fights were most common events in community setting. **Conclusion:** Violence Against Women is neither prevalent nor uncommon in Myanmar. In this study, all forms of injuries were recorded and among them the commonest injuries were bruises, the event leading to violence recorded as fights, alcohol consumption, nuclear family was most common. Violence has a psychological impact on other members of the family, particularly children. However, a multi-sectoral approach has become a necessity to create a happy family, society and nation. It could be achieved by uplifting the socio-economic status of the family, practising the religious teachings and abiding within the framework of the laws. The Trans-National Committed should be formed to effectively minimize trafficking in women and children in the Region.

Keywords: Violence against women, Physical assault, Sexually violated

Identifying the Nurses' Knowledge and Practice on Preventing Ventilator-Associated Pneumonia in the Intensive Care Unit, Queen Elizabeth Hospital 2, Sabah

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ABSTRACT

Introduction: Ventilator-associated pneumonia (VAP) is defined as pneumonia that occurs 48-72 hours or thereafter following endotracheal intubation. VAP increased health care costs due to hospital length of stay. Since VAP can be prevented, this study underscores the importance of identifying the current knowledge and practice on the prevention of VAP among the ICU nurses in Queen Elizabeth Hospital 2 (QEH2). The objective of this study is to determine the nurse's knowledge and practice towards VAP prevention. **Methods:** The methodology used for this study is a cross-sectional study to evaluate nurses' knowledge and practice in the ICU, QEH2. 82 ICU QEH2 nurses participated. Data were collected using a modified structured questionnaire based on the checklist of VAP data elements. The elements covered in the questionnaire consist of three parts, which are Part A on socio-demographic information, Part B on knowledge ventilator-associated pneumonia events and Part C on nurse's prevention practice on ventilator-associated events. The data was analyzed using SPSS version 20. **Results:** The overall results of this study are 45.1% of the nurses were less knowledgeable on VAP prevention and this could lead to a prevalence of VAP in the unit. VAP is a new concept implemented in 2013, meaning that 48.53% (n=33) nurses who trained 2-5 years ago may have not covered VAP in their infection prevention and control training. Most of the ICU nurses did not profoundly practices on subglottic suction (35/82), hand hygiene prior suctioning (40/82), hand hygiene after ETT suction (16/82) and delirium risk assessment (1/82). As a discussion, this could mean the ICU nurses do not have adequate knowledge and practice awareness on VAP prevention. **Conclusion:** For the conclusion of this study, the nurses working in ICU, QEH2 practiced most of the recommended VAP prevention but not all. Continuous training on prevention for VAP in ICU needs to be review. The hospital management to ensure the availability of the facilities needed and the adoption of guidelines based on evidence-based practice.

Keywords: Intensive care unit, Knowledge, Practice, Ventilator-associated pneumonia

Understanding UMS Nursing Students' Perception of Caring Patients with MRSA

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ABSTRACT

Introduction: Methicillin-resistant *Staphylococcus aureus* (MRSA) is a bacteria or germ which many people carry in their nose or on their skin and it is resistant to a range of antibiotics including methicillin. The primary mode of transmission of *S. aureus* is by direct contact usually, skin-to-skin contact, although contact with contaminated objects and surfaces or might also play a role. The risk of infection by antibiotic-resistant organisms is a common problem in a hospital setting. When it comes to caring for the patient with an infectious disease such as MRSA, most nursing students tried to avoid caring for the patient because they fear of getting infected. So, in this regards that it is important to find out the perception of nursing students towards MRSA patients. **Methods:** This study is a descriptive cross-sectional study design and a structured questionnaire used to evaluate the perception among student nurses regarding care for a patient with MRSA. The population of this study consists only of the nursing student of year 2 and year 3, which is 118 students. A minimum of 60 respondents selected by convenient sampling from this population. **Results:** Findings showed the respondent's perception towards MRSA patients that 83.55% (n=55) of the respondent has the feeling of avoiding getting close to MRSA patients. While 16.7% (n=11) did not have the feeling to avoid them. 47% (n=31%) respondents felt refused to do any procedure on MRSA patients. While 53% (n=35) did not feel refuse to do any procedure on MRSA patient. 92.4% (n=61) respondents wear full PPE before caring for patients with MRSA. The other 7.6% (n=5) did not wear full PPE before caring for patients with MRSA. 98.5% (n=65) respondents always follow 5 moments of hand hygiene. While the other 1.5% (n=1) did not always follow 5 moments of hand hygiene. **Conclusion:** To conclude, even though most of the respondents know about MRSA but some of them did not know that MRSA is curable or not, some confusion about the mode of transmission of MRSA and did not know that they should wear full PPE in caring for the patient with MRSA. Lack of knowledge about MRSA might influence them to ask their friends to do procedures for the patient instead of doing it by themselves. Without good knowledge and skills about how to handle infectious patients, it is difficult for the nursing students to approach the patient with an infectious disease such as MRSA.

Keywords: Resistant, Mutate, Colonization, Infection, Immunodeficiency

A Five-Year Retrospective Review on Malaria Incidence and Profile in Malaysia, 2013 – 2017

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ABSTRACT

Introduction: Most of the recent publications on malaria in Malaysia were conducted in Sabah focusing on the emergence of *Plasmodium knowlesi*. This analysis aims to look into the incidence, mortality, and case fatality rate (CFR) of malaria caused by all *Plasmodium* species in the whole of Malaysia and to compare the different malaria characteristics and trends between Peninsular Malaysia (PM) and Sabah & Sarawak. **Methods:** This is a secondary data review of all malaria confirmed cases notified to the Ministry of Health, Malaysia from January 2013 to December 2017. **Results:** From 2013 to 2017, a total of 16,500 malaria cases were notified in Malaysia. The cases were mainly contributed from Sabah (7,150; 43.3%) and Sarawak (5,684; 34.4%). *Plasmodium knowlesi* was the commonest species in Sabah and Sarawak (9,902; 77.1%), while there were more *Plasmodium vivax* cases (1,548; 42.2%) in PM. The overall average incidence rates (IR), mortality rate (MR) and CFR for malaria in Malaysia were 0.106/1,000, 0.030/100,000 and 0.27%, respectively. Sarawak reported the highest average IR of 0.420/1,000 followed by Sabah (0.383/1,000). Other states in PM reported below the national average IR with <0.100/1,000. Perlis reported the highest average MR and highest average CFR of 0.083/100,000 and 20.00% respectively. Sarawak had the second highest number of average MR of 0.074/100,000. The average CFR were lower for Sarawak (0.18%) and Sabah (0.14%). **Conclusion:** The different trends and characteristics of notified malaria cases in PM and Sabah and Sarawak will provide useful information to modify current malaria prevention and control measures.

Keywords: Malaria, Peninsular Malaysia, Sabah and Sarawak, Incidence, Mortality

Association of Physical Activity Score with Cardio-Pulmonary Function Parameters and VO₂ Max in Healthy Young Adults of Sabah, Malaysia

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ABSTRACT

Introduction: Regular physical activity and VO₂ max are correlated directly. Physical anthropology physical activity, lung function and cardiac parameters such as systolic, diastolic blood pressure and resting heart rate are the important baseline parameters in relation to the a healthy life. In this study, a comprehensive determination of these parameters were planned among the common ethnicities of Sabah. This study in turn aims at making the sedentary people to make physically active and implicate a possible relationship between cardio-respiratory parameters with the physical activity levels. **Methods:** A total of 385 young adult Sabah, Malaysia college students with n=148 males and n= 237 females were randomly selected from the different colleges in Kota Kinabalu. Ethical clearance was received from Faculty of Medicine & Health Sciences UMS, and the participants were briefed on the procedures with their voluntary consent. IPAQ-Score/Met-Min/Week, BMI, resting heart rate, blood pressure, lung function parameters – forced vital capacity, peak expiratory flow rate etc were estimated by standard techniques. Data was analyzed, a regression analysis and ANOVA was performed to assess the relationship between independent and dependent variables. **Results:** Physical activity level has a significant correlation with the dependent variables of this study. VO₂max is significantly and inversely related to body weight, BMI, blood pressure and pulse rate, whereas physical activity level is directly correlated. A weak positive correlation for VO₂ max with lung function parameters. **Conclusion:** Physical activity, VO₂ max and cardio-respiratory parameters; interdependently correlated and regular activity contributed to the rate of oxygen consumption.

Keywords: Physical activity, VO₂ max, Lung function

A Comparative Study of Aerobic Capacity – VO₂ Max between Common Ethnic Populations of Sabah, Malaysia

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ABSTRACT

Introduction: Aerobic power reflects the physical fitness of the individual. Evidences support differences in physiological responses to exercise. There is less data on VO₂ max among common ethnic population of Sabah. Objective of this study was to investigate VO₂ max among Kadazan, Dusun, Brunei Melayu, Bugis, Murut and others of Sabah in male and female young adult population. **Methods:** A total of 385 participants were randomly selected. Monark 894 E leg bicycle ergo meter was used to measure aerobic power VO₂ max. Based on the heart rate male and female respectively 450 & 300 kilogram-force meter/minute was chosen. Based on Astrand rhyming nomogram (age correction factor included-VO₂ Max multiplied by 1.05) calculations Vo₂Max was calculated in l/min. The age correction done VO₂ Max (l/min) was multiplied by 1000 and later divided by the body weight to derive the actual VO₂Max in ml/kg/min. The recovery heart rate after 1 minute was taken and the difference were calculated for the further analysis. Data was tabulated and analysed by one way ANOVA test - Hocheberg's GT2. **Results:** There was no significant difference in VO₂ max between the common ethnic young adult population both in males and females. **Conclusion:** There is no significant difference in VO₂ max among the common ethnic adult but have a similar aerobic capacity in the study group.

Keywords: Aerobic capacity, VO₂ max, Ethnic

Rational Use of Drugs: A Way to Improve the Quality of Health Care

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ABSTRACT

Introduction: The impact of irrational use of drug is reduction in the quality of drug therapy leading to increased morbidity and mortality. The main objective was to obtain baseline information regarding the prescribing pattern for non-steroidal anti-inflammatory drugs (NSAIDs) by physicians in the outpatient departments (OPDs) of two selected polyclinics in Kota Kinabalu, Sabah. **Methods:** Four hundred (200 from each polyclinic) prescriptions containing NSAIDs were collected, photocopied and later analyzed. Two hundred selected patients (100 from each polyclinic) attending the OPDs were interviewed using a questionnaire. **Results:** Educated and higher income group of patients mostly attended in private polyclinic (PPC) whereas comparatively less educated and lower income group of patients generally attended government UMS polyclinic (UPC). Analgesics with no or minimal anti-inflammatory effects were the most commonly prescribed NSAIDs in the OPD of UPC. On the contrary, analgesics with potent anti-inflammatory effects were the most commonly prescribed NSAIDs in PPC. Due to the nature of potent drugs, socioeconomically advantaged patients attending PPC is more likely to develop adverse effects. Therefore, the prescribers in PPC had to prescribe additional drugs to counter the adverse effects of NSAIDs, hence increasing the cost of drugs prescribed compared to UPC. The patients taking NSAIDs before coming to hospital were influenced by pharmacists, friends and doctor's advice given previously. **Conclusions:** The overall prescribing pattern of NSAIDs among two polyclinics is satisfactory, although there may be scopes for improvement. Educational intervention can be designed for rational prescribing to improve the quality of health care.

Keywords: Prescribing pattern, Non-steroidal anti-inflammatory drug, NSAID, Polyclinics

Detection of All Four Dengue Virus Serotypes and Identification of Four Mismatched Nucleotides Between DENV4 Specific Primer rTS4 and DENV 4 Sequences in Sandakan and Kudat (2016-2017)

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ABSTRACT

Introduction: Dengue is caused by dengue virus (DENV) which is a member of the genus Flavivirus of the family Flaviviridae. The prevalence of dengue has been increasing all over the world especially in Southeast Asia and Western Pacific regions. In 2016 - 2017 dengue outbreaks were reported in Sandakan and Kudat of Sabah, Malaysia. The aim of this study was to determine the serotypes of dengue viruses circulating in these two sites during the outbreaks. **Methods:** A total of 200 dengue patients' sera tested positive with NS1 and IgM & IgG rapid test (PanBio) were collected from Hospital Duchess of Kent Sandakan and Hospital Kudat between June 2016 and December 2017. PCR was done at the Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah. One-Step Reverse transcriptase PCR (RT-PCR) and nested PCR was performed using C-prM amplimers designed by Lanciotti et al and later redesigned by Chien et al, followed by sequencing some of the PCR products. **Results:** Out of 200 sera tested 128 were PCR positive. All the four dengue serotypes were detected with PCR products with specific sizes in gel electrophoresis. However, in four samples, no serotype-specific band was amplified by the nested PCR, while they were dengue-positive in RT-PCR showing 511 base pair amplicon. Sequencing results revealed all four samples were found to belong to DENV4. The sequences of these samples were aligned with that of DENV 4 reverse primer rTS4. The DENV4 specific primer rTS4 was found to have four mismatched nucleotides to the DENV4 sequences. **Conclusion:** There was a co-circulation of DENV1 to 4 in Sandakan and Kudat in the study period. DENV1 was the predominant serotype. DENV4 specific C-prM primer rTS4 should be redesigned for the local DENV4 strain in Sabah in future research.

Keywords: Dengue virus serotypes, C-prM primers, Mismatched nucleotides

Global Health Film Club - Bringing Global Health Issues and Activism to Local Communities

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ABSTRACT

Introduction: Global health awareness is sorely lacking in medical curricula and the general public, leading to increasing apathy and decreased levels of volunteerism. Much knowledge about pertinent global health issues is sequestered with academicians and researchers, with little public trickle down. The aim of the study was to increase awareness among Sabahan public about global health issues and promote discussion. **Methods:** A global health film club was established at community level and discussions about issues and potential individual action points was conducted. Films were screened every month in both UMS and Palliative Care Center Sabah. Global health issues ranging from First World manipulation of HIV/AIDS medication prices, deregulation of medical devices industries, heroin addiction, ADHD drug abuse, and stigma in psychiatry were covered. Public participants' responses were collected qualitatively. **Results:** The films largely were well received by participants, with most participants preferring the expose-type films over the more narrative approaches. Films spurred discussion about how foreign or global issues were related to local level, for example unscrupulous sale of medical devices in Malaysian populations and abuse of sleeping medications from local health providers. Also each film screening vastly increased participants' awareness of pertinent issues, and spurred them to evangelise about said issues to others and take small actions. **Conclusion:** Global health is a somewhat neglected part of medical and community curricula. Lack of awareness about global health issues reduces the public's capacity for collective action in exerting pressure on stakeholders, governments, and civil society in taking action. It is hoped such regular global health film screenings at local level brings literacy on urgent public health issues to the people for whom it matters most – the communities where adverse global health consequences eventually arise.

Keywords: Global health, Films, Activism, Education

Smartphone Apps as a Technological Innovation for Weight Reduction: A Systematic Review and Meta-analysis

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ABSTRACT

Introduction: Obesity is a global epidemic with major healthcare implications and costs. The availability of Smartphone app as a new technological innovation developed is increasing rapidly. This new technological innovation can have a huge potential for interventions to help weight loss and combat obesity. To perform a systematic review and meta-analysis of studies to compare the effectiveness of Smartphone apps compared with other methods to promote weight loss and obesity. **Methods:** We conducted a systematic review and meta-analysis of relevant studies identified by a search of independently screened studies for inclusion criteria and extracted data. We included articles that assessed any (Smartphone/Mobile phone app intervention with anthropometric measurement like weight/BMI, waist circumference), adult or children population then exclude articles in which the primary outcome is not weight/BMI/Waist circumference, non-original articles (Reviews, Editorials, Non-research letters), case reports or case series, non RCT study design, participant with co-morbidities or condition like pregnancy and Intervention using SMS or any text messaging. **Results:** We included 7 articles in this systematic review and meta-analysis. This meta-analysis shows that smartphone app interventions compared with conventional or other interventions is non-significant decreases in body weight, with the pooled estimates of the net change in body weight being -1.62 kg (95% CI -3.61 to 0.36; I² = 93%). Pooled results indicated a non-significant net difference in BMI between smart phone app and control intervention groups (WMD 0.26 kg/m², 95% CI -0.83 to 1.34; I² = 68%). For waist circumference, there is non-significant net difference in BMI between smart phone app and control intervention groups (WMD -5.2 cm 95% CI --0.15 to 4.60; I² = 93%). **Conclusion:** Smartphone apps intervention alone is not producing substantial evidence of weight loss despite there might be effective for certain groups. However, there are still explorable prospect on the use of smartphone app in combination of other approach to assist and promote weight loss as the use of smartphone are proven to influence health related behavioural modification.

Keywords: Smartphone app, Mobile phone apps, Weight loss, BMI

Process Evaluation of Student Health Promotion Programmes in Rural Sabah

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ABSTRACT

Introduction: The Faculty of Medicine & health sciences, UMS has implemented a co-curricular programme which is aimed to be improving rural health and reducing inequalities of health in Sabah. Groups of medical students are formed and distributed in various areas of rural remote areas in Sabah. Based on the observation and interview findings, each student group conducted health promotion activities with the limited resources. Various health problems were explored in different areas and different ethnic groups of Sabah and students conducted their health promotion activities. There are some questions “Are they effective, how it works in implementation?” Poor implementation can lead to errors in outcome of the programmes. In this paper we focus on process evaluation for measuring the degree to which Health promotion programmes were implemented as designed by using determinant framework (active implementation framework) and process evaluation tools in yearly health promotion programmes from 2009-2018. **Methods:** The study measures the implementation of programmes with active implementation framework (Exploration, Installation, Initial implementation, Full implementation) and process evaluation tools such as validation of implementation integrity using specification of intervention areas, making guidelines and manual for intervention protocol, competency of students and supervisors and fidelity monitoring. We used 7 components of process evaluation particularly in context(Environmental influences), reach (Target participation), dose delivered (Lectures), dose received (learned by students with assessment methods), fidelity (Adherence to intervention delivery protocol), implementation (rating of execution and receipt of intervention) and recruitment (participant engagement). **Results:** It was found that fidelity, implementation strategies and some lessons learned after outreach programmes are importantly influence in implementing the programmes. **Conclusion:** The study shows process evaluation strategies is ideal tool for conducting the rural outreach health promotion programme to reduce the errors and obstacles in implementing the programmes to maintain the better quality of the projects.

Keywords: Rural health promotion, Process evaluation tool, Active implementation framework

A Case Report of Severe Ascariasis Infection in Systemic Lupus Erythematosus Patient

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ABSTRACT

Introduction: Ascariasis is a parasitic infection, which commonly affects immunocompromised patients. Most patients remained asymptomatic during the early larval migration stage and respond well with conventional anti-helminthic drugs. Previous literature had reported symptomatic Ascaris infection mimicking bacterial pneumonia and the typical eosinophilia found in Loeffler syndrome was absent in patients on corticosteroids. Thus, a high index of suspicion for ascariasis is needed for immunosuppressed patients presented with infection. We present here a case of severe ascariasis infection in a systemic lupus erythematosus patient. **Case description:** A 16-year-old boy presented with fever, generalized maculopapular rash associated with neutropenia and thrombocytopenia. He was treated initially as Dengue Fever initially. However his symptoms did not resolve at even day 14 of admission. On further assessment, we were convinced he has SLE based upon presence of malar rash, oral ulcers, urinary proteinuria, persistent leucopenia, thrombocytopenia with low complements and ANA positive. He was promptly started on IV hydrocortisone. He showed a good progress in the first few days. On day 5 of admission, he coughed out a round worm which later identified as *Ascaris lumbricoides*. He was started on Albendazole. Unfortunately he developed hemoptysis and respiratory compromise where he required intubation. Post intubation he went into cardiac arrest, which required CPR. Following that event, his condition further deteriorated with multi organ failure. He succumbed to his illness three days later. **Conclusion:** Immunocompromised patients are prone to opportunistic infections including parasitic infections. we present here a case of ascariasis in an SLE patient who unfortunately succumbed to the illness. Due to the variable clinical symptoms that mimic other infections, screening for parasitic infections needs to be considered especially if the patients do not respond to antibiotics and routine treatments.

Keywords: Systemic lupus erythematosus, *Ascaris lumbricoides*, Loeffler syndrome

Spatial Clustering of Cholera in Sabah, Malaysia

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ABSTRACT

Introduction: Cholera epidemics can produce devastating public health outcomes. Cholera distribution is influenced by temperature, precipitation, elevation, distance to the coastline and oceanic environmental factors such as sea surface temperature, sea surface height and ocean chlorophyll concentration. The purpose of this study is to describe the spatial epidemiology of cholera in the four districts of Sabah. **Methods:** This is a retrospective review of 4 years (2011 to 2014) data from the districts of Kota Kinabalu, Penampang, Putatan and Papar, Sabah. All reported cases of cholera from those areas are included. Coordinates for locations of the cases are based on home addresses. SPSS v20, ArcGIS v10 and CrimeStat IV were used for data analysis and mapping. **Results:** Cholera showed several clustering of cases, such as in 2011 and 2014 in Kota Kinabalu. In the year 2011 and 2013, Penampang and Papar districts had the nearest neighbour index of less than 1, but p value was not significant, meaning the pattern did not appear to be significant. Nearest neighbour hierarchical clustering analysis further revealed cholera had 7 clusters, of those 6 were first order and 1 was a second order cluster. **Conclusion:** Cholera shows disease clustering which could mean it is due to its common point source or localised human to human transmission. Using GIS as a tool may help in surveillance and control of cholera infections.

Keywords: Cholera, Diarrhoea, Cluster, Spatial analysis, GIS

Knowledge and Awareness on Human Papilloma Virus Vaccination among Final Year Nursing and Medical Students in Universiti Kebangsaan Malaysia Medical Centre

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ABSTRACT

Introduction: HPV vaccination is considered to be the primary form of cervical cancer prevention. However, the practice of HPV vaccination in Malaysia was not satisfied based on low vaccination rate among Malaysian. The health personal play a major roles in this scenario hence; this study was conducted to determine the knowledge and awareness on human papillomavirus vaccination and its relationship with socio –demographic among final year nursing and medical students in University Kebangsaan Malaysia Medical Center. **Methods:** A cross-sectional design was conducted in the faculty of medicine, University Kebangsaan Malaysia Medical Center. Two hundred and thirty four students were recruited using universal sampling equivalent to 86% respondent rate. Data was collected using self-administered structured questionnaires contains three sections. Pearson Chi-square analyses were used to determine the relationship between various socio-demographic factors and outcome variables namely knowledge and awareness on HPV vaccination. **Results:** Findings indicates that most of the respondents (85.9%) had a high level knowledge and (100%) awareness on HPV vaccination. Among the socio-demographic factors, respondents' race ($p=0.006$) and marital status ($p=0.0006$) were associated with knowledge while, there were significant relationship between awareness and gender ($p=0.0001$). **Conclusion:** It can be concluded, that final year nursing and medical students had high knowledge and awareness on HPV vaccination. Race and marital status affected the knowledge while gender and family history of cervical cancer are significant predictors for awareness on HPV vaccination.

Keywords: HPV vaccination, Nursing students, Medical students, Knowledge, Awareness

Amyotrophic Dermatomyositis Presenting with Interstitial Lung Disease

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ABSTRACT

Introduction: Presentation of Dermatomyositis with Interstitial Lung Disease (ILD) is not uncommon. **Case description:** A 50 years old lady with dyspnoea of 1 month. On examination patient had heliotrope rash around face with gottron papules and fine crepitations bibasally over lung auscultation with proximal weakness of the limbs. High Resolution Computer Tomography of Chest(HRCT of Chest) revealed ground glass appearance with fibrotic changes in both lungs. Blood test serum ANA 1:160, Anti MDA5 strong positive, Anti Ro 52 positive with Serum dsDNA negative. Skin Biopsy-compatible with cutaneous manifestation of dermatomyositis. EMG revealed there is electrophysiological cause of myopathy. Lung function test was unable to perform due to severe pain. Investigate for the possibility of underlying malignancy were taken with Serum Tumour Markers, Nasoscopy, ultrasound of pelvis, OGDS and colonoscopy. Did not reveal lesions suspicious of malignancy. Patient treated by using tablet prednisolone 50mg once daily with tapering done and tablet azathioprine 100mg once daily. Planned for IV Methylprednisolone if worsening of disease. Patient passed away due to rapidly worsening ILD. **Conclusion:** Amyotrophic Dermatomyositis with interstitial lung disease(ILD) diagnosis can be confidently diagnosed with clinical correlation and Serum AntiMDA5.

Keywords: Interstitial lung disease, Anti MDA5, Anti ro 52, EMG, Chest HRCT

Effectiveness of Screening and Brief Intervention for Alcohol Misuse and Risky Drinking in Kota Kinabalu

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ABSTRACT

Introduction: Alcohol is a major factor that can affect many aspects of life. The prevalence of current drinker in Malaysia aged 13 years old and above was 7.7% as reported by NHMS 2015. Sabah was ranked the third in highest consumption of alcohol in Malaysia, at 18.4% after Kuala Lumpur 20.3% and Sarawak 19.7%. The aim of the study is to investigate prevalence of different types of drinkers and identify demographic characteristic of drinkers in Kota Kinabalu (KK). This study also aims to investigate the effectiveness of screening and brief intervention in reduction of alcohol consumption and risky drinking in KK. **Methods:** A cross-sectional study was done where the data were collected from seven different areas in KK, selected by stratified and simple randomized sampling. Alcohol Use Disorder Identification Test (AUDIT) questionnaire translated and validated in Malay version by Unit Terjemahan Universiti Malaya was used. AUDIT score was calculated and brief intervention was given accordingly and scoring was then repeated after three months. The intervention applied was based on Guideline on Risk Assessment and Primary Intervention in Alcohol Harm, published by Ministry of Health Malaysia in 2010. **Results:** The age range of population studied is from 13 to 85 years old with 243 males and 230 females. Out of the 473 participants, 13.1% adolescent, 37.6% young adulthood, 36.4% middle adulthood and 12.9% in late adulthood. We observed that the male mean weight was 68.27 ± 12.72 kg versus 58.86 ± 12.45 kg mean weight in female. The prevalence of drinkers – 3.6% dependent drinkers, 22.2% high risk drinkers, 36.2% low risk drinker while the remaining 38.1% are abstainers. Majority of consumers were practicing low-risk drinking pattern which highlighted the need for prevention and harm minimization programme. Paired sample t-test shows that the decrease in AUDIT three months after intervention is statistically significant. **Conclusion:** This study conducted in KK suggests that screening coupled with brief intervention can help reduce alcohol misuse and risky drinking and should be practiced in all primary healthcare facilities.

Keywords: Alcohol, Alcohol use disorder identification test, AUDIT, Alcohol brief intervention, Kota Kinabalu

Unresolved Pneumonia: A Case Report of *Strongyloides stercoralis* Hyperinfection in an Immunocompromised Patient

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ABSTRACT

Introduction: Strongyloidiasis is endemic in the tropical and subtropical regions. Clinical manifestations of the disease can range from asymptomatic eosinophilia in an immunocompetent host to a wide range of presentations in immunocompromised patients. Failure to consider the diagnosis of strongyloides infection, especially Strongyloides hyperinfection syndrome, is a major contributor of high mortality rate in such cases. **Case Description:** We report a case of 60 years old gentleman who was admitted to Sarawak General Hospital for a left subtrochanteric femur pathological fracture and the diagnosis of multiple myeloma was made in the same setting. He was started on treatment for multiple myeloma which includes high dose steroids. During his course of admission, he was diagnosed with hospital-acquired pneumonia was subsequently initiated with broad-spectrum antibiotics. Despite being extensively treated with multiple courses of broad-spectrum antibiotics, he deteriorated clinically, with eventual respiratory failure requiring ventilator support and ICU admission. A diagnosis of strongyloides hyperinfection syndrome was made after an incidental discovery of larvae in his sputum, which was later confirmed with stool sample. He was given a one-week course of albendazole 400mg twice daily and clinical improvement was observed. A repeated stool sample also demonstrated clearance of the parasites. **Conclusion:** This case highlights the need for clinical suspicion of strongyloides hyperinfection syndrome in cases of unresolved pneumonia, especially for patients with risk factors of underlying immune-deficiency state. Preventive steps such early detection and eradication of strongyloides infection should be undertaken prior to initiation of immuno-suppressive therapy.

Keywords: Strongyloides, Multiple myeloma, Immunocompromised

Health Benefits and Potential Risk of Tropical Herbs from the Leguminosae Family: A Review

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ABSTRACT

Introduction: Tropical herbs are used as a medicine long before the introduction of modern medicine, especially by traditional healers. However, its' scientific benefits are not widely investigated. There is a belief that the use of traditional herbs potentially causing health deterioration due to its unknown mechanism of actions and interactions, and the nature of its unregulated processing as a health supplement. *Parkia speciosa* (local: petai) and *Pithecellobium jiringa* (local: jering) are two tropical herbs from the Leguminosae family that are widely used raw as salads with many perceived health benefits and harms. We reviewed both species, looking into scientific pieces of evidence supporting the belief. **Methods:** The databases of MEDLINE, PubMed, EBSCOhost, and Google Scholars were systematically searched for both in vitro and in vivo effects of both species with no language restriction. Data were extracted using standardised fashioned. **Results:** *P. speciosa* has pharmacological properties including antioxidant and anti-inflammation. It has shown to have antibacterial properties and glucose-lowering activity. *P. jiringa* contains known antioxidant metabolites such as flavonoids, phenolics and terpenoids. It also contains antiangiogenic properties with potential use in retinopathy, cancer, and Rheumatoid arthritis. However, both herbs have potentially harmful effects which include liver injuries. Large consumption of *P. jiringa* leads to acute kidney injury. **Conclusion:** Consumption of both *P. speciosa* and *P. jiringa* has medicinal properties as well as health harm. If taken as a supplement, rigorous clinical trials are needed to delineate benefit vs harm effect of both herbs.

Keywords: *Parkia speciosa*, *Pithecellobium jiringa*, Health-benefits, Health-harm

Islamic Perspective on Elective Abortion of Zika Virus infected Pregnant Women

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ABSTRACT

Introduction: Zika virus infection is caused by flavivirus virus and spread by *Aedes* mosquitoes. Since first reported in 1947, it spread to various countries especially in the equatorial region including Malaysia. The infection is non-fatal to an adult. However, the major risk of its infection is towards unborn baby when the mother is infected. The vertical transmission to the foetus possess various risks include the teratogenic effect that may lead to elective abortion. Thus, the objectives of this review are to discover about Zika virus and its effect on pregnant women and to evaluate Islamic perspective about elective abortion of Zika virus-infected women. **Methods:** This review was done through reviewing evidence from the journals, books and reports. The data were reviewed thematically according to the objectives. **Results:** Studies shown that Zika virus may cause miscarriage, preterm birth, microcephaly and other malformation known as Congenital Zika syndrome. This leads to a demand for elective abortion which raised Islamic ethical issue if it is permissible. In Islam, abortion is extremely prohibited once the foetus reached 120-day of conception unless it causes harm to the mother's life. But, if the foetus age is less than 120-day, abortion is permissible when the pregnancy affects the mother's health. Abortion due to foetal microcephaly and congenital malformation is prohibited. **Conclusion:** Effort must be taken to prevent the spread of Zika virus to reduce the need for an elective abortion through an education Muslim community regarding elective abortion.

Keywords: Zika virus, Pregnant women, Foetus abortion, Elective abortion, Islamic perspective

Association of Children's BMI and Physical Activity: A Cross Sectional Study

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ABSTRACT

Introduction: The increasing prevalence of childhood obesity among primary school children is a growing public health concern worldwide. Previous study in West Malaysia showed a prevalence of obesity with an estimated of 6.6% among 7-year-olds children and rising to 13.8% among 10-year-olds children. However, no study has ever been conducted in East Malaysia on childhood obesity. This study was aimed to determine the prevalence of childhood obesity and to investigate the association of physical activity levels with obesity and its intervention among primary school children in Kota Kinabalu. **Methods:** A cross-sectional study involving 484 students (aged 7-12 years old) was conducted in five primary schools at Kota Kinabalu, Sabah. The schools were selected based on cluster sampling method and simple random sampling method. Primary school children with a known medical condition such as bronchial asthma, type-1 diabetes mellitus or those with a prolonged use of oral steroids was excluded from the study. Self developed questionnaires were used to record sociodemographic details and anthropometric measures both parents and children, and physical activity was measured using a Children Physical Activity Questionnaire (C-PAQ). The intervention involved 3 components; i) motivational interviewing, ii) brief and focused advice, iii) activity session. Follow up was done 3 months after the intervention was conducted. **Results:** The prevalence of childhood obesity among primary school children is 13.2%. There is a negative correlation between children's BMI and amount of physical activity (-0.347) and positive correlation between children's BMI and amount of non-physical activity (0.339). Little changes in the BMI of the children after intervention, $t(127) = 2.866$, $p = 0.005$. **Conclusion:** This study provides evidence that childhood obesity is not a prevalent health problem in Kota Kinabalu and has proved that physical activity levels have significant associations with children's body mass indices.

Keywords: Childhood obesity, Physical activity, BMI, Intervention, C-PAQ

Huge Solitary Rectal Schwannoma Mimicking Malignant Polyp with a Successful Transanal Excision

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ABSTRACT

Introduction: Rectal schwannoma is a rare gastrointestinal mesenchymal tumour with only a few numbers of cases has been reported. It is predominant in the stomach and small bowel, but uncommon in the colon and rectum. **Case description:** A 74-year-old man presented with features masquerading as low rectal malignancy with a malignant looking pedunculated polyp measuring 10 x 8 cm on colonoscopy. Punch biopsy revealed a diagnosis of benign tumour of schwannoma. After failure of multiple attempts of endoscopic resection, a decision of transanal excision was made. The histopathological assessment was consistent with the preoperative diagnosis and supported by immunohistochemistry of S-100 protein. His postoperative recovery was uneventful as he was discharged on the following day. There is no evidence of tumour recurrence on follow up. **Conclusion:** A huge tumour of the rectum is not always malignant. However, patient with features of low rectal tumour warrants an immediate referral to the surgical team as this non-communicable disease is a public health concern. Preoperative diagnosis is paramount for a necessary surgical intervention.

Keywords: Schwannoma, Rectum, Public health, Noncommunicable diseases

Factors Associated with Glycaemic Control among Diabetic Patients at Hulu Terengganu in 2019

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ABSTRACT

Introduction: The objectives of this study were to measure the status of glycaemic control and identify factors associated with good glycaemic control among diabetic patients treated at primary health clinics. **Methods:** All diabetic patients registered and under follow up of Ministry of Health facilities were monitored for their glycaemic controls through HbA1c levels. Data obtained from line listing of diabetic patients that received treatment from four health clinics at Hulu Terengganu in 2019. All of patients' data including socio demographic characteristics, latest laboratory investigations and treatment modalities were recorded in the line listing. In this study, 350 active patients were randomly selected systematically. Logistic regression analysis was done to predict factors associated with good glycaemic control which is defined as having HbA1c less or equal to 6.5%. **Results:** In this study, the proportion of patients with good glycaemic control was lower than other published studies. It is found that 99 patients (28.3%) have good glycaemic control while 251 patients (71.7%) have poor glycaemic control. Factors significantly associated with good glycaemic control included age (odds ratio 0.965; 95% confidence interval 0.940-0.991), presence of comorbidity (odds ratio 0.326; 95% confidence interval 0.107- 0.995) and type of treatment (odds ratio 0.302; confidence interval 0.171-0.533). Those who were not on insulin were more likely to have good glycaemic control. Older patients were also tend to have good glycaemic control. **Conclusion:** Multi-disciplinary approaches and greater efforts by healthcare providers at primary health clinics are needed in order to help more patients to achieve good glycaemic control. Younger patients and those who do not have comorbidities yet should be closely monitored as they are prone to have poor glycaemic control. Extra cautions is warranted in patients with insulin in order to achieve glycaemic target thus reducing complications and making the treatment more cost-effective.

Keywords: Glycaemic control, Diabetes mellitus, Hulu Terengganu

Development of In-House Hepatitis C Virus (HCV) Genotype 3 Drug Resistance Genotyping Assay towards NS5A Inhibitor in Malaysia

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ABSTRACT

Introduction: Elimination of viral hepatitis as a major public health threat by 2030 was announced by the Global Health Sector Strategy (GHSS) on viral hepatitis in 2016. Hepatitis C is one of the major causes of liver cirrhosis and liver cancer. Complications as a results of hepatitis C infection can be prevented as hepatitis C infection is now considered as a curable disease with the availability of Direct Acting Agents (DAAs). However, the main barrier towards treating and curing all HCV infected patients is a high cost of DAAs. The treatment regime of hepatitis C infection in Malaysia is sofosbuvir and daclastavir, an NS5A inhibitor. Daclastavir was reported as inherently resistant to HCV GT 3. Thus, this study aimed to develop an assay to detect the resistance associated substitution (RAS) towards the NS5A inhibitor among HCV GT 3 infected patients. **Methods:** Samples for the study were obtained from various hospitals in Malaysia. The samples were collected from DAAs naive HCV GT 3 infected patients. From the literature review, a specific assay was chosen with different sets of primers were selected for the study. The DNA sequences of NS5A region of HCV genome were submitted to the geno2pheno [HCV] resistance database by Max Planck Institut (MPI) Informatics to yield RAS. **Results:** Suitable primers were identified based on generated amplicons produced for the samples which NS5A region were successfully sequenced. Results were obtained based on the 213 codon generated from the population based Sanger sequencing. RAS/ RASs towards Daclastavir were produced and the susceptibility result towards the drug was generated. **Conclusion:** The assay was successfully optimised and able to generate drug resistance results towards Daclastavir which might have impacts on the duration of treatment and/or inclusion of ribavirin in managing HCV infected patients in Malaysia.

Keywords: Hepatitis C, Resistance association substitution, Malaysia

Ethno-Medicine Survey of Medicinal Plants Used by Villagers in Kudat, Sabah, Malaysia

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ABSTRACT

Introduction: The use of medicinal plants as a remedy and prevention of diseases based on practical skills, knowledge and therapies was passed down from one generation to the next. It was reported by WHO that, approximately a quarter of the modern drugs were derivatives of plants or herbs, used as traditional medicines. It has contributed greatly in the health care management as the main source of medicine for many of the rural population in Sabah. This preliminary study was carried out to observe the use of medicinal plants in different villages of Kudat and to know about the knowledge of the villagers related to possible side effects of these plants. **Methods:** It was a cross-sectional descriptive study which was carried out in different villages of Kudat, Sabah, Malaysia between August and September 2018. The data were obtained through interviewing the people in different villages by using semi-structured questionnaire. Descriptive statistics were used to present the data. **Results:** Among the 87 participants, 37.9% were male and 62.1% were female. Their mean age was 45.87 (± 14.03) and they were mostly from Kadazan-Dusun (50.6%) and Rungus (42.5%). The highest level of education among the participants was SPM (20.7%). Roots, stems, leaves, flowers and fruits of 49 plant species were reported in the treatment of more than 30 types of health conditions. Anaemia, hypertension, diabetes, joint pain, hypercholesterolaemia, fever, asthma, malaria, vomiting and few acute illnesses are mentionable. Majority (71%) of the participants did not have any knowledge about possible side effects of the orally ingested or tropically applied medicinal plants. **Conclusion:** There should be thorough research on dosage, mechanism of action and possible side effects of the medicinal plants and the results of these researches should reach the users of these plants.

Keywords: Ethno-medicine, Medicinal plant, Kudat, Sabah

Tuberculosis and Biologics - A Glimpse of Sabah Rheumatology Patients

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ABSTRACT

Introduction: Biologic patients are at increased risk of tuberculosis (TB) infection, especially in TB prevalent areas like Sabah. We present three cases of rheumatology patients who developed tuberculosis infection while on biologics. **Case description:** Case1: 47 year old lady with active rheumatoid arthritis despite being on four disease modifying antirheumatic drugs (DMARDs) was given subcutaneous Etanercept after prescreening with mantoux test and interferon gamma release assay (IGRA). Due to poor response, she was switched to Tofacitinib with a repeat prescreening done except IGRA. Three months after biologics, she developed pulmonary tuberculosis and Tofacitinib was stopped. Case2: 50 year old male with seropositive rheumatoid arthritis and seroconverted hepatitis B. He was worked up for biologic treatment after failing multiple DMARDs; mantoux was 10mm, IGRA not done. He was started on subcutaneous Etanercept for disabling arthritis while being treated for latent TB but developed TB Lymphadenitis on his third month of biologic therapy which was withheld thereafter. Case3: 48 year old teacher with seropositive rheumatoid arthritis and old pulmonary TB, had intolerance to methotrexate, was initiated on three DMARDs but symptoms remained uncontrolled. Prescreening with IGRA was negative and Adalimumab commenced. Following two years of biologic, she developed reactivation of TB. Rituximab was commenced a year after for persistent active arthritis but withheld due to dermatitis. **Conclusion:** All patients had mantoux test done routinely but not IGRA due to its cost and limited availability. A follow up study to analyze the effectiveness of IGRA versus Mantoux in detecting latent TB in such patients would be beneficial.

Keywords: Tuberculosis, Disease modifying antirheumatic drugs, Interferon gamma release assay

Clinical Impact of Implementation of a Dengue Outbreak Preparedness and Contingency Plan in a Tertiary Hospital

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ABSTRACT

Introduction: Increasing number and the complexity of dengue cases pose a great challenge. The dengue outbreak preparedness and contingency plan is a series of collective intervention or policies put into place via collective agreement between administrative, Medical, Emergency Department and Intensive Care Unit (ICU). The aim of this paper is to evaluate the impact implementation of a dengue contingency plan on the clinical outcome of dengue cases. **Methods:** Implementation of the dengue outbreak preparedness and contingency plan was commenced in 2017. A pre-intervention (2017) and post-intervention (2018) retrospective review of mortality cases and referral to ICU were undertaken. The interventions included mandatory fast review by Emergency Physician, Medical Physician and Anaesthetist in Emergency Department for ill patients (Dengue Care Pathway), cohorting dengue patient to one ward with mandatory monitoring and review system, clinical management adhering to the Clinical Practice Guideline of Management of Dengue Infection in Adults (2015), referring ill patients to ICU, deployment of nurses and experienced doctors to the dengue ward based on ratio of staff to patients, increasing number of doctors on-call at the dengue ward and a dengue bed manager system led by the Matron and Sisters. The plan was activated by mutual agreement between the Head of Medical Department and the Hospital Director. **Results:** There was a marked increment of admission of dengue cases into intensive care unit by 59% either directly from emergency department or the dengue wards in 2018 compared to 2017. The mortality rates reduced significantly from 5.4 deaths for every 1000 admission in 2017 to 3.3 in 2018. This is a reduction 2.1 death for every 1000 dengue admission. **Conclusion:** The implementation of the dengue outbreak preparedness and contingency plan aided the team to provide best care and practice in dengue management especially in the severely ill.

Keywords: Dengue, Severe dengue, Dengue mortality, Clinical outcome, Dengue contingency plan

Lethal Complication of a Common Disease-Varicella Pneumonitis

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ABSTRACT

Introduction: Varicella pneumonitis is a rare but lethal complication of varicella zoster infection. **Case description:** We report a case of a 42 year old gentleman who presented with fever, rash, cough and worsening shortness of breath after exposure to his daughter who just recovered from varicella zoster infection. He is an active smoker with no comorbidities. He presented on day 4 of illness with generalised vesicular eruption and respiratory examination revealed reduced vesicular breath sounds bilaterally. He was intubated in view of worsening respiratory distress and was transferred to ICU. Chest X-ray and ABG was suggestive of acute respiratory distress syndrome(ARDS). He was treated with IV Acyclovir and broad spectrum antibiotics in view of subsequent hospital acquired infection. He was discharged well after 3 weeks of hospitalisation. **Discussion:** Varicella zoster infection is caused by Human alpha-herpesvirus 3, one of eight herpes viruses known to infect humans. Diagnosis of varicella pneumonitis with ARDS was made on the basis of rash, respiratory symptoms and contact with a child who just recovered from varicella zoster infection and rapid worsening of radiological changes. The risk factor of developing severe pneumonitis can be attributed to active smoking. **Conclusion:** High degree of suspicion and timely diagnosis is crucial for a favourable outcome in a patient with this rare complication.

Keywords: Varicella pneumonitis, Varicella Zoster, ARDS, Smoking, Herpes

Prevalence of Obesity with the Basic Health Consequences among the Preclinical Medical Students in Universiti Malaysia Sabah

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ABSTRACT

Introduction: Obesity or overweight and its consequences are important public health problems globally resulting in a significant cause of morbidity such as hypertension, Diabetes Mellitus, hypercholesterolaemia, coronary artery disease, stroke, sleep apnoea, cancers and mortality which also render distressing financial burden on everyone. It is imperative to intervene in momentous strategies for early detection to prevent the weight-related epidemic. **Methods:** It was a health survey conducted in June 2019 to detect the prevalence of obesity and overweight problems and the resultant detrimental health conditions among the year 1 and year 2 medical students of the University Malaysia Sabah. The survey was done on 145 students aged between 19-23 years. The height, weight, BMI, waist circumference, blood pressure and capillary random blood glucose were measured. Pearson correlation and Chi-square tests were done to find an association between BMI and probable factors using SPSS. **Results:** The prevalence of obesity was 8.2%. High blood pressure was recorded in 23.45% participants where both systolic and diastolic blood pressure was high in 18.6%, only systolic blood pressure was high in 37.2% and only diastolic blood pressure was high in 28.3% among 145 students. There was no impaired glucose tolerance among the participants. There was a positive correlation between BMI and systolic ($r=0.518$, $p<0.001$) and diastolic ($r=0.229$, $p<0.01$) blood pressure despite age factor. There was also significant (Chi-square value=8.870, degree of freedom=1, $p<0.01$) association between obesity and high blood pressure. **Conclusions:** The findings of this study indicate that there was a significant association with obesity or overweight with hypertension. Healthy dietary behaviour and exercise should be encouraged. The ongoing monitoring of the population's health status remains crucially important for the prevention of hypertension, diabetes mellitus or other detrimental consequences.

Keywords: Obesity, Health consequences

A Rare Case of Riamet Induced Prolonged Corrected Qt Interval

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ABSTRACT

Introduction: Artemether and lumefantrine was registered as Riamet in Switzerland in 1999 and is commonly used in Keningau Hospital for managing uncomplicated malaria. Riamet works at the food vacuole of the malarial parasite, where they interfere with the conversion of heme into haemozoin. **Case description:** We report a case of Riamet induced prolonged corrected QT interval (QTc) in a 37 year old gentleman admitted for severe malaria (hypotension) with normal QTc of 420msc on presentation. Upon starting Riamet, he developed bradycardia and ECG showed sinus bradycardia with prolonged QTc of 551msec and no arrhythmias. Echocardiography showed no structural heart abnormalities. All electrolytes were within normal range. He was monitored in cardiac care unit with decision to complete 6 doses of Riamet. Patient was started on Dopamine infusion which maintained his blood pressure and heart rate within normal range. 5 days post Riamet completion, his heart rate improved and dopamine infusion was tapered off and QTc normalized to 407msc. **Discussion:** The most common mechanism of drugs causing QT interval prolongation is by blocking the human ether-a-go-go related gene (hERG) potassium channel. Blockage of the hERG channel lengthens ventricular re-polarization and duration of ventricular action potential which is reflected in ECG as prolonged QT interval. In the in-vitro whole cell patch clamp study, lumefantrine and its metabolite desbutyl-lumefantrine showed a concentration-dependent inhibition of the hERG current. The period of QTc prolongation was 3.5 to 4 days after the last dose of the standard 6 dose regimen. **Conclusion:** Riamet induced prolonged QTc is a very rare complication. A baseline electrocardiography is therefore imminent for every patient prior to initiation of this medication to avoid cardiac arrhythmias.

Keywords: Prolonged QTc, Riamet, hERG, Antimalaria

Heterotopic Ossification in Stroke is Not that Rare: Lesson from Rehabilitation Standpoint

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ABSTRACT

Introduction: Stroke is a major public health concern and treating its complications is important for functional recovery. Heterotopic ossification (HO), a condition where bone is developed in non-skeletal tissue, is not an uncommon stroke-related complication with reported occurrence up to 12%. It typically presents with joint range of motion (ROM) limitation, pain and swelling. Detecting HO is important to prevent forceful joint manipulation during rehabilitation that can cause pain and fracture. Two cases of diagnosing HO during the course of stroke rehabilitation are presented. **Case description:** First case was a subacute stroke in 25 year-old male with right-sided hemiparesis and right hip joint ROM limitation. He did not consent to have passive ROM exercise and refused to be seated due to severe right hip pain. Second case was a 41 year-old male with chronic right-sided hemiparetic stroke exhibiting ipsilateral lower limb neurological recovery but inability to perform bed mobility and walking despite regaining motor function. The right hip joint ROM was limited in the absence of pain. Radiographs demonstrated presence of HO in the affected hip of both patients. Gentle hip ROM exercise was prescribed and noted improvement in ROM with subsequent ability for sitting (first case) and short-distance ambulation (second case). **Conclusion:** HO should be considered as a differential diagnosis in stroke patients having limited ROM, hence the importance of thorough physical examination. Presence of HO would guide rehabilitation process by encouraging gentle ROM exercise in the attempt to reduce public health burden from halted functional recovery in stroke.

Keywords: Heterotopic ossification, Stroke rehabilitation, Neurogenic heterotopic ossification, Stroke physical therapy

A Review on Climate Change and Malaysia's Actions

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ABSTRACT

Introduction: One of the biggest global health threats of the 21st century is climate change. It is so catastrophic that the climate action has been given a platform as it is the 13th goal of the 17 United Nations Sustainable Developmental goals (SDG). This review seeks to understand the factors causing climate change, followed by understanding the impact it has on individual and population health. We also identify the strategies to control and prevent further climate change. **Methods:** Reviews of local and international articles from the past ten years were conducted. The focus of the review was the causes, health effects as well as strategies. Data base used was Pro Quest. **Results:** This review identified that the main contributor to climate change are man-made activities such as fossil fuels combustion, livestock farming, and deforestation. This change in climate has many repercussions from mass migrations, increase communicable diseases as well as an increase in extreme weather events and natural disasters. All this eventually leads to the deterioration of individual and population health. Strengthening adaptivity to climate-related hazard, climate change integration into national policies, education, awareness-raising, impact reduction and early warning are actions that are present in Malaysia to manage this crisis. **Conclusion:** Climate change is occurring globally, and its presence can no longer be denied. Actions have been put forth, but only when its importance and impact is taken seriously will the positive changes be sustainable.

Keywords: Climate change, Global warming, Health impact, Strategies

The Efficacy of Simulation Training in Airway Management during Resuscitation at Red Zone among Final Year Nursing Students Kota Kinabalu Training Institute

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ABSTRACT

Introduction: Simulation training in airway management among nursing students was recommended to enhance skills, knowledge and confidence during their clinical attachment in the Emergency Department but the efficacy was not being explored adequately. The objective of this study was to determine the efficacy of simulation training in airway management among final year nursing student Kota Kinabalu Training Institute (KKTi). **Methods:** This was quasi-experimental research design, which the participant was divided into test and control group without randomization. A sample of forty final year nursing students was selected for this study. This was a comparative study involving twenty KKTi final year nursing students (test group) with simulation versus twenty final year nursing students (control group) without simulation on airway before and after posted to Emergency and Trauma Department (ETD). Two instruments were used, i) Pretest/posttest survey design by Porter et al (2013), and; ii) The Simulation Efficacy Tool-Modified (SET-M). SPSS version 24 Independent T test was used to analyse the mean score between the groups. Results: Levene's test for equality of variance shown significant ($t = -.005$, $df = 38$, $p < .05$), since the probability value (Sig.) obtained (.019) is less than predetermine alpha value (.05), thus null hypothesis was rejected. The test group were more confident compare to the control group before going for clinical posting in ETD. **Conclusion:** Simulation training in airway management increased confident level among the test group compare to control group who did not receive the simulation training.

Keywords: Airway management, Simulation training, Nursing student, Confident level

Prevention of Cervical Cancer by Human papillomavirus (HPV) Vaccination and Early Detection through Effective Screening: A Review

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ABSTRACT

Introduction: Cervical cancer remains the second commonest female malignancy worldwide and the seventh among Malaysians. Globally in 2012, an estimated 528 000 women developed cervical cancer and almost 266 000 died from this disease. Of all cervical cancers, 83% occur in the less developed world due to the absence of screening. To promote the community health awareness of cervical cancer which is preventable. **Methods:** By internet literature searching (Google Scholar) and textbooks. **Results:** The primary cause of cervical pre-cancer and cancer is persistent infection with one or more of the oncogenic types of HPV, the most common infection acquired during sexual intercourse, usually early in sexual life. Cervical cancer due to HPV can be prevented by HPV vaccination, participation in a screening program, avoidance of smoking, limitation of sex partners and use of a condom. Three HPV vaccines are available worldwide such as bivalent HPV 16/18 vaccine, quadrivalent HPV 16/18/6/11 L1 virus-like particles vaccine and 9-valent HPV 6/11/16/18/31/33/45/52/58 recombinant vaccine. The HPV test can be done on the same sample of cells collected from the Pap test and it can help to know HPV types. **Conclusion:** Cervical cancer due to HPV can be prevented by vaccination and the pre-cancerous phase of cervical cancer can be screened by the HPV testing with the Pap test. The community health awareness plays a major role in cervical cancer prevention.

Keywords: HPV, Cervical cancer, HPV vaccination, HPV test, Pap test

A Rare Presentation of Gliosarcoma in a Young Adult

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ABSTRACT

Introduction: Gliosarcoma is a rare malignant brain tumor. The clinical presentation is acute with rapid progression of symptoms. Commonly affecting the elderly, it is rare to happen in youngsters. **Case description:** A 28-year-old radiographer presented to us with two episodes of unprovoked seizure. He denied any medical illnesses, or trauma, fall, motor vehicle accident and fever prior to these attacks. The computed tomography (CT) of brain was normal. He was managed as epilepsy and remained symptom-free for 3 years until the unprovoked seizure recurred. Another CT of brain performed and revealed a right parietal intracranial mass. This finding was supported by magnetic resonance imaging scan. The histologic examination showed a biphasic pattern of glial with predominant sarcomatous component giving a diagnosis of gliosarcoma of the brain. He had completed six cycles of adjuvant chemotherapy and was asymptomatic during clinic follow up with no tumor recurrence. **Conclusion:** Individuals with high risk of radiation exposure particularly radiographer as in our case requires a special attention when it comes to the diagnosis of malignancy. Despite of indolent clinical presentations, a close monitoring is needed to avoid mismanagement and subsequent morbidities.

Keywords: Brain, Gliosarcoma, Young adult

Smoking Among Male Villagers in Kampung Barambangon, Kudat, Sabah

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ABSTRACT

Introduction: Tobacco smoking is a major public health concern worldwide as it is one of the major risk factors for non-communicable diseases leading to burden of adverse health effects in their later life. According to Global Adult Tobacco Survey Malaysia (2011), 43.9% of men, 1.0% of women, and 23.1% overall currently smoked tobacco. It is important to prevent smoking uptake and promote smoking cessation to reduce the impact of tobacco smoking. The constant monitoring of the magnitude of smoking and its influencing factors is crucial for effective planning of anti-smoking programs. This study aimed to determine the prevalence of smoking and its associated factors among male villagers in Kampung Barambangon, Kudat, Sabah. **Methods:** A cross-sectional study was conducted among male villagers aged 15 years and above in Kampung Barambangon, Kudat District, Sabah State. Non probability convenience sampling was employed. The study period was from March to April, 2019. Data collection was done by using pretested self-administered questionnaire and a total of 97 villagers were participated in the study. Chi-square test was used for statistical analysis. **Results:** The study revealed that the prevalence of smokers among male residents in Kampung Barambangon was 50.5% (95% CI: 48.6–52.1%). It was found that there were significant associations between smoking status and positive attitude towards smoking (p-value 0.001), having siblings who smoked (p value 0.001), having high percentage of friends who smoked (p-value 0.009) and high educational level (p-value 0.005). **Conclusion:** The prevalence of male smokers in Kampung Barambangon was higher than the national prevalence. The findings may help in understanding the magnitude of the smoking problem and its associated factors which can be used for effective tobacco control and intervention programs.

Keywords: Smoking, Male villagers, Kampung, Kudat, Sabah

Obesity and Weight Reduction: A Review on the Latest Weight Reduction Strategies

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ABSTRACT

Introduction: Obesity prevalence in Malaysian adults aged 18 and above has more than tripled over the past 20 years with 4.5% in 1996 to 17.7% in 2015. The alarming trend of the obesity epidemic in Malaysia requires immediate revision of public health policies. Thus this review was conducted to determine the effectiveness of latest weight reduction strategies. **Methods:** Literature search was conducted as guided by PICO Framework and using online databases PubMed on 22 June 2018. A total of 2,203 articles were found and screened. A total of 26 articles were reviewed. **Results:** Most weight loss achieved is through surgical intervention with weight reduction of 20.8 kg compared to 8.5 kg reduction in control group (95% CI, $p < 0.001$). Non-invasive procedures that produced greatest weight reduction include diet modification strategy consisting of isocaloric diet with large breakfast (700 kcal) which produced weight reduction of 8.7 ± 1.4 kg compared to large dinner (700 kcal) 3.6 ± 1.5 kg (95% CI, $p < 0.0001$), and special diet of adding 3g/day cumin supplementation into normal diet which produced weight reduction of 6.2 kg compared to 4.19 kg reduction in control group (95% CI, $p < 0.05$). **Conclusion:** In this review, most weight loss is achieved through surgical intervention. All patients should receive lifestyle therapy and additional consideration should be given for pharmacotherapy and bariatric surgery when indicated.

Keywords: Obesity, Weight reduction strategies, Lifestyle modification, Diet

Milestone of Polio Environmental Surveillance in Malaysia Conjoining With the Polio Global Eradication Initiative

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ABSTRACT

Introduction: Poliomyelitis is an incapacitating and highly infectious disease which effect mostly young children. It is caused by one of the three serotypes of polioviruses (PV) and transmitted through faecal-oral route hence making the disease quite pertinent to the lower and middle class society or under-immunized population. This surveillance is one of the strategy included by WHO in the “Eradication, Integration and Certification: The Endgame Strategy 2019-2023” as a supplement to AFP surveillance by which it could be more sensitive to detect low circulation of WPV and circulating vaccine derived poliovirus (cVDPV). **Methods:** Routine collection and testing of representative environmental surveillance are carried out in the National Polio Laboratory. The specimens are collected from designated locations draining target populations at increased risk of poliovirus transmission using the grab method once a month and processed according to WHO standard protocol. Polioviruses were identified by real time reverse transcriptase polymerase chain reaction (rRT-PCR) for intratypic differentiation (ITD) and vaccine derived poliovirus (VDPV) whereas non-polio enteroviruses (NPEVs) were identified by PCR and sequencing. **Results:** From 2012 to 2019, results showed various isolation of PVs and NPEVs. A total of 12 sewage disposal plants located in urban highly populated areas in Kuala Lumpur (3), Selangor (5), Sabah (3) and Negeri Sembilan (1) were investigated. A total of 22 Sabin-like PVs were isolated consisting of 3 PV1, 8 PV2 and 11 PV3 thus indicated that in Malaysia even though PVs were existed in environment, but all of them were Sabin-Like viruses and no evidence of imported WPV or VDPV in the sampling sites. **Conclusion:** Even though Malaysia has been declared as WPV free country in 2000, Environmental Surveillance is very important and crucial in detecting the introduction and silent circulation of WPV and cVDPV before the virus reaches the community.

Keywords: Polio Environmental Surveillance, Non Polio Entero Viruses, Wild Polio Virus, Circulating Vaccine Derived Polio Viruses

Innovative Models of HCV Testing Across Four Countries: Malaysia, Georgia, India and Myanmar – The HEAD-Start Project

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ABSTRACT

Introduction: Despite significant advancements in testing technologies and treatment, 80% of 80 million chronically hepatitis C virus (HCV) infected people remain undiagnosed. FIND in collaboration with Ministries of Health and local partners, initiated seven Unitaid funded Hepatitis C Elimination through Access to Diagnostics (HEAD-Start) projects in four countries (Georgia, India, Malaysia and Myanmar) to demonstrate innovative models of HCV care to inform programme scale-up nationally and globally. Here, we describe preliminary findings for patient retention in the HCV cascade for each project. **Methods:** Target populations and settings include people who inject drugs (PWID) in harm reduction sites (Manipur, Georgia, Myanmar), high risk patients in primary health care facilities (Malaysia), general population in polyclinics and district hospitals (Delhi) and people living with HIV (PLHIV) in antiretroviral therapy (ART) clinics (Punjab). All projects employ rapid diagnostic tests for HCV screening. HCV seropositive patients received confirmatory testing either on site (Georgia, Myanmar) or via centralized laboratory (Malaysia, Georgia, Delhi) or testing hubs (Punjab, Manipur). **Results:** In Malaysia, 4,613 patients were screened - 23% (1,042) are HCV seropositive, 57% (594) received RNA confirmatory testing and 11% (54) confirmed RNA-positive initiated treatment. In Delhi, 17,101 patients were screened – 2% (355) are seropositive, 92% (326) received confirmatory testing and 70% (180) initiated treatment. In Punjab, 17,507 patients were screened – 19% (3,368) are seropositive, 94% (3,165) received confirmatory testing and 31% (828) initiated treatment. In Manipur, 3,845 patients were screened - 56% (2,180) are seropositive, 73% (1,591) received confirmatory testing and 67% (823) initiated treatment. In Myanmar, 199 patients were screened – 96% (191) are seropositive, 100% received confirmatory testing and 86% (151) initiated treatment. In Georgia (Arm 1) - 100% (619) received confirmatory testing and 76% (389) initiated treatment. **Conclusion:** The fully decentralised HCV testing model demonstrated higher numbers of patients progressing to each step in the care cascade.

Keywords: HCV, Rapid diagnostic test, HEAD-start, Decentralization, Patient retention

Field Demonstration of the Usefulness of a Model of 3D Printed Mosquito Light Trap Made in Sabah

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ABSTRACT

Introduction: Collecting mosquitoes is essential for research in mosquito-borne diseases, but the light traps used for that purpose are expensive and often difficult to obtain around research fields. We designed a new 3D-printable mosquito light trap that can be made inexpensively anywhere where electricity is available (Hoshi et al, Scientific Reports, in press). In this study, we produced that trap in Sabah and demonstrated its usefulness in the field. **Methods:** With a 3D printer, the main parts of the trap - body, lid, lamp stand and collection box - were printed in Kota Kinabalu using black polylactic acid (PLA) filaments purchased online. All other parts such as the computer fan and batteries were commercially available at local shops in Sabah. The parts were assembled into the complete units at Universiti Malaysia Sabah's Rural Medical Education Centre (RMEC) in Sikuati, Kudat. Demonstration was performed at two sites in the Kudat district: RMEC campus and the premises of a local farm in Kampung Paradason. **Results:** The 3D traps collected 6 and 7 different species of mosquitoes at RMEC and Paradason sites, respectively. The numbers of mosquito species collected by the commercially-available CDC model-512 traps in parallel experiments were 2 (RMEC) and 10 (Paradason). The species collected by the 3D traps included *Aedes albopictus* (vector transmitting Dengue virus), *Anopheles barbumbrosus* (malaria), *Culex quinquefasciatus* (*Wuchereria bancrofti*, avian malaria, and arboviruses including Japanese encephalitis and Zika viruses) and *Mansonia indiana* (*Brugia malayi*). **Conclusion:** The 3D light trap which was produced in Sabah demonstrated its usefulness in the field tests performed in the Kudat district. This model can be used as an alternative to the rather expensive commercial light traps to collect the vector insects transmitting mosquito-borne diseases such as malaria, dengue, Japanese encephalitis, Zika fever and filariasis.

Keywords: 3D printing, Mosquito-borne diseases, Mosquito light trap

Dermatoglyphic Pattern among Kadazandusun and Bajau Ethnic Groups in Sabah

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ABSTRACT

Introduction: Dermatoglyphics have been used extensively to characterize populations, analyse the nature and origin of human variation and population structure and evaluate the micro-differentiation of populations. Dermatoglyphics is considered as a sensitive indicator of intrauterine anomalies and known to be one of the best available diagnostic tools in genetic disorders. KadazanDusun and Bajau are the major ethnic groups of Sabah. The aim of the study was to study the distribution of fingerprint patterns on different digits in these two ethnicities of Sabah and to find if any variation occurs in fingerprint pattern qualitatively between these ethnicities. **Methods:** This cross-sectional study was conducted from March' 2016 to February' 2018 at different villages of Kudat, Ranau, Kota Belud, Kota Kinabalu and Papar, Sabah. After obtaining informed consent 400 persons (KadazanDusun 250, Bajau 150) were included in this study by stratified random sampling. Demographic data and history of present and past illness were obtained from each subject through a valid questionnaire. Finger and palm prints were photographed using Nikon D5200 camera and later were grouped into different types manually. **Results:** There were 205 female and 195 male participants in the study. Among the three types of fingerprints, whorls were more abundant (>50%) in the thumbs, index, ring and little fingers whereas loops were observed more (>55%) in the middle fingers. The arches were the least (0-3%) observed pattern in all the fingers. The dermatoglyphic pattern of right and left index fingers were only significantly different ($p<0.05$) among KadazanDusun and Bajau ethnic groups. There was no significant ($p>0.05$) difference in respect of left and right hands and gender. **Conclusion:** The study findings would serve as a baseline data for further studies to develop data base of the dermatoglyphic pattern of major ethnic groups of Sabah which would facilitate non-invasive diagnosis of congenital anomalies and various genetic disorders.

Keywords: Dermatoglyphics, KadazanDusun, Bajau, Sabah

Ethnomedicine in Sabah: Past Trends and Future Perspectives

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ABSTRACT

Introduction: The objective of this presentation is to carry out a review of the historical status and possible future outlook of the practice of ethnomedicine in the State of Sabah. As in many parts of the world, there are many types of traditional medicines that have been used for hundreds of years among the various native cultural groups in Sabah.

Methods: A literature survey was conducted with the aid of online database, and text books using keywords such as the current as well as previous names of Sabah and various related terminology such as ethnomedicine, CAM, complementary and alternative medicine, TCM, traditional and complementary medicine, herbalism, reflexology, spiritualism, ethnobiology ethnology, ethnoanthropology, biological activities, ethnobotanical uses, medicinal properties, toxicity studies, etc. The status of ethnomedicine in Sabah is largely unknown. **Results:** Based on a review of previous literature, the study discovered that there is limited empirical documentation on the use of ethnomedicine in Sabah. In this preliminary review, a total number of 25 publications were recorded in the databases for the period up to 2019. There is still a need to realise the full potential of the biocultural diversity of Sabah, and that there is a strong need to focus more on socially relevant research. Ethnomedicine in Sabah consists mainly of herbalism, manipulative practices and spiritualism. Plants can be said to be the central player in race-based traditional medicine. While data on ethnomedicine may be based on original field research, several are primarily derivative, drawing as they do from earlier published accounts and, importantly, anecdotes. Traditional massage and other manipulative-practices, based on manipulation and movement of body parts, are also popular because of their simplicity and apparent immediate relief that can be experienced by the patient or client. Spiritualism, which may be considered as a peculiar dimension of the mind-body medicine subset of traditional medicine, continues to have its adherents among the natives of Sabah. **Conclusion:** List and catalogs and sociological and ethnohistorical data were the favoured perspective of research in the past; but future evolution of ethnomedical studies need to address some of the debates related to biological, medical and social sciences. Future research should include systematic investigation into efficacy and risk besides the possible incorporation of some parts of ethnomedicine into the existing healthcare services. Ethnomedicine occupies a distinct place in healthcare in the world in general, and Sabah in particular.

Keywords: Ethnomedicine, Traditional, Cultural, Manipulative, Spiritualism

Ten-year Analysis of Filariasis in East-Coast Malaysia

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ABSTRACT

Introduction: Lymphatic filariasis (LF) is a neglected tropical disease that can cause significant morbidity. In Malaysia, National Programme for the Elimination of Lymphatic Filariasis started in 2001 with the initial target of achieving Lymphatic Filariasis elimination status by 2018 but it has been revised to year 2020. Mass Drug Administration (MDA) Programme was performed from 2004 to 2008 in all endemic areas (Red Implementation Unit, IU) in Malaysia including Terengganu state to stop disease transmission. Transmission Assessment Surveys (TAS) were conducted later on and for Terengganu, they were done in 2011 (TAS 1), 2015 (TAS 2) and 2017 (TAS 3) and had passed all the surveys based on critical cut off (CCO) point given. **Methods:** A cross sectional analysis of 10-year Terengganu filariasis records (2009-2018) was initiated in June 2019 using data source from eVekpro and filariasis cases line-listing. **Results:** Majority of filariasis cases in Terengganu were among males (n=147, 76.6%) with the highest number among 30-39 year-old age group (n=35, 18.2%). Majority of cases were Malaysian citizens (n=162, 84.4%) with main filariasis species identified were *Brugia Malayi* (n=149, 77.6%). The number of cases diagnosed was slightly higher from Green Implementation Unit area (n=102, 53.1%) compared to Red Implementation Unit area. **Conclusion:** The number of lymphatic filariasis cases among Terengganu citizens was below critical cut off point after the accomplishment of MDA programme and in accordance with the aim of lymphatic filariasis elimination status in Malaysia by 2020.

Keywords: Filariasis, Lymphatic, Elimination, MDA

Real Time Telecardiology System

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ABSTRACT

Introduction: Cardiovascular diseases remain as the principal cause of death in Malaysia. The rural areas in Sabah still suffer from shortage of doctors and specialists. Health Indicators 2018 from Ministry of Health Malaysia shows the ratio of doctor to population in Sabah is 1:1029. The lack of specialist care for the rural population is a major concern. To overcome the barrier of healthcare services, deployment of telecardiology system is necessary. The objective of this project is to develop a real-time telecardiology system that can transmit and guarantee the quality of the ECG signal. **Methods:** The proposed real-time telecardiology system used an ECG sensor AD8232 to collect the ECG signal. Arduino ESP32 as a main controller of the system. It uploads the collected ECG data to the online database in real-time through Wi-Fi or cellular network with MQTT protocol. A website is developed for displaying the real-time ECG signal. **Results:** The proposed system has successfully displayed the ECG signal in real-time with 10000 ECG raw data were tested and stored in online database with no package loss and package error during the data transmission. The online system able to display real-time ECG signal and BPM on webpage. The real-time BPM is extracted from the real-time ECG raw data. **Conclusion:** The proposed real-time telecardiology system has successfully transmitted ECG in real-time with high data integrity. Telecardiology is one of the best solutions to resolve the issue of shortage of healthcare professionals in rural areas and improve the healthcare quality in rural areas.

Keywords: Telecardiology, Real-time, Data integrity, ECG

Is It Safe to Prescribe Triple Drugs Therapy for Lymphatic Filariasis Infection in Epidermolysis Bullosa Patient? A Case Report

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ABSTRACT

Introduction: Filariasis is an endemic infection in tropical and subtropical countries. The disease is caused by parasites from the group *filariodidae*. Epidermolysis Bullosa, on the other hand is a group of rare genetic skin diseases that characterize by skin blister and erode facilely. Due to rarity of Epidermolysis Bullosa and uncommon occurrence of Filariasis, there is extremely limited case or paper reporting on safety profile of medication that are used to treat Filariasis patient with underlying Epidermolysis Bullosa. Serious adverse event that is anticipated in this cohort of patient are Stevens-Johnson syndrome and Mazotti reaction. **Case description:** Surveillance activity is necessary in high endemic localities in Sabah in order to control the spread of this mosquitoes-borne disease. The available tool is Brugia Rapid™ kit, a test kit that detects filarial antibodies. A 13 year-old boy with underlying Epidermolysis Bullosa Simplex was detected during surveillance activities. It was further confirmed with night blood on microscopic slide that depicted high density of parasite (microfilaria count: 31). The WHO specifically exempted the following groups from the treatment - children under 5 years of age; pregnant women; and seriously ill individuals i.e. those who are having acute or chronic illness that makes them too sick or weak to get out of bed; and those with an illness who are life-dependent on medical intervention. This is because ingestion of the medications can result in adverse events due to the destruction of killed parasites. No guideline is available for treatment of lymphatic filariasis in rare genetic disorders. **Conclusion:** The recommended dosage for IDA is Ivermectin 3mcg/kg, Diethylcarbamazine 6mg/kg and Albendazole 400mg for positive patient yearly. Patient was admitted in hospital for observation treatment with the suggested dose. From the case study it shows it is safe to treat this cohort patient. However, it is advisable to treat such rare cases by case basis and in comparison to others where treatment is given in the community this patients should be treat in more control environment such in the hospital.

Keywords: Epidermolysis bullusa, Filariasis

Are Bovine and Porcine Adenoviruses Distinctive From Other Adenovirus Strains?

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ABSTRACT

Introduction: Adenoviruses are important in public health. They are used as indicators for microbial pollution source tracking (MST), and as vaccine vectors. Knowledge of host specificity and pre-existing immunity are critical for the two applications. Bovine and porcine adenoviruses are expected to be widespread in the environment through agriculture. Here we examined if bovine and porcine adenovirus strains are truly distinctive from other adenovirus strains. **Methods:** 46 adenovirus strains with complete genome were downloaded from the RefSeq database of GenBank. 450 bp of nucleotides each at positions 1- 450, 18001-18450, and 27001 – 27450 of the respective strains were subjected to the Disparity Index Test using Mega 7 software. Analysis focused on four adenovirus strains: Bovine B, Bovine D, Porcine C and Porcine 3. The total number of strains that were significantly different ($P < 0.05$) from these four strains on a pairwise comparison basis were counted. **Results:** Bovine D was the most distinctive, reporting significant differences from 34 other adenovirus strains out of the 46 strains. Both Bovine B and Porcine 3 were significantly different from 22 other strains; while Porcine C was only significantly different from 12 other strains. **Conclusion:** Not all bovine adenoviruses are equivalent in terms of nucleotide heterogeneity patterns, the same goes to the porcine adenoviruses. The mechanisms behind such variations among the same hosts should be further explored, in order to avoid the application pitfalls of using these adenovirus strains for MST, or in designing vaccine vectors.

Keywords: Adenoviruses, Bovine, Porcine, Microbial source tracking, Vector

Risk Perceptions and Acceptance towards the Uptake of Pertussis Vaccine amongst the Healthcare Workers in Sabah and Sarawak

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ABSTRACT

Introduction: The incidence of pertussis has been said to increase over the years, and the affected patient-age group has also changed with the increasing number of cases amongst adolescents and adults. Therefore, adults require booster vaccination for protection against pertussis infection. Vaccination among healthcare workers (HCW) should be prioritized when a country implements an adult vaccine. However, the coverage of pertussis vaccination is still deficient among HCW due to low-risk perception. This study focused on finding the risk perception of pertussis infection amongst the HCWs based on the Protection Motivation Theory (PMT) and their acceptance to take pertussis vaccination. **Methods:** This was a cross-sectional study using online survey. The website link is given to the Healthcare workers consisting of doctors, Assistant Medical Officers, nurses, and Environmental Health Officers. **Results:** A total of 853 responders responded to the questionnaire. Most of the respondents (81.5%) are willing to receive the pertussis vaccine. Independent t-test showed that the PMT score was significantly different between those willing and those not willing to take the vaccine (p -value < 0.001 , t statistics (df)= 7.729 (325)). Robust path analysis showed that sociodemographic factors (age, the institution of working and prior pertussis vaccination) ($p=0.004$), threat ($p<0.001$) and coping pathway ($p<0.001$) of PMT constructs were linked with the willingness to uptake vaccine. **Conclusion:** The willingness of the HCW to uptake the pertussis vaccine is associated with their risk perception towards pertussis.

Keywords: Healthcare workers, Pertussis vaccine

Successful Implantation Via in Vitro Fertilization (IVF) in Hospital Wanita Kanak-Kanak Sabah: Single Centre Experience

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ABSTRACT

Introduction: Implantation is one of critical step in human reproductive processes. There are many factors that affect successful implantation. Good quality embryo or blastocyst is a prerequisite to successful implantation together with a receptive endometrium. The purpose of this study is to describe the patient clinical profile and to investigate the factors of interest association with implantation status. **Methods:** This is a cross sectional study involving patients planned for in vitro fertilization (IVF) treatment in the hospital infertility clinic. All demographic data and clinical profile data of the patient in each visit was recorded. Among the data taken were, physical examination data, patient history, causes of infertility, hormonal investigation and outcome at the end of treatment (presence of fetal heart). Successful implantation is indicated by presence of fetal heart. **Results:** A total of 246 patients record were collected. Mean age of the patient was 34.2 (SD = 4.12) years old. Mean BMI was 24.5 kg/m² (SD=4.70). Mean of infertility years among the patients was 5.9 years (SD= 3.40). Most cause of infertility was tubal issues 87 cases (35.4%). The prevalence of successful implantation was 12.8% (95% CI 7.8%, 17.8%). None of the factors of interest (age, BMI, infertility duration, progesterone at baseline, progesterone at trigger day) were found associated with successful implantation. Out of 224 patients, 53 (21.5%) were having elevated progesterone level at trigger day. However, in this study, there is no conclusive evidence that level of progesterone is associated with successful implantation. **Conclusion:** The successful implantation in our setting is approximately 1/10 of IVF treatment. Implantation involved a complex mechanism, thus there is wide variety of etiologies to predict for successful implantation. Thus, further study on wide comprehensive of risk factors is warranted.

Keywords: Progesterone at trigger day, Embryo, Implantation

Retrospective Descriptive Study of Patients with Dermatological Problems, at UMS Polyclinic, Kingfisher, Kota Kinabalu, Sabah

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ABSTRACT

Introduction: Since January 2010, the UMS Polyclinic, situated at Riverside Plaza, Kingfisher Park, Kota Kinabalu, Sabah, provided general medical consultation as well as specialist consultations comprising of Internal Medicine, Endocrinology (Diabetes and related problems), Dermatology, Rheumatology, Cardiology including ECG and ECHO services, Orthopedic, Ophthalmology, ENT (Ear, Nose and Throat), Obstetrics and Gynecology, Pediatrics and Psychiatry. The purpose of this study was to look into the Dermatology consultations provided by the UMS Polyclinic in order to improve health care services, by reporting on the demographic characteristics of the patients with reference to the provisional diagnosis and management offered, as well as referrals to tertiary health care centers for further managements. **Methods:** It was a retrospective, descriptive study which included 76 patients who visited the Dermatology Specialist Clinic at UMS Polyclinic from January to December 2018. **Results:** The 76 patients comprised of 50 males and 26 female patients with the age ranged from 2 years to 86 years, with 5 children (under the age of 12 years). The catchment population of the patients were mainly from Universiti Malaysia Sabah, Kingfisher, and also from wide areas of Kota Kinabalu with a few from Kudat, Tamparuli, Telipok, Keningau, Kinarut and Beaufort, etc. The consultations comprised of 19 varieties of dermatological problems to which were given appropriate management. The period of the year 2018 under study showed highest attendance in February with 21 patients (27.6%) followed by 13 patients (17.1%) in October with December showing 11 patients (14.5%). **Conclusion:** A total of 32 varieties of Dermatological problems were found among the 76 patients consulted. Acne Vulgaris was found to be the highest variant with 12 cases (15.7%) with Seborrhoeic Dermatitis seen as 5 cases (6.5%) followed by 4 cases (5.2%) each of Contact Dermatitis, Allergy/Hypersensitivity, Photosensitive Dermatitis, and Vitiligo. Certain patients had to be referred to Dermatology Department at Hospital Queen Elizabeth for further management, like for skin biopsy, and also for Electro-cautery machine, Phototherapy, and Laser, as we are still waiting for few equipments.

Keywords: Dermatology, Restrospective study

Relationship between the Levels of Nicotine Addiction with Psychosocial Factors among Registered Smokers at the Government Hospital Quit Smoking Clinic Services around Klang Valley

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ABSTRACT

Introduction: Nicotine addiction is one of the major issue in public health especially in Malaysia. Nicotine addiction also make a quitting smoking process difficult for most smokers and could cause relapse and failure. This study investigated relationship between nicotine addiction and psychosocial factors such as anxiety, depression and social support among smokers registered in quit smoking clinic services in the hospital around Klang Valley, Malaysia. **Methods:** A cross-sectional study has been conducted among 115 smokers. **Results:** Results showed that 23.5% smokers had high nicotine addiction, 24.3% had moderate nicotine addiction, and the rest had low nicotine addiction. There is a positive significant relationship between nicotine addiction with age and smoking duration ($r=0.34$, $p<0.01$ and $r=0.41$, $p<0.01$, respectively). There is also a positive significant relationship between nicotine addiction with anxiety and depression ($r=0.33$, $p<0.01$ and $r=0.38$, $p<0.01$, respectively). In addition, there is a negative significant relationship between nicotine addiction with social support overall and social support from significant others ($r=-0.22$, $p<0.05$ and $r=-0.19$, $p<0.05$, respectively). The study shows that psychosocial factors such as anxiety, depression, social support and socio-demographic factors such as age and smoking duration were potentially affecting smoker's nicotine addiction. **Conclusions:** Besides pharmacological treatment, this study proves the importance of psychosocial factors involvement in helping client with nicotine addiction issues. Therefore, psycho-education, behaviour modification and psychosocial support skills should be enhanced for the quit smoking clinic handler. Studies on the need for psychosocial factors in helping smokers reduce their psychological and behaviours dependence on nicotine addiction should also be explored in greater depth.

Keywords: Nicotine addiction, Psychosocial, Anxiety, Depression, Social support

Echovirus Serotypes Circulating in Malaysia from 2014 to 2019

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ABSTRACT

Introduction: Echoviruses are Enteroviruses (HEVs) that infect millions of people annually worldwide, primarily paediatrics. These viruses are frequently associated with outbreaks and sporadic cases of viral meningitis, encephalitis, paralysis, myocarditis, severe systemic infections; and hand-foot-mouth disease. This study is a retrospective study to identify Echovirus serotypes circulating in Malaysia from January 2014 to June 2019, and their roles in outbreak prediction. This study investigated the Echovirus serotypes circulating in Malaysia from January 2014 to June 2019. **Methods:** A total of 13,855 inpatient samples consisting respiratory secretion, stool, tissue and body fluid from around the country were received by the Virology Unit, Institute for Medical Research between January 2014 and June 2019. The presence of HEV's RNA was detected by qPCR. The identified positive sample was further isolated by cell culture and identified by Immunofluorescence Assay (IFA). The IFA positive samples were subjected to amplification of partial VP4 gene by RT-PCR, and proceeded to Sanger sequencing for phylogenetic analysis by using ChromasPro and MEGA Software. The sequence generated were analysed by BLAST to confirm the sequence serotypes generated. **Results:** Echovirus genome was detected in 0.35% (37/10,681) of the patients. The circulating Echovirus subtypes in Malaysia between January 2014 and June 2019 were Echo-11 (43.2%; 16/37), followed by Echo-6 (16.2%; 6/37); 8.1% (3/37) of Echo-7 and Echo-13, respectively. Meanwhile, other types of Echoviruses (24.3%; 9/37) such as Echo 3-5, Echo-14, Echo-16, Echo-18, Echo-25 and Echo-30 were also detected in this study. **Conclusion:** In this study, it has been found that Echovirus 11 serotype is the most predominant Echovirus serotype circulating in Malaysia between January 2014 and June 2019. It has been reported to cause severe diseases, such as aseptic meningitis. Therefore, the identification of circulating serotypes of Echovirus is critical to predict the Echovirus outbreak and to reduce the risk of developing severe disease in Malaysia.

Keywords: Echovirus serotypes, RT-PCR, Aseptic meningitis

A Short Term Nutrition Education Programme Improved Nutrition Knowledge and Increased Preference for Fruits, Vegetables and Higher Intensity Physical Activity among Kindergarteners

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ABSTRACT

Introduction: Nutrition education is crucial to promote healthy eating behaviours and lifestyle that can prevent nutrition related non-communicable diseases. Young children are known to be amenable to nutrition education programmes and the school setting provides ideal opportunity for young children to learn. It is important to measure the impact of such programmes to determine its usefulness. Thus, the current study described the impact of a short-term nutrition education programme in kindergarteners. **Methods:** This pre and post-test design study involved 20 kindergarteners (aged 6 years) at Pusat Minda Lestari, Universiti Malaysia Sabah. The participants of the programme received a nutrition education module at school which comprised of nutrition lessons on key messages in the Malaysian Dietary Guidelines and related hands-on activities for 30min/day on 10 consecutive school days. Main outcomes were children's nutrition knowledge and attitude, their preference for fruits and/or vegetables in a meal and types of physical activity most frequently done. These were all measured using established age-appropriate methods and tools. **Results:** After receiving the nutrition module; study participants' mean score for overall nutrition knowledge significantly improved by 60%, self-reported attitude towards healthy foods were more positive and the majority of participants (85% combined) reported that they would prefer to include either vegetables, fruits or vegetables & fruits in their meal rather than none at all (65% preferred no fruits and vegetables at baseline). The number of participants who said they preferred doing healthier types of physical activities rather than sedentary activities increased by 40% after the programme. **Conclusion:** This short-term nutrition programme appeared to increase kindergarteners' interest in making healthy food choices and doing moderate to high intensity physical activities. Thus, the nutrition education module used in this programme may be useful in promoting healthy eating behaviours and physical activity in young children

Keywords: Nutrition education, Nutrition knowledge, Healthy eating, Physical activity, Young children

Prevalence of Obesity, Hypertension, and Hyperglycemia among the Rural Community of Inanam Sub-district in Kota Kinabalu, Sabah, Malaysia: A Health Screening Program Findings

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ABSTRACT

Introduction: Malaysia has the highest prevalence of obesity among the Southeast Asian nations which increases the risk for non-communicable diseases such as diabetes mellitus and hypertension. Since rural communities regularly face challenges in receiving medical services, regular health screening programs targeting these communities are necessary for early diagnosis and intervention to prevent complications as well as preserve the patients' quality of life. **Methods:** A community health screening program was performed in the Inanam sub-district of Kota Kinabalu, Sabah, Malaysia. A total of 50 participants via convenience sampling were examined for body mass index (BMI), waist circumference (WC) and waist-to-hip ratio (WHR) to determine their general and central obesity status. Estimation of body fat percentage (Fat%) and body fat mass was conducted by using bioelectrical impedance analysis. Additionally, systolic blood pressure (SBP), diastolic blood pressure (DBP), and capillary blood glucose were also measured. **Results:** The participants had a median age of 39.50 years. The prevalence of general obesity was 28%, while the prevalence of central obesity was 78% (based on WC) and 74% (according to WHR). Hypertension and hyperglycemia prevalence was reported at 24% and 20%, respectively. BIA showed that both Fat% and fat mass had positive associations with BMI ($r=0.656$, $p=0.001$ for Fat%; $r=0.868$, $p=0.001$ for fat mass) and WC ($r=0.505$, $p=0.001$ for Fat%; $r=0.761$, $p=0.001$ for fat mass). The DBP had positive associations with the BMI ($r=0.390$, $p=0.005$), WC ($r=0.467$, $p=0.001$), and WHR ($r=0.331$, $p=0.019$), while the SBP had a positive association with the WC alone ($r=0.341$, $p=0.015$). Conversely, there were no significant associations between capillary blood glucose and BMI, WC, or WHR. **Conclusion:** The rural community of Inanam sub-district had a higher prevalence of central obesity than the national level. This should raise concern among healthcare professionals regarding future hypertension and hyperglycemia risk in this community.

Keywords: General obesity, Central obesity, High blood pressure, High capillary blood glucose, Rural health

Central Scotoma at Near Top of Mount Everest – A Case Report of Bilateral High Altitude Retinopathy

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ABSTRACT

Introduction: High altitude retinopathy (HAR) is part of high altitude illness (HAI) which includes acute mountain sickness, high altitude cerebral oedema and pulmonary oedema. We present a case of bilateral HAR with right eye central scotoma during Mount Everest expedition. **Case description:** A 37-year-old lady presented with decreased right eye (OD) vision and central scotoma during ascending to the top of Mount Everest at 5100m. She developed respiratory symptoms with shortness of breath at the same time and warranted her a rapid descend on day eight of her excursion. Ocular examination revealed visual acuity of 6/36 OD and 6/6 left eye (OS). Both pupils were normal without relative afferent pupillary defect. Anterior segment and intraocular pressure were unremarkable. Fundus examination revealed bilateral multiple retinal haemorrhages along vascular arcades, with macula involvement in the right eye only. Otherwise there was no sign of optic disc swelling, vascular sheathing or choroidal involvement. Optical coherence tomography (OCT) of the macula showed hyperreflectivity changes on the right fovea at the level of superficial nerve fiber layer. Diagnosis of bilateral HAR was made and treated conservatively. She was also diagnosed with HAI with acute pulmonary oedema and pneumonia by the treating physician. The retinal haemorrhages started to resolve after two weeks with full recovery of vision in ten weeks. **Conclusion:** With increasing popularity of mountaineering, ophthalmologists should be prepared to recognise HAR as part of HAI. Visual impairment depends on the location and extent of the lesions. HAR is self-limiting with good prognosis but can be associated with potentially fatal conditions of HAI e.g. pulmonary oedema in our case.

Keywords: High altitude retinopathy, Scotoma, Retinal hemorrhages, Optical coherence tomography

A Malignant Looking Unilateral Enlarged Tonsil with Fungating Surface is Not Always Malignant: A Case Report

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ABSTRACT

Introduction: A unilateral enlarged tonsil always is a suspicion of carcinoma. Especially if it is with fungating ulcerative surface. Neoplasms in unilaterally enlarged tonsil include squamous cell carcinomas and lymphomas. Lymphomas in oropharynx are not common specially with fungating surface. Usually lymphomas in these areas are Non-Hodgkin's type. **Case description:** A 62-year-old woman was admitted in the tertiary level hospital of Kota Kinabalu, Sabah, with the complaint of sore throat,odynophagia and right neck swelling. She was treated as a case of acute tonsillitis by general practitioner without any noticeable improvement. Oral cavity examination revealed a hugely enlarged right tonsil with fungating ulcerative surface and almost obstructing the oropharynx. Trismus was seen which make the examination difficult. A non-tender right upper neck swelling was palpable. All baseline laboratory investigations were normal. A contrast-enhanced computed tomography (CECT) showed a heterogeneously enhancing mass at oropharynx compromising the airway, right supraclavicular lymphadenopathy. Histology of biopsy from right tonsillar mass showed High grade B-cell lymphoma. Chemotherapy was planned. First cycle of chemotherapy was administered, Patient was discharged home with the complete plan of chemotherapy. **Conclusion:** This patient was clinically suspicious of carcinoma of palatine tonsil. But later proven as high grade B-cell lymphoma. All unilateral enlarged tonsils are not always carcinoma

Keywords: Unilateral tonsillar enlargement, Tonsillar carcinoma, B-cell lymphoma

A Rare Case of TB Elbow Synovitis in a Patient with Rheumatoid Arthritis: A Case Report

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ABSTRACT

Introduction: Tuberculosis (TB) of the elbow joint is uncommon. Prompt diagnosis and treatment are important to prevent joint destruction and preserve function. We present a case of TB synovitis of the elbow joint in a patient with active rheumatoid arthritis (RA). **Case description:** A 56-year-old woman with a known seropositive RA on methotrexate and Leflunomide was seen in the outpatient rheumatology clinic as part of her monthly follow-up. She complained of persistent bilateral elbow pain and swelling, despite optimisation of her disease-modifying antirheumatic drugs (DMARD) and steroid therapy. The suspicion for another diagnosis for her elbow symptoms stems from the persistent pain and swelling amidst increased titration of methotrexate and prednisolone dosages. Ultrasound scan of her elbows revealed bilateral complex olecranon bursitis with active synovitis. The left elbow aspiration yielded cloudy yellowish synovial fluid and the sample was sent for fluid culture, acid-fast bacilli (AFB) stain, and GeneXpert. No AFB was seen but the GeneXpert test confirmed the presence of Mycobacterium Tuberculosis. Thus, a diagnosis of TB synovitis of the left elbow was made, and she was promptly started on anti-tubercular therapy (ATT) consisting of Rifampicin, Isoniazid, Ethambutol and Pyrazinamide with the aim to complete 9 months of ATT. **Conclusion:** The diagnosis of tuberculous synovitis is challenging. In the absence of constitutional or respiratory symptoms, joint TB is usually low on the initial differential diagnosis in patients presenting with joint pain and swelling. The diagnosis is made even more difficult in patients with concomitant rheumatoid arthritis. This case demonstrates the importance of a high index of suspicion for TB, particularly when evaluating patients in high TB prevalence area with an underlying immunosuppressive state.

Keywords: Tuberculosis, Rheumatoid arthritis, Synovitis

Transudative Pleural Effusion in a Patient with Pleural Tuberculosis

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ABSTRACT

Introduction: Light's criteria for pleural fluid analysis has long been the standard for distinguishing transudates from exudates. In pleural tuberculosis, the resulting pleural fluids are usually exudates. We present a case of presumed transudative effusion which was eventually diagnosed as pleural tuberculosis. **Case description:** A 59-year-old man with end-stage renal failure (ESRF) on regular haemodialysis presented with a one-day history of acute onset dyspnoea associated with pleuritic chest pain and cough. Chest radiograph revealed bilateral pleural effusions and thoracentesis was done. The pleural fluid result was interpreted as transudative effusion according to Light's criteria because his pleural fluid to serum protein ratio was less than 0.5. AFB 1+ was seen in the pleural fluid with negative gram stain and culture. This resulted in conflicting opinions on whether to start this patient on anti-tuberculous therapy (ATT) and there was even a suggestion to get a second opinion for the possibility of AFB fluid contamination. The initial diagnosis was written as fluid overload secondary to ESRF but ATT was started anyway to cover for pleural TB. On further analysis of his pleural fluid, the pleural protein 32 g/L which on its own is a marker of exudative effusion. Subsequent investigations revealed the presence of exudative ascitic fluid which further raised the suspicion for a concomitant peritoneal TB. **Conclusion:** Premature conclusion that the pleural fluid was transudative occurred probably due to the bilateral nature of the pleural effusion associated with a known tendency for the patient to develop pulmonary overload secondary to his ESRF. This case is a reminder that Light's criteria also requires serum and fluid LDH measurement for the diagnosis of transudative pleural effusion. More importantly, a high level of suspicion for TB is important when evaluating patients from areas where TB is prevalent and a positive AFB result should not be taken lightly.

Keywords: Tuberculosis, Pleural effusion, Light's criteria

Risk Factors, Prevalence, and Co-Morbidities of Hypertension in Adult Villagers in Kampung Tajau Laut, Kudat, Sabah, Malaysia

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ABSTRACT

Introduction: Hypertension is a condition where there is persistently raised pressure in the blood vessels. In Malaysia, higher prevalence of hypertension could be explained by lifestyle factors such as higher rates of obesity, excess dietary intake of sodium and fat and lack of physical activity. The main objective of this study was to determine the prevalence, risk factors and co-morbidities of hypertension in villagers aged 18 years and above in Kampung Tajau Laut, Kudat, Sabah. **Methods:** Non-probability convenience sampling method was used to select a total of 210 villagers for interview, anthropometric examinations and blood pressure measurements. House to house and face to face interview by trained year four medical students done using a pretested validated questionnaire. The questionnaire contained data on socioeconomic status, tobacco use, physical activity, diet, extra-salt use, family history of hypertension, co-morbidity, anthropometric measurements and blood pressure. **Results:** Respondents noted to be hypertensive were 67.6%, and out of this, 61.3% were undiagnosed. There was a significant association between hypertension and family history (Chi-squared test=38.280, p=0.000), hypertension and smoking status (Chi-squared test=7.673, p= 0.006), hypertension and obesity (Chi-squared test= 8.731, p=0.003), hypertension and gender (Chi-squared test=5.126, p=0.024), hypertension and age (Chi-squared test=26.110, p=0.000) of respondents. There was no significant association between hypertension with vegetable intake, fruit intake, physical activity, marital status, ethnicity, economic status, level of education, and occupational status of respondents. Half of the known hypertensive respondents have comorbidities with most commonly being dyslipidaemia and diabetes mellitus. **Conclusion:** Hypertension was found to have a significant association with family history, smoking status, obesity, age and gender among the studied population.

Keywords: Hypertension, Prevalence, Risk factors, Co-morbidities

Prevalence and Sociodemographic Characteristics of Gestational Diabetes Mellitus among Pregnant Women in Tuaran District, Sabah: A Cross Sectional Study

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ABSTRACT

Introduction: Gestational Diabetes Mellitus (GDM) imposes a risk for both mother and child. Worldwide, it was estimated that GDM affects 1% to 28% of antenatal mothers. Previous studies revealed that prevalence of GDM ranged from 18.3% and 24.9% in Malaysia. This study was conducted with the aim of determining the prevalence of GDM among pregnant women and their sociodemographic characteristics in Tuaran District, Sabah State, Malaysia. **Methods:** A cross sectional study was done in four Maternal and Child Health (MCH) Clinics at Tuaran, Tamparuli, Tenghilan and Kiulu in Tuaran District which included all pregnant mothers at gestational period of 24 weeks and above who attended these clinics from May 2018 to June 2018. Convenient sampling method was used. Secondary data was obtained from antenatal book records and primary data was collected by interview method using pretested questionnaire. A total of 195 pregnant women participated in the study. **Results:** The overall GDM prevalence among pregnant women who attended MCH clinics for antenatal care in Tuaran District was 28.2%, (95% CI: 22.0%-35.1%, n=55). Distribution of GDM cases were 34.5%, 34.5%, 18.2% and 12.7% for MCH Tuaran, Tenghilan, Tamparuli and Kiulu respectively. Sociodemographic characteristics showed that majority of GDM was less than 35 years old of age (63.6%), multipara (60%), Kadazan/Dusun ethnicity (58.2%), attained secondary schools' education and above (91%) and earning > RM1000 per month (65.5%). Percentage according to potential risk factors were 25%, 21% and 20% for history of abortion, family history of diabetes mellitus and previous history of GDM respectively. **Conclusion:** Prevalence of GDM among pregnant women in Tuaran District was quite alarming. Further studies should be conducted about GDM and its determining factors for effective planning in strengthening GDM prevention and control programs.

Keywords: Prevalence, Socio-demographic characteristics, Gestational diabetes mellitus, Pregnant women, Tuaran

Melioidosis Transfusion Transmitted Infection in Beta Thalassemia Patient's

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ABSTRACT

Introduction: Transfusion Transmitted Infections is occurring worldwide. The common organisms related reported in literature were Human Immunodeficiency Virus, Hepatitis B and C Virus, bacterial contamination and Malaria parasites. Meanwhile, Melioidosis is endemic disease in Malaysia and especially Sabah. Mortality due to Melioidosis septicaemia was also high. It ranges between 60%-80%. In Sabah, 74% of Thalassemia children were diagnosed with Bacteraemia Melioidosis and 50% had died due to the organisms. The incidence of Melioidosis Transfusion Transmitted Infection is rarely reported in the literature. **Case Description:** A 17-year-old girl was diagnosed having Beta thalassemia major since 5 years old and splenectomised 8 years ago. Currently on prophylaxis Penicillin and Ex-jade. She was admitted into hospital for monthly blood transfusion. Two days prior to admission, patient complained of having sore throat and cough but no fever and other complained. On examination, the tonsil enlarged and was treated as exudative tonsillitis. She was transfused with 2 pint packed cells within 2 days. No transfusion reaction noted. Day seven admission, she had high grade fever and redness of the right hand cannulation site and was treated as right hand cellulitis with intravenous Cloxacillin. Full blood count shows Total White Cell count was $24.9 \times 10^9/L$, Haemoglobin level was 9.3 g/dl and Platelets was $462 \times 10^9/L$. Blood for culture and sensitivity was taken and Chest X-ray noted haziness over the left mid and lower zone of the lung and was treated as Hospital Acquired Pneumonia. She was referred to tertiary hospital for further management. Her conditioned deteriorated and died at the casualty unit in the tertiary hospital. Blood culture was positive for *Burkholderia pseudomallei*. The case was reported to District health office for further investigation. Blood donor tracing was done and was positive for Melioidosis through Elisa Antibody titre IgM for Melioidosis (1:320). The patient's house and school were visited and investigated. All environmental samples were negative for *Burkholderia pseudomallei*. **Conclusion:** Its shows a relationship between blood donations infected with *Burkholderia pseudomallei* causing mortality of Beta Thalassemia patients. It is highly recommended to screen all blood products for communicable disease fatal organisms.

Keywords: Beta thalassemia major, Melioidosis, Blood transfusion, Infection